



## Wastewater collection and treatment



I'm very selective about what I put down the kitchen waste disposal. It all has to be treated doesn't it? I've got a worm farm; they're my silent workers, wonderful. I feed them scraps and use the "worm wine" they produce, diluted, on the garden. It's terrific.

I worry a bit about putting the treated wastewater out to sea, but I suppose the other options would be too expensive. We had a place on Marshland Road and got a treatment system where the final water was used to feed trees. I wonder if we couldn't have something like that on a larger scale for the city.

***Marcia Topp***

Nurse  
Burwood

# Wastewater collection and treatment

## Why does the Council provide wastewater collection, treatment and disposal?

The Council provides these activities to support the health and wellbeing of the community and the environment.

## What activities are included in wastewater collection, treatment and disposal?

### Wastewater collection

The Council provides for the continuous collection and transportation of the city's wastewater from properties, via an underground piped sewerage network, to treatment facilities.

### Wastewater treatment and disposal

The Council provides for the treatment and disposal of the city's sewage, in compliance with resource consent conditions.

## How does the Council's work contribute towards our Community Outcomes?

<i>Community Outcome</i>	<i>How the Council contributes</i>	<i>How much?</i>
Safety	By providing a sanitary wastewater collection and treatment service.	✓✓✓
Community	By providing equal access to wastewater services.	✓
Environment	By protecting the environment through wastewater treatment.	✓✓✓
Governance	By providing the opportunity for the community to participate in decision-making through consultation on wastewater plans and projects.	✓
Prosperity	By meeting commercial wastewater needs.	✓✓
Health	By providing a sanitary wastewater collection and treatment service.	✓✓✓
Knowledge	By providing water conservation programmes.	✓✓
City Development	By the beautification and enhancement of the wastewater ponds and management of sewer overflows.	✓



# Wastewater collection and treatment

## What does the Council plan to do in the future?

<i>What is the Council's objective?</i>	<i>What policies, strategies or drivers support these objectives?</i>	<i>What is the Council already doing?</i>	<i>What will we do in years 1 to 3?</i>	<i>What will we do in years 4 to 10?</i>	<i>How will we know if we achieve our objective?</i>
<p>To collect, treat and dispose of the city's wastewater, so that residues comply with resource consent conditions and do not endanger the health of the community or the environment.</p>	<p><b>Strategies:</b></p> <ul style="list-style-type: none"> <li>• Wastewater Asset Management Plan</li> </ul> <p><b>Drivers:</b></p> <ul style="list-style-type: none"> <li>• Protection of public and environmental health</li> <li>• Commercial wastewater disposal needs</li> <li>• Urban form and extent</li> <li>• Population growth</li> <li>• Climate and season</li> </ul>	<p>Collecting, treating and disposing of the city's wastewater.</p>	<p>Continue to do the same.</p> <p>Major sewer upgrade project to increase capacity and reduce the risk of overflows. Ocean outfall pipeline to release treated effluent directly into the ocean to minimise risks to the community and environment. To be completed by year 3.</p>	<p>Non-occurrence of public health issues attributable to the wastewater system or ocean outfall.</p> <p>Number of major or persistent breaches of the resource consent by the wastewater treatment plant.</p> <p>The Ocean Outfall Development proceeds within the Council approved budget and timeframe.</p> <p>Mains blockages and non-consented overflows.</p> <p>Number of ongoing incidents of objectionable odour from the treatment plant.</p> <p>Number of wet weather sewer overflows into rivers and waterways, per year.</p>	

# Wastewater collection and treatment

## Measuring our achievements

Measures and targets	Current performance	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Number of public health issues attributable to the wastewater system.	Zero reported by the Ministry of Health.	Maintain zero reported by the Ministry of Health.									
Number of major or persistent breaches of the resource consent by the wastewater treatment plant (e.g. for pathogen control, nutrients and odour).	One breach (due to ammonia).	Ongoing									
Each year the Ocean Outfall Development proceeds within the Council approved budget and timeframe.	Budget revised and on time.	On budget and on time.			Project completed						
% of mains blockages and non-consented overflows responded to within one hour of Council notification.	90% responded to within one hour.	Maintain 90% responded to within one hour.									
Number of widespread and/or ongoing incidents reported, per year, of objectionable odour from the treatment plant.	5	Maintain	Maintain	Maintain	Maximum of 1 incident, per year, of objectionable odour.						
Number of wet weather sewer overflows into rivers and waterways, per year (10-year rolling average).	3	4 or fewer	Maintain	Maintain	Maintain	Maximum of 1 overflow event every 2 years, based on a 10 year rolling average.					

## What negative effects or risks can occur in relation to wastewater collection, treatment and disposal?

Negative effects	Mitigation options
Sewage overflows during wet weather.	<ul style="list-style-type: none"> <li>• Increase wastewater collection and transportation capacity (e.g. major sewer upgrade project).</li> <li>• Improved monitoring and control of the collection system.</li> </ul>
Greater quantities of wastewater due to increasing population and business activity.	<ul style="list-style-type: none"> <li>• Improvements to the treatment facilities to increase the capacity and the level of treatment applied to the wastewater and the release of wastewater into the sea.</li> <li>• A new pipeline from the Belfast facility to the Bromley treatment plant.</li> </ul>
Environmental impact of discharging wastewater into the estuary.	<ul style="list-style-type: none"> <li>• Improvements to the treatment facilities to increase the level of treatment applied to wastewater.</li> <li>• The ocean outfall development will release treated wastewater directly into the sea.</li> </ul>





# Wastewater collection and treatment

## The Council's key assets relating to wastewater treatment, collection and disposal

Wastewater collection system - 1,600 km

Wastewater treatment plant - 1 (Bromley)

### Maintaining our assets

Maintenance of the assets is provided by service providers under long-term contracts. The development of new infrastructure is competitively tendered.

Typical renewal/replacement periods for key assets include:

- Wastewater mains - every 50 to 150 years
  - Wastewater laterals - every 50 to 150 years
  - Pump station equipment - every 25 to 50 years
  - Wastewater treatment plant - buildings every 30 years  
- treatment equipment every 20 years
- } Depending on the size and type of material



## Changes planned for assets

<i>Reason for change</i>	<i>What will be done?</i>	<i>Year 1 cost (\$ 000)</i>	<i>Year 2 cost (\$ 000)</i>	<i>Year 3 cost (\$ 000)</i>	<i>Years 4 to 10 cost (\$ 000)</i>
Renewals and replacements	Assets are maintained in accordance with the Wastewater Asset Management Plan including replacement of pipes (3.2 km per year), pump stations and treatment facilities, depending on the age and condition of the asset.	17,087	11,967	11,351	156,903
Increased levels of service	Assets will be added in accordance with the Wastewater asset management plan including new pipes, pump stations and treatment facilities.	22,781	37,745	17,190	30,226
Increased demand	Sewer improvements are planned in the areas of pumping systems, treatment plant automation and aeration, treatment enhancements and the ocean outfall project.	15,067	23,412	11,049	15,824

# Wastewater collection and treatment

## Wastewater collection and treatment

<b>Cost of proposed services</b>	CCC 2006/07 \$000's	BPDC 2006/07 \$000's	Total Plan 2006/07 \$000's	Plan 2007/08 \$000's	Plan 2008/09 \$000's	Forecast 2009/10 \$000's	Forecast 2010/11 \$000's	Forecast 2011/12 \$000's	Forecast 2012/13 \$000's	Forecast 2013/14 \$000's	Forecast 2014/15 \$000's	Forecast 2015/16 \$000's
<b>Activity operational cost -</b>												
Wastewater collection	20,059	-	20,059	20,939	22,028	23,343	24,778	25,872	26,811	27,749	28,576	29,277
Wastewater treatment and disposal	10,540	1,573	12,113	13,547	15,866	17,408	18,630	19,750	20,884	21,957	22,815	23,003
<b>Total expenditure</b>	<b>30,599</b>	<b>1,573</b>	<b>32,172</b>	<b>34,486</b>	<b>37,894</b>	<b>40,751</b>	<b>43,408</b>	<b>45,622</b>	<b>47,695</b>	<b>49,706</b>	<b>51,391</b>	<b>52,280</b>
<b>Activity operational revenue -</b>												
Wastewater collection	16	-	16	17	17	17	18	18	19	19	19	20
Wastewater treatment and disposal	3,443	-	3,443	3,553	3,663	3,764	3,861	3,952	4,035	4,113	4,181	4,251
Capital revenues	2,606	73	2,679	6,764	8,183	9,598	11,064	10,597	10,672	10,726	10,751	10,774
<b>Total operational revenue</b>	<b>6,065</b>	<b>73</b>	<b>6,138</b>	<b>10,334</b>	<b>11,863</b>	<b>13,379</b>	<b>14,943</b>	<b>14,567</b>	<b>14,726</b>	<b>14,858</b>	<b>14,951</b>	<b>15,045</b>
<i>Fees and charges</i>	<i>6,065</i>	<i>73</i>	<i>6,138</i>	<i>10,334</i>	<i>11,863</i>	<i>13,379</i>	<i>14,943</i>	<i>14,567</i>	<i>14,726</i>	<i>14,858</i>	<i>14,951</i>	<i>15,045</i>
<i>Grants and subsidies</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
<b>Total operational revenue (by source)</b>	<b>6,065</b>	<b>73</b>	<b>6,138</b>	<b>10,334</b>	<b>11,863</b>	<b>13,379</b>	<b>14,943</b>	<b>14,567</b>	<b>14,726</b>	<b>14,858</b>	<b>14,951</b>	<b>15,045</b>
<b>Net operational cost</b>	<b>24,534</b>	<b>1,500</b>	<b>26,034</b>	<b>24,152</b>	<b>26,031</b>	<b>27,372</b>	<b>28,465</b>	<b>31,055</b>	<b>32,969</b>	<b>34,848</b>	<b>36,440</b>	<b>37,235</b>
Vested assets	1,799	-	1,799	1,865	1,928	1,989	2,047	2,103	2,154	2,201	2,244	2,287
<b>Net cost of services</b>	<b>22,735</b>	<b>1,500</b>	<b>24,235</b>	<b>22,287</b>	<b>24,103</b>	<b>25,383</b>	<b>26,418</b>	<b>28,952</b>	<b>30,815</b>	<b>32,647</b>	<b>34,196</b>	<b>34,948</b>
<b>Capital expenditure</b>												
Renewals and replacements	14,612	516	15,128	12,244	14,172	27,999	25,215	25,018	28,764	22,829	18,471	19,076
Improved service levels	23,620	5	23,625	35,016	20,182	2,578	2,198	2,712	7,939	8,338	1,443	1,484
Increased demand	14,967	100	15,067	21,613	13,288	2,260	1,396	1,586	3,486	2,967	1,269	1,261
<b>Total capital expenditure</b>	<b>53,199</b>	<b>621</b>	<b>53,820</b>	<b>68,873</b>	<b>47,642</b>	<b>32,837</b>	<b>28,809</b>	<b>29,316</b>	<b>40,189</b>	<b>34,134</b>	<b>21,183</b>	<b>21,821</b>

### Rationale for activity funding (see also the Revenue and Financing Policy, page 267)

User charges for certain services, such as trade waste, are collected at levels considered reasonable by the Council. The level of revenue sought from these activities by the Council for the 10 years covered by the LTCCP is illustrated above. The balance of the net operating cost is funded by a targeted rate on serviced properties based on capital value.

Development contributions are applied towards appropriate capital expenditure. The balance is funded corporately in accordance with the Revenue and Financing Policy. Refer to page 267 for a summary of the corporate funding approach for capital expenditure.