

Stormwater Summary

Introduction

Taupō District Council manages Stormwater to reduce the likelihood of harm to people and the environment. This asset management plan enables Council to manage and demonstrate its stewardship of Stormwater assets on behalf of its communities in order to provide services cost-effectively, both now and into the future.

Strategy

Council's Stormwater strategy is to manage flows for public safety and for environmental protection. From a strategic perspective, there are two major issues for Council to consider:

- 1 All Councils are under increasing pressure from regional Councils to improve quality so that Stormwater does not have adverse effects on the environments where it falls and flows (especially outfalls to waterways). Stormwater is discharged - untreated - into our lakes, rivers and streams so we need to keep it as clean as possible. The Council commits resources each year to improving water quality to Lake Taupō, and we have sampling schedules and standards to test Stormwater for pollution from sewerage, heavy metals and other contaminants. In future, disposing of Stormwater directly to waterways without first improving its quality will be the exception rather than the norm.
- 2 Climate change is predicted to increase the severity of severe weather events including storms, so that there will be more intense flows, more often. This increases risks to people, to communities and to the environment. Council's Stormwater Strategy (2009) took account of climate change impacts and addresses flooding, degradation of overland flow paths, degradation of Lake Taupō and aquatic environments, and public health and safety. For example, new property developments are now required to have increased Stormwater capacity to ensure that additions to the system have sufficient capacity for increased flows.
- 3 The provision of accurate renewal data on the condition of the underground pipe network is crucial to enable council to set the appropriate funding levels to maintain the current service levels.

Council manages physical Stormwater assets with a replacement value of \$85 million (June 2017). Our physical Stormwater assets are listed below:

Asset function	Asset Type	Quantity 2015-2016	2017/18
Reticulation	Pipes	262 km	216 km
	Catch pits	4305	921
	Standard Manholes	3091	3570
	Catch pit manholes		36
	Lamp hole		8
	Inlets	119	25
	Pond Inlet with debris screen	13	13
Stormwater quality improvements	Attenuation / detention ponds	3	31
	CDS Units	1	3
	EnviroPods	160	207
Disposal	Outlets	365	
	Pond outlet with debris screen		30
	Pond outlet with wing wall & debris screen		10
	Lake Outlet		68
	River Outlet		24
	Gully Outlet		31

Asset function	Asset Type	Quantity 2015-2016	2017/18
	Unknown Outlet type		391

With the introduction of a new asset, database council has undertaken a robust data cleansing process and compared data held in RAMM and in Asset Finda. This process has seen the removal of a significant number of catch pits and catch pit leads, which have now been included into RAMM as these assets are owned and maintained by the transport team. This has resulted in a reduction of overall pipe length for the Stormwater asset.

Some of the data recorded was reclassified due to a lack of previous understanding and addition and subtraction of data will be ongoing as the data cleansing process continues.

The cleansing of asset-data will continue throughout the life of the assets and as new assets are added or disposed of.

Levels of Service

Council is responsible for Stormwater flows from public land, and Stormwater flooding on crown land, private property is the responsibility of the owners. Council owns and operates its Stormwater assets so that it can manage Stormwater flows for public safety and for environmental protection. It provides a level of service that meets all of these measures:

- the Stormwater scheme minimises flooding
- Stormwater schemes minimise erosion from the Stormwater network
- Stormwater discharges are of sufficient quality when they enter receiving environments
- Stormwater services do not cause health and safety problems
- Stormwater services minimise risk of health problems
- The Stormwater network is operated within its consent requirements

Consents

Council's Stormwater consents are of primary importance: without discharge consents, the physical assets are of limited value. Council's Comprehensive Stormwater Discharge Consents from Waikato Regional Council (WRC) require Council to focus on:

- Stormwater quality
- ongoing monitoring
- providing appropriate infrastructure

Physical assets

The main Stormwater management issues relate to

- the need to increase our quality improvement mechanisms
- the need to identify overland flow paths
- maintenance of outfalls especially into Lake Taupō when lake levels are high
- a change in practice from underground reticulated systems to above ground open systems, which are easier to maintain but have higher maintenance costs.
- Maintenance of the underground network to maintain performance
- Maintenance of ephemeral gullies and areas of possible erosion

Demand forecast

Council's growth model projects growth of 1304 new properties. This is projected to occur in the Taupō area with a majority of the new development in and around the Taupō Township.

Currently developers are responsible for providing Stormwater in new sub-divisions, so residential growth in the District would only have a major impact on demand for Council's Stormwater services if Council funding policy changed.

Developers must also provide for capacity of the downstream network when increasing the flow in to the network.

New developments are encouraged to provide above ground solutions to Stormwater quality and velocity.

Lifecycle management tactics

New works

New works are planned to provide increased network capacity (overland and reticulated) and to improve the quality of Stormwater discharges to the Lake and rivers in the district.

Renewal

Council replaces assets when performance is unacceptable, based on criteria of: age, condition, service breaks, complaint volumes and criticality.

Operations and maintenance

The operational services team has a preventive maintenance programme to optimise the life of assets and reduce renewal costs. Maintenance services, including above and below ground assets, are provided by contract (currently Downers).

Council will continue to undertake condition and performance assessments of the underground network, which includes pipe cleaning, and the removal of sediment.

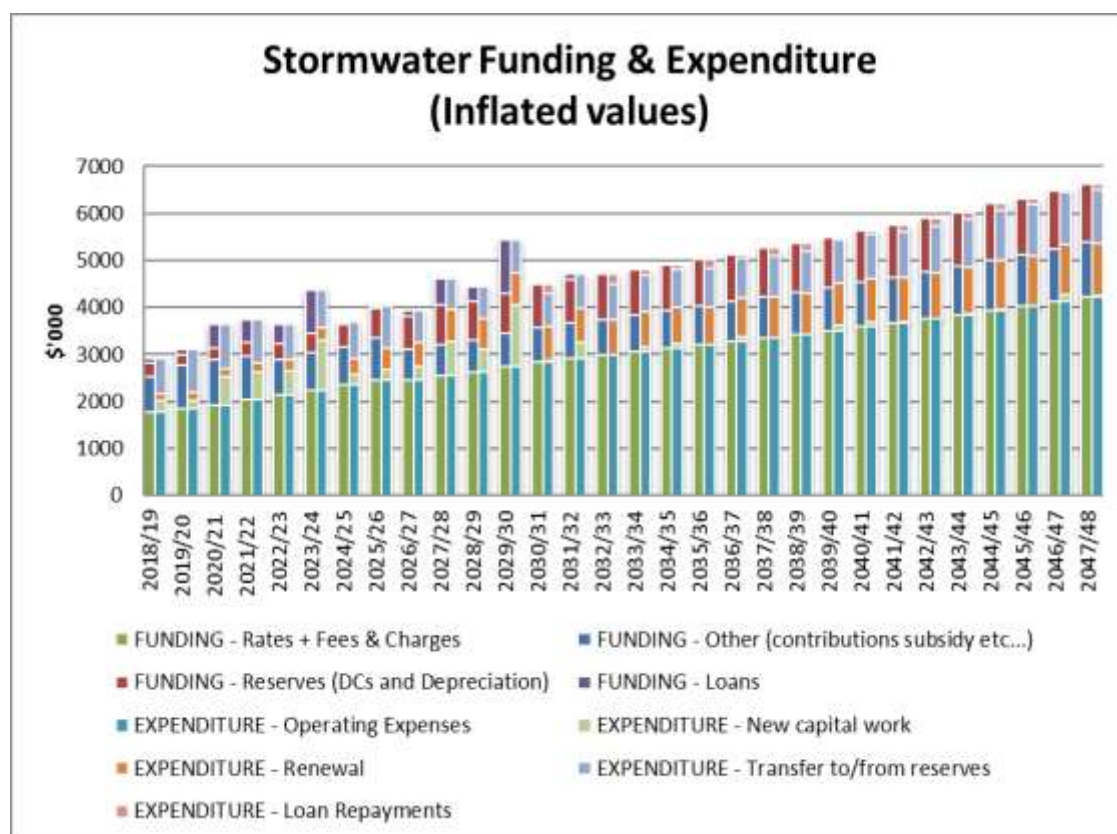
Disposal

Disposal of assets is not expected to be required over the next ten years.

Financials

The thirty-year financial forecast for Stormwater services was determined by evaluating current maintenance and renewal plans for each set of components (pipes, outlets, ponds etc) and identification of new works. The thirty-year projections are summarised in Figure 1 below.

Figure 1 Budget for Stormwater Funding and Expenditure, 2018/48



New works

Capital expenditure averages \$114,000 per year over the ten-year period, for improvements to network capacity and discharge quality.

Renewal

Renewal costs vary according to the age and performance of the plant and network. Council has undertaken a comprehensive condition assessment program for the outlying districts and the pipe network while showing its age is in a generally good condition. Cleaning and pipe condition assessment are programmed to continue. Expenditure averages \$275,000 per annum.

Operations and maintenance

Operation and maintenance costs are projected to have an average cost \$439,000 per year for the next 10 years.

Technical notes

Risk management

Risk management is fundamental to management of Council assets so that essential services such as stormwater service provision can be provided consistently. Council imposes high health and safety standards for its plant and network, especially where the Stormwater network is built on low-lying land near lakeshores or riverbeds, or volcanic and/or seismically unstable areas. Using a likelihood and consequence matrix to assess risks, the following high risks have been identified:

- Fire, causing electrical or structural damage to the system, including the reticulation network
- Volcanic eruption, with the pipe and overland flow path networks blocking
- Earthquake, damaging the reticulation network and reducing the capacity of the network
- Tomos, causing breaks in the reticulation system, or diverting overland flow paths
- External contractor failure, leading to failures in the network, service failures, or other consent condition failures
- Illegal disposal of contaminants into system, by firms or individuals
- Excessive costs to maintain, renew or create assets - Failure to comply with resource consents -
- Public safety matters such as open manholes or non-grilled inlets and outlets

All of these risks have potentially serious consequences for people in the District and for the District's economic wellbeing because they jeopardise the District's reputation and therefore, the visitor industry.

Council has undertaken a criticality assessment to enable Council to identify the most critical Stormwater assets, which enables council to focus on where the Stormwater network will require additional maintenance and renewal expenditure.

Asset management practices

Council uses a range of decision-making tools to establish its maintenance, renewal and new works expenditure, including process, analysis and evaluation techniques for life cycle asset management; information systems to store and manipulate data; and data and information from a number of sources (technical, financial, customer service, asset database).

Councils new 'Three Waters' asset management system, Asset-Finda can incorporate asset condition, assessments, criticality, age as well as past maintenance history to help determine future maintenance and renewal funding.

Asset-Finda is also used to log system faults and determine monthly contract payments

Plan improvement programme

Councils are required to have plan improvement programmes to improve their asset management planning, and we will continue to implement our improvement plan.

International infrastructure management

The plan is an intermediate plan based on the requirements of the International Infrastructure Management Manual.