

# stormwater and land drainage activity plan

## Why we do it

To manage stormwater so that property and people are protected from flood damage, and to minimise the adverse effects of stormwater run-off on the district's lakes and waterways.

## What we do

- Stormwater systems are maintained and operated to manage the drainage of excess rainfall (not what is poured or flushed down household or business drains).
- The purpose of the stormwater system is to protect building floor levels from flooding during heavy rain up to the level of a once in 50 year flood.
- Stormwater pipes are mostly less than 50 years old. The system generally has the capacity to cope with periods of heavy rain although in some areas of intensive development, extreme rainfall will result in localised flooding. The council has a programme to progressively reduce this flooding.

- The management of stormwater and flooding is complex, requiring an integrated approach covering ecosystems, people, urban design, communities and businesses, as well as cultural, amenity and social values. Individual property owner activities can have a major impact on stormwater management. Regulation of property owner responsibilities is important as a function for local government as is being a provider of public stormwater facilities. Performance measures should therefore be developed for both the regulatory and service provider roles.

### The stormwater network consists of:

- 450m of lined channel
- 87.9km of open channels
- 742m of overland flowpaths
- 230.4km of piped networks
- 2 pump stations
- 3 flood detention dams




## Climate change and Rotorua District

With current knowledge the District is likely to be impacted in the following ways:

- Temperature (winter) - plus 2°C to 3°C
- Rainfall (total) - minus 0 to minus 5% (mid range)
- Rainfall intensity - plus 4.3% to plus 8% per 1°C increase
- Drought frequency - about a four fold increase (soil moisture deficit)
- Ex-tropical storm risk - about same as current risk

The above information is summarised from the National Institute for Water and Atmospheric Research (NIWA) and is based on 2080 predictions. What the above shows is that Rotorua will almost certainly have increased temperatures, higher intensity rainfalls and increased drought risk but there is considerable uncertainty regarding total rainfalls. Total rainfalls are important for lake levels, and possibly in the longer term groundwater availability.

## Community outcomes

Community Outcome	How the Council contributes
 Safe & Caring	<ul style="list-style-type: none"> <li>■ By protecting people and property from flooding.</li> </ul>
 Environment	<ul style="list-style-type: none"> <li>■ By controlling the level of pollutants in stormwater flows and protection of natural stream channel environments. This contributes to improved lake water quality.</li> </ul>
 Facilities & Services	<ul style="list-style-type: none"> <li>■ By providing good quality infrastructure that will last for another 50-100 years.</li> </ul>

# stormwater and land drainage activity plan cont.

## What does the council plan to do in the future

What is the Council currently doing?	What will we do in years 1 to 3?	What will we do in years 4 to 10?	How will we know if we achieve our objective? (key result areas)
Providing and maintaining land drainage infrastructure.	Providing and maintaining land drainage infrastructure.	Providing and maintaining land drainage infrastructure.	Minimal impact of flooding on community – Annual Flood Report.
Reducing nutrient impact from stormwater 10 tonnes/annum N* 2 tonnes/annum P**	Reducing nutrient impact from stormwater 9 tonnes/annum N 1.8 tonnes/annum P	Reducing nutrient impact from stormwater 7 tonnes/annum N 1.5 tonnes/annum P	Reduced nutrient impact as measured by regular monitoring.

\*N = Nitrogen \*\*P= Phosphorus

## Measuring our achievement

Level of Service	Performance measures	Current performance	Performance targets									
			09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
Provision of a stormwater network to minimise the impact of flooding.	Number of dwellings per year affected by flood waters.	0	< 3*									
	% of blockages responded to within 24 hours.	95%	>95%									
	% satisfaction of people protected by urban land drainage schemes as measured by annual NRB survey.	72%	>80%									
Provision of a stormwater network to minimise the impact on the environment.	Number of breaches of consent conditions notified by Regional Council.	0	0									

\* Records show that in most years no dwellings are affected by flooding but in a significant rainfall event some dwellings would be expected to be affected by flood waters. The performance target shown is therefore an average per year over the 10 year period.

# stormwater and land drainage activity plan cont.

Negative effects	Mitigation options
Environmental impact on waters received downstream.	Water Services Bylaw licensing. Management and treatment options for stormwater runoff.
Flood damage to property.	Manage and control extreme discharges.
Developers can influence where works need to be undertaken.	This work is proposed to be funded 100% by Development Contributions.

## Funding considerations

### Who benefits from the activity?

- The community as a whole benefits from safe and efficient discharge of stormwater.
- Owners of property more prone to effects of stormwater also gain a particular benefit.

### What is the period of benefit?

- Benefits are ongoing as long as the infrastructure is maintained.

### Who creates the need for the activity?

- The community as a whole creates the need for a safe urban environment where stormwater discharges are adequately dealt with.

- Property owners directly affected by stormwater create a need for infrastructure to maintain adequate protection.

### Funding source

This activity benefits:

- Both existing and future owners and occupiers of properties.
- Owners and occupiers who are connected to the system and those who are not connected but are within the catchment.
- The community as a whole by reducing the risk to public health resulting from storm events.
- It is considered all residents live within a catchment so benefit to greater or lesser extent.

This activity is currently funded by general rates after allowing for some development contributions. It is proposed that development contributions be used more in future. This, however, is subject to specific analysis per development, as the capital programme in this Ten Year Plan addresses backlog only.

## Asset management

### Key assets

- Stormwater drainage reticulation

### Maintaining our assets

The asset management plan has a comprehensive renewal programme to maintain the service over its full lifecycle. Expenditure is set so that assets managed in the activity are maintained at the level of service the community expects.

## Major changes planned for assets

Reason for change	What will be done?	Year 1 (\$000s)	Year 2 (\$000s)	Year 3 (\$000s)	Year 4 - 10 (\$000s)
Renewals and replacements	Renewals	800 Catchment 17 (Koutu)	515 Catchment 17 (Koutu)	530 Catchment to be determined	4,186 Catchment to be determined
Increased demand and backlog	Upgrades	489 Catchment 17 (Koutu)	504 Catchment 7 (Springfield)	519 Catchment 15 (Western Heights)	4,094 Catchment to be determined

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## Financial summary (plan 2009/10 and forecast 2010/11 to 2018/19)

Stormwater & Land Drainage (\$000s)	Actual 2007/08	Annual Plan 2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
<b>Operating Expenses</b>												
Direct Costs	1,237	1,311	1,264	1,297	1,326	1,351	1,390	1,427	1,461	1,507	1,546	1,592
Financial Costs	579	263	440	535	560	637	675	704	650	661	657	563
Depreciation	1,049	1,038	1,117	1,125	1,131	1,138	1,143	1,150	1,154	1,152	1,158	1,158
Other	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Costs</b>	<b>2,865</b>	<b>2,612</b>	<b>2,821</b>	<b>2,957</b>	<b>3,017</b>	<b>3,126</b>	<b>3,208</b>	<b>3,281</b>	<b>3,265</b>	<b>3,320</b>	<b>3,361</b>	<b>3,313</b>
<b>Revenue</b>												
Capital Revenue	22	13	175	180	186	191	197	203	209	215	222	228
Fees and Charges	118	104	104	107	110	114	117	121	124	128	132	136
Investment Income	1	-	2	14	27	42	58	75	94	115	137	162
Subsidies and Grants	-	-	-	-	-	-	-	-	-	-	-	-
Targeted Rates	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Revenue</b>	<b>141</b>	<b>117</b>	<b>281</b>	<b>301</b>	<b>323</b>	<b>347</b>	<b>372</b>	<b>399</b>	<b>427</b>	<b>458</b>	<b>491</b>	<b>526</b>
<b>Internal Recoveries</b>												
Internal Recoveries	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Internal Recoveries</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Net Cost of Service</b>	<b>2,724</b>	<b>2,495</b>	<b>2,540</b>	<b>2,656</b>	<b>2,694</b>	<b>2,779</b>	<b>2,836</b>	<b>2,882</b>	<b>2,838</b>	<b>2,862</b>	<b>2,870</b>	<b>2,787</b>
<b>Capital Costs</b>												
Renewals	-	-	500	515	530	546	563	580	597	615	633	652
Growth	-	-	158	101	104	107	110	113	117	120	124	128
Backlog	-	-	631	403	415	427	440	454	467	481	496	510
Level of Service	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Capital</b>	<b>1,349</b>	<b>957</b>	<b>1,289</b>	<b>1,019</b>	<b>1,049</b>	<b>1,080</b>	<b>1,113</b>	<b>1,147</b>	<b>1,181</b>	<b>1,216</b>	<b>1,253</b>	<b>1,290</b>
<b>Operational Funding</b>												
Net Cost of Service	-	-	2,540	2,656	2,694	2,779	2,836	2,882	2,838	2,862	2,870	2,787
Plus Capital Revenue	-	-	175	180	186	191	197	203	209	215	222	228
Less Depreciation	-	-	(1,117)	(1,125)	(1,131)	(1,138)	(1,143)	(1,150)	(1,154)	(1,152)	(1,158)	(1,158)
Add back Depreciation Funded by Rates	-	-	500	515	530	546	563	580	597	615	633	652
<b>Operations Funded by General Rates</b>	<b>-</b>	<b>-</b>	<b>2,098</b>	<b>2,226</b>	<b>2,279</b>	<b>2,379</b>	<b>2,453</b>	<b>2,515</b>	<b>2,490</b>	<b>2,540</b>	<b>2,567</b>	<b>2,510</b>
<b>Capital Funding</b>												
Funding from Depreciation (Rates)	-	-	500	515	530	546	563	580	597	615	633	652
Loans from/(to) Corporate Fund	-	-	789	504	519	534	550	567	584	601	619	638
Capital Grants	-	-	-	-	-	-	-	-	-	-	-	-
Development Contributions	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Capital</b>	<b>1,349</b>	<b>957</b>	<b>1,289</b>	<b>1,019</b>	<b>1,049</b>	<b>1,080</b>	<b>1,113</b>	<b>1,147</b>	<b>1,181</b>	<b>1,216</b>	<b>1,252</b>	<b>1,290</b>