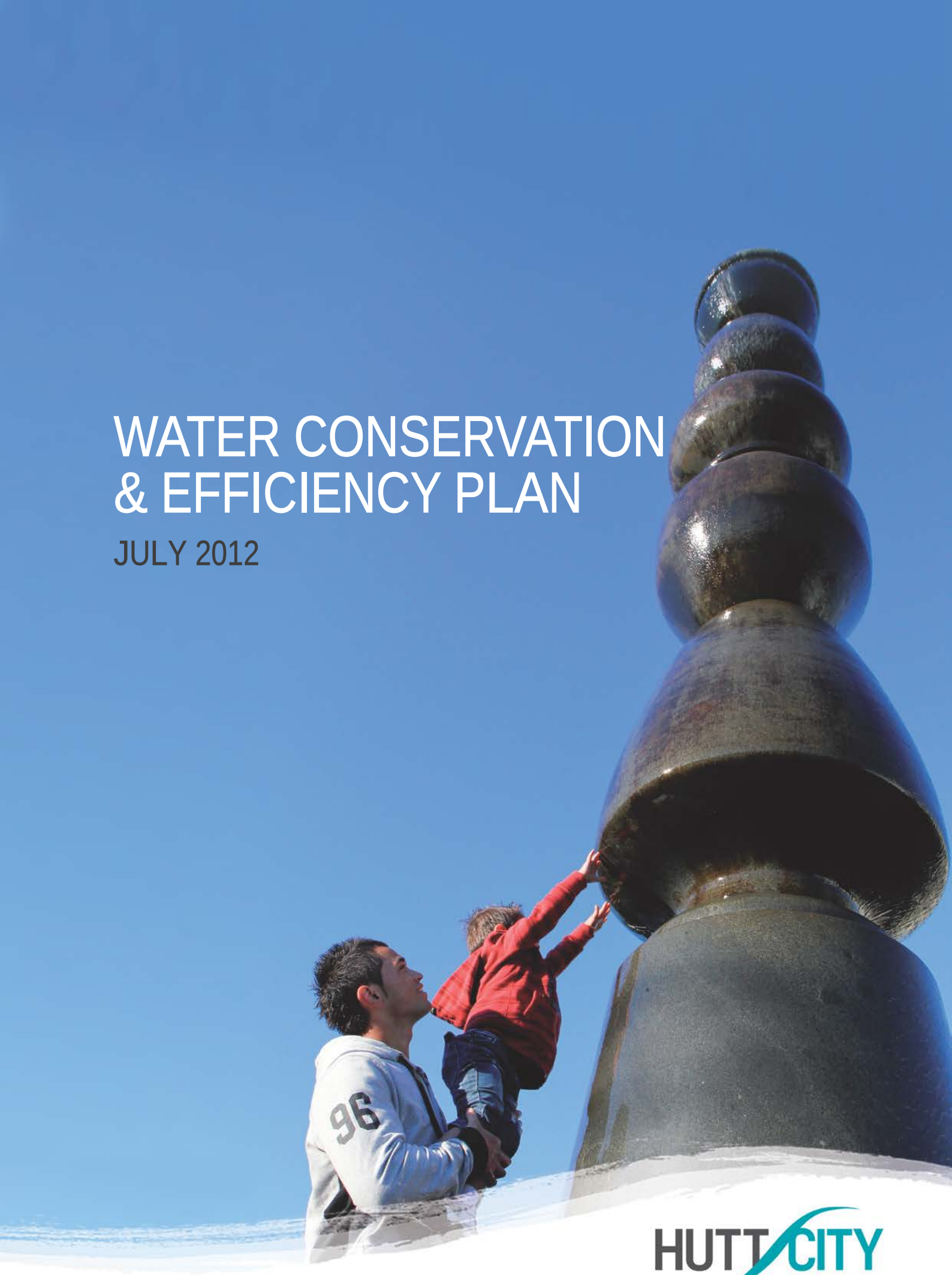
WATER CONSERVATION & EFFICIENCY PLAN

JULY 2012



Te Puni Wai Ora, Buick Street

HUTT CITY
TE AWA KAIRANGI

INTRODUCTION

Water is a fundamental need for people and businesses. It's critical for our health, well-being and prosperity.
A city cannot function without a safe, reliable water supply. The Hutt City Council ensures a steady supply of clean, safe, drinkable water is available to residents and commercial users at all times.

This plan sits under the Environmental Sustainability Strategy 2009-14, developed by the Council to identify environmental sustainability issues and develop actions for responding to these. For water, the strategy's key objective is: more effective use of the reticulated water supply.

Water use is measured as part of the work Council does to protect the natural environment and promote a sustainable city.

Access to water is both a right and a responsibility. We should all be able to turn on the tap to receive a clean and drinkable supply, but we must also understand that as water users, we need to manage our habits to preserve this supply for the future.

We have a target to achieve a reducing trend of use over five years.

This plan outlines the path Hutt City Council will follow in order to achieve this in the face of a growing population, uncertainty over the changes in our climate and a changing built environment. Our target for residential per capita water consumption is 240 litres per day for 2013, with a further reduction to 230 litres per day by 2018.[1]

In conjunction with Council, the activities described in this plan will be implemented by Capacity Infrastructure Services, the organisation jointly owned by Wellington and Hutt City Councils, and responsible for delivering water services for its owners, as well as for Upper Hutt City Council.

Managing our water use

Limited supply options and the likelihood of increased demand for water in Hutt City mean that Council and its partners need to consider two primary responses:

- Increase supply capacity
- Reduce demand

Increasing supply capacity means taking steps such as building a new storage lake or a new dam, or asking people to supplement water supply with private tanks. All of these options can be expensive. Without a capacity increase, there would be greater demand on our two primary sources of supply, the Hutt River and the Hutt Valley aquifer, and so potential for increased impacts to either or both of these resources.

Reducing demand involves encouraging users to use less. Many actions that reduce usage cost very little or nothing.

The cornerstones of this plan are conservation and efficiency. That is, using less and, where we do need to use water, making sure we use it efficiently.

Conservation is where we do fewer things that use water. This includes:

- watering the garden less frequently
- not washing the car
- only running the dishwasher when it's full
- showering for shorter periods

Conservation usually involves people changing their behaviour. As a consequence, sustaining water conservation can be difficult over long periods of time. But if it can be achieved then conservation measures are generally low cost and can be implemented straight away.

Conservation is also a very important tool when water supplies become unusually low, such as in severely dry summers or after natural events that disrupt water supplies. In these circumstances some water conservation measures may be imposed by Council and may be compulsory. Ensuring that water conservation knowledge and information is correct, relevant, understood and communicated are key components of implementing the plan and achieving results.

Efficiency on the other hand is when we use new hardware or management techniques to get the same level of benefits from less water.
Examples include:

- installing low-flow shower heads
- using front loading washing machines

[1] Note: in the base period 2006/2007, consumption was 250 litres.

- applying mulch to gardens
- fixing leaks

Rainwater tanks and grey-water systems are also examples of efficiency measures. Water efficiency measures are more sustainable over time, since people generally do not need to change their behaviour for them to be effective. However, they tend to be more expensive and take longer to implement.

Background

Our water supply is sourced from the Hutt Valley aquifer, the Hutt River, which supplies the Te Marua water storage lakes and treatment plant, and the Wainuiomata and Orongorongo rivers. The majority (around 75%) comes from the aquifer.

The following map (Figure 1) shows where the different areas of Hutt City draw their water from. The three sources and their associated suburbs are:

- Stokes Valley and Manor Park - Kaitoke (Headwaters of Hutt River)
- Wainuiomata - Wainuiomata and Orongoronga rivers
- Valley floor, Western Hills, and Eastbourne - Aquifer

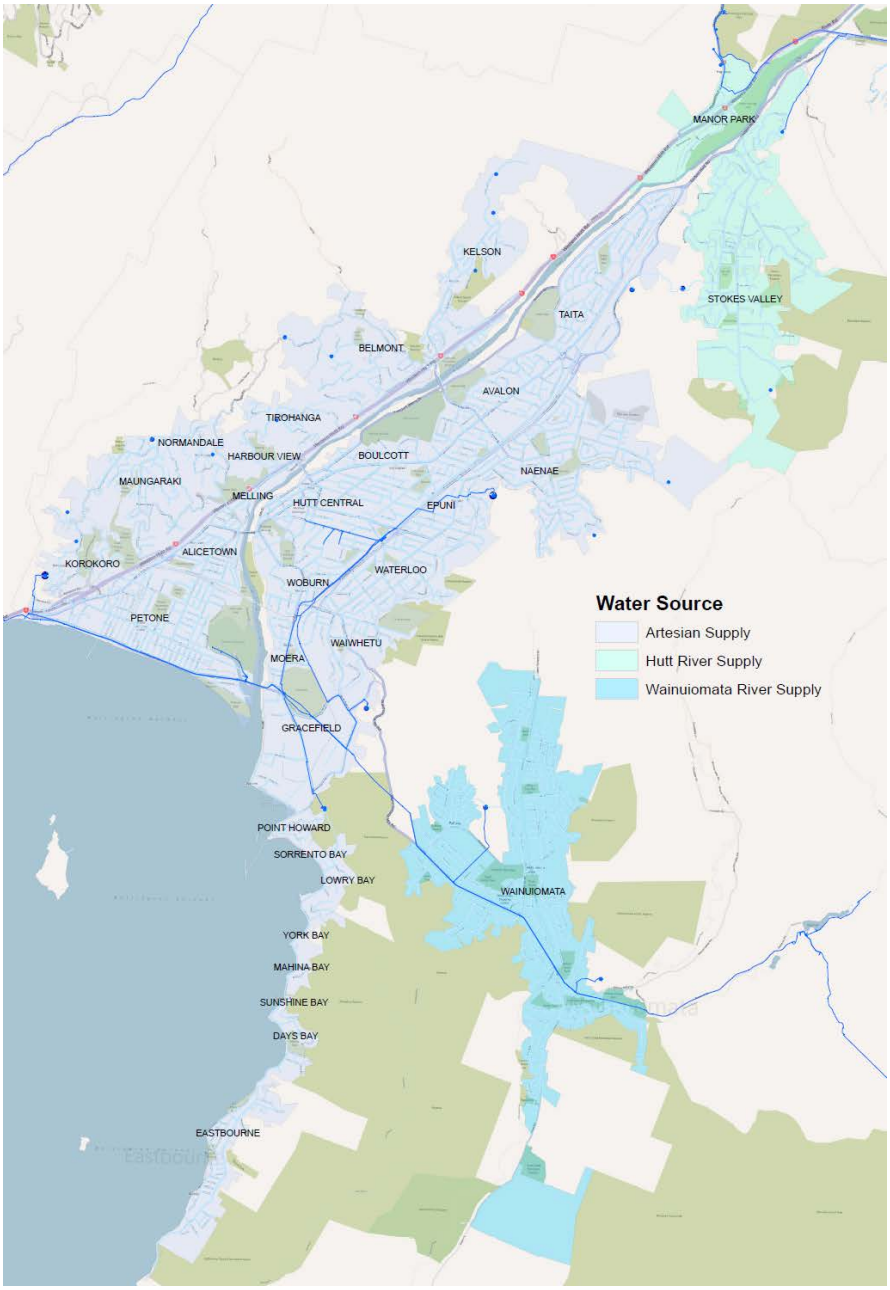


Figure 1: Water Sources for Hutt City

Greater Wellington Regional Council collects and treats all tap water used in Lower Hutt, after which it is stored in several reservoirs in the city before being distributed to the public.

Only a small percentage of our daily water demand is met by water from the storage lakes, while resource consents restrict the amount of water that can be drawn from the rivers and aquifer.
This means that climatic conditions and spikes in consumption – or peak demand – can significantly affect supply.

Addressing peak demand is one way in which we can maintain a stable level of consumption in the short term. In the medium to longer term, increased efficiency and changes in our water use behaviour will help us reduce average water use per person.

The city's average water demand (see green line Figure 2, below), has been tracking downwards over the past four years but is now levelling out. This is believed to be a result of weather conditions, increasing use of water efficient technologies, and Council investment in leak detection and repair programmes.

Looking ahead, demand is likely to rise incrementally in line with the city's growth. Household growth over the next 10 years is forecast at 7% (252 households per annum). On top of this residential expansion is the growth and development of businesses.

The activities listed in this plan are intended to introduce a culture of conservation and efficiency based on increased knowledge within our communities about the issues, options and potential outcomes for a water efficient city.

"Consider installing a free-standing rainwater tank - Council will waive the building consent fee."

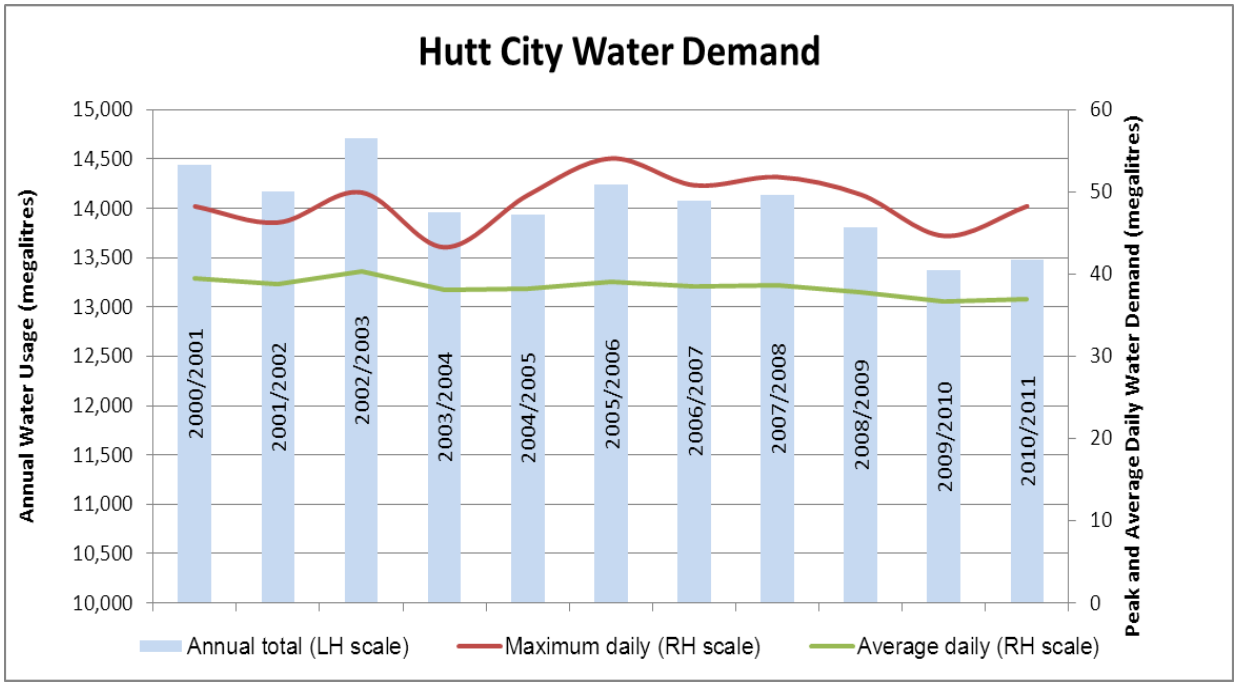


Figure 2: Hutt City's annual water demand with daily average and peak demand

Identifying demand

The graph shows Hutt City's annual gross consumption and daily averages and also the peak daily demand for the months of December, January and February. When we think about the infrastructure necessary to ensure a secure supply of water, the key factor is not the total annual demand, but the peak demand during dry periods.

Our water demand sits in three key areas or groupings – residential, commercial (which includes council usage for housing, parks and gardens) and unaccounted-for water (which includes public and private leaks, fire-fighting, unauthorised connections, theft, un-metered commercial usage and network operations).

We intend to realise the potential for reducing demand in all three of these categories.

All commercial properties require a meter under the Council's Water Supply Bylaw 2010, and their usage will be monitored as part of this plan (see Activity 5). Note that Hutt City Council has no intention of introducing water meters for residential users.

As stated in the Environmental Sustainability Strategy 2009-14, Hutt City Council will lead by example by working to efficiently use water in its high-consumption activities – for example, parks and reserves; aquatics and recreation. As an organisation that uses large volumes of water, it is important Council improves efficiency for practical as well as exemplary reasons.

Experience both in New Zealand and overseas indicates that a combination of approaches is necessary to manage increased demand. Accordingly we have structured a two-year plan designed to raise community awareness on water conservation issues. The aim of this plan is to work towards sustainable water management by minimising wastage and improving water conservation and efficiency knowledge across the council, businesses and the city's residents.

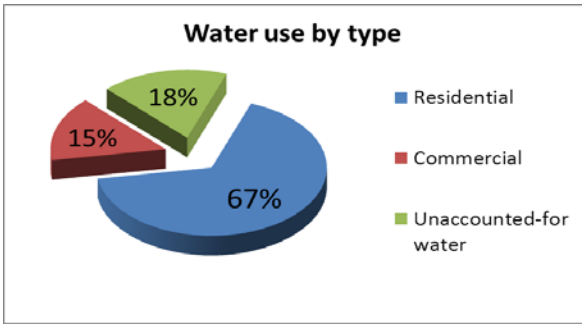


Figure 3: Hutt City's water consumption by main user type

Unaccounted-for water includes council use, fire-fighting, and leaks from public and private networks.

PLANNING OUR FUTURE

The following activities are planned for implementation over the next two - three years. There are six activities designed to reach different parts of our community at different levels.
The focus is primarily on education, informing the community and ensuring provisions are in place to advance conservation and efficiency while addressing wastage.

ACTIVITY #1	IMPACT AREA	ACTION	OUTCOMES
Community engagement, education and information programme	Council Residents Commercial users	Further develop and potentially refocus environmental education and information programmes to raise community awareness of water conservation and efficiency. Further develop and implement new programmes to actively promote efficiency options to homes, schools, and businesses. Raise awareness of Council's Eco Design Advisor service, which includes advice on water conservation.	Increased knowledge of water issues and conservation options across all water users (monitor outcome by survey). Increased participation in water conservation and efficiency programmes (monitor outcome by survey). Reduced residential water consumption to meet the residential per capita target of 240 litres per day in 2013. Water 'surveys' confirm effects of conservation and efficiency initiatives at selected or nominated sites (for example, Greater Wellington's regular water restriction awareness survey). Improved awareness of summer watering restrictions (monitored by number of infringements and by general survey).
Timeframe	2012 start		
	2014 review		
Reporting	Annual report of survey results		

This activity is intended to increase the awareness of the water conservation and efficiency issues facing Hutt City. It will provide information to businesses, schools, clubs and residents as to what technologies are available to meet their individual needs.

We recognise that different options are not always suitable across the city and will endeavour to target our engagement to specific communities as much as we can.

Information in the programme might include:

- how mulch and water-efficient plants and irrigation tools can reduce the water needs of lawns and gardens
- how water-efficient appliances such as front-loading washing machines can reduce water consumption and save money on power
- how bathroom fittings can save water without reducing the benefits of a shower
- how simple actions around the home and business can save water and potentially energy costs
- what options are available for rainwater harvesting, grey-water recycling and what steps need to be followed
- how to check for leaks around the house
- reporting leaks to the Council
- how to calculate their own water consumption or see how efficient their shower is
- where to find information on water conservation and efficiency or purchase water-efficient goods and services

Hutt City restricts the use of sprinklers and unattended garden hoses when daylight saving is in place. These can only be used on alternate days between 6am-8am and 7pm-9pm.

- If you have an even-numbered address you can use garden sprinklers or unattended hoses on even days of the month (2nd, 4th, 6th etc).
- If you have an odd-numbered address you are allocated odd days of the month.

You may use a hand-held hose or watering can at any time.

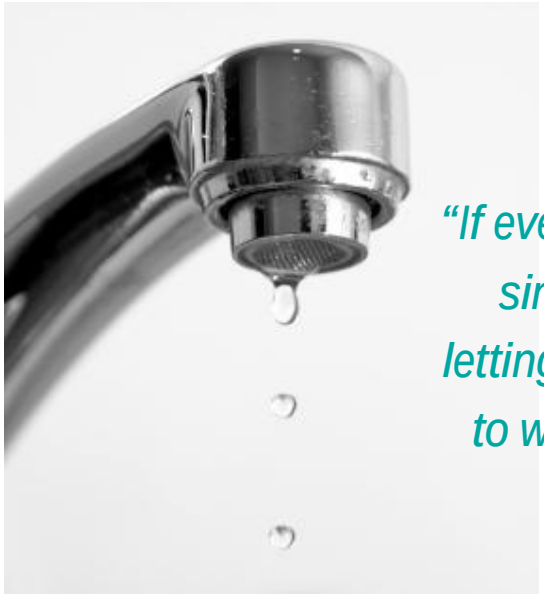
These restrictions apply to all properties on town supply in Lower Hutt.

This is intended to ensure that watering restrictions are effective but also equitable. Studies into the application of the use of restrictions show that short-term demand can be reduced by as much as 40%.

Raising awareness of these restrictions would also be part of the programme.

ACTIVITY #2	IMPACT AREA	ACTION	OUTCOMES
Analysis and publication of Hutt City water consumption figures	▪ All water users ▪ Council	▪ Undertake more detailed analysis and publish water consumption figures by geographical area. ▪ Assessment of patterns of residential water consumption,(The study aims to monitor 50 properties by the end of 2012 and another 100 by July 2013).	▪ Ability to target conservation messages by area. ▪ Recognition of water savings and the success of water conservation initiatives. ▪ Increased knowledge of water consumption patterns and behaviours.
Timeframe	2012		
	2013 survey		
Reporting	Annual report of survey results		

This activity is intended to augment Activity #1 and provide an increased understanding of the city's water consumption. It will also provide a published report on the effectiveness of initiatives as they are introduced – this will allow initiatives to be developed further or reduced in line with their respective levels of success.



"If every second house in Lower Hutt has a single dripping tap or cistern, we are letting 370 million litres of treated water go to waste (2.75% of total annual usage)."

The following three activities run alongside the two primary tasks outlined above. These are intended to allow gains in water conservation and efficiency to be made through a 'business as usual' approach.

ACTIVITY #3	IMPACT AREA	ACTION	OUTCOME
Engage retailers and service providers in order to advance water efficiency and conservation goods and services	▪ All water users ▪ Council	▪ Continue to develop working relationships with retailers and service providers that can increase awareness of, and access to, water conservation and efficiency appliances, fittings and services. ▪ Further promote existing initiatives to increase the attractiveness and application of water-efficient technologies and practices. ▪ Survey to measure results.	▪ Increased knowledge of Water Efficiency Labelling Scheme (WELS) regulations. ▪ Increased uptake of water-efficient technologies and practices.
Timeframe	2012		
	2013/14 survey		
Reporting	Annual report of survey results		

This activity is intended to maximise the level of information available to consumers about technologies and services available in Hutt City and the wider Wellington region. Work has already been done by Greater Wellington Regional Council and this will dovetail with that initiative and the work of other councils.

Although the replacement of older, less-efficient water fittings and appliances will follow a natural course, it will require an increased level of participation if there is to be an acceleration of this process. The introduction of dual-flush or low-volume toilets, low-flow showerheads, front-loading washing machines, efficient dishwashers, rainwater harvesting, grey-water recycling and designed irrigation systems has resulted in the possibility of water and energy savings that are attractive to different water consumers.

It is important that opportunities to conserve water and energy are recognised across the community. We will work with retailers and service providers across the city to make sure we maximise the potential for efficient technologies to be promoted and implemented.

We expect this initiative will lead to consumers and businesses seeing the benefits of making a conscious decision to investigate water efficient fittings and appliances for their home or business.

ACTIVITY #4	IMPACT AREA	ACTION	OUTCOME
Investigating the scope and options for supporting the implementation of water conservation initiatives	▪ All water users ▪ Council	▪ Establish the scope and options for supporting more commercial or private water conservation and efficiency initiatives. ▪ Increase awareness of Central Government business development grants that can partly subsidise water conservation as a process improvement measure. *[Note: this does not imply that this will result in subsidies or incentives.]*	▪ Improved understanding of options. ▪ Effective conservation initiatives implemented.

ACTIVITY #4	IMPACT AREA	ACTION	OUTCOME
		▪ Continue to provide information to those wishing to invest in water-saving measures such as rainwater tanks.	
Timeframe	2012		
Reporting	Report to Council 2013		

This activity will allow the council to explore new initiatives as they become known with a good understanding of the costs and benefits to Hutt City and how an initiative might affect other areas of the water supply operation.

ACTIVITY #5	IMPACT AREA	ACTION	OUTCOME
Targeting top 25 commercial users to establish opportunities to make their operation more water efficient	▪ Council ▪ Commercial users	▪ Capacity will establish working relationships with the 25 highest water consumers in Hutt City. ▪ Identify opportunities to reduce consumption for targeted commercial water users.	▪ Reduced consumption across the 25 highest users.
Timeframe	2012		
Reporting	Report to Council 2013		

Overseas studies and water conservation literature indicates that water loss from commercial buildings is largely from leakage and inefficiencies – it has been calculated that this could be as high as 26% on average.

This represents an opportunity to identify whether greater levels of efficiency can be introduced to our commercial water customers. In the first stage the 25 highest consumers will be identified and contacted with an invitation to work collaboratively to reduce their water consumption. The majority of commercial water customers in Hutt City pay directly for the volume of water that their enterprise consumes – accordingly reductions in consumption should provide a long-term financial benefit as well.

Should this prove successful other commercial customers will be approached or invited to participate in a similar scheme.

We will also focus on commercial premises that are not currently metered for volumetric charging as a means of reducing our un-accounted for water.

ACTIVITY #6	IMPACT AREA	ACTION	OUTCOME
Ongoing analysis of leak detection work, as well as cost-benefit analysis of pressure management within the public network	▪ Council	▪ Set annual budget for leak detection to the point where economic return is maximised. ▪ Pressure management options assessed for high pressure zones.	▪ Improved leak detection. ▪ Fewer leaks and bursts, less damage and inconvenience, reduced damage to consumer fittings.
Timeframe	2012		
Reporting	▪ Annual reporting of leak detection programme outcomes ▪ Annual reporting of water savings due to pressure management		

ASSESSMENT AND REPORTING

Ongoing assessment of initiatives and activities is included to ensure that they remain both relevant and effective. Where activities are proving to be successful they will be evaluated for use in other areas of the community.

The development and implementation of the 'primary' activities will be reported back to Hutt City Council in August 2013. Incorporating information from surveys, this report will confirm the implementation of the activities, assess their relative performance in achieving the stated outcomes and identify any further development that might be required within the task to make it more effective.

Reporting will also identify how the activity will be further advanced across the city and provide for updated performance targets or outcomes.

Some water facts to consider……

A dripping tap or toilet cistern can waste 20,000 litres of water over a year – for a single person using 230 litres per day this equates to 24% of consumption.

If every second house in Lower Hutt has a single dripping tap or cistern, we are letting 370 million litres of treated water go to waste (2.75% of total annual usage).

A tap aerator can save around nine litres per minute.

A 'WELS' 3-star showerhead used daily for a six minute shower will use 20,000 litres less than some of the old showerheads that may use 20 litres each minute.

The average frontloading washing machine uses almost 50 litres per wash less than the average top-loading machine.

Using your washing machine or dishwasher only for full loads can both save water and reduce your electricity bill.

Garden mulch can reduce moisture loss by up to 70% - reducing the need to water.

Some water conservation tips……

Water your lawn only when it needs it. If you step on the grass and it springs back up when you move, it doesn't need water. If it stays flat, it does need water.

Adjust sprinklers so only your lawn is watered and not the house, driveway, footpath or street.

Water your plants deeply but less frequently to encourage deep root growth and drought tolerance.

Condition your soil to hold water - wetting agents and water storing polymers dramatically improve moisture penetration and retention in soils. These treatments need only be applied once a season.

Use liquid fertilisers to promote plant growth without raising salt levels in the soil.

Consult with your local nursery for information on plant selection and placement for optimum outdoor water savings.

Consider installing a rainwater tank for outdoor use – Council will waive your building consent fee for these.

"Water your lawn only when it needs it.
If you step on the grass and it springs back up
when you move, it doesn't need water.
If it stays flat, it does need water."

Further information

Further information on water conservation and efficiency can be found by calling Hutt City Council's Eco Design Advisor, Sarah Fleet on 04 570 6927 or 027 461 0363 OR at the following web addresses:

- www.huttcity.govt.nz/en/Services/Water-services
- www.gw.govt/water - for water conservation tips and regional promotions
- www.mfe.govt.nz/issues/water/wels-scheme/index.html - for information on the Water Efficiency Labelling Scheme