

# Sewerage Treatment Group



126

The wastewater system carries liquid wastes from households, businesses and community facilities. It treats and disposes of the effluent to minimise the risk to the environment and public health.

## Activity: Sewerage treatment

Council's vision is that the Far North's coastal marine, river waters and lakes are healthy at all times, so that they support healthy marine and freshwater ecosystems, recreational use, fishing and shellfisheries.

Sewage treatment plants, pumping stations and reticulation systems contribute by controlling the quality of effluent and minimising the risk of sewage overflows and spills.

The work programme is driven by community expectations about the quality of our environment and the need for sustainability by reducing our overall impact on the environment, both now and in the future.

The sewerage activity is one of the core activities of Council as confirmed by statute in the Local Government Act (LGA). Generally, the LGA requires the continued operation of any sewerage system that Council operated at the time the LGA was passed and the continued operation of any new system that Council constructs after that date.

### Key facts

Council operates and maintains:

- 18 wastewater systems.
- 17 wastewater treatment plants (11 ponds, 4 activated sludge plants).
- 333 km of sewer pipes.
- 150 pumping stations.
- 9,593 properties are connected to Council's systems.

**Council also:**

- Monitors maintenance of on site sewage disposal systems.
- Provides treatment and reception services for on site septage discharged by commercial operators.



## Our major achievements in 2012/13

### Highlights of our progress during 2012/13 include:

- Council's Long-Term Plan (LTP) envisaged a \$2.8 million upgrade to the current Hihi plant. Council has spent \$400,000 on a new filtration and UV system that enabled the plant to comply with the resource consent.
- A two month community consultation on the Bay of Islands Wastewater Treatment Scheme options for treating and disposing of treated wastewater is complete. The marketing campaign "Let's Talk Crap" was a great success, receiving over 600 submissions from the affected communities. Council are preparing, through the draft Annual Plan 2014/15 planning and decision-making process, a decision towards a positive community outcome.
- Council have deconstructed the original Bay of Islands scheme into two smaller schemes, one for Kerikeri and Paihia, and have applied to Northland Regional Council for a reduced standard of treatment for Paihia in line with the lower than expected treatment volume. In collaboration with Transfield Services Ltd alternate treatment options have been designed and priced for upgrading the Paihia treatment ponds, as well as pricing treatment options for Kerikeri. From this work, the overall capital investment saving given acceptance by Northland Regional Council of the resource consent change, will be in the order of \$9 million.
- Working with a research group at Auckland University who have developed a prototype for disinfecting treated wastewater using nano particle titanium for concentrating the ultraviolet in sunlight. A small test unit has been built to trial the effectiveness of the solution since it offers strong potential to provide a low cost solution to current high cost ultra violet treatment alternatives.
- Existing septic tanks have been replaced with new low pressure sewer systems in Awanui and Opuā.
- Feasibility study and resource consent consideration completed for the new treatment plant in Whangaroa.
- Providing forums for better engagement with the community and informed involvements in the operation of local infrastructure.
- Council worked with the community liaison group appointed by the Environmental Court on the proposed changes to the resource conditions for the Rawene Wastewater Treatment Scheme. The outcome was a success for Council and a community saving of \$100,000 in court fees.
- Developed a bio solids business model for Council to remove the sludge from the ponds, partially dewater and then combine the sludge with green waste, and using advanced management of a worm treatment method turn the sludge in a product suitable for land distribution. The intention is that with appropriate marketing and distribution, the sale of the enriched product recovered from the process will cover all processing costs.
- Council has completed the installation of a new Council designed wastewater system in Kaeo leveraging the pond system. The savings from the LTP budget was over \$600,000 allowing for the possibility of an ultraviolet (UV) plant addition if required. The community collaborated with staff to plant a wetland from locally sourced plant material.

## Challenges we experienced

- Cost management is a key focus for projects with a diverse range of options, including new technologies being explored and in some cases introduced. This was particularly challenging for staff, many of whom were new to the organisation, or have new roles, and therefore limited experience. Thus placing a heavy load on senior staff, requiring them being involved in detailed oversight of operational areas.
- Council lag significantly behind the larger councils when measured against some of the Asset Management Plans

- criteria. Council has recognised this weakness and is now advancing a project to develop an integrated Asset Management System.
- Hot weather across the district caused low dissolved oxygen levels in many wastewater treatment ponds causing consent limits to be exceeded for short periods. Kaikohe was particularly affected by this with rising levels of algae in the ponds occurring.

## Plans for the next 12 months

- Prioritise and commence district wide inflow and infiltration assessment works.
- Commence the Kaikohe Treatment Plant upgrade.
- Creation of sludge drying facility at Kaitaia Sewerage Treatment Pond.

- The conclusions derived from the Bay of Islands Wastewater Treatment Scheme consultation with ratepayers in July/August 2013 will be used to inform and develop key cost elements in the 2014/15 Annual Plan.
- For further information go to [www.letstalkcrap.co.nz](http://www.letstalkcrap.co.nz)

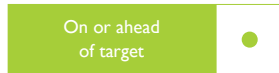
## How we performed against the first year of the Long-Term Plan (LTP) 2012/22

The tables below reflect the progress of our key work during 2012/13. Each action/project is linked to the strategic objectives and priorities set in the LTP. The progress at the end of the financial year against each action/project has been represented by:



Strategic Objective:  
Investment in new infrastructure as and when affordable.

2012/13 Action/project	Background	Progress
<b>PRIORITY I: Council will upgrade treatment plants to meet Resource Consent renewals.</b>		
Kaeo sewerage treatment plant upgrade in progress	Kaeo sewerage treatment plant upgrade to meet resource consent renewal standards	●
<b>Progress comments:</b> Plant upgrade has been commissioned and is undergoing performance testing at present. There may be a requirement to add a final UV disinfection process if resource consent compliance cannot be achieved. Discussions are being held with Northland Regional Council on current performance and final need for UV treatment.		
Hihi sewerage treatment plant upgrade	Hihi sewerage treatment plant upgrade to meet resource consent renewal standards	●
<b>Progress comments:</b> Construction of new filters and UV equipment is complete.		



2012/13 Action/project	Background	Progress
<b>PRIORITY 2: Provide sewer reticulation extensions and upgrades.</b>		

Awanui reticulation replacement	Awanui Effluent Disposal System (EDS) replacement	●
<p><b>Progress comments:</b> Construction works in progress, 98% pumps installed. Transfer rising main to Kaitaia completed and final pump station under construction.</p>		

Opua reticulation extension	Opua new reticulation system	●
<p><b>Progress comments:</b> Construction completed.</p>		

2012/13 Action/project	Background	Progress
<b>PRIORITY 3: Improvements in customer levels of service.</b>		

Reduce sewer spills	Reduction in sewer spills through increased sewer maintenance	●
<p><b>Progress comments:</b> Sewer spills have reduced by approximately 50% since November 2012. Pipe replacement work is being carried out under the renewals programme on an 'as needs' and identified basis. Routine pipe hydroblasting has assisted in the reduction of spills. The implementation of closed-circuit television (CCTV) work as a preventive maintenance measure is being investigated.</p> <p>Each sewer spill to land or water regardless of quantity is investigated and discussed with our contractor and mitigation measures put in place which in most cases requires some level of renewal work. Transfield Services Ltd and Council will compare blockage data with similar councils and industry standard figures.</p>		

Odour remedies	Reduction in odour complaints	●
<p><b>Progress comments:</b> The Kerikeri Wastewater Treatment Plant and Paihia waterfront are known odour areas. Actions relating to the Kerikeri Wastewater Treatment Plant include ensuring the covers on sedimentation tanks are closed after maintenance activities. Discussion at present regarding minor refurbishment of the bark biofilter. An odour complaint regarding the Kaikohe ponds resulted in an action to ensure the screenings bin is regularly limed.</p> <p>There have been no recorded odour complaints relating to the Paihia waterfront for several months.</p>		

## Community Outcome: A Safe and Healthy District and a Sustainable and Liveable Environment

**About this Outcome:** Wastewater systems support and promote safe and healthy conditions and sewerage treatment does not adversely effect the environment.

Actual achievements against the Key Performance Indicators (KPI) and targets that the Council uses to monitor levels of service are detailed below:

KPI: Number of sewage spills to water	LTP Target	Result 2012/13												
<b>ACHIEVED:</b> Council achieved this by a risk analysis of facilities most likely to cause spillage, and focusing attention and resources to manage those risks appropriately.	<10	8												
Graph shown below details a three year view of performance:														
<table border="1"> <caption>Number of sewage spills to water (2009/10 to 2011/12)</caption> <thead> <tr> <th>Year</th> <th>Target</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>2009/10</td> <td>11</td> <td>4</td> </tr> <tr> <td>2010/11</td> <td>10</td> <td>11</td> </tr> <tr> <td>2011/12</td> <td>9</td> <td>8</td> </tr> </tbody> </table>			Year	Target	Result	2009/10	11	4	2010/11	10	11	2011/12	9	8
Year	Target	Result												
2009/10	11	4												
2010/11	10	11												
2011/12	9	8												

130

KPI: Percentage of requests for service (RFS) responded to in set time for sewerage	LTP Target	Result 2012/13												
<b>ACHIEVED:</b> 106 incidents resolved within the timeframe and 6 incidents resolved outside the timeframe.	95%	98%												
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2009/10	92%	99%												
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KPI: Percentage compliance with resource consents discharge flow limits	LTP Target	Result 2012/13
<b>ACHIEVED:</b> The contract target for flow limit compliance – 2012/13 was 95%. Transfield Services Ltd are responsible for monitoring effluent (final) discharges from all wastewater schemes and achieved a success rate of 96%. Monitoring data is supplied to the Northland Regional Council as required for each schemes' resource consent.	95%	96%
Several schemes experienced flow exceedances primarily due to high rainfall events during winter months and on rare occasions, mechanical failure of flow monitoring instrumentation.		
Schemes affected by rainfall events from July to September 2013 were: Kawakawa, Paihia and Opononi. Kaitaia and Kaeo experienced intermittent flow monitoring equipment failure.		
KPI above is <b>new</b> in the LTP 2012/13. Unable to provide a three year view of performance.		

KPI: Percentage compliance with resource consents quality limits	LTP Target	Result 2012/13
<p><b>ACHIEVED:</b> The contract target for quality limit compliance – 2012/13 was 95%. Transfield Services Ltd are responsible for monitoring the effluent biological quality from all wastewater schemes and achieved a success rate of 96%.</p> <p>There is an extensive range of biological limits that are monitored for schemes including: Total suspended solids, Ammonia, E-Coli, Faecals and Nitrogen. The 17 schemes vary in biological treatment processes from basic oxidation ponds/wetlands to activated sludge plants. Some schemes experience intermittent quality limit consent breaches due to seasonal variance and/or unachievable limits prescribed in the scheme resource consent. Council is pursuing some minor consent changes with Northland Regional Council relating to these issues.</p> <p>Equipment upgrades have been scheduled and completed at some schemes during 2012/13 to help achieve compliance such as the installation of UV disinfection at Hihī and Kaikohe.</p>	95%	96%
<p><i>KPI above is <b>new</b> in the LTP 2012/13. Unable to provide a three year view of performance.</i></p>		

# Financial Information Sewerage Treatment Group

## FINANCIAL SUMMARY FOR THE YEAR ENDED 30 JUNE 2013

	NOTE	ACTUAL 2013 \$000s	COUNCIL BUDGET 2013 \$000s	VARIANCE \$000s
<b>Income</b>				
Rates income (excluding targeted water supply rates)	1	11,381	10,687	694
Fees, charges & targeted water supply rates		156	231	(75)
Development & financial contributions	2	653	0	653
Subsidies & grants	3	5,060	5,757	(698)
Other income	4	431	4	427
<b>Total operating income</b>		<b>17,681</b>	<b>16,680</b>	<b>1,002</b>
<b>Expenditure</b>				
Direct costs	5	6,037	4,579	(1,458)
Indirect costs	6	458	636	178
<b>Activity expenditure</b>		<b>6,495</b>	<b>5,215</b>	<b>(1,280)</b>
Depreciation		3,522	3,493	(29)
Interest payable		1,320	1,711	392
<b>Total operating expenditure</b>		<b>11,337</b>	<b>10,419</b>	<b>(918)</b>
<b>Net operating surplus/(deficit)</b>		<b>6,344</b>	<b>6,260</b>	<b>84</b>
<b>Capital statement</b>				
Net operating surplus		6,344	6,260	84
Loans		3,275	8,659	(5,384)
Other funding		1,440	4,482	(3,042)
<b>Total funding</b>		<b>11,060</b>	<b>19,402</b>	<b>(8,342)</b>
New work	7	8,687	15,149	6,463
Renewal works	7	678	2,622	1,944
Loan repayments		1,375	1,631	256
<b>Total capital expenditure</b>		<b>10,740</b>	<b>19,402</b>	<b>8,662</b>
<b>NET SURPLUS/(DEFICIT)</b>		<b>320</b>	<b>0</b>	<b>320</b>

### NOTE:

A favourable variance is shown as a positive number and an unfavourable variance is shown as a negative number.

The direct and indirect budgets shown in the table do not individually agree to those published in the LTP due to a difference in allocation. The total activity expenditure, however, does agree to the total published in the LTP.

### VARIANCE TO THE LONG TERM PLAN 2012/13

1. Rates income is showing a favourable variance of \$694k predominantly due to:
  - a. An increase in penalty rate income of \$781k.
2. Development and financial contributions are showing a favourable variance of \$653k:
  - a. Lump sum capital contributions to an upgrade to the Opuia reticulation scheme were received of \$174k and other contributions were received of \$67k relating to other works;
  - b. Development contributions of \$413k were received and these were unbudgeted in the LTP.
3. Subsidies and grants are showing an unfavourable variance of \$698k predominantly due to delays in progressing the BOIWW scheme which had been included in part in the LTP budgets.
4. Other income is showing a favourable variance of \$427k predominantly due to:
  - a. Vested assets of \$432k were received during the year and these are unbudgeted.

5. Direct costs are showing an unfavourable variance of \$1,458k predominantly due to:
  - a. Loss on valuation of \$408k;
  - b. Loss on disposal of property, plant & equipment of \$313k;
  - c. Bad debt provisions exceeded budget by \$684k due to increased penalty charges.
6. Indirect costs are showing a favourable variance of \$178k due to a decrease in corporate allocations.
7. Capital expenditure is showing a favourable variance of \$8,407k predominantly due to delays in the commencement of projects.

#### KEY CAPITAL PROJECTS FOR THE YEAR ENDED 30 JUNE 2013

	ACTUAL 2013 \$000s	COUNCIL BUDGET 2013 \$000s	VARIANCE \$000s
<b>New works</b>			
Wastewater schemes	8,687	15,149	6,463
<b>Total new works</b>	<b>8,687</b>	<b>15,149</b>	<b>6,463</b>
<b>Renewals</b>			
Wastewater schemes	678	2,622	1,944
<b>Total renewals</b>	<b>678</b>	<b>2,622</b>	<b>1,944</b>

133

#### SIGNIFICANT ACQUISITIONS OR REPLACEMENTS OF ASSETS FOR 2012/13

The Local Government Act 2002 requires councils to provide information regarding any significant assets acquired or replaced during the year. Council's significance policy does not specify a value but does identify the following assets as significant:

WASTEWATER NETWORKS AND TREATMENT	BUDGET 2013 \$000s	ACTUAL 2013 \$000s
<b>Wastewater schemes</b>		
Hihi treatment plant		
Work to develop a new wastewater scheme for the Hihi area	1,362	437
Opua reticulation subsidy scheme		
Proposed upgrade of the treatment plant for Kaeo	2,930	4,101
Paihia treatment plant		
Proposed upgrade of the treatment plant for Paihia	2,879	37
Awanui reticulation subsidy scheme		
Ongoing minor renewals across the district	3,000	3,134
Bol Wastewater Scheme		
Proposed water source for Kaitaia	3,260	42

#### VARIANCE TO THE ANNUAL PLAN 2012/13

- Hihi treatment plant.  
This project was completed at a significantly lower cost than anticipated.
- Opua reticulation subsidy scheme.  
This project was completed early and funds were brought forward from outer years to achieve this outcome.
- Paihia treatment plant.  
This forms part of the solution to phases 1 and 2 of the Bay of Islands wastewater scheme. Planning for this scheme continues and is expected to be included in the 2014/15 Annual Plan.
- Awanui water reticulation.  
Awanui project progress was affected by design concerns raised over the capacity of the downstream catchment, which required additional modeling work to verify adequacy.
- Bay of Islands wastewater project.  
This forms part of the solution to phases 1 and 2 of the Bay of Islands wastewater scheme. Planning for this scheme continues and is expected to be included in the 2014/15 Annual Plan.