



# Lakes and Rivers

## What we do and why

The management of lakes and river systems within the Taupo District from catchment use and flooding impacts has been a priority for Council for some years. Environmental initiatives undertaken by Council to protect lakes and river systems include being party to the 2020 Taupo-Nui-a-Tia Action Plan<sup>84</sup> and the Protecting Lake Taupo project.

We are working in partnership with Government, Environment Waikato and Tuwharetoa to protect the lake. Under the umbrella of the 2020 Taupo-Nui-a-Tia project, Environment Waikato developed the Protecting Lake Taupo Strategy containing a mix of regulatory and non regulatory methods for managing nitrogen inputs into the Lake. A key method of the Strategy is the establishment of a public fund of \$81.5 million to reduce nitrogen levels in the lake by 20% by 2080. The public fund is to be collected over a period of 15 years with the cost being shared between Taupo District ratepayers (22%), ratepayers in the remainder of the Waikato Region (33%) and from all New Zealanders via Central Government (45%). The fund will be used to help convert nitrogen leaching pastoral land to low nitrogen land uses.

Other roles we have in regards to the Protecting Lake Taupo Project include membership of the Lake Taupo Protection Project Joint Committee which oversees the Lake Taupo Protection Trust, provision of technical support to the Trust as required, being an advocate for the Taupo community on matters relating to lake water quality and fostering and encouraging integrated planning amongst all agencies for lake water quality.

Council also takes specific actions on activities such as flood and erosion investigations and control work. Ongoing research will be undertaken and additional actions will be determined in the Lake Taupo Erosion and Flood Strategy currently being developed. This flood and erosion control is in addition to Council's more traditional 'works-related' activities such as stormwater control and wastewater disposal.

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<sup>84</sup> The 2020 Taupo-Nui-a-Tia Action Plan sets out specific actions to be undertaken by key agencies with responsibility for the lake, including Taupo District Council, Environment Waikato, Department of Internal Affairs, Tuwharetoa Maori Trust Board, Department of Conservation and Lakes and Waterways Action Group. Actions for the Taupo District Council cover a range of areas including stormwater, wastewater and recreation.



## Protecting Lake Taupo Review

As part of the project agreement signed by the Crown, Environment Waikato and Taupo District Council, reviews of the Lake Taupo Protection project must be held at least every five years. These reviews need to consider whether:

- the objectives of the project need to be adjusted
- public fund should be increased or reduced; or whether
- the funders contributions to the project should be discontinued and the project ended.

The first review is scheduled to occur no later than 7 February 2012. However, this review may be brought forward depending on factors such as the outcomes to appeals made to the Environment Court relating to Environment Waikato's Regional Plan Lake Taupo Variation.

## Lake Taupo Erosion and Flood Strategy

The Lake Taupo Erosion and Flood Strategy is currently being developed by Taupo District Council and Environment Waikato. The Strategy will provide greater certainty about how the two councils will manage lakeshore erosion and flooding risks around Lake Taupo. The strategy will set out the actions that the Council's plan to take and who will do what.

Formal submissions have been received on the draft strategy, with hearings and deliberations to take place over June and July 2009. Until the strategy is finalised Council is not able to determine what the specific actions may be, and the associated costs or timeframes.

## What are the significant negative effects?

There is an economic cost to the community of funding Lake Taupo protection measures. There may be an economic cost of funding lakeshore erosion. This will be determined when the funding model is completed as part of the Lake Taupo Erosion and Flood Strategy.

## Link to Council strategies

2020 Taupo-Nui-a-Tia Action Plan  
Protecting Lake Taupo Strategy (Environment Waikato)



## Key organisations that we work with

Environment Waikato  
 Tuwharetoa Maori Trust Board  
 Ministry for the Environment  
 Department of Internal Affairs  
 Lakes and Waterways Action Group  
 Department of Conservation  
 Lake Taupo Protection Trust

## Key actions, projects and services

2009-2010

- Complete Lake Taupo Flood and Erosion Strategy

2010-2012

- Protecting Lake Taupo Project review (must occur no later than 7 February 2012)
- Implement approved actions from the Lake Taupo Flood and Erosion Strategy

2012-2019

- Protecting Lake Taupo Project review (2016/17)
- Protecting Lake Taupo final payment due (2017/18)

## How we'll know we're on track

### Short term

<i>What we want to know</i>	<i>Measure</i>	<i>Source of information</i>	<i>Target</i>
The community is satisfied with how erosion of public land around the shore of Lake Taupo is managed	Percentage of community satisfied with Council's management of erosion on public land around Lake Taupo	TRRSS <sup>85</sup>	70%
The values identified for Lake Taupo in the 2020 Taupo-Nui-a-Tia Action Plan are being protected	Implementation of actions assigned to Council in the 2020 Taupo-Nui-a-Tia Action Plan  Monitoring of key indicators, annually, triennially as appropriate (as assigned to Council in the action plan)	TDC	Achieve <sup>86</sup>  Achieve <sup>87</sup>

<sup>85</sup> Triennial Residents and Ratepayers Satisfaction Survey

<sup>86</sup> Out of 45 actions 42% achieved or on-going; 31% in progress; 27% had not been worked on.

<sup>87</sup> The Joint Management Group has finished its work on monitoring strategy. It has started preparing a report which is scheduled for completion in 2008/09.

## Long term

<i>What we want to know</i>	<i>Measure</i>	<i>Source of information</i>	<i>Target</i>
There is a reduction in nitrogen from Council wastewater systems	Concentrations of domestic wastewater, nitrogen or pathogens in shallow near shore waters of Lake Taupo in the vicinity of wastewater treatment and disposal systems	TDC	Achieve <sup>88</sup>
Council and its partners are working together with the community to reduce the manageable nitrogen load to Lake Taupo	The manageable nitrogen load to Lake Taupo from pastoral land use activities and wastewater reduced by 20% by 2080	TDC	Achieve <sup>89</sup>

<sup>88</sup> In 2007/08 measures showed no increase in nitrogen & pathogen levels

<sup>89</sup> In 2007/08 Nitrogen entering the lake from urban sources reduced by 22%



## Lakes and Rivers - Cost of Service Statement

Operating Funding Requirements	2009/10 (\$,000)	2010/11 (\$,000)	2011/12 (\$,000)	2012/13 (\$,000)	2013/14 (\$,000)	2014/15 (\$,000)	2015/16 (\$,000)	2016/17 (\$,000)	2017/18 (\$,000)	2018/19 (\$,000)
<b>Operating Income</b>										
Targeted rates	1,400	1,436	1,470	1,507	1,546	1,590	1,638	1,682	852	0
Development and/or financial contributions	0	0	0	0	0	0	0	0	0	0
Property Sales	0	0	0	0	0	0	0	0	0	0
Vested assets	0	0	0	0	0	0	0	0	0	0
Other income	130	130	130	130	130	130	130	130	130	130
<b>Total Income</b>	<b>1,530</b>	<b>1,566</b>	<b>1,600</b>	<b>1,637</b>	<b>1,676</b>	<b>1,720</b>	<b>1,768</b>	<b>1,812</b>	<b>982</b>	<b>130</b>
<b>Operating Expenditure</b>										
Operating expenditure	1,140	1,170	1,205	1,243	1,281	1,326	1,374	1,418	660	12
Depreciation and amortisation	3	3	3	2	2	2	2	2	2	1
Finance costs	6	6	5	5	5	4	4	4	4	3
<b>Total Operating Expenditure</b>	<b>1,149</b>	<b>1,179</b>	<b>1,213</b>	<b>1,250</b>	<b>1,288</b>	<b>1,332</b>	<b>1,380</b>	<b>1,424</b>	<b>666</b>	<b>16</b>
<b>Net Deficit (Surplus) of Operations</b>	<b>(381)</b>	<b>(387)</b>	<b>(387)</b>	<b>(387)</b>	<b>(388)</b>	<b>(388)</b>	<b>(388)</b>	<b>(388)</b>	<b>(316)</b>	<b>(114)</b>
<b>Funded by:</b>										
General rates	23	17	17	17	16	16	16	16	16	16
Operating deficit (surplus) from/to reserves	(404)	(404)	(404)	(404)	(404)	(404)	(404)	(404)	(332)	(130)
Recognition of vested assets	0	0	0	0	0	0	0	0	0	0
Depreciation not funded	0	0	0	0	0	0	0	0	0	0
<b>Total Funding Applied</b>	<b>(381)</b>	<b>(387)</b>	<b>(387)</b>	<b>(387)</b>	<b>(388)</b>	<b>(388)</b>	<b>(388)</b>	<b>(388)</b>	<b>(316)</b>	<b>(114)</b>



# Solid Waste

## What we do and why

Council provides a sustainable, safe and cost effective solid waste system for the handling of refuse and recyclables. Council is focused on reducing the amount of waste being disposed of to landfill and so provides recycling and reuse opportunities at the five transfer stations in the district as well as at the final disposal point for refuse, the Broadlands Road Landfill.

Kerbside refuse and recycling collection is provided in the district's urban areas. Refuse collection is a user pays service and recycling is funded through rates. This provides the economic incentive for the community to fully utilise the recycling service.

Council is also focussed on minimising the environmental effects of operating a landfill. Green waste is shredded at all facilities to reduce the amount of greenhouse gases and a gas flare will be installed at the landfill to burn off gas as it is generated.

Environmental monitoring is undertaken at the Broadlands Road Landfill and at three closed landfills in the district to determine effects from the sites and enable them to be managed appropriately.

Litter is collected from street tidy bins on a regular basis and street recycling bins are being provided to enable further reduction of waste to landfill.

Council will review its waste minimisation plan to align it with Central Government and give the community the opportunity to have a say in how waste is managed into the future.

## Assets we use<sup>90</sup>

Broadlands Road Landfill  
Turangi Transfer Station  
Mangakino Transfer Station  
Kinloch Transfer Station  
Omori Transfer Station  
Whareroa Transfer Station  
Litter bins

<sup>90</sup> Asset Management Plans (AMPs) form the basis of Council's planning for the operation, maintenance, renewal and development of its assets and therefore represent a significant portion of the work Council undertakes and its budget. Asset Management Plans are important for long term planning and the maintenance of Council's service capacity. These plans can be viewed on our website [www.taupo.govt.nz](http://www.taupo.govt.nz)

## Implications of the Waste Minimisation Act

The new Waste Minimisation Act has several implications for Council and the community. The first is the introduction from 1 July 2009 of a \$10 per tonne waste levy on all tonnes of waste disposed to landfill. The introduction of the levy will increase the cost of disposal so will provide an incentive for the diversion of waste as well as provide an estimated \$31 million fund to be used nationally for waste minimisation initiatives. Proceeds from the levy will be split, with 50% going to territorial local authorities based on population, and the rest being placed into a contestable fund.

The second implication requires the review of our current waste management plan by no later than 1 July 2012 and then at intervals of not more than six years after the last review. The Ministry for the Environment will be reviewing the targets in the NZ Waste Strategy and will also be developing guidelines as to what should be contained in our waste minimisation plan. Once the targets and guidelines have been determined we will proceed with the review of our waste minimisation plan.

## Gas Flare at Broadlands Road Landfill (2012/13)

Landfills are one contributor of greenhouse gas. The emissions trading legislation therefore has some implications for our Broadlands Road Landfill. There is a cost to install the gas flare infrastructure. However, as we will be able to burn off greenhouse gases, we will be able to reduce the cost implications of meeting the legislation.



## Summary – Assessment of Water and Sanitary Services

### Solid Waste Management

The requirements for Sanitary Assessments for Solid Waste have been fully covered by Council's waste management plan "Waste 2010 the Way Forward" and therefore under section 128 (3)(b) of the Local Government Act 2002, an assessment of this sanitary service is not required.

## Waste 2010 - the Way Forward – Summary<sup>91</sup>

### Goal

To protect and safeguard the Taupo district environment by ensuring refuse is managed and disposed of in a safe, efficient and sustainable manner that maintains natural and aesthetic values.

#### Solid Waste Volume

- To reduce by 25% by volume in the first five years, reaching 40% in total by 2010, the amount of solid waste disposed of in the Landfill, measured against the quantity disposed of 1999/00.
- To provide refuse and recycling sites within 15km of urban areas.
- Full user pays for refuse collection.
- Refuse disposal partial user pays partial rates funded.
- Recycling at kerbside and at disposal site to be funded by rates.
- Broadlands Road Landfill identified as disposal site for district refuse.
- Ownership of Broadlands Road landfill to remain with Council.
- No 'out of district waste' to be disposed of at the Broadlands Road Landfill.
- Council to carry on refuse education campaigns to help minimise waste and address the waste hierarchy of reduction, reuse, recycling, recovery and disposal.

## What are the significant negative effects?

There is an economic cost of providing this service for some sectors of the community.

There is the potential for air emissions from the landfill. Council is planning to construct a gas flare at the Broadlands Road Landfill in 2012/13.

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<sup>91</sup> The Waste Management Strategy was adopted by Council on 26 February 2002.

## Link to Council strategies

Waste 2010 – the Way Forward  
Solid Waste Asset Management Plan 2008  
Solid Waste Bylaw

## Key organisations that we work with

Tauhara Mountain Trust  
Environment Waikato  
Ministry for the Environment  
Ratepayers associations  
NZ Police

## Key actions, projects and services

### 2009-2010

- Covered containment for reusable materials at Mangakino, Kinloch and Whareroa refuse transfer station sites
- Review of Waste 2010 - the Way Forward (Waste Minimisation Plan) subject to the production of targets and guidelines from the Ministry for the Environment.

### 2010-2012

- Cell 2D Broadlands Road Landfill design and construction
- Implement waste minimisation initiatives utilising the waste minimisation levy

### 2012-2019

- Broadlands Road gas flare construction
- Broadlands Road Cell 2E design and construction
- Compaction bin for refuse transfer station compaction sites
- Broadlands Road landfill capping
- Investigation into new landfill sites
- Bylaw review



# How we'll know we're on track

## Short term

<i>What we want to know</i>	<i>Measure</i>	<i>Source of Information</i>	<i>Target<sup>92</sup></i>
Council is protecting the environment by managing solid waste in a safe, sustainable manner	Relevant resource consents are current and are not breached	EW	Achieve <sup>93</sup>
The community is satisfied with refuse and recycling services provided in the urban area	The community is satisfied with recycling and refuse services	TRRSS <sup>94</sup>	75% <sup>95</sup>
Our urban areas are free of litter	Number of complaints of litter/ overflowing rubbish bins	TDC	Complaints are responded to within 12 hours

## Long term

<i>What we want to know</i>	<i>Measure</i>	<i>Source of information</i>	<i>Target<sup>92</sup></i>
There are maximum opportunities to reduce, reuse and recycle solid waste	Percentage reducing of solid waste to landfill	Annual waste to landfill surveys	40% less waste than 1999/2000 volumes <sup>96</sup>

<sup>92</sup> Targets may change once review of the waste minimisation plan process has been finalised in 2009/10.

<sup>93</sup> In 2007/08 we achieved this target

<sup>94</sup> Triennial Residents and Ratepayers Satisfaction Survey

<sup>95</sup> In 2006 there was 80% satisfaction with the rubbish collection service and 78% satisfaction with the recycling service.

<sup>96</sup> In 2007/08 we achieved a 22% reduction.



## Solid Waste - Cost of Service Statement

Operating Funding Requirements	2009/10 (\$,000)	2010/11 (\$,000)	2011/12 (\$,000)	2012/13 (\$,000)	2013/14 (\$,000)	2014/15 (\$,000)	2015/16 (\$,000)	2016/17 (\$,000)	2017/18 (\$,000)	2018/19 (\$,000)
<b>Operating Income</b>										
Targeted rates	1,601	1,773	1,947	2,166	2,321	2,263	2,326	2,537	2,492	2,323
Development and/or financial contributions	0	0	0	0	0	0	0	0	0	0
Property Sales	0	0	0	0	0	0	0	0	0	0
Vested assets	0	0	0	0	0	0	0	0	0	0
Other income	1,995	2,096	2,150	2,211	2,221	2,279	2,343	2,413	2,488	2,572
<b>Total Income</b>	<b>3,596</b>	<b>3,869</b>	<b>4,097</b>	<b>4,377</b>	<b>4,542</b>	<b>4,542</b>	<b>4,669</b>	<b>4,950</b>	<b>4,980</b>	<b>4,895</b>
<b>Operating Expenditure</b>										
Operating expenditure	3,704	3,962	4,085	4,225	4,385	4,512	4,657	4,866	4,963	5,135
Depreciation and amortisation	266	297	416	536	561	480	489	607	627	460
Finance costs	257	261	296	346	343	311	311	321	287	252
<b>Total Operating Expenditure</b>	<b>4,227</b>	<b>4,520</b>	<b>4,797</b>	<b>5,107</b>	<b>5,289</b>	<b>5,303</b>	<b>5,457</b>	<b>5,794</b>	<b>5,877</b>	<b>5,847</b>
<b>Net Deficit (Surplus) of Operations</b>	<b>631</b>	<b>651</b>	<b>700</b>	<b>730</b>	<b>747</b>	<b>761</b>	<b>788</b>	<b>844</b>	<b>897</b>	<b>952</b>
<b>Funded by:</b>										
General rates	743	796	845	875	892	906	933	989	1,042	1,097
Operating deficit (surplus) from/to reserves	(112)	(145)	(145)	(145)	(145)	(145)	(145)	(145)	(145)	(145)
Recognition of vested assets	0	0	0	0	0	0	0	0	0	0
Depreciation not funded	0	0	0	0	0	0	0	0	0	0
<b>Total Funding Applied</b>	<b>631</b>	<b>651</b>	<b>700</b>	<b>730</b>	<b>747</b>	<b>761</b>	<b>788</b>	<b>844</b>	<b>897</b>	<b>952</b>

## Solid Waste - Cost of Service Statement

Capital and Reserves Funding Requirements	2009/10 (\$,000)	2010/11 (\$,000)	2011/12 (\$,000)	2012/13 (\$,000)	2013/14 (\$,000)	2014/15 (\$,000)	2015/16 (\$,000)	2016/17 (\$,000)	2017/18 (\$,000)	2018/19 (\$,000)
<b>Capital Expenditure</b>										
Renewals	103	348	126	155	120	110	120	443	132	460
Growth	0	0	0	0	0	0	0	0	0	0
Increase in level of service	78	33	1,202	743	71	29	1,004	6	17	13
<b>Total Capital Expenditure</b>	<b>181</b>	<b>381</b>	<b>1,328</b>	<b>898</b>	<b>191</b>	<b>139</b>	<b>1,124</b>	<b>449</b>	<b>149</b>	<b>473</b>
Loan Repayments	236	245	285	464	509	503	497	677	698	578
<b>Total Cost</b>	<b>417</b>	<b>626</b>	<b>1,613</b>	<b>1,362</b>	<b>700</b>	<b>642</b>	<b>1,621</b>	<b>1,126</b>	<b>847</b>	<b>1,051</b>
<b>Funded by:</b>										
Loans Raised	65	280	1,195	797	61	17	994	300	66	336
Transfer from Reserve(s)	352	346	418	565	639	625	627	826	781	715
<b>Total Funding Applied</b>	<b>417</b>	<b>626</b>	<b>1,613</b>	<b>1,362</b>	<b>700</b>	<b>642</b>	<b>1,621</b>	<b>1,126</b>	<b>847</b>	<b>1,051</b>
<b>Split of Capital Expenditure</b>										
Renewals	103	348	126	155	120	110	120	443	132	460
Growth	0	0	0	0	0	0	0	0	0	0
Increase in level of service	78	33	1,202	743	71	29	1,004	6	17	13
<b>Total Cost</b>	<b>181</b>	<b>381</b>	<b>1,328</b>	<b>898</b>	<b>191</b>	<b>139</b>	<b>1,124</b>	<b>449</b>	<b>149</b>	<b>473</b>



# Stormwater

## What we do and why

Council provides a stormwater system to manage surface water run-off from the District's urban catchments. Runoff is contained within piped networks, soak holes, cess pits, detention ponds and natural conveyances such as gullies and reserves and discharged to ground or through outfalls into receiving water bodies.

We are incorporating low impact design<sup>97</sup> principles and an integrated catchment management approach in the development and management of public and private stormwater systems. Through land use planning, development standards and land management practices, we endeavour to protect and maintain the quality of our receiving waters.

Council will assess and manage the demand for stormwater services and the levels of service required through:

- development of a stormwater strategy which will provide a detailed set of actions with associated expenditure. Until this strategy is completed, there will be no major capital expenditure for this activity. This may mean that in the years after 2009/10, capital expenditures for stormwater activity will be programmed through the Annual Plan process.
- keeping up to speed with current consent requirements and legislation to allow for improvements
- working in partnership with our stormwater maintenance contractor and reviewing monitoring and operational data to confirm asset performance
- modelling of urbanised or partially urbanised catchments.

## Assets we use<sup>98</sup>

206kms of pipes  
 4,077 catch pits  
 450 inlets/outlets  
 2,929 manholes  
 33 soakholes  
 4 pump stations

<sup>97</sup> Low impact urban design is a site design approach that protects and incorporates natural site features during development. It uses catchments as the ecological basis for designing sites, and the principles can be applied from large-scale developments, through to individual lots. Urban design is the art of making places - urban design involves the design and placement of buildings, roads, open spaces, towns and cities, to create a desirable place in which to live, work and play.

<sup>98</sup> Asset Management Plans (AMPs) form the basis of Council's planning for the operation, maintenance, renewal and development of its assets and therefore represent a significant portion of the work Council undertakes and its budget. Asset Management Plans are important for long term planning and the maintenance of Council's service capacity. These plans can be viewed on our website [www.taupo.govt.nz](http://www.taupo.govt.nz)

## Stormwater Strategy

Over the past decade we have had a number of severe storm events. In particular the events of April and July 2008 have highlighted the need to continue the development of stormwater management systems in Taupo District's urban areas. Some new detention ponds – such as the one on Spa Road - have already been installed to contain, treat and slowly release stormwater instead of allowing it to find its own flow paths to the lake or river. In areas of new residential developments, stormwater channels have been designed to have a low visual impact on the environment whilst still effectively channelling water away from homes and business premises.

Council needs to plan for more frequent storms like those of 2008. A stormwater strategy will encompass all necessary stormwater mitigating activities across all catchments, developed or undeveloped. The objective is to improve existing systems to minimise overland flow and flooding and sediment discharges, and to ensure stormwater quality is within acceptable levels to meet current and future demands. The strategy will identify engineering solutions and education initiatives to achieve target outcomes in managing stormwater.

## Summary – Water and Sanitary Services Assessment<sup>99</sup>

### Stormwater

Stormwater drainage has two important dimensions:

Quantity – managing the consequences of both regular rainfall and storm events to minimise the potential for disruption, damage to structures and erosion of waterways.

Quality – managing the flow of silt and other contaminants into the natural environment.

The catchment management plans currently being developed for the main urban areas of the District address both these issues through the sizing of the drainage channels and pipes, detention ponds, recommended minimum floor levels to address quantity issues plus the introduction of development controls and water quality treatment devices to address the quality concerns. The catchment management plans are required as conditions of resource consent and will ultimately support the stormwater strategy.

While these are important considerations for both the constructed and natural environments, the process and appropriate technologies are well understood and can be readily implemented as development and upgrading proceed.

A copy of the Assessment of Water and Sanitary Services is available from Council offices.

<sup>99</sup> Section 125 of the Local Government Act requires that we assess the provision within the District of water services and other sanitary services.

## What are the significant negative effects?

Potential degradation to the receiving environments as a result of stormwater diversions and discharges.

Potential impact on recreational areas from stormwater discharges.

Potential impact on communities from uncontrolled drainage systems causing flooding and inundation.

Cost of ensuring the impact to the environment is minimised and of protecting property and houses from flooding.

### Link to Council strategies

Stormwater Asset Management Plan 2008  
 Taupo District 2050  
 Taupo Tree and Vegetation Policy  
 Taupo District Plan  
 Code of Practice for the Development of Land  
 Water and Sanitary Services Assessment Report 2008  
 2020 Taupo-Nui-a-Tia Action Plan

### Key organisations that we work with

Environment Waikato

## Key actions, projects and services

2009-2010

- Development of stormwater strategy
- Taupo industrial area ancillary works - stage 1a
- Facilities and gully planting programme - stormwater mitigation
- Omori stormwater upgrade.

2010 – 2019

- Facilities and gully planting programme - stormwater mitigation



## How we'll know we're on track

<i>What we want to know</i>	<i>Measure</i>	<i>Source of information</i>	<i>Target</i>
The community is satisfied that stormwater is adequately managed in urban areas	Percentage of the community satisfied that stormwater is adequately managed in urban areas	TRRSS <sup>100</sup>	80% <sup>101</sup>
People and property are protected from flood damage	Residential buildings (habitable parts of residential dwellings only) are flooded during the year from stormwater originating from the public domain such as parks, road reserves	TDC	Decreasing <sup>102</sup>
Stormwater discharges are compliant with resource consent conditions <sup>103</sup>	Compliance with resource consent conditions  No abatement notices or enforcement proceedings are made	TDC  EW/TDC	Achieve <sup>104</sup>

<sup>100</sup> Triennial Residents and Ratepayers Satisfaction Survey

<sup>101</sup> In 2006 there was 71% satisfaction that stormwater is adequately managed in urban areas

<sup>102</sup> In 2007/08 less than 0.5% of properties in urban areas were affected by flooding.

<sup>103</sup> Our comprehensive discharge consent requires us to monitor quality of stormwater discharge, sediment quality at outlets and impact to ecology at outlets.

<sup>104</sup> In 2007/08 we achieved this target.



## Stormwater - Cost of Service Statement

	2009/10 (\$,000)	2010/11 (\$,000)	2011/12 (\$,000)	2012/13 (\$,000)	2013/14 (\$,000)	2014/15 (\$,000)	2015/16 (\$,000)	2016/17 (\$,000)	2017/18 (\$,000)	2018/19 (\$,000)
<b>Operating Funding Requirements</b>										
<b>Operating Income</b>										
Targeted rates	0	0	0	0	0	0	0	0	0	0
Development and/or financial contributions	0	0	0	0	0	0	0	0	0	0
Property Sales	0	0	0	0	0	0	0	0	0	0
Vested assets	400	414	427	441	459	476	497	518	541	567
Other income	0	0	0	0	0	0	0	0	0	0
<b>Total Income</b>	400	414	427	441	459	476	497	518	541	567
<b>Operating Expenditure</b>										
Operating expenditure	851	854	858	868	888	888	899	933	972	991
Depreciation and amortisation	563	583	602	620	642	663	688	712	737	764
Finance costs	86	93	89	85	81	76	72	68	64	60
<b>Total Operating Expenditure</b>	1,500	1,530	1,549	1,573	1,611	1,627	1,659	1,713	1,773	1,815
<b>Net Deficit (Surplus) of Operations</b>	<b>1,100</b>	<b>1,116</b>	<b>1,122</b>	<b>1,132</b>	<b>1,152</b>	<b>1,151</b>	<b>1,162</b>	<b>1,195</b>	<b>1,232</b>	<b>1,248</b>
<b>Funded by:</b>										
General rates	1,500	1,530	1,549	1,573	1,611	1,627	1,659	1,713	1,773	1,815
Operating deficit (surplus) from/to reserves	0	0	0	0	0	0	0	0	0	0
Recognition of vested assets	(400)	(414)	(427)	(441)	(459)	(476)	(497)	(518)	(541)	(567)
Depreciation not funded	0	0	0	0	0	0	0	0	0	0
<b>Total Funding Applied</b>	<b>1,100</b>	<b>1,116</b>	<b>1,122</b>	<b>1,132</b>	<b>1,152</b>	<b>1,151</b>	<b>1,162</b>	<b>1,195</b>	<b>1,232</b>	<b>1,248</b>

## Stormwater - Cost of Service Statement

Capital and Reserves Funding Requirements	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
	(\$,000)	(\$,000)	(\$,000)	(\$,000)	(\$,000)	(\$,000)	(\$,000)	(\$,000)	(\$,000)	(\$,000)
<b>Capital Expenditure</b>										
Renewals	0	0	0	0	0	0	0	0	0	0
Growth	0	0	0	0	0	0	0	0	0	0
Increase in level of service	209	46	22	22	17	17	18	19	20	20
<b>Total Capital Expenditure</b>	<b>209</b>	<b>46</b>	<b>22</b>	<b>22</b>	<b>17</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>20</b>
Loan Repayments	50	60	60	60	60	60	60	60	57	57
<b>Total Cost</b>	<b>259</b>	<b>106</b>	<b>82</b>	<b>82</b>	<b>77</b>	<b>77</b>	<b>78</b>	<b>79</b>	<b>76</b>	<b>77</b>
<b>Funded by:</b>										
Loans Raised	209	0	0	0	0	0	0	0	0	0
Transfer from Reserve(s)	50	106	82	82	77	77	78	79	76	77
<b>Total Funding Applied</b>	<b>259</b>	<b>106</b>	<b>82</b>	<b>82</b>	<b>77</b>	<b>77</b>	<b>78</b>	<b>79</b>	<b>76</b>	<b>77</b>
<b>Split of Capital Expenditure</b>										
Renewals	0	0	0	0	0	0	0	0	0	0
Growth	0	0	0	0	0	0	0	0	0	0
Increase in level of service	209	46	22	22	17	17	18	19	20	20
<b>Total Cost</b>	<b>209</b>	<b>46</b>	<b>22</b>	<b>22</b>	<b>17</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>20</b>



# Wastewater

## What we do and why

Council is responsible through this activity for the collection, treatment and disposal of wastewater from residential, commercial and industrial properties within designated drainage areas of the District in a way which safeguards the environment and provides public health protection. Council has developed a long term plan to progressively upgrade the wastewater reticulation network in Taupo to meet the increasing demand as our population grows.

Over the next ten years we are planning to:

- develop a wastewater strategy
- undertake continual assessment of wastewater quality throughout the district
- work in partnership with the contractors engaged in specialist wastewater maintenance work and reviewing and monitoring the operational data to confirm asset performance
- keeping up to speed with current consent requirements and legislation to allow for improvements.

As part of our responsibilities under the Lake Taupo Protection project we have a target of at least 20% reduction of nitrogen inputs to Lake Taupo by 2080 by upgrading treatment plants and improving the management of communities with on-site septic tank systems.

## Future of wastewater in lakeshore settlements

Environment Waikato has identified two main ways of reducing nitrogen levels in Lake Taupo. The Lake Taupo Protection Trust has been formed to achieve a reduction in nitrogen from pastoral land. Nitrogen from urban sources also needs to be reduced by 20%. Council has already met Environment Waikato's target to reduce levels of nitrogen entering the lake from community owned wastewater treatment facilities by 20% and will continue to work toward improvements in treatment from all of our schemes.

Variation 5 of Environment Waikato's Regional Plan, regarding Lake Taupo includes a 'sunset clause' that will come into effect in June 2011, whereby all existing on-site wastewater systems within the near shore zone will require resource consent.

In the 2006-2016 Long Term Council Community Plan, Council had programmed the possible reticulation and treatment of wastewater (for Waitetoko, Hatepe and Waihi) by 2012/13. Council undertook investigations as planned for these potential schemes. Providing schemes in small settlements can be very expensive and in some cases cost prohibitive. For this reason Council is now exploring alternative ways of achieving further nitrogen reductions in lakeshore settlements such as Waitetoko and Hatepe without necessarily providing a reticulated scheme. In undertaking these investigations Council is mindful of the need to ensure that neither public health nor the environment is compromised.



## Taupo Land Disposal

In 2006 Council negotiated the purchase of 360 hectares of land from Landcorp. The purchase allows us to expand our treated wastewater disposal capacity to meet increasing demand and allows the construction of the East Taupo Arterial through the existing Rakaunui Road land disposal area. The new land disposal site extends both sides of Broadlands Road with the northern piece also bordering View Road. During 2008, Council constructed a new pipeline and pump station to pump the water from Rakaunui Road up to the irrigation system at what we now call the View Road land disposal area. We have constructed a number of centre pivot irrigators covering 130 hectares of the land and the balance will be developed as demand grows. In the meantime we have leased the land for grazing.

## Taupo Wastewater Treatment Plant Upgrade

The Taupo Wastewater Treatment Plant, off the end of Motutahae Street, has reached its capacity. Council is therefore planning to expand the plant on the existing site. It is anticipated that this will be achieved by adding additional clarifiers, a trickling filter tower, an additional digester, a new sand filter and ultraviolet disinfection. While this configuration does not have the lowest capital cost, it has the lowest combined capital and operating costs over the 20 year life of the plant. The new equipment would be progressively installed as funding allows between 2009 and 2013. We are undertaking all the investigation work and the design at present. We are also seeking a designation as required by the Resource Management Act and are working with residents and interested parties to identify issues of concern.

## Kinloch Wastewater Treatment Plant Upgrade

During the last two years, Council has upgraded the wastewater treatment plant at Kinloch to make the best possible use of the existing infrastructure. However, while this work has given us some breathing space, we will still need to monitor growth there and ensure that we have the capacity available as land is developed and more people move to the area.



## Assets we use<sup>105</sup>

350kms of pipes  
 6,651 manholes  
 98 pump stations  
 12 treatment plants and 13 treated effluent disposal sites  
 26 buildings  
 16,538 registered connections

## Summary - Water and Sanitary Services Assessment<sup>106</sup>

### Wastewater

The Taupo District Council operates the public wastewater collection, treatment and disposal systems for the main urban development areas across the District. These schemes are generally clustered around Mangakino, Taupo and Turangi, with nine of them serving communities adjacent to Lake Taupo.

A wide range of technologies is utilised from oxidation ponds to the latest membrane bio-reactor technologies. Typically the treatment plants discharge highly treated effluent onto land disposal areas to avoid contamination of waterways and to utilise the high soakage rates available across the District. The plants are typically compliant with their consents and are able to cope with current demand, including the summer peak.

Projected growth is primarily expected to occur around Taupo and a significant upgrade of this plant is proposed in the near future, following the soon to be commissioned expansion of the disposal area. This plant is critical to the District as it also processes and stabilises most of the biosolids produced by the other plants.

A key outcome for the community and the environment is reflected in a joint commitment between Council, Environment Waikato and the Government, known as "Protecting Lake Taupo", to achieve a 20% reduction in nitrogen entering the lake. The operation and ongoing upgrading of the public system make a significant contribution to this.

Communities and individual homes/businesses not connected to the public systems are typically served by septic tanks with on-site drainage fields. The high drainage capacity soils in the District mean that there is a low likelihood of health risk from direct exposure to the partially treated effluent that a traditional septic tank produces. However, the high percolation rate means that partially treated effluent can enter underground water supply sources or the lake, creating indirect health and environmental risks. The extent of these risks is difficult to gauge as there is no mandatory testing and contamination is dispersed rather than localised.

A copy of the Assessment of Water and Sanitary Services is available from Council offices.

<sup>105</sup> Asset Management Plans (AMPs) form the basis of Council's planning for the operation, maintenance, renewal and development of its assets and therefore represent a significant portion of the work Council undertakes and its budget. Asset Management Plans are important for long term planning and the maintenance of Council's service capacity. These plans can be viewed on our website [www.taupo.govt.nz](http://www.taupo.govt.nz)

<sup>106</sup> Section 125 of the Local Government Act requires that we assess the provision within the District of water services and other sanitary services.



## What are the significant negative effects?

Potential noise, air emissions and odours generated from wastewater treatment plants and pump stations.

Potential overflow situations if wastewater infrastructure is not maintained to the required standard.

### Link to Council strategies

Wastewater Asset Management Plan 2008  
Taupo District 2050  
Development Contributions Policy  
Code of Practice for the Development of Land  
Water and Sanitary Services Assessment  
2020 Taupo-Nui-a-Tia Action Plan  
Trade Waste Bylaw (currently undergoing adoption process)

### Key organisations that we work with

Environment Waikato  
Lake Taupo Primary Health Organisation  
Iwi

## Key actions, projects and services

2009-2010

- Upgrade to the Kohatu Parade sewer
- Upgrades to the Control Gates Bridge siphon
- Extension of main trunk sewer and rising main to Wharewaka East
- Sewer extension Matuku Street to Richmond Avenue
- Taupo Wastewater Treatment Plant upgrade – stage 1
- Investigation of options for biosolids processing and disposal
- Investigation of options for the upgrade of the Omori/Kuratau/Pukawa wastewater treatment and disposal system
- Investigate options with Environment Waikato to achieve nitrogen reductions in lakeshore settlements.

2010-2012

- Sewer extension along State Highway One
- Rising main from Acacia Bay to Taupo wastewater treatment plant
- Taupo Wastewater Treatment Plant upgrade - stage 1
- Implementation of preferred option for biosolids processing and disposal
- Omori/Kuratau/Pukawa wastewater treatment and disposal system
- Whareroa wastewater treatment plant upgrade
- Whareroa wastewater treatment plant upgrade
- Continue investigating options with Enviroment Waikato to achieve nitrogen reductions in lakeshore settlements.



2012-2019

- Sewer extension from Grace Crescent to Matuku Street
- Sewer extension from Lake Terrace to Roberts Street
- Sewer extension from Spa Road to wastewater treatment plant
- Sewer extension from Tauhara Road to Spa Road
- Sewer extension to Hinemoa Avenue
- Sewer extension from Broadlands Road to Tauhara Road
- Sewer extension to Wakeman Road
- Taupo wastewater treatment plant upgrade - stage 2

## How we'll know we're on track

### Short term

<i>What we want to know</i>	<i>Measure</i>	<i>Source of information</i>	<i>Target</i>
Our wastewater system is compliant with its resource consent conditions	Compliance with resource consent conditions  No abatement notices or enforcement proceedings are made	TDC  EW/TDC	Achieve <sup>107</sup>
Our wastewater system is working	Number of wastewater overflows	TDC	No overflows <sup>108</sup>
We respond to and fix any service request in the district within a reasonable time frame	With 1 hour emergency response and at least 24 hour fault response to all service requests	TDC	Achieve
The community is satisfied with the wastewater service	Percentage of satisfaction with wastewater service	TRRSS <sup>109</sup>	85% <sup>110</sup>

### Long term

<i>What we want to know</i>	<i>Measure</i>	<i>Source of information</i>	<i>Target</i>
The volume of wastewater per household equivalent unit (HEU) is reduced	Annual volume divided by number of household equivalent units	TDC	Decreasing

<sup>107</sup> In 2008 we achieved 94.3% compliance with our resource consent conditions.

<sup>108</sup> In 2007/08 there were 5 incidents.

<sup>109</sup> Triennial Residents and Ratepayers Satisfaction Survey

<sup>110</sup> In 2006 there was 85% satisfaction with the wastewater service.



## Wastewater - Cost of Service Statement

Operating Funding Requirements	2009/10 (\$,000)	2010/11 (\$,000)	2011/12 (\$,000)	2012/13 (\$,000)	2013/14 (\$,000)	2014/15 (\$,000)	2015/16 (\$,000)	2016/17 (\$,000)	2017/18 (\$,000)	2018/19 (\$,000)
<b>Operating Income</b>										
Targeted rates	7,676	8,371	9,096	9,369	9,790	10,408	10,968	11,280	11,579	12,006
Development and/or financial contributions	1,103	1,643	1,830	2,125	2,793	3,182	2,982	2,785	3,165	3,849
Property Sales	0	0	0	0	0	0	0	0	0	0
Vested assets	1,000	1,034	1,068	1,102	1,146	1,189	1,242	1,294	1,353	1,418
Other income	837	866	894	923	960	996	1,041	1,085	1,133	1,188
<b>Total Income</b>	<b>10,616</b>	<b>11,914</b>	<b>12,888</b>	<b>13,519</b>	<b>14,689</b>	<b>15,775</b>	<b>16,233</b>	<b>16,444</b>	<b>17,230</b>	<b>18,461</b>
<b>Operating Expenditure</b>										
Operating expenditure	4,653	4,888	5,134	5,136	5,297	5,414	5,597	5,835	6,098	6,351
Depreciation and amortisation	2,499	2,649	2,861	3,030	3,146	3,352	3,587	3,753	3,901	4,061
Finance costs	3,378	3,830	4,187	4,275	4,417	4,742	4,985	4,954	4,886	4,830
<b>Total Operating Expenditure</b>	<b>10,530</b>	<b>11,367</b>	<b>12,182</b>	<b>12,441</b>	<b>12,860</b>	<b>13,508</b>	<b>14,169</b>	<b>14,542</b>	<b>14,885</b>	<b>15,242</b>
<b>Net Deficit (Surplus) of Operations</b>	<b>(86)</b>	<b>(547)</b>	<b>(706)</b>	<b>(1,078)</b>	<b>(1,829)</b>	<b>(2,267)</b>	<b>(2,064)</b>	<b>(1,902)</b>	<b>(2,345)</b>	<b>(3,219)</b>
<b>Funded by:</b>										
General rates	0	0	0	0	0	0	0	0	0	0
Operating deficit (surplus) from/to reserves	914	487	362	24	(683)	(1,078)	(822)	(608)	(992)	(1,801)
Recognition of vested assets	(1,000)	(1,034)	(1,068)	(1,102)	(1,146)	(1,189)	(1,242)	(1,294)	(1,353)	(1,418)
Depreciation not funded	0	0	0	0	0	0	0	0	0	0
<b>Total Funding Applied</b>	<b>(86)</b>	<b>(547)</b>	<b>(706)</b>	<b>(1,078)</b>	<b>(1,829)</b>	<b>(2,267)</b>	<b>(2,064)</b>	<b>(1,902)</b>	<b>(2,345)</b>	<b>(3,219)</b>

## Wastewater - Cost of Service Statement

Capital and Reserves Funding Requirements	2009/10 (\$,000)	2010/11 (\$,000)	2011/12 (\$,000)	2012/13 (\$,000)	2013/14 (\$,000)	2014/15 (\$,000)	2015/16 (\$,000)	2016/17 (\$,000)	2017/18 (\$,000)	2018/19 (\$,000)
<b>Capital Expenditure</b>										
Renewals	768	743	1,077	1,160	1,809	717	690	1,114	1,275	763
Growth	4,604	9,137	4,297	1,924	5,023	8,954	3,644	3,445	878	5,561
Increase in level of service	418	0	0	0	0	0	0	0	0	0
<b>Total Capital Expenditure</b>	<b>5,790</b>	<b>9,880</b>	<b>5,374</b>	<b>3,084</b>	<b>6,832</b>	<b>9,671</b>	<b>4,334</b>	<b>4,559</b>	<b>2,153</b>	<b>6,324</b>
Loan Repayments	2,653	2,694	2,844	2,931	3,831	3,630	4,637	3,973	4,734	5,386
<b>Total Cost</b>	<b>8,443</b>	<b>12,574</b>	<b>8,218</b>	<b>6,015</b>	<b>10,663</b>	<b>13,301</b>	<b>8,971</b>	<b>8,532</b>	<b>6,887</b>	<b>11,710</b>
<b>Funded by:</b>										
Loans Raised	5,576	9,736	4,961	2,996	6,654	9,534	3,997	4,376	1,775	6,161
Transfer from Reserve(s)	2,867	2,838	3,257	3,019	4,009	3,767	4,974	4,156	5,112	5,549
<b>Total Funding Applied</b>	<b>8,443</b>	<b>12,574</b>	<b>8,218</b>	<b>6,015</b>	<b>10,663</b>	<b>13,301</b>	<b>8,971</b>	<b>8,532</b>	<b>6,887</b>	<b>11,710</b>
<b>Split of Capital Expenditure</b>										
Renewals	768	743	1,077	1,160	1,809	717	690	1,114	1,275	763
Growth	4,604	9,137	4,297	1,924	5,023	8,954	3,644	3,445	878	5,561
Increase in level of service	418	0	0	0	0	0	0	0	0	0
<b>Total Cost</b>	<b>5,790</b>	<b>9,880</b>	<b>5,374</b>	<b>3,084</b>	<b>6,832</b>	<b>9,671</b>	<b>4,334</b>	<b>4,559</b>	<b>2,153</b>	<b>6,324</b>

