

# SEWERAGE AND SEWAGE



## What we do

This activity comprises the collection, treatment and disposal of sewage from toilets and drains, from the three urban areas of Rotorua (Ngongotaha, city and eastern suburbs) as well as identified rural lakeside communities.

### Functions required for the provision of these services include:

- Strategic planning and improvement of sewerage networks to provide for growth within the district.
- Planning and implementation of renewal work to ensure infrastructure is maintained.
- Developing maintenance, levels of service and quality standards.
- Management and maintenance of assets and services including monitoring of flow and sewerage treatment effluent quality.
- Developing emergency and contingency plans to ensure the service is maintained during adverse events.
- Educating and informing the public regarding sewerage services and sewerage systems.
- Developing funding policies and systems to enable continuing provision of the service into the future.

### Rotorua's key wastewater assets are summarised as follows:

- 1 central wastewater treatment plant
- 1 composting plant
- 1 land effluent disposal system
- 68 pumping stations
- 7,270 manholes
- 418km of sewer gravity and rising mains
- 20,300 lateral connections

## Why we do it

To provide for the removal of sewage and liquid trade wastes from communities, to promote public health and minimise the impact of communities on the environment.



## Major projects

Over the course of the Long-term Plan a number of projects will be undertaken to change levels of service, catch up on deferred works or to provide for additional growth or demands. These projects include:

What is planned?	Why?	Background	Costs	Other options considered
Rural and lakeside wastewater schemes: <ul style="list-style-type: none"> <li>▪ Hamurana/Awahou</li> <li>▪ Gisborne Pt/Hinehopu (Rotoiti)</li> <li>▪ Rotoma</li> <li>▪ Mamaku</li> <li>▪ Tarawera</li> </ul>	The replacement of septic tanks within the catchments of the Rotorua lakes with reticulated sewerage schemes is a key part of the strategy to improve the quality of lake water.	Extensive studies of nutrient inputs to Rotorua lakes has led to a programme of sewerage of lakeside and rural communities.	2013 Hamurana/Awahou \$3,500,000  2013-2015 Gisborne Pt/ Hinehopu (Rotoiti) \$14,276,800  2013 Rotoma \$11,004,000  2013-2016 Mamaku \$7,625,000  2017-2019 Tarawera \$16,401,000	<ul style="list-style-type: none"> <li>▪ There are no other options to remove the input of septic tanks to the lakes.</li> <li>▪ The alternative to a community sewerage scheme is the regional council requirement that all existing septic tanks must be replaced by modern OSET tanks at a high individual cost.</li> </ul>
Reporoa wastewater scheme	The Reporoa village has had historic problems with high water tables reducing the effectiveness of septic tank and effluent disposal systems.	A reticulated sewer system will eliminate these problems and improve public health and environmental outcomes.	2019-2021 \$6,418,000	<ul style="list-style-type: none"> <li>▪ There are no other viable options.</li> </ul>
Terax thermal deconstruction plant	This project will achieve the aim of beneficially re-using waste products from the treatment process, reducing biosolid disposal costs and providing a low-cost carbon source for use in the treatment process.	The process has evolved through a partnership with SCION and a pilot plant is currently operating to confirm the viability and operating parameters of the full scale plant.	2013-2015 \$5,206,720 External funding of \$3.9 million	<ul style="list-style-type: none"> <li>▪ Various options for disposal of biosolids have been explored including landfilling, vermicomposting and combustion for energy generation. This process provides the most promising benefits for this and possibly other waste streams.</li> </ul>






## Major projects cont.

What is planned?	Why?	Background	Costs	Other options considered
Land treatment renewal	The existing area for effluent irrigation is not providing the desired level of nutrient removal, and there are some potential conflicts in land use with other users. Additional area would reduce the effluent loading to more acceptable levels.	It is currently not possible to meet one of the consent parameters relating to nutrient removal in the Whakarewarewa Forest. The forest manager also has concerns about shared use of the forest alongside commercial forestry operations.	2016 \$3,306,900	<ul style="list-style-type: none"> <li>The community will always produce significant amounts of treated effluent. The only options are discharge direct to water or to land, or additional treatment and re-use. Cultural and aesthetic concerns preclude disposal to water and re-use.</li> </ul>
Eastern and Victoria Street Arterial services moving	Large roading reconstruction projects always carry a requirement for replacement or moving of underground services within the road corridor. While some are funded by the roading project budget, there are invariable costs which have to be met by the relevant utility authority.	Both these roading projects have been planned for some time, and are now within the ten year horizon of this plan.	2017-2018 Eastern Arterial \$400,000 2016 Victoria Street \$400,000	<ul style="list-style-type: none"> <li>There are no other options.</li> </ul>



## Measuring our achievements

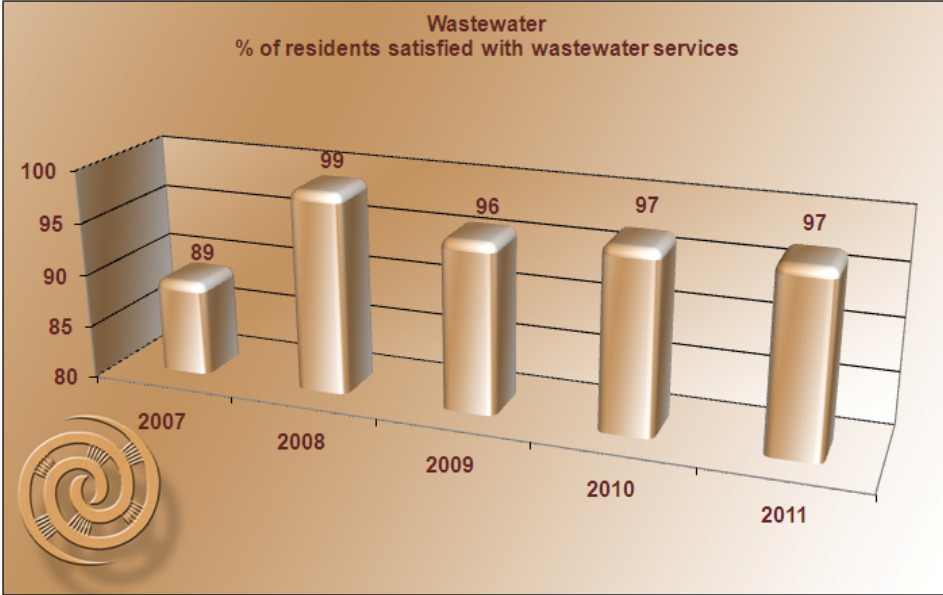
Council will measure its achievements towards the objectives by monitoring the following set of performance measures and targets:

Community outcome	How council contributes	Level of service (What we will do)	Performance measure	Performance targets					
				Current performance 2010/11	Data source	2012/13	2013/14	2014/15	2016 to 2022
 Healthy	<ul style="list-style-type: none"> <li>By providing a sanitary wastewater collection and treatment service.</li> </ul>	Provide sewerage systems that are safe, reliable and sustainable.	Reduction in number of household unit equivalents discharging to septic tanks.	New measure	Completion report of all new schemes installed	Hamurana 560 Rotoiti 480 Rotoma 252 connected	N/A	Tarawera 393 Mamaku 243 connected	N/A
			Less than 14 overflows caused by network faults (per 100km of mains) annually.	13.8	Overflows report	14	14	14	14
 Excellent Facilities and Services	<ul style="list-style-type: none"> <li>By providing good, quality infrastructure for the future.</li> </ul>		95% of customers are very/fairly satisfied with wastewater services.	97%	Community satisfaction survey	95%	95%	95%	95%
			95% of overflows responded within 1 hour.	New measure	Hansen database	95%	95%	95%	95%
 Environment	<ul style="list-style-type: none"> <li>By protecting the environment and lake water quality through wastewater treatment.</li> </ul>		100% of consent conditions complied with.	99%	Bay of Plenty Regional Council compliance reports	100%	100%	100%	100%

## Performance

In order to plan for the future and ensure services are meeting our community's needs and expectations we assess past performance and feedback from the community.

### Community Satisfaction Survey Results



## Issues/Risks/Negative impacts

Potential negative effects associated with undertaking the activity are described below along with actions undertaken to mitigate the effect. Effects from the activity can influence the social, cultural, environmental and economic wellbeing of the community/district. The negative effect could be physical or a perception.

Issue/Risk/Negative impact	Action Plan
Greater quantities of sewage and sludge due to increasing population and business activity.	Ongoing asset and activity management planning to ensure infrastructure has the required capacity.
Environmental impact of sewage on lake water quality.	Ongoing management and capital works to ensure that Resource Consent conditions are met.
Sewage overflows during wet weather.	Planned replacement and/or upgrades of pipework and infrastructure.
Odour from wastewater treatment plant sludge.	Ensure that parameters within odour management plan are complied with.

## Asset management

### Key assets

The key assets associated with this activity are the:

- Buildings – Pump Stations 83
- Low pressure grinder pump station 828
- Gravity mains 415.816 km
- Pressure mains 132.3 km
- Structures (tanks, wet wells, manholes) 8018 No.

### Maintaining our assets

Council assets are maintained as per agreed specifications within service contracts. The performance of assets is regularly reviewed to ensure that current levels of service/community expectations are still being met by the asset/s. Major works are competitively tendered out to specialised contractors ensuring that the final product is of a high standard and delivered at a competitive cost to Council. A separate Asset Management Plan details the full lifecycle management of the asset/s.

### Major changes planned for assets

Reason for change	What will be done?	Year 1 (\$000)	Year 2 (\$000)	Year 3 (\$000)	Year 4-10 (\$000)
Increase level of service/backlog	Wastewater treatment and disposal upgrade	-	-	-	3,307
	New sewerage scheme at Gisborne Pt/Hinehopu (Rotoiti)	520	3,331	1,880	-
	New sewerage scheme at Hamurana and Awahou	1,050	-	-	-
	New sewerage scheme at Mamaku	45	233	648	2,505
	Reporoa sewerage scheme	-	-	-	6,418
	Terax thermal deconstruction plant	3,100	2,107	-	-
Increased demand	New sewerage scheme at Gisborne Pt/Hinehopu (Rotoiti)	780	4,966	2,820	-
	New sewerage scheme at Hamurana and Awahou	2,450	-	-	-
	New sewerage scheme at Mamaku	55	285	793	3,062
	New sewerage scheme at Rotoma	4,800	6,204	-	-
	New sewerage scheme at Tarawera	-	-	-	16,401
Renewal and replacement	Land treatment renewals	364	2,270	19	2,110
	Pump station renewals	172	103	256	3,211
	Treatment plant renewals	240	2,296	262	7,662
	Urban sewer pipelines replacements	1,500	1,035	1,067	9,476
<b>Total</b>		<b>15,076</b>	<b>22,830</b>	<b>7,746</b>	<b>54,151</b>

### Activity assumptions used in providing this activity

This activity has been prepared in line with council's significant forecasting assumptions.

In addition an assumption has been made that council will receive a subsidy for the TERAX thermal deconstruction plant. An application has been submitted to the Ministry for the Environment. If this application is not successful the project will not proceed.



## Sewerage and Sewage - Funding Impact Statement

	Annual Plan	Long-term Plan Budget >>									
	Budget 2011/12 (\$000)	2012/13 (\$000)	2013/14 (\$000)	2014/15 (\$000)	2015/16 (\$000)	2016/17 (\$000)	2017/18 (\$000)	2018/19 (\$000)	2019/20 (\$000)	2020/21 (\$000)	2021/22 (\$000)
<b>Sources of operating funding</b>											
General Rates, uniform annual general charges, rates penalties	-	-	-	-	-	-	-	-	-	-	-
Targeted rates (other than a targeted rate for water supply)	10,156	10,131	10,229	10,432	10,639	10,957	11,286	11,624	11,971	12,329	12,697
Subsidies and grants for operating purposes	-	-	-	-	-	-	-	-	-	-	-
Fees, charges and targeted rates for water supply	5	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads recovered	761	768	800	837	866	903	930	958	990	1,024	1,060
Local authorities fuel tax, fines, infringement fees and other receipts	477	1,024	831	839	1,036	1,029	1,149	1,258	1,330	1,491	1,696
<b>Total operating funding (A)</b>	<b>11,399</b>	<b>11,923</b>	<b>11,860</b>	<b>12,108</b>	<b>12,541</b>	<b>12,889</b>	<b>13,365</b>	<b>13,840</b>	<b>14,291</b>	<b>14,844</b>	<b>15,453</b>
<b>Applications of operating funding</b>											
Payments to staff and suppliers	4,263	5,790	5,691	5,659	5,440	5,629	5,724	5,927	6,146	6,316	6,524
Finance costs	496	787	937	1,291	1,707	1,751	1,892	2,153	2,394	2,490	2,482
Internal charges and overheads applied	3,341	2,729	2,831	2,923	3,025	3,080	3,161	3,251	3,350	3,456	3,555
Other operating funding applications	-	-	-	-	-	-	-	-	-	-	-
<b>Total applications of operating funding (B)</b>	<b>8,100</b>	<b>9,306</b>	<b>9,459</b>	<b>9,873</b>	<b>10,172</b>	<b>10,460</b>	<b>10,777</b>	<b>11,331</b>	<b>11,890</b>	<b>12,262</b>	<b>12,561</b>
<b>Surplus (deficit) of operating funding (A - B)</b>	<b>3,300</b>	<b>2,617</b>	<b>2,401</b>	<b>2,235</b>	<b>2,369</b>	<b>2,429</b>	<b>2,588</b>	<b>2,509</b>	<b>2,401</b>	<b>2,582</b>	<b>2,892</b>
<b>Sources of capital funding</b>											
Subsidies and grants for capital expenditure	6,925	10,766	7,935	-	4,700	-	-	6,838	-	2,500	-
Development and financial contributions	264	231	239	246	322	401	480	562	648	738	831
Increase (decrease) in debt	-	-	-	-	1	-	-	(2)	(1)	2	-
Gross proceeds from sale of assets	-	-	-	-	-	-	-	-	-	-	-
Lump sum contributions	1,346	1,293	2,068	2,542	2,185	1,788	1,804	3,613	2,295	3,214	2,473
<b>Total sources of capital funding (C)</b>	<b>8,535</b>	<b>12,290</b>	<b>10,242</b>	<b>2,788</b>	<b>7,208</b>	<b>2,189</b>	<b>2,284</b>	<b>11,011</b>	<b>2,942</b>	<b>6,454</b>	<b>3,304</b>
<b>Applications of capital funding</b>											
Capital expenditure											
- to meet additional demand	12,786	8,099	11,435	3,601	3,062	456	3,532	12,413	-	-	-
- to improve the level of service	2,087	4,701	5,670	2,540	5,812	-	-	243	3,029	3,146	-
- to replace existing assets	2,851	2,276	5,704	1,605	2,386	4,113	2,083	4,957	3,583	2,542	2,796
Increase (decrease) in reserves	(5,888)	(169)	(10,166)	(2,723)	(1,683)	49	(743)	(4,093)	(1,269)	3,348	3,400
Increase (decrease) in investments											
<b>Total applications of capital funding (D)</b>	<b>11,836</b>	<b>14,907</b>	<b>12,643</b>	<b>5,023</b>	<b>9,577</b>	<b>4,618</b>	<b>4,872</b>	<b>13,520</b>	<b>5,343</b>	<b>9,036</b>	<b>6,196</b>
<b>Surplus (deficit) of capital funding (C - D)</b>	<b>(3,300)</b>	<b>(2,617)</b>	<b>(2,401)</b>	<b>(2,235)</b>	<b>(2,369)</b>	<b>(2,429)</b>	<b>(2,588)</b>	<b>(2,509)</b>	<b>(2,401)</b>	<b>(2,582)</b>	<b>(2,892)</b>
<b>Funding balance ((A - B) + (C - D))</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>