

ENVIRONMENT

OUR APPROACH

Wellington's record at preserving and enhancing the environment is relatively good. The city has large areas of protected reserve and open space land, high quality botanical gardens, a safe water supply, and efficient systems for dealing with waste and wastewater.

But, like all cities, we face significant environmental challenges. The most important of these is the need to reduce or offset greenhouse gas emissions, but others include encouraging efficient use of resources such as water, managing pests and promoting biodiversity, and continuing to reduce the amount of solid waste the city produces.

We're working to understand these challenges. After all these are the foundations on which Wellington is built.

CASE STUDY: WELLINGTON'S WATER SUPPLY

Water isn't as free as you might think.

Late in 2008, the first water is expected to flow from a new 1.3 million litre water reservoir tucked away in the hills between Newlands and Tawa.

Feeding the city's new Lincolnshire Farms greenfields development, the reservoir will serve more than 1100 new homes and a business park. At 30m around and 6m deep, the reservoir cost \$1.84 million to build and used more than 700 cubic metres of concrete.

Construction was substantially completed during 2007/08, with testing being carried out during the first few months of 2008/09 before the reservoir is commissioned.

The reservoir is just one example of the significant infrastructure involved in meeting the city's water needs. Most Wellington households pay no direct charges for the amount of water they use – instead water is charged at \$112 per household a year.

Wellington's water is gathered north of the city from the Hutt and Wainuiomata River catchments. It is treated to make it drinkable at one of four Greater Wellington Regional Council treatment plants, before being pumped to Wellington.

Conservation is a significant issue.

Greater Wellington's water assets are worth almost \$300m and Wellington City Council's – including hundreds of kilometres of pipes, as well as reservoirs and pumping stations – at \$600m.

With Wellington's climate, it's easy to assume that water is free and abundant, but that's not the case. The amount of water used in the region every day would fill Westpac Stadium, and water conservation is a significant issue.

Already, the region's population has reached a level where demand for water may outstrip supply in dry years.

Greater Wellington is developing options to increase supply, but building new water assets is costly both for ratepayers and for the environment. Concrete is responsible for an estimated 5% of the world's greenhouse gas emissions – twice as much as air travel.

Water conservation can make a significant difference – reducing or deferring the need for new infrastructure. This year, garden watering restrictions have helped to reduce the city's per capita water usage by a significant amount.

PROGRESS TOWARDS OUR OUTCOMES

MORE LIVEABLE – WELLINGTON WILL PROVIDE A WIDE RANGE OF SOCIAL AND RECREATION OPPORTUNITIES THAT DON'T COMPROMISE ENVIRONMENTAL VALUES.

We maintain more than 35 square kilometres (188 m²/ person) of reserve land, as well as botanic gardens, beaches and coastline. Resident usage of the city's open spaces (28% of residents use at least once a month) has continued at similar levels for the last two years.

STRONGER SENSE OF PLACE – WELLINGTON WILL VALUE AND PROTECT THE CITY'S NATURAL HERITAGE.

Most Wellington residents (75%) continue to think the city's natural environment is appropriately managed and protected.

BETTER CONNECTED – A NETWORK OF GREEN SPACES AND CORRIDORS WILL LINK THE COAST AND BUSH AREAS.

We provide 365km of tracks and walkways throughout the city linking open space and bush areas. In recent years we have taken steps to expand and improve the quality of these walkways – for example, through development of the Skyline Walkway in the Outer Green Belt.

MORE ACTIVELY ENGAGED – THE COMMUNITY WILL FEEL A SENSE OF KAITIAKITANGA/GUARDIANSHIP OVER THE NATURAL ENVIRONMENT.

We support community groups, schools and organisations that work to maintain and improve the city's natural environment. Volunteer environment groups worked more than 7,500 hours on programmes throughout the city during the year. The contribution made by volunteers has steadily increased in recent years.

MORE SUSTAINABLE – THE CITY WILL REDUCE ITS IMPACT ON THE ENVIRONMENT THROUGH MORE EFFICIENT USE OF ENERGY, WATER, LAND AND OTHER RESOURCES, AND BY MINIMISING WASTE.

The amount of waste the city deposits in the landfill has dropped from 430kg per person in 2005/06 to 360kg per person in 2007/08 (a 16% decrease). The amount of water used by the city has dropped sharply from 167,000 litres per person in 2005/06 to 161,234 litres per person in 2007/08. This is the likely result of water restrictions being applied during the summer.

We contribute to this outcome by facilitating and supporting projects that encourage environmental sustainability and provide services such as recycling, waste minimisation and water provision.

SAFER – WELLINGTON'S WATER WILL BE SAFE TO DRINK, ITS AIR SAFE TO BREATHE, AND WASTE WILL BE DISPOSED OF IN WAYS THAT MINIMISE HARM.

Central city air quality (measured by Wellington Regional Council at one city location) meets acceptable regional and national guidelines. Regional energy use per resident has remained broadly stable between 2006 and 2007 at 8.7 MWh/ person.

We contribute to this outcome through our management of the water network, stormwater and sewage network/treatment plants, landfill and recycling, as well as through efforts to encourage sustainable forms of transport.

HEALTHIER – NATURAL ECOSYSTEMS WILL BE RESTORED SO THERE ARE HEALTHY HABITATS FOR INDIGENOUS AND NON-INDIGENOUS PLANTS AND ANIMALS.

The number of native birds is generally increasing in reserves we monitor. Tui numbers have been increasing since 2001. Kereru numbers appear to be slowly increasing. Silvereye are now common and bellbirds remain in the city after a long absence until 2002. Fantail numbers fluctuate and there has been little change in kingfisher numbers.

We contribute to this outcome by controlling pest plants and animals, and supporting projects that nurture natural ecosystems – including the Karori Sanctuary.

OUTCOME: MORE COMPETITIVE – WELLINGTON'S HIGH QUALITY NATURAL ENVIRONMENT WILL ATTRACT VISITORS, RESIDENTS AND BUSINESSES.

More than 316,000 people visited the Karori Sanctuary, Wellington Zoo and Otari Wilton's Bush (up from 288,000 in 2005/06). We support these attractions and are working to develop others such as the Carter Observatory and Marine Education Centre as part of a science and nature 'cluster' for the city.

We contribute to these outcomes through:

Gardens and beaches	pxx
Green open spaces	pxx
Water	pxx
Wastewater and stormwater	pxx
Waste reduction and energy conservation	pxx

GARDENS AND BEACHES

Our aim for the city's gardens and beaches is to care for these areas in ways that balance nature with opportunities for enjoyment.

Our activities that contribute primarily to this include:

- **Local parks and open spaces** – we manage and maintain the city's parks and open spaces, along with buildings and other assets.
- **Botanic gardens** – We manage and maintain the city's four botanic gardens – Wellington Botanic Garden, Otari Wilton's Bush, Bolton Street Memorial Park and Truby King Park.
- **Beaches and coastal operations** – we manage and maintain the city's beaches and coastal areas.

WHAT WE DID

We installed the Sakai Cherry Walk Garden in Katherine Mansfield Park.

The centrepiece of this garden is a walk of 28 Japanese cherry blossom trees which will blossom spectacularly in September and October. The Japanese garden was funded by Sakai City in Japan, one of our sister cities.

We upgraded Cog Park, north of Hataitai Beach.

This involved the removal of seven dilapidated buildings and the construction of two purpose built club buildings by the Wellington Cadet Centre Trust.

Road and sea access was improved, and repairs made to the seaward edge of the park to prevent undermining. We also installed a fenced all-weather surface for recreation and club events, and planted an avenue of Maori Princess pohutukawa trees.

In the 2008/09 year we will be installing in the park the 17-tonne, 4.5 metre cog that was the driving wheel for the former Evans Bay patent slip, a significant local landmark that gives the park its name.

The park at Scorching Bay Beach was upgraded.

We constructed seawalls to protect the area from erosion, added new footpaths and a new play structure, installed three mobility parks and an outdoor shower area, and planted new native plants around the park.

We received funding for this from the Plimmer Bequest Fund. We also installed a low level platform at the Evans Bay Yacht club to help disabled sailors gain access to the water.

Work was completed on an entrance to the Red Rocks seal colony.

The new building on the site of a former quarry building provides shelter, interpretation panels and toilets, and welcomes visitors to the nearby seal colony and rugged coastline along Red Rocks and Sinclair Head.

The car park has also been landscaped with rocks, recycled timbers and 3,500 locally sourced native plants. Tourism NZ helped the site by funding the interpretation panels.

Oriental Bay was awarded pilot 'Blue Flag' environmental status.

'Blue Flag' is an independent programme run by the international Foundation for Environmental Education. To gain accreditation we must meet environmental education and information, water quality, environmental management, and safety and services criteria.

We achieved pilot "Blue Flag" status for the Oriental Bay beaches for the summer bathing season (1 December to 31 March 2008). We continue to work towards full "Blue Flag" accreditation for the Oriental Bay beaches for the next bathing season (1 December to 31 March 2009).

The Botanic Garden Treehouse hosted the very popular Herbarium Amoris exhibition.

This featured more than 40 large, dramatic, close-up photographs of flowers by Swedish photographer Edvard Koinberg. The photos are a tribute to Swedish botanist Carl Linnaeus, who created the naming system for plants and animals 300 years ago that is still used today. Koinberg's tribute has been immensely popular, with 11,000 visits over its two month duration.

Spring Festival and other events also proved popular.

At our annual Spring Festival in September, some 24,000 tulips, along with magnolias, azaleas and other spring flowers bloomed, and visitors were able to check out the stone, wood, steel and willow sculptures and artworks displayed among the tulips.

In summer, the Sound Shell hosted its annual series of free music concerts, including the Warratahs, OdESSA, and an eclectic mix of jazz, string quartets, and barbershop singers.

The Botanic Garden hosted a family fun day in November to coincide with the Wellington Rose Society's annual rose show. Visitors could experience the colours and scents of some 3000 rose bushes in full bloom at the Lady Norwood Rose Garden.

Ongoing maintenance included removing dangerous pine trees, and dredging the duck pond.

Botanic Garden Curator Jasmine Zimmerman won the Regional Amenity Sector finals of the Young Horticulturalist of the Year competition. She goes on to compete in the national finals in November.

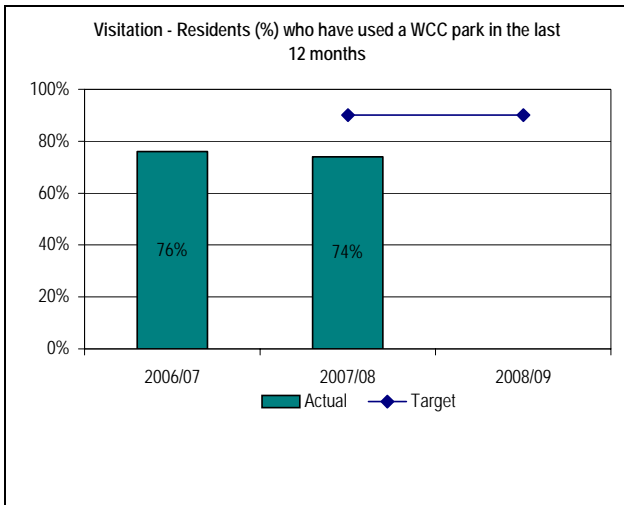
Otari Wilton's Bush held a popular open day and plant sale.

Held during Conservation Week in August 2007, the open day featured the provision of 2000 native plants for sale, including Marlborough rock daisies and Chatham Island forget-me-nots which have proved popular in past years.

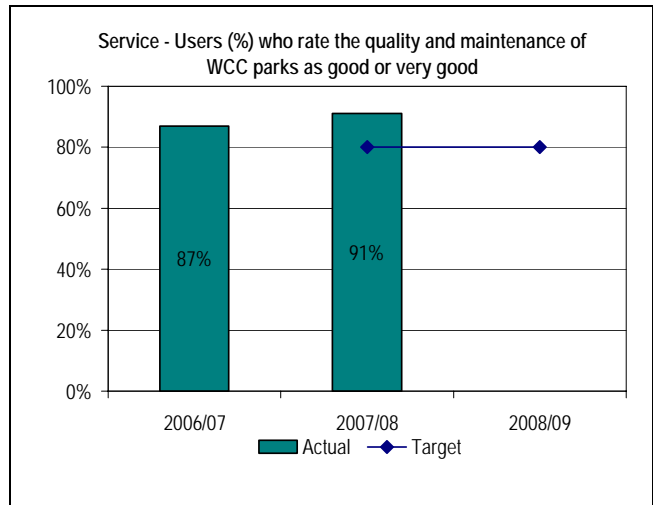
The day included talks and bush walks, presentations and stalls, and a cooking demonstration of recipes from plant ecologist John Sawyer's new book, *Gourmet Tramping in New Zealand*.

We also finalised our Otari-Wilton's Bush Native Botanic Garden Management Plan and are working on its follow up, the Landscape Development Plan for the area.

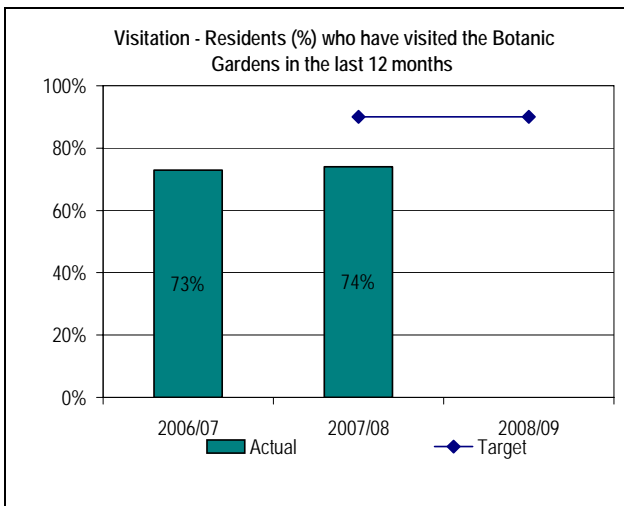
HOW WE PERFORMED



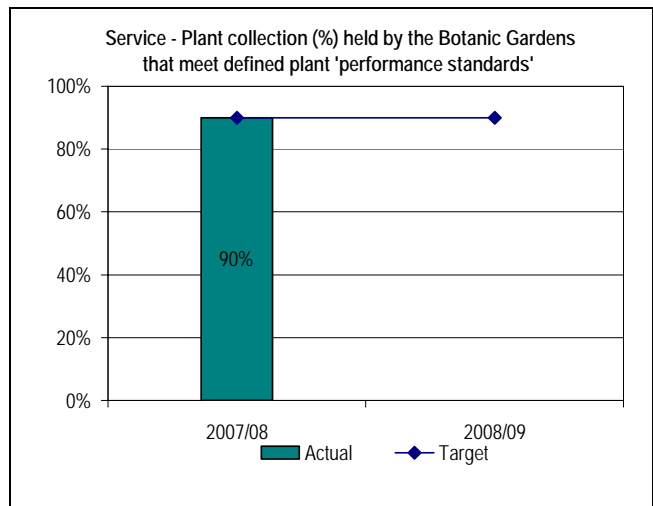
Source: WCC Resident Survey 2008 (Activity 4.1.1 Local Parks and Open Spaces)



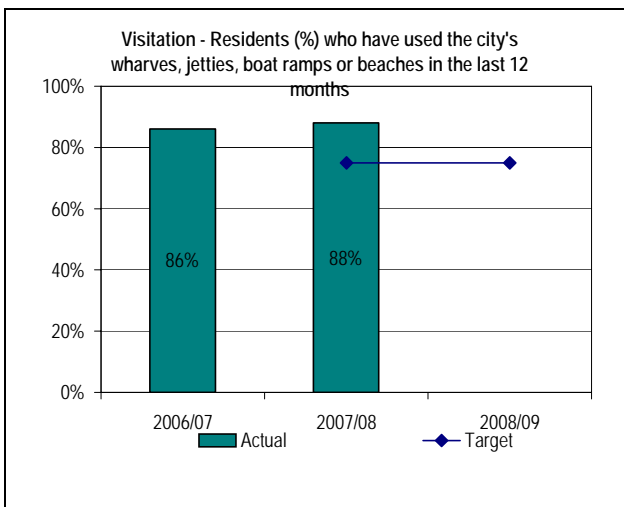
Source: WCC Resident Survey 2008 (Activity 4.1.1 Local Parks and Open Spaces)



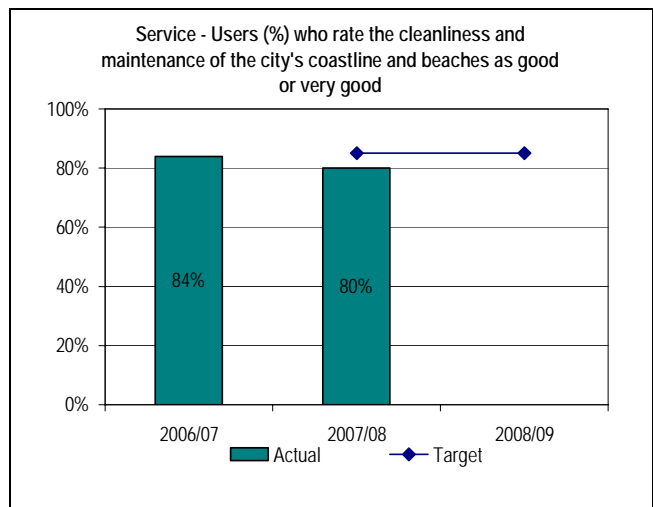
Source: WCC Resident Survey 2008 (Activity 4.2.1 Botanic gardens)



Source: WCC Parks and Gardens (Activity 4.2.1 Botanic gardens)



Source: WCC Resident Survey 2008 (Activity 4.2.2 Beaches and coastal operations)



Source: WCC Resident Survey 2008 (Activity 4.2.2 Beaches and coastal operations)

COMMENT:

We have targets to increase the usage of our gardens and beach areas. Only one out of three of these targets was met. Of the residents who have used the city's gardens and beach areas, most are satisfied with the maintenance and cleanliness of these areas. We have a number of projects and programmes focused on promoting and improving the usability of our gardens and beach areas, and hope to see an increase in the usage of these areas in the coming year.

WHAT IT COST

GARDENS AND BEACHES				
	2008	2008	2008	2007
Operating Expenditure (\$000)	Actual	Budget	Variance	Actual
Local Parks and Open Spaces (4.1.1)				
Cost	7,015	7,092	77	6,588
Revenue	(594)	(487)	107	(512)
Net Cost	6,421	6,605	184	6,076
Botanical Gardens (4.2.1)				
Cost	4,053	3,850	(203)	3,853
Revenue	(541)	(478)	63	(490)
Net Cost	3,512	3,372	(140)	3,363
Beaches and Coast Operations (4.2.2)				
Cost	990	896	(94)	852
Revenue	(132)	(68)	64	(67)
Net Cost	858	828	(30)	785
	2008	2008	2008	2007
Capital Expenditure (\$000)	Actual	Budget	Variance	Actual
Local Parks and Open Spaces (4.1.1)¹				
Cost	1,828	712	(1,116)	1,127
Botanical Gardens (4.2.1)				
Cost	420	428	8	916
Beaches and Coast Operations (4.2.2)				
Cost	1,865	1,667	(198)	592

¹ Given the uncertainty of timing of reserve land purchases, as negotiations can cross several financial years, the costs were not reflected in the budget. These purchases are funded by receipts from developers for this purpose and individually authorised by Council resolution.

GREEN OPEN SPACES

Our activities under this area include:

- **Town belts** – we manage and maintain the Wellington Town Belt, Outer Green Belt and other reserve land.
- **Community environmental initiatives** - we support volunteers from community groups, schools and other organisations who work to maintain and improve the city's parks and open spaces.
- **Walkways** – we manage and maintain more than 300km of tracks and walkways throughout the city.
- **Stream protection** – we work with community groups to restore and protect the city's streams and surrounding areas.
- **Pest plant and animal management** – we protect native ecosystems by controlling weeds and pest animals.

We aim to care for the city's green open spaces in ways that balance nature with opportunities for enjoyment.

Key challenges include improving the ecosystems of streams and other waterways, and getting on top of pests and weeds which can strangle native plants and cause harm to human health and safety.

WHAT WE DID

We completed our Biodiversity Action Plan.

The Action Plan coordinates our work and identifies local priorities and actions to protect and restore biodiversity. Biodiversity activities include pest control, re-vegetation planting, and partnerships with other organisations and groups. The Biodiversity Action Plan ensures that the national targets set by the New Zealand Biodiversity Strategy (2000) are translated into local action.

A key part of the plan is researching the region's indigenous biodiversity, which will involve working with other organisations such as Victoria University and the Wellington Botanical Society.

Everybody has a stake in biodiversity, and organisations such as the Wellington Tenth Trust, Ngati Toa Rangatira, the Department of Conservation, Greater Wellington, Wellington Forest and Bird and the Queen Elizabeth II Trust have all been involved in the development of the draft plan.

We developed a restoration plan for Central Park.

The plan aims to restore the park's character and appeal, improve its access and circulation, and encourage usage. We also want to improve the sustainability of the park and its vegetation.

In April 2008 we began implementing the plan. We built a new access ramp to the play area, built a replacement toilet block, and designed upgrades for the entrances.

We also removed hazardous trees from the site and began planning for track upgrades, management of pest plant species, and formation of a new walkway.

We finalised our plan for landscaping of Tinakori Hill.

This followed consultation with reserve users, community groups and local residents. We have completed the early stages of this plan by installing signage that has improved visitors' experiences and has received much positive feedback. Work on Tinakori Hill will be ongoing over the next few years.

We completed our refurbishment of the Mount Victoria Summit.

The upgrade includes a new viewing platform, improved access through more gently sloping paths and the provision of new handrails, better landscaping, improved lighting and signage, and better links to the Byrd Memorial.

This upgrade received a New Zealand Institute of Landscape Architects Bronze Award. The judges commented that "the design response is sensitive to cultural expectations, with a clear design intention which extends on existing use. [The] pedestrian spaces have been enhanced providing a legible site with a high degree of amenity."

We removed hazardous trees from the Town Belt.

We removed 35 hazardous pine and macrocarpa trees by helicopter from below the Crescent play area in Roseneath, and took down 30 high risk pine trees from above the Renouf Tennis Centre as part of the Central Park upgrade. Four large pine trees were removed from Kelburn Park and Bolton Memorial Park near the motorway.

We created new walkways and tracks in the Town Belt and Outer Green Belt.

We maintain more than 300km of tracks throughout our open space areas, including walkways, mountain bike tracks, four-wheel-drive tracks and dual-use tracks.

We created a new walkway link between Mewburn Rise and Wrights Hill to replace a link that had been lost to urban development. We also created new walkways in Newlands, from Fernwood Court to Colchester Crescent and Seton Nossiter Park, and from Black Rock Road to Edgecombe Street and Brandon Rock.

As part of our regular maintenance, we upgraded over 300m of walkway at the beginning of the Khandallah Park track. To protect the headwaters of Makara Stream and keep stock out of regenerating forest, we continued our fencing programme along the Skyline Walkway.

We funded a range of community projects that benefit the environment

We granted \$80,000 to one-off environmental projects. These projects included:

- a sustainable living guide produced by Gecko, the Victoria Students Association environmental group
- fencing of 22 hectares of native forest land adjacent to the Karori Wildlife Sanctuary
- funding for eDay 2008, an annual event for recycling electronic waste
- assistance for groups that plant and maintain native trees
- support for Places for Penguins, a Royal Forest & Bird Protection Society project to provide predator-resistant nesting boxes along the coastline; this will help Wellington's struggling Little Blue Penguin population.

We provided over 20,000 native plants to be planted by volunteers.

For this year's Arbour Day (which coincided with World Environment Day) we arranged a volunteer planting session at Macalister Park to replant an area where storm damaged pine trees had been cleared for safety reasons. A total of 2,500 eco-sourced plants were planted by Council staff, schools and corporate and community volunteers in record time.

Other volunteer events included:

- planting of Karori Park in collaboration with the Karori Wildlife Sanctuary - this involved 450 children from five schools working with Council staff
- innovative Eco-therapy sessions held in the CBD, where city workers get their hands dirty and help 'pot up' seedlings for community restoration initiatives
- many other events including weed clearing, restoration planting and picking up rubbish.

Over the whole year, over 20,000 eco-sourced native plants have been planted by around 22 community groups and 15 schools.

We also worked with the Department of Conservation, Greater Wellington, Victoria University and the New Zealand Ecological Restoration Network in providing Restoration Day 2008, an annual conference for community groups and individuals involved with ecological restoration projects in the Wellington region.

We completed our review of Project Kaiwharawhara.

This successful stream restoration programme has been active since 2002 and brings together community groups, councils, and other organisations to restore the Kaiwharawhara catchment. The review will guide similar programmes in the Porirua and Owhiro Stream catchments. We also commissioned a report on our ecological priorities for the Porirua catchment.

We continued our work to eradicate pest species.

We began active pest control in four new Key Native Ecosystems, making a total of 15 important ecological sites under active control. Our work included initiating the eradication of Darwin's Barberry from Te Kopahou Reserve and a second year of targeting Climbing Asparagus in the Town Belt.

We also carried out feral goat and pig control in nine reserves and maintained our possum control programme in partnership with Greater Wellington Regional Council, as well as beginning possum control in Spicer Forest. We installed a buffer line of possum traps along the Outer Green Belt from Johnston's Hill to Mt Kaukau to protect areas like Otari-Wilton's Bush.

A new mustelid (mustelids are weasels, stoats and ferrets) control programme was launched in Otari-Wilton's Bush.

We targeted three green waste dumping sites as part of our campaign to reduce dumping and to highlight its negative environmental effects. Each of these sites was cleaned up and planted, and we informed and involved the local community in the work.

Development and implementation of 'Stream Protection Programme' – achievement of key milestones

We had a busy year developing and implementing the 'stream protection programme'.

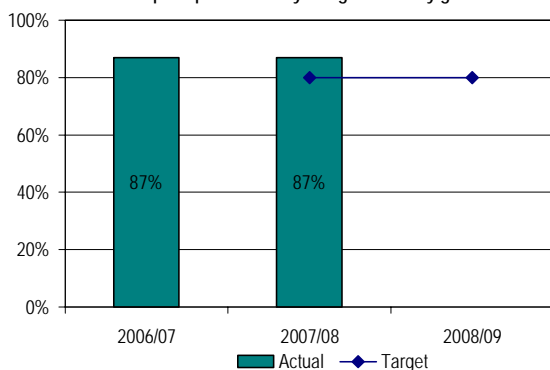
We completed a review of Project Kaiwharawhara and presented findings to project stakeholders. Key findings from the review have been developed for applying to similar programmes in Porirua and Owhiro Stream catchments. We also commenced a review of regulatory tools for stream protection.

Source: WCC Parks and Gardens (Activity 4.7.1 Stream protection)

Key native eco-systems with active 'Pest Management Plans (animal and plant)' in operation

Our target was to maintain 12 key native eco-systems with active pest management plans. This was achieved with 15 key native eco-systems having a pest management plan in place. This is four additional key native eco-system compared to 2006/07.

Source: WCC Parks and Gardens (Activity 4.7.2 Pest and animal management)

Service - Users (%) who rate the maintenance and quality of open space walkways as good or very good

Source: WCC Parks and Gardens (Activity 4.4.1 Walkways)

WCC open space walkways and track network (%) that meet required 'quality service standards'

Our target was for 80% of the open space walkways and track network to meet the required 'quality service standard'. No data has been collected to assess this performance measure.

We have developed a new framework to assess our walkways and track network based on New Zealand Standards (*New Zealand Handbook, Tracks and Outdoor Visitor Structures 2004*).

We have reviewed all city walkways and tracks using service level standards prescribe in the NZ Standard. All city walkways and tracks have been categorised as primary (38%), secondary (24%) or tertiary (38%). The NZ Standard describes specific service levels for each category.

Source: WCC Parks and Gardens (Activity 4.4.1 Walkways)

WHAT IT COST**GREEN OPEN SPACES**

	2008	2008	2008	2007
Operating Expenditure (\$000)	Actual	Budget	Variance	Actual
Town Belts (4.2.3)¹				
Cost	4,187	4,043	(144)	3,878
Revenue	(937)	(253)	684	(439)
Net Cost	3,250	3,790	540	3,439
Community Environmental Initiatives (4.3.1)				
Cost	340	334	(6)	289
Revenue	(6)	(4)	2	(5)
Net Cost	334	330	(4)	284
Walkways (4.4.1)				
Cost	370	379	9	363
Revenue	(8)	(10)	(2)	(10)
Net Cost	362	369	7	353
Stream Protection (4.7.1)				
Cost	15	25	10	-
Revenue	-	-	-	-
Net Cost	15	25	10	-

**Pest, Plant and Animal Management
(4.7.2)**

Cost	821	767	(54)	764
Revenue	(16)	(16)	-	(16)
Net Cost	805	751	(54)	748

	2008	2008	2008	2007
Capital Expenditure (\$000)	Actual	Budget	Variance	Actual
Town Belts (4.2.3)²				
Cost	987	900.5	(86.5)	574
Unspent portion of budget to be carried forward	-	299.5	-	-
Walkways (4.4.1)				
Cost	377	350	(27)	352

¹ The revenue variance is due to the recognition of unbudgeted vested asset income.

² The favourable variance relates to delays in the Central Park upgrade project due to spending more time consulting the community than originally planned.

WATER

Water is a fundamental need. It's crucial to people's health and living standards. A city cannot survive without a steady supply of clean, safe, drinkable water.

We undertake the following activities to ensure this need is met:

- **Water network** – we own the city's water network and contract Capacity (a company we jointly own with Hutt City Council) to manage, maintain and operate the network.
- **Water collection and treatment** – we purchase water in bulk from the Greater Wellington Regional Council and supply it to Wellington properties.

A major challenge is managing our use of a resource that's in limited supply. Water conservation and more efficient use of water are of increasing importance in light of potential climatic changes and Wellington's growing population.

WHAT WE DID

We took steps to save water in an unusually dry summer...

We introduced water restrictions including a total ban on sprinklers and irrigation systems for five weeks. Year-round restrictions on sprinklers and garden hoses remained – they could only be used between 6-8am and 6-8pm on alternate days.

We also worked with Greater Wellington to coordinate water restrictions advertising and activities.

We publish water saving tips on our website, www.Wellington.govt.nz. About 1,200 Wellington households use water meters – these are voluntary and are intended to encourage responsible water use. They come with a reduction in rates to offset the water charges.

... and also to reduce losses from our water network.

In recent years, we have not been able to account for about 20% of water entering the network. At a time when the water efficiency is important, we regard this as an unacceptably high level of loss, and we are taking steps to deal with it.

During this year, we made progress towards a Water Loss Reduction and Leakage Management Strategy. The first steps of the strategy included adjusting pressure in pilot areas - parts of Roseneath, the Eastern Suburbs and Melrose - to see if we could achieve more consistent pressure levels. We anticipate that, over time, this will help to reduce the number of water main breaks and the volume of leaked water, and also to improve the reliability of the water supply system.

A new reservoir was built for the northern suburbs.

To support growth planned in our northern districts, where an extra 11,000 people are expected over the next 20 years, we completed construction of the Lincolnshire reservoir. We will complete testing and reinstatement work for the reservoir in the coming year.

We also completed an investigation into the water supply for the Grenada South, another area where significant population growth is expected.

We started work on an 80-year plan for management of the water network.

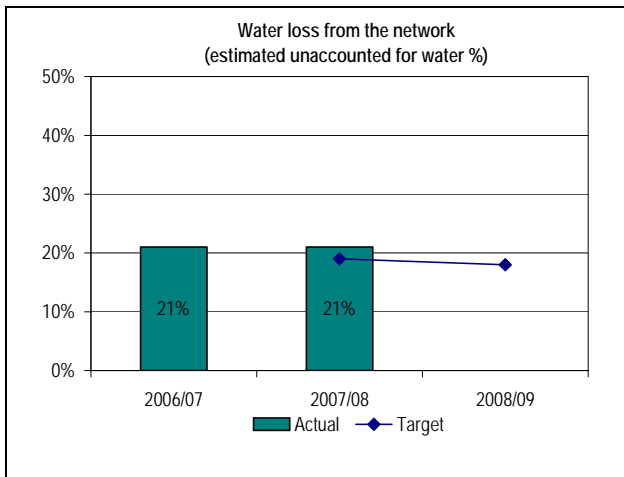
We began strategic reviews of our water assets, along with stormwater and wastewater assets, to help us determine how to manage these assets over the next 80 years. Where

necessary, we will upgrade assets to meet changing demands. We will work on this strategic review over the next two years.

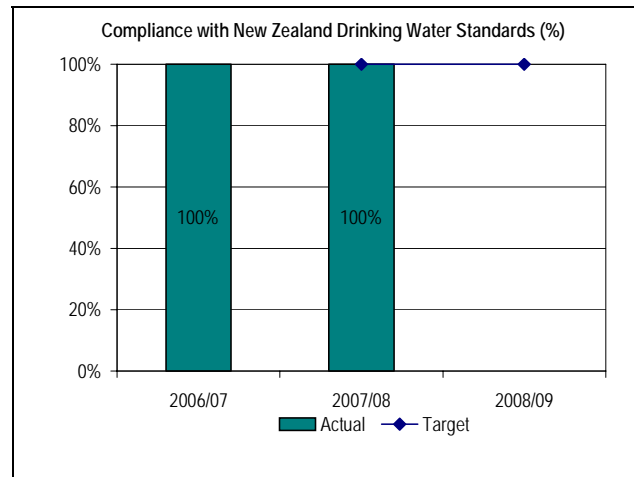
We investigated the low level water supply zone in the city. This will inform a strategy to help us prioritise proposed pipe replacement works.

We also completed a capital works prioritisation framework which aligns water infrastructure works with the 'outcomes' (long-term goals for the city) in our long-term plan. This framework will be used to prioritise all capital work in future.

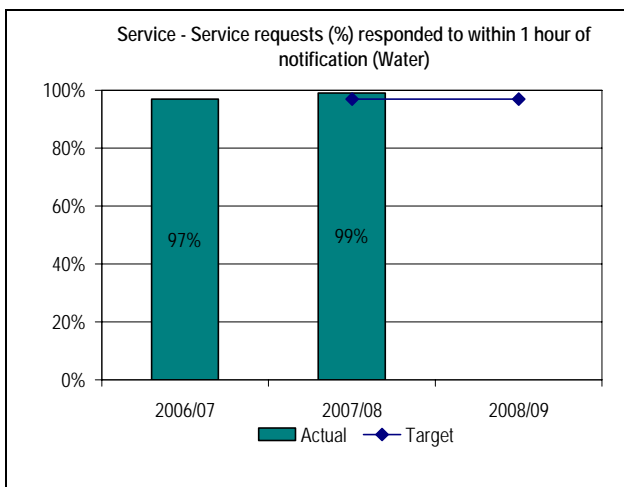
HOW WE PERFORMED



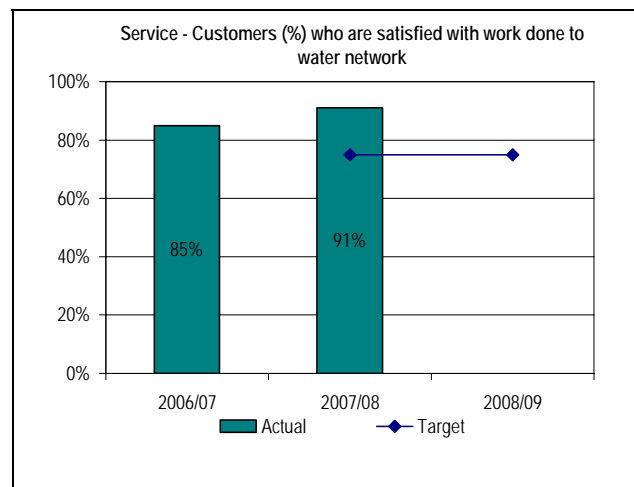
Source: Capacity (Activity 4.5.5 Water network)



Source: Capacity (Activity 4.5.5 Water collection and treatment)



Source: Capacity (Activity 4.5.5 Water network)



Source: Capacity (Activity 4.6.1 Water network)

COMMENT:

The amount of water lost from the network has not reduced over the last two years. An estimated 21% of water in the network remains unaccounted for. This is a disappointing result, as water conservation has been identified as a three-year priority for the Council. We continue to implement an extensive leak detection programme and installation of additional district water meters. We hope to see considerable improvement in the coming year.

WHAT IT COST

	2008	2008	2008	2007
Operating Expenditure (\$000)	Actual	Budget	Variance	Actual
Water Network (4.5.5)¹				
Cost	15,047	15,311	264	14,453
Revenue	(2,107)	(238)	1,869	(1,774)
Net Cost	12,940	15,073	2,133	12,679
Water Collection and Treatment (4.6.1)				
Cost	12,934	12,764	(170)	12,671
Revenue	(272)	-	272	(85)
Net Cost	12,662	12,764	102	12,586
	2008	2008	2008	2007
Capital Expenditure (\$000)	Actual	Budget	Variance	Actual
Water Network (4.5.5)²				
Cost	10,639	12,159	1,520	9,917
Unspent portion of budget to be carried forward	-	2,830	-	-

¹ The revenue variance is due to the recognition of unbudgeted vested asset income. A favourable expenditure variance is due to less unplanned maintenance being required on the water reticulation network.

² The capital renewal for Messines Road Reservoir has been deferred until 2008/09. Watermain upgrades have been re-scheduled to minimise public disruption.

WASTEWATER AND STORMWATER

Our key aims for this area are safety and sustainability: wastewater and stormwater should be disposed of in ways that protect public health and don't compromise ecosystems.

Our activities under this area include:

- **Stormwater management** – we own the city's stormwater network and contract Capacity (a company we jointly own with Hutt City Council) to manage, maintain and operate the network.
- **Sewage collection and disposal network** – we own the city's sewage collection and disposal network and contract Capacity (a company we jointly own with Hutt City Council) to manage, maintain and operate the network.
- **Sewage treatment** – we own Karori and Moa Point treatment plants, and co-own the Porirua treatment plant with Porirua City Council; the Karori and Moa Point plants are managed by United Water.

A key challenge for this area is ensuring the stormwater and sewage networks have sufficient capacity to cope with demand. Insufficient capacity in the stormwater network results in flooding.

Another key challenge is managing environmental effects from both sewage and stormwater. Wellington's stormwater is not treated, so it's important that members of the public are aware of their responsibilities to keep contaminants out of stormwater drains.

WHAT WE DID

We looked into the possibility of converting sewage sludge into energy.

We will stop composting dewatered sludge at our landfill operation in December 2008, because there is a limited market for the compost produced and there have been significant odour issues for nearby residents.

We are considering plans to either run a bioreactor generator from the sludge, or set up a joint venture with Porirua City Council to dry the sludge which will significantly reduce its volume prior to deposition in landfill.

We are still running composting operations at the Southern Landfill, using the 3,000+ tonnes of green waste we collect and an increasing amount of food waste that we are able to divert from the main landfill.

We started making an 80-year plan for management of our stormwater and sewage networks.

We began strategic reviews of our wastewater, stormwater and water assets, to help us determine how to manage these assets over the next 80 years. Where necessary, we will upgrade assets to meet changing demands. We will work on this strategic review over the next two years.

We investigated CBD flood risk.

We studied areas of the central business district to better understand its flood risk and to model flood mitigation proposals. In 2008/09, we will be assessing and prioritising options for the upgrade of the Taranaki Street stormwater culvert.

We took steps to reduce sewage overflows.

We finalised plans for sewer renewal works in the Waikowhai Street area to avoid sewer overflows into a tributary of the Korimako Stream. During 2008/09 we aim to complete detailed design work and begin construction.

We installed monitoring devices in manholes to help us see when sewage is overflowing, gather data and work on plans to minimise these overflows in future. As our part of our ordinary day to day business, we have been conducting ongoing CCTV inspections and maintenance of our pipe network.

New rules on trade waste came into effect.

During 2008/09, we will start charging businesses that discharge waste into the sewer system. This is consistent with our 'polluter pays' policy.

We consulted residents before finalising our charging rules, and we also inspected all known trade waste producers and conducted a survey to identify industries that need to be closely monitored regarding their trade waste.

We have been working with the Ministry for the Environment, waste collection contractors and trade waste clients to implement WasteTRACK, an internet database which will be used to gather information about production, transport, treatment and disposal of trade waste. This system will reduce the risk of unauthorised or accidental discharges into the environment.

Owners were encouraged to maintain grease traps properly.

We inspected 60% of the private grease traps in Wellington and found that many people were either unaware that they had a grease trap or did not know how to maintain it.

Many owners are now undertaking remedial work and operating maintenance schedules, which has led to a noticeable drop in the fat levels found at CBD pump stations. This will decrease our maintenance requirements and reduce the biological load on our wastewater treatment plants.

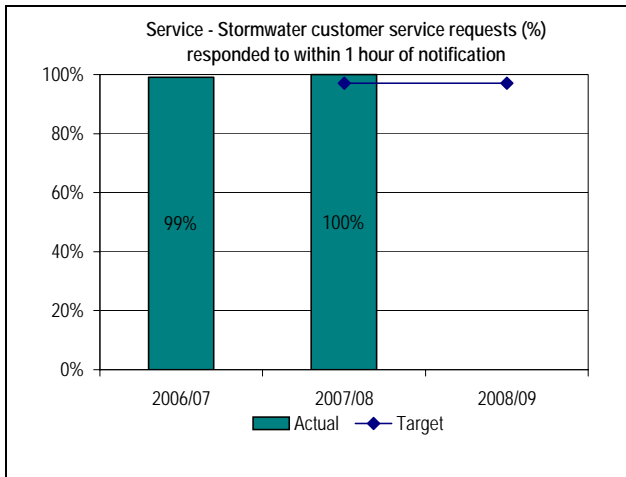
We also changed the rules for grease converters (unlike passive grease traps which simply separate the fats and oils from the waste stream, converters use enzymes and bacteria to break down the fat).

We applied for or renewed several resource consents for sewage and stormwater discharges.

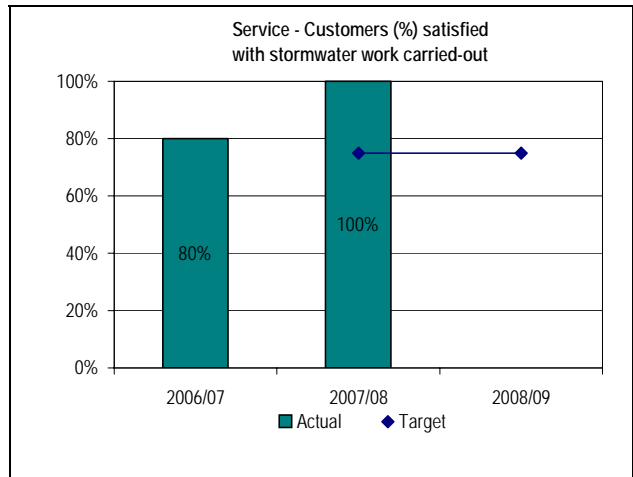
We are required to maintain valid resource consents for our stormwater and sewerage operations. During the year:

- The consent to discharge stormwater into the harbour through the Tory Street Culvert was renewed.
- A hearing on the Carey's Gully dewatering plant resource consent was postponed until 2009 so we could work through some key issues with the local community.
- We entered mediation with the Greater Wellington Council and other interested parties to finalise the consent for operation of and discharge of treated wastewater from the Western Wastewater Treatment Plant in Karori and the Moa Point Wastewater Treatment Plant. We expect both these consent applications to be resolved in the 2008/09 year.

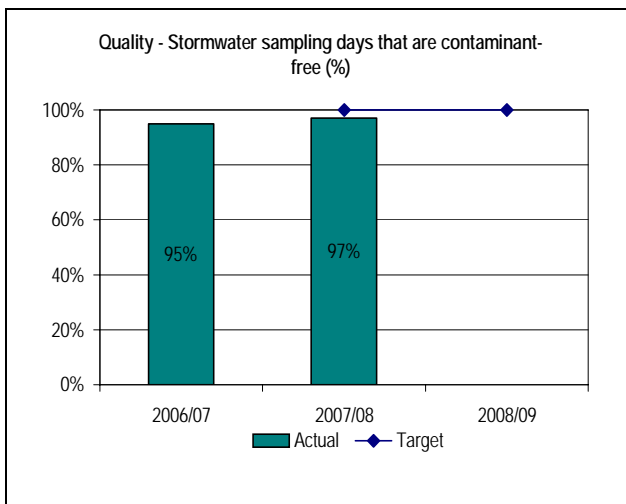
HOW WE PERFORMED



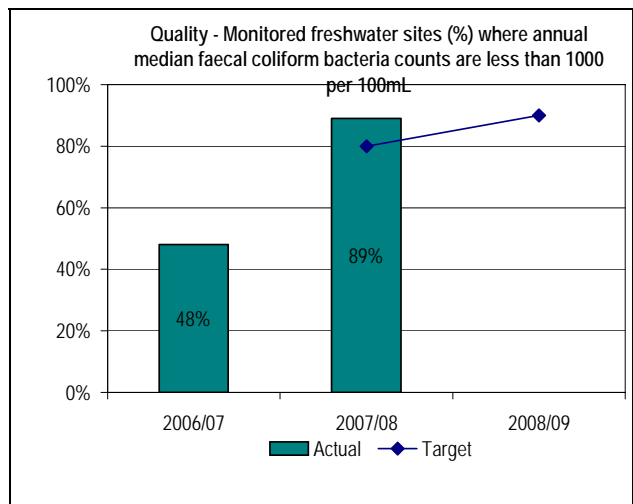
Source: Capacity (Activity 4.6.2 Stormwater management)



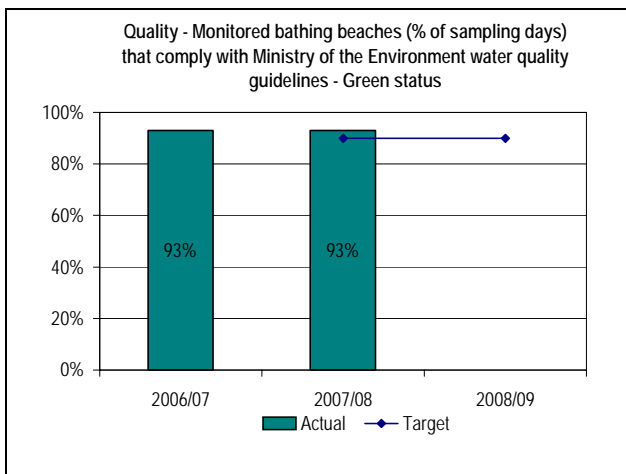
Source: Capacity (Activity 4.6.2 Stormwater management)



Source: Capacity (Activity 4.6.2 Stormwater management)



Source: Capacity (Activity 4.6.2 Stormwater management)

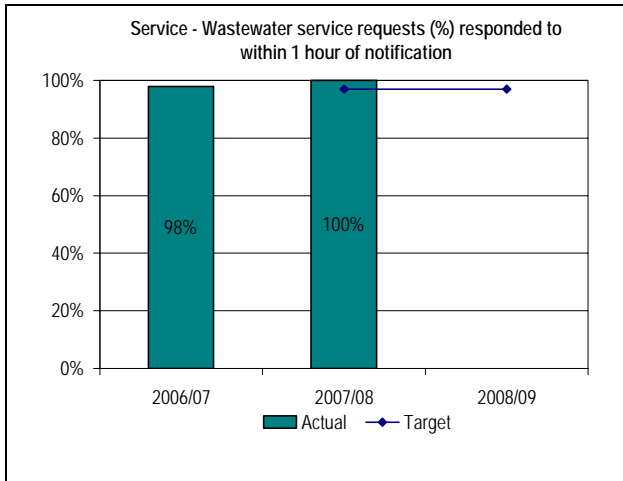


Source: Capacity (Activity 4.6.2 Stormwater management)

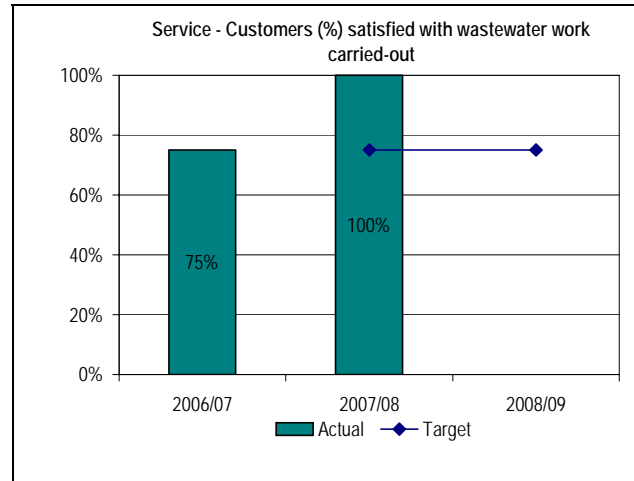
SEWAGE TREATMENT – RESOURCE CONSENT COMPLIANCE (THE NUMBER OF INFRINGEMENT NOTICES RECEIVED)

Our target was to maintain our resource consent compliance, by receiving no infringement notices. This was achieved. We have continued strong performance for sewage treatment by maintaining standards as set out in our resources consent.

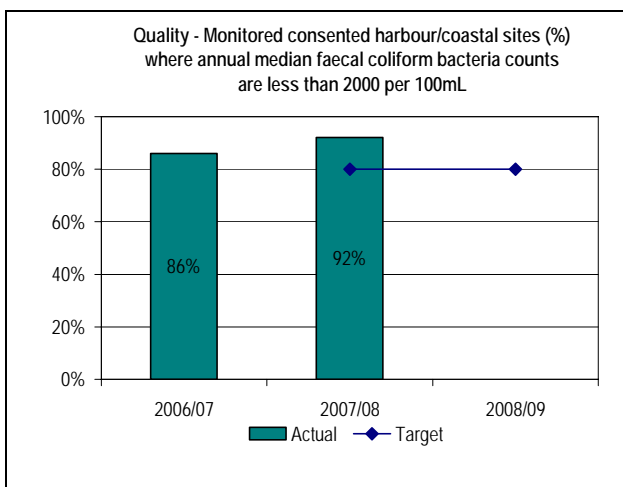
Source: Capacity (Activity 4.6.4 Sewage treatment)



Source: Capacity (Activity 4.6.3 Sewage collection and disposal network)



Source: Capacity (Activity 4.6.3 Sewage collection and disposal network)



Source: Capacity (Activity 4.6.3 Sewage collection and disposal network)



Source: WCC Building consents and licensing (Activity 4.6.3 Sewage collection and disposal network)

WHAT IT COST

	2008	2008	2008	2007
Operating Expenditure (\$000)	Actual	Budget	Variance	Actual
Stormwater Management (4.6.2)¹				
Cost	11,647	11,717	70	12,025
Revenue	(4,297)	(68)	4,229	(758)
Net Cost	7,350	11,649	4,299	11,267
Sewage Collection and Disposal Network (4.6.3)				
Cost	14,416	14,443	27	14,445
Revenue	(127)	(207)	(80)	(1,013)
Net Cost	14,289	14,236	(53)	13,432
Sewage Treatment (4.6.4)²				
Cost	19,502	19,745	243	19,832
Revenue	(1,396)	(708)	688	(2,195)
Net Cost	18,106	19,037	931	17,637
	2008	2008	2008	2007
Capital Expenditure (\$000)	Actual	Budget	Variance	Actual
Stormwater Management (4.6.2)³				
Cost	3,571	3,505	(66)	3,593
Unspent portion of budget to be carried forward	-	320	-	-
Sewage Collection and Disposal Network (4.6.3)				
Cost	8,066	8,138	72	6,592
Unspent portion of budget to be carried forward	-	187	-	-

¹ The revenue variance is due to the recognition of unbudgeted vested asset income.

² Favourable net expenditure is due to revenue generated from the council's share of the Porirua Sewage Treatment Plant and to lower flows and organic loadings reaching the treatment plants at Karori and Moa Point.

³ Contract negotiations delayed construction of the Onslow Road stormwater renewal. This is due to be completed in 2008/09.

WASTE REDUCTION AND ENERGY CONSERVATION

We want Wellington to be a sustainable city, which means meeting today's needs in ways that don't cause future harm.

Our activities that contribute primarily to this aim include:

- **Energy efficiency and conservation** – we are promoting energy efficiency and conservation in our own operations and in the city.
- **Recycling** – we provide recycling collection throughout the city.
- **Waste minimisation and disposal management** – we collect waste, promote waste reduction, operate the Southern Landfill, and manage closed landfills.

Making Wellington a sustainable city is a massive challenge. A truly sustainable city meets its energy needs from renewable supplies. It uses resources efficiently, and it finds ways to re-use or recycle instead of sending rubbish to landfills. Wellington can't claim to be a truly sustainable city – but we are heading in the right direction. The city's recycling volumes, for example, have been steadily increasing in recent years.

WHAT WE DID

We established a Climate Change Office to focus the Council's work on reducing greenhouse gas emissions.

The office is working on ways to reduce the Council's emissions and those of the wider community, as first steps towards achieving the Council's climate change goals.

Early projects include developing a robust methodology for measuring corporate emissions, establishing carbon sinks on Council reserve land using the governments Permanent Forest Sink Initiative, developing sustainable vehicle and green building standards, and assisting the Events Team with World Environment Day.

We also took steps to reduce our own energy use.

We upgraded the Central Library boiler system piping to improve efficiency – a change estimated to reduce gas consumption by 15-20% (somewhere between 230,000 and 300,000kWh/yr).

We also installed boiler combustion control technology at one of our administration buildings, the Municipal Office Building – we expect energy savings of 5-10% (31,000-62,000kWh/yr). We'll be monitoring both systems to confirm the efficiency improvements. Combined, we expect these projects to reduce our CO₂ emissions by between 48 and 67 tonnes per year.

We've changed Wellington Town Hall non-event lighting, which is expected to reduce our energy bill by around \$9,000 (75,000 kWh), and we're investigating the best practice for energy efficient street light design for Bay Road in Kilbirnie.

Other energy efficiency initiatives include:

- installing solar panels on a new public toilet in Makara Cemetery to power lighting and electronic locking
- installing solar panels at Evans Bay marina to provide hot water
- installing timers on the tea boilers within Council buildings
- upgrading lighting in sections of our buildings.

We estimate the cumulative savings from these small changes to be \$30,000 or 310,000kWh of electricity and natural gas.

As part of our ongoing energy conservation processes, we implemented a data management protocol for all the energy consumed by the Council, and we're developing a database that will provide a real-time record of energy use to help us isolate problem areas and highlight improvements.

We've placed recycling bins throughout central Wellington.

These bins are part of a trial in partnership with the Ministry for the Environment to collect drink containers and divert them from landfill. The bins are a cheerful green and are placed near existing public rubbish bins. We're monitoring this project to analyse its effectiveness.

We're reviewing kerbside recycling.

We want to make sure we have the optimal balance between increased demand for recycling versus escalating costs and fuel consumption. We're also reviewing where the recycling actually goes, in order to assure residents and ourselves that we're getting the result we want.

In September 2007, we supported the annual Computer Recycling Day (eDay) with funding and staff. Wellington households delivered 123 tonnes of electronic waste for recycling that would otherwise have gone into landfill. The waste received was sorted so that equipment that can have a second life is refurbished, while the rest was stripped of reusable components.

In August 2007, we outsourced our domestic kerbside service rubbish collections to an external contractor.

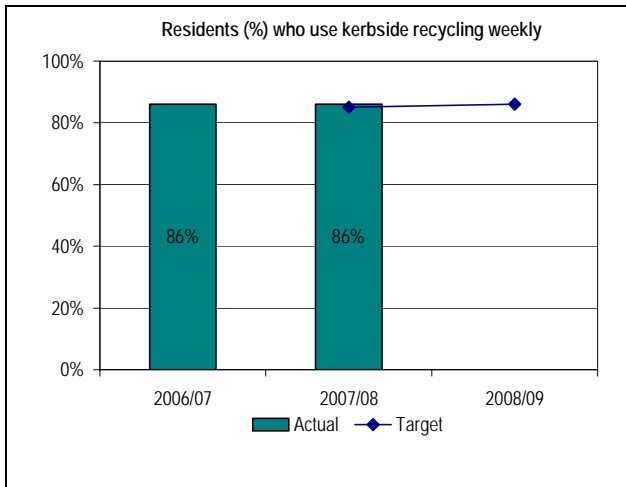
We installed a methane-powered electricity generator at the Southern Landfill.

Methane is produced when organic waste such as garden clippings and food waste decomposes. About 4.8 million cubic metres of methane are collected at the landfill every year. Previously, we burned it to turn it into carbon dioxide, a far less harmful greenhouse gas.

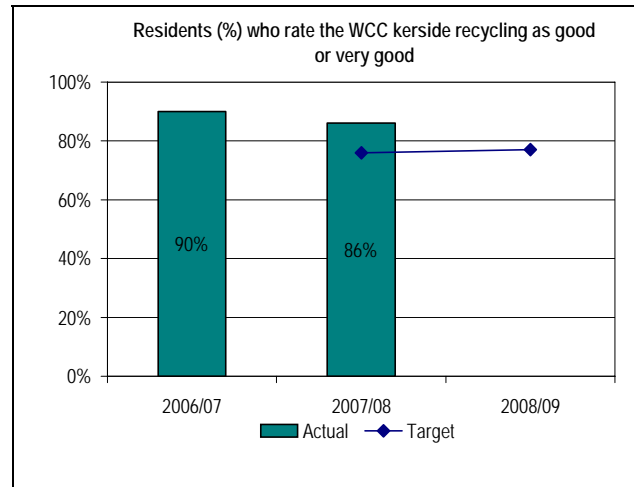
The new 1MW generator, built in partnership with Nova Gas, now uses that methane to create electricity, which means that our waste is being harnessed to provide energy that is not derived from fossil fuel.

We're also trying to reduce methane emissions by diverting the 3,000+ tonnes of green waste brought to the landfill annually into a composting operation. This is in addition to our Kai to Compost scheme which takes food waste from businesses in central Wellington in order to compost it and sell it on to local horticultural enterprises.

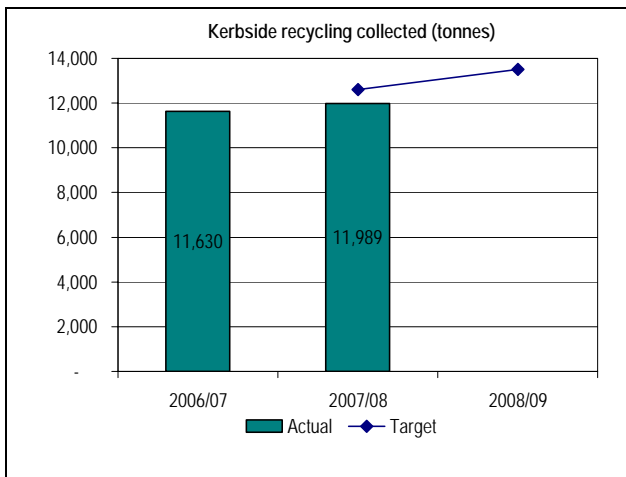
HOW WE PERFORMED



Source: WCC Resident Survey 2008 (Activity 4.5.3 Recycling)



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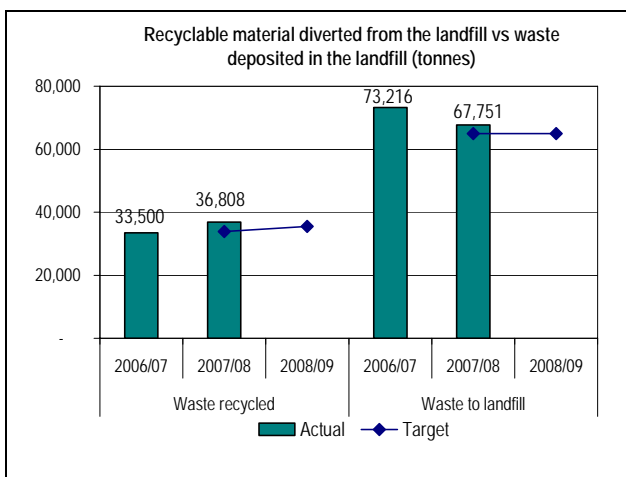


Source: WCC CitiOperations (Activity 4.5.3 Recycling)

SOUTHERN LANDFILL

- Domestic waste collection is maintained at once a week, 52 weeks a year and inner-city waste collection is maintained at six days a week, 52 weeks a year. We met our targets to maintain domestic and inner-city waste collection services (note: collections exclude Christmas, New Year and Easter).
- WCC landfill and the household hazardous waste facility are open 9.5 hours a day, 7 days a week, 52 weeks a year. We met our target to maintain services at the landfill and household hazardous waste facility (note: opening hours exclude Christmas, New Years and Easter).

Source: WCC CitiOperations (Activity 4.5.4 Waste minimisation and disposal management)

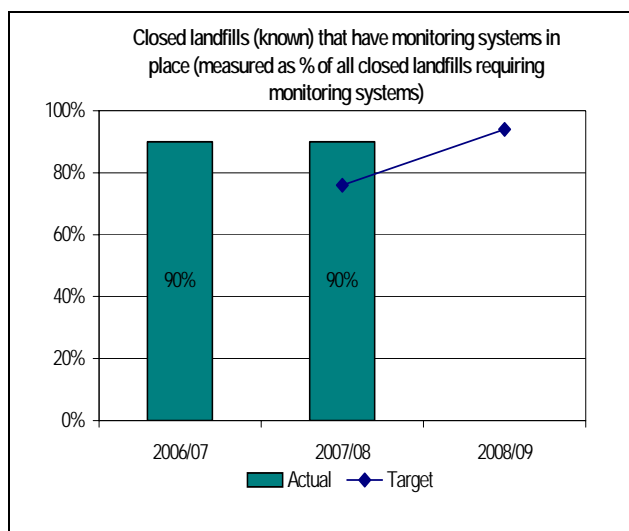


Source: WCC CitiOperations (Activity 4.5.4 Waste minimisation and disposal management)

SOUTHERN LANDFILL – RESOURCE CONSENT COMPLIANCE (NUMBER OF DAYS THAT CONSENT CONDITIONS ARE MET)

Our target was to maintain our resource consent compliance, by meeting consent conditions throughout the year. **RESULTS TO BE CONFIRMED BY GWRC TO BE TABLED.**

Source: WCC CitiOperations (Activity 4.5.4 Waste minimisation and disposal management)



Source: WCC CitiOperations
(Activity 4.5.4 Waste minimisation and disposal management)

COMMENT:

The amount of recyclable material diverted from the landfill continues to increase, while correspondingly the amount of non-recyclable material continues to decrease. In the coming years we'll continue to focus efforts on waste reduction, particularly diverting recyclable material from the landfill.

We have maintained monitoring systems in 90% of known closed landfills that require monitoring systems. Our long-term target is for all known closed landfill that require monitoring systems to have a monitoring system in place.

WHAT IT COST**WASTE REDUCTION AND ENERGY CONSERVATION**

	2008	2008	2008	2007
Operating Expenditure (\$000)	Actual	Budget	Variance	Actual
Energy Efficiency and Conservation (4.5.1)				
Cost	11	9	(2)	27
Revenue	-	-	-	(1)
Net Cost	11	9	(2)	26
Recycling (4.5.3)¹				
Cost	2,161	1,768	(393)	1,789
Revenue	(1,062)	(1,826)	(764)	(1,075)
Net Cost	1,099	(58)	(1,157)	714
Waste Minimisation and Disposal Management (4.5.4)²				
Cost	7,119	7,441	322	8,333
Revenue	(6,791)	(7,010)	(219)	(8,480)
Net Cost	328	431	103	(147)
	2008	2008	2008	2007
Operating Expenditure (\$000)	Actual	Budget	Variance	Actual
Energy Efficiency and Conservation (4.5.1)				
Cost	48	48	(-)	4
Unspent portion of budget to be carried forward	N/A	98		N/A
Waste Minimisation and Disposal Management (4.5.4)³				
Cost	1,346	1,355	9	321
Unspent portion of budget to be carried forward	-	564	-	-

¹ The net operating variance is due to lower volumes of waste and increased cost to divert higher volumes of recycling from the Landfill.

² The revenue variance is due to lower than expected demand for rubbish bags. The expenditure variance is due to the revaluation of the closed Landfill provision.

³ Capital works on the Southern Landfill project have encountered delays as a result of poor weather and drilling difficulties. Capital expenditure savings achieved through an alternative engineering solution to the tunnel works phase of this project.

ENVIRONMENTAL CONSERVATION ATTRACTIONS

Nature is one of Wellington's biggest attractions. In the Karori Sanctuary, and Wellington Zoo, the city has two facilities that play a crucial role in educating people about wildlife conservation and educating people about nature.

Along with Te Papa, the redeveloped Carter Observatory (see the Economic chapter) and the proposed Marine Education Centre, they form a cluster of science- and nature-based attractions for residents and visitors to the city.

WHAT WE DID

Wellington Zoo completed its giraffe house.

The Mixed African Exhibit and giraffe house allows zebras, giraffes, ostriches and antelopes to interact in the same environment. The giraffe house gives visitors a behind the scenes look at the zoo, and was built with sustainable materials and a rainwater recovery system for cleaning purposes.

We also completed our new Wild Theatre, a large multi-purpose space in the middle of the Zoo that is used to showcase programmes about animal conservation, as well as being available as a performance space. The theatre received the 2008 New Zealand Institute of Architects Resene Architecture Award, the judges describing the theatre as 'a robust yet elegant multi-purpose performance space'.

The nocturnal house reopened – it's easier to see the kiwis now.

We re-opened our nocturnal house, Te Ao Maahina - The Twilight, after a refurbishment project that provides better environments for the animals and improved viewing for visitors. The Twilight's design is inspired by typical Kiwi tramping/research huts.

There were several new additions to the zoo family.

A new chimpanzee, Beni, and a red panda, Ed (named after Sir Edmund Hilary), were born at the zoo as part of our international breeding programme.

Other new arrivals included two emperor tamarins, Avaya and Ekeko, who came from Melbourne Zoo; and a giraffe, Seun, who was transferred from the Orana Wildlife Park in Christchurch.

We also released 53 zoo-raised tuatara into the wild in the Marlborough Sounds as part of a joint project with Victoria University. The tuatara were collected in the egg from an island in the Cook Strait, incubated at the University, and raised in an off-display area of the zoo for five years before their release.

Zoo visitor numbers increased. Visitor numbers topped 180,000 for the first time since 2001, a reflection of the zoo's upgrades and improvements to the visitor experience.

Over half of Wellington residents visited the zoo at least once during the year, and over 85% rated their experience as good or very good. Special events included Children's Day in March, during which we charged a reduced \$1 entry fee for children and held a range of special events, and World Environment Day in June.

Looking to the future, the zoo completed the design for a new animal hospital, finalised a Conservation Strategy, and began a joint research project with Victoria University to study contraceptive measures that may control the possum population without using 1080 poison.

The Marine Education Centre lost its resource consent hearing and is looking for a new site.

The Environment Court ruled against the centre's proposed location at Te Raekaihau Point after an appeal by a group of objectors. The court held that, while the proposed centre would have minimal adverse impact on marine ecology and minor adverse geological impact, it would compromise the area's open space values and result in significant adverse effects on the landscape.

The Wellington Marine Conservation Charitable Trust is still committed to the project. An alternate site is being investigated at Maranui Quarry in Lyall Bay.

The Karori Wildlife Sanctuary's visitor centre got under way.

The sanctuary let the main contract for its \$16.7 million Visitor and Education Centre, and a sod turning ceremony was held in May 2008. This project has been later getting off the ground than expected due to delays in securing the funding required, but those issues have now been sorted.

The sanctuary completed a number of building projects during the year, including improved visitor facilities and a floating pontoon walkway close to the lake which provides alternate access into the main part of the sanctuary and a unique visitor experience.

The Sanctuary marked a major conservation success with the transfer of North Island robins to Matiu Somes.

Ten female robins were transferred to the island to help thwart their population downturn. The North Island Robin was first introduced into the Sanctuary in 2001 and has since developed a sustaining population, allowing some robins to be transferred out of the Sanctuary to repopulate other areas. This was the first species the Sanctuary has been able to so transfer.

Arrivals into the Sanctuary included:

- 130 tuatara from Takapourewa/Stephens Island, following the success of a transfer of 70 tuatara in 2006 - the sanctuary is the only place in the mainland where you can see a tuatara in the wild
- 98 Cook Strait giant weta from Matiu-Somes Island.

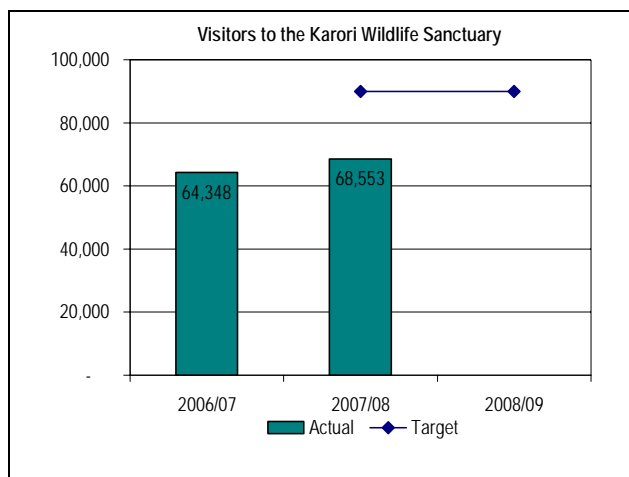
The sanctuary celebrated the banding of its 100th kaka chick and the birth of 13 Maud Island froglets.

The kaka population in the sanctuary is growing and kaka are now a regular and welcome sight around the city.

The Maud Island frog population is also increasing. The 13 Maud Island froglets were taken to Victoria University to be incubated. This species of frog is very unusual, in that the young don't pass through an intermediary tadpole stage, but hatch directly as froglets, one of the signs that they have evolved very little in their 70 million year species history. The birth is the first in the wild on the mainland in at least 200 years.

Visitor numbers reached new records.

We had 68,553 visits this year, an increase of over 4,000 from our previous year, and over 17,000 more visits than 2005/06. In January alone there were 10,000 visits.

HOW WE PERFORMED

Source: Karori Wildlife Sanctuary (Activity 4.8.1 Environmental and conservation attractions)

Bird species recorded at the Karori Wildlife Sanctuary

We monitor the number of bird species recorded at the sanctuary. In 2006 there were 30 endemic and native bird species recorded, compared to 20 species in 1993. A more recent assessment was not available at the time of preparing this report.

Source: Karori Wildlife Sanctuary (Activity 4.8.1 Environmental and conservation attractions)

COMMENT:

We have seen a minor increase in visitors to the Karori Wildlife Sanctuary, though our target was not achieved. Our target of 90,000 visitors for the year was set to reflect construction of the new visitors centre – which was delayed (see above). Note: we have adjusted visitor targets for 2008/09 to reflect the delay in construction (previously our 2008/09 target was stated as 180,000).

WHAT IT COST

	2008	2008	2008	2007
Operating Expenditure (\$000)	Actual	Budget	Variance	Actual
Environmental and Conservation Attractions (4.8.1)¹				
Cost	5,118	5,696	578	4,391
Revenue	1	6	5	-
Net Cost	5,119	5,702	583	4,391
	2008	2008	2008	2007
Capital Expenditure (\$000)	Actual	Budget	Variance	Actual
Environmental and Conservation Attractions (4.8.1)²				
Cost	1,890	1,885	(5)	4,576
Unspent portion of budget to be carried forward	-	447	-	-

¹ Grant funding for the Marine Education Facility was not required following the environment court decision to prevent the development. In addition lower interest costs have been incurred as delays in the development of the gateway facility at the Karori Wildlife Sanctuary has reduced the loan funding provided.

² The favourable variance is as a result of delays in the Zoo hospital development. Building redesign was required as the initial design would have exceeded the available budget.

QUARRY

We own the Kiwi Point Quarry in Ngauranga Gorge and manage a contract for the operation of the quarry, which provides aggregate to the local construction market

In our management of this resource, we aim to minimise environmental impacts by restoring and developing the area while contributing to the city's development needs.

WHAT WE DID

We extracted about 275,000 tonnes of rock for use on roads and other infrastructure.

Our goal is to manage this valuable resource well and to minimise its environmental impact by restoring and developing the Ngauranga Gorge area. We have initiated a District Plan change which rezones areas of land within the quarry boundary to extend the life of the quarry. The plan also merges rules for the efficient management of the quarry operations.

HOW WE PERFORMED

KIWI POINT QUARRY

1. Compliance with all District Plan, resource consent and quarry licence requirements

Our target was to comply with all District Plan, resource consent and quarry licence requirements. This was achieved.

2. To meet all commercial objectives

Our target was to meet all commercial objectives. This was not achieved with a lower than budgeted royalty being paid to Wellington City Council. (See 'What it cost')

Source: WCC Infrastructure (Activity 4.5.2 Quarry)

WHAT IT COST

QUARRY

	2008	2008	2008	2007
Operating Expenditure (\$000)	Actual	Budget	Variance	Actual
Quarry (4.5.2) ¹				
Cost	273	370	97	395
Revenue	(397)	(658)	(261)	(615)
Net Cost	(124)	(288)	(164)	(220)

¹ Revenue was below budget following reduced cleanfill activity.