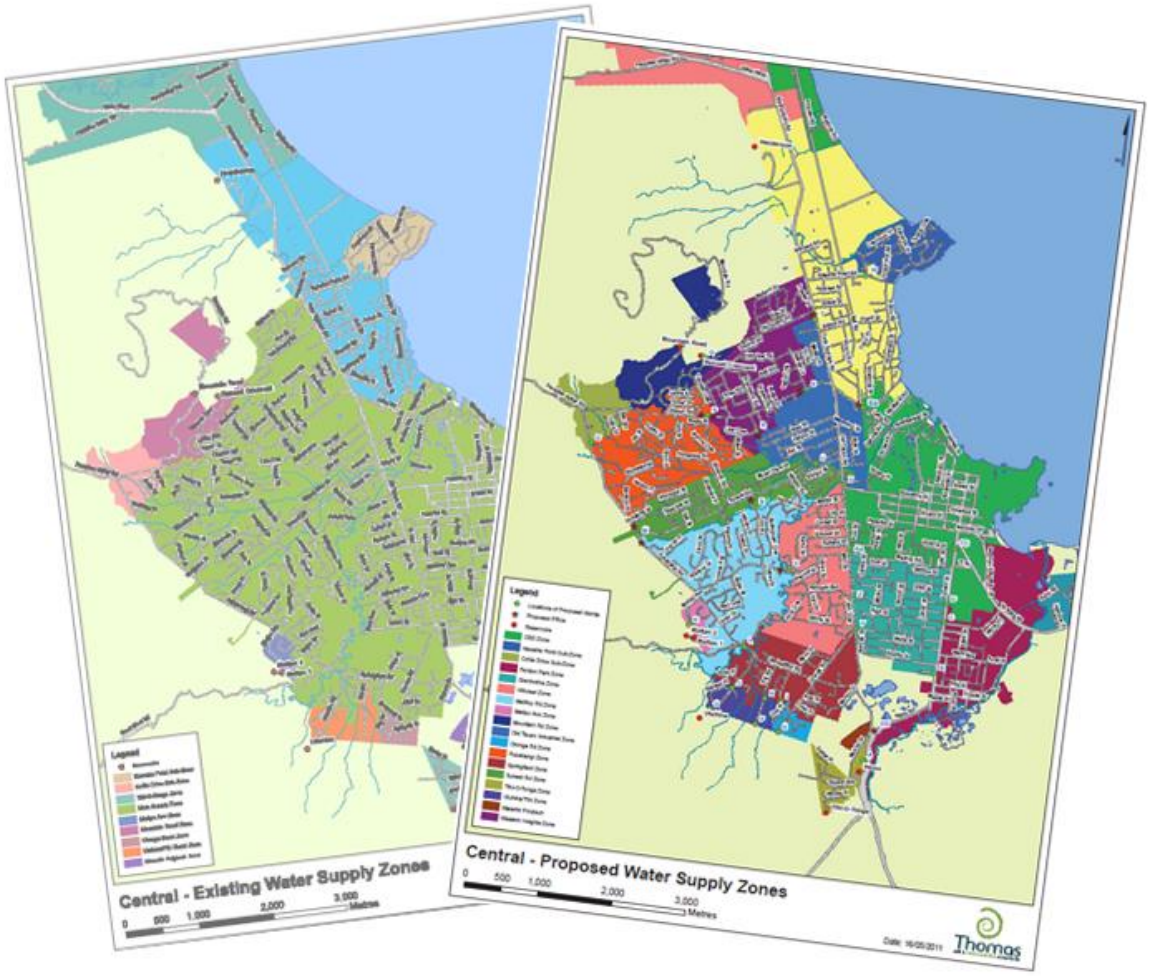
ROTORUA LAKES COUNCIL
Te kaunihera o ngā roto o Rotorua

Report of Progress Achieved in Implementation of Rotorua Lakes Council Water Conservation Strategy

June 2021



1 Introduction

The Rotorua District Council Water Conservation Strategy 2009 is the latest version of the strategy, being a revision of the original Water Conservation Strategy first adopted by Council in 2008.

The Water Conservation Strategy is intended to assist in identifying and prioritising appropriate steps to ensure that efficient use is made of the water Council abstracts from the environment, and a key feature of the strategy is a list of actions identified to be considered or carried out to achieve this.

This report is intended to provide an update on the progress Council has made to date in carrying out the actions identified and listed in the 2009 strategy, as well as other actions not specifically identified at that time.

The format of this report is primarily a simple list of the actions identified, with a brief explanation of the level of completion of each action. Where appropriate, there is further explanation of additional work that has been carried out as determined appropriate by Council.

This 2021 report is an update of previous reports, most recently the "Report of Progress Achieved in Implementation of Rotorua Lakes Council Water Conservation Strategy – February 2018" (RLC document no, RDC-803732). This report contains the items of progress identified in the 2018 report, plus items of progress achieved between 2018 and 2021.

In particular, Section 2 outlines in full the work carried out by Thomas Civil and Environmental Consultants and Council in planning and implementing a Water Loss Strategy, as well as providing reports on metering and water balancing. This work flows through to many of the action points throughout the Conservation Strategy.

A full copy of the 2009 strategy is also appended to provide background to the rationale behind each identified action.

One item becoming apparent since the 2009 strategy is the trend for new resource consents to have increasingly detailed conditions requiring steps to be taken to show water is being used sustainably. These conditions are generally consistent with the aims of the strategy, and Council takes whatever steps it can to demonstrate compliance with them.

2 Water Loss Strategy Project

As Council worked through the implementation plan for the Conservation Strategy in 2010, it became apparent that external expertise would be required to assist in evaluating the effectiveness of some of the actions, in order to prioritise the resources to be directed to them.

Council engaged the services of Richard Taylor – Principal Engineer with Thomas Civil and Environmental Consultants to assist in implementing the NZWWA" Benchmarking Water Losses in New Zealand" methodology, and this led to the development of a Water Loss Strategy to be applied to the public distribution network.

Richard Taylor was previously Water Supply Manager at Waitakere City Council who had implemented a successful water loss reduction programme, and was also the NZWWA Water Supply Managers Group lead person in developing the" Benchmarking Water Loss in NZ" guidelines.

Specific review work and reports carried out by Thomas Civil and Environmental Consultants have been:

Urban Water Balance Review, (February 2011)

- Established the main areas of uncertainty in consumption and loss assumptions, and recommended improvements in data gathering and management.

Review of System Bulk Metering, (February 2011)

- Reviewed twenty nine bulk system meters, and recommended eight be replaced and five new meters be installed. This work has been completed.

Review of Large Customer Water Meters (February 2011)

- Reviewed the twenty largest water consuming businesses revenue metering installations for appropriateness and accuracy. Fourteen of these meters were subsequently replaced as recommended.

Water Loss Strategy (February 2011)

- Reviewed water loss targets and recommended the Sectorisation of the Urban Networks into District Metered Areas (DMA's) and real-time monitoring of flows into these areas.
- Also recommended the implementation of pressure reduction in DMA's where appropriate.

Council subsequently adopted the recommendations of the Water Loss Strategy and included $1.6 Million in the 2013-2015 financial years for the Sectorisation and pressure work. This programme has been extended and was completed in 2020.
Richard Taylor has continued to be involved in updating and reviewing the sectorisation and pressure management programme, and providing advice into water demand and consumption reduction projections.

3 Strategy Implementation

3.1 Production

Council records the amount of water taken from its sources, and as far as possible, measures or assesses how or where it is used. This enables estimates to be made of losses and wastage.

An important part of a conservation strategy is accurate measurement of usage and losses, and the setting of realistic and achievable targets for improvements.

The following actions have been identified in this area:

	ACTION	IMPLEMENTATION PROGRESS
3.1.1	Review flow metering at each site and upgrade if necessary. This will be done in conjunction with the water treatment upgrade.	• Each site reviewed. • Meters replaced / upgraded between 2015 and 2020 at Waipa (Eastern supply) both treatment site and source site, Ngongotaha, Mamaku, Rotoiti, Kaharoa and Wharepapa (Reporoa). • Additional bulk metering installed at the new Eastern pump station to show flows to Okareka reservoirs and the new Redwood subdivision, as well as Hemo and Utuhina reservoirs between 2015 and 2020. • Electronic meters calibrated at Utuhina, Matipo, Waipa, Ngongotaha and Rotoiti in 2013 and 2018 in accordance with manufacturers specifications. Next calibration is due in 2023

	ACTION	IMPLEMENTATION PROGRESS
3.1.2	Review each network to determine the appropriate number and layout of metering zones.	• Completed for all supplies. • Detailed analysis completed in 2014 for all 3 urban supplies as part of Water Loss Strategy (Thomas Civil & Environmental Consultants 2011). • Physical works (pipework, valving, metering and telemetry installation in the network completed in 2020. Consultants continuing to review zoning.
3.1.3	Ensure bulk (headworks and zone) meters are recorded in the asset register, and replacement and maintenance schedules are updated and followed.	• All bulk meters are recorded in the HANSEN asset management system, which records replacement date. Annual replacement budgets are derived from this.
3.1.4	In conjunction with the backflow checking and installation programme, ensure that the appropriate consumer metering is in place. (2010-2012)	• Backflow prevention policy has been adopted and approved by council in 2018. All commercial properties have been assessed and we are currently in year 2 of a three year program for installation on medium and high risk connections. Fourteen meters upgraded or replaced from a review of the twenty biggest consumers. Reporoa backflow preventer, flow restrictor and meter review completed and full replacement carried out 2012/13. Full annual testing started in 2018. • Fonterra Reporoa dairy factory (largest consumer on Reporoa Supply – 50% of peak flow) both meters connected directly to SCADA system to enable real time monitoring by both Council and Fonterra site managers.
3.1.5	Undertake a sample testing programme of domestic meters to assess their accuracy and practical lives. (2009-2010)	• Commenced in 2013 with small sample at Rotoiti. 22 new meters installed in series with old meters. Data indicated no major difference in accuracy. No reasons found to justify continuing these tests due to the minor differences found between old and new
3.1.6	From the testing programme above, develop an on-going meter replacement programme. (2010)	• Analysis did not justify a major replacement programme. • Current maintenance contract replaces $85K of old or faulty meters each year.
3.1.7	Continue with metered consumption trial on urban domestic connections, and review consumption assumptions. (2009)	• Metered consumption monitoring on sample of urban domestic connections is on-going (36 meters). • An additional 350 household meters were added to the sample group in 2013. • No reasons found to justify continuing these tests due to the minor differences found between old and new data.
3.1.8	Implement a system to record and estimate hydrant and other bulk unmetered use. (2009)	• System in place and data included in water use and losses calculations.

	ACTION	IMPLEMENTATION PROGRESS
3.1.9	Implement systems to gather the data required to use the NZWWA Benchmarking Water Losses in NZ methodology, and make a full assessment of losses using this. This will include assessing losses from mains breaks and bursts. (2009)	• System in place and data included in water use and losses calculations • Across the ten separate systems, results have varied, with some loss indicators reducing but others increasing. This information is used to prioritise leak detection effort, and the sectorisation programme will assist in identifying the worst areas contributing to these overall losses. New zone pressures will be implemented to reduce leaks and increase pipe life expectancy
3.1.10	Analyse the potential effects of actions arising from this strategy to set and regularly review usage and loss targets. (2009 and onwards)	• "Water Loss Strategy" (Thomas) reviewed loss targets and set some revised targets based on performance indicators from the NZWWA methodology. Richard Taylor continues to assist with monitoring and reviewing targets.

3.2 Distribution System Management

Council's water pumping, storage and distribution network provides many opportunities for water losses from leakage, breaks and bursts, and unauthorised use.

Management plans, systems and structures are in place which contributes to an efficient system where losses are minimised, but there are still improvements which can be made. Actions to achieve this are:

	ACTION	IMPLEMENTATION PROGRESS
3.2.1	Commission a study into pressure management options and potential benefits and costs for Rotorua's supplies. From this, prioritise a programme of pressure management measures by each supply zone.	• Completed. "Water Loss Strategy for Rotorua District Council" Thomas Civil & Environmental Consultants, February 2011. • Work programme in place and being implemented in 2013 – 2020 years. • All new sectorisation sites installed, new zone pressure management currently being implemented.
3.2.2	From the results of the "Benchmarking Water Losses in NZ" exercise, review the extent and priorities of the current leak detection programme.	• Completed. Leak detection annual budget increased from $76,000 in 2009/10 to $178,000 in 2012/13. 2020/21 budget is $141,780.00. • Priority areas are reassessed on an on-going basis.
3.2.3	Continue with review and updating of the Operations Manual and Asset Management Plan.	• The Asset Management Plan has been reviewed internally and externally and improved so that the information formerly in the Operations Manual is now comprehensively in the Asset Management Plan. Major external review and update in 2017. There is no longer a need for a separate Operations Manual.

	ACTION	IMPLEMENTATION PROGRESS
3.2.4	Review mains replacement programme annually to target areas most in need.	• Review process in place. • Detailed in the Asset Management Plan and the prioritisation process is undertaken and recorded. • Annual mains renewal budget has been $1.5M for a number of years. An additional annual trunk mains replacement budget of $1.5M has been added from 2021/22.
3.2.5	Complete the review of the Utilities – Infracore service agreement for Water Supplies.	• External consultants assisted with the review and rewriting of the service level agreement in 2019, and it is now in place.
3.2.6	Complete the review of the Water Supplies Operations Manual.	• No longer required see above 3.2.3.
3.2.7	Carry out a full assessment of metallic corrosion-related network faults, and the cost of these using maintenance data.	• Not proceeded with. Bulk mains sampling scheduled in 2021 from 18 sites in areas that have lead joints. All tests comply with NZDWS to date • Low priority due to the fact that most fittings installed are now non-metallic. • Most will be replaced as part of ongoing mains replacement programme.
3.2.8	Assess the potential costs and benefits of carrying out pH adjustment to reduce metallic corrosion.	• As for above 3.2.7.
3.2.9	Investigate applicability of cathodic protection for use on water assets.	• As for above 3.2.7. • Is in use on one major asset.
3.2.10	Ensure that public education programmes provide for and encourage feedback from the public on breaks, leaks and unauthorised use.	• This is on-going. • All public communications include encouragement for the public to report breaks, leaks etc.

3.3 Consumer Demand Management

The influencing of consumer water use will contribute greatly to water conservation objectives. Volumetric pricing can be very effective in reducing demand, but the capital infrastructure required to achieve this is at present prohibitive.

An effective public education strategy remains the most practical area in which Rotorua District can reduce consumer demand. Identified actions in this area are:

	ACTION	IMPLEMENTATION PROGRESS
3.3.1	Engage assistance in developing a structured annual water conservation advertising programme.	• On-going. • Annual advertising programme is planned in consultation with Council's Communications team.
3.3.2	Engage a part-time environmental educator to promote water conservation.	• Educator was engaged. After a resignation, this function is included in a sustainability team member's position description.

	ACTION	IMPLEMENTATION PROGRESS
3.3.3	Ensure that all Council managers and staff are aware of the need for, and the tools available to minimise water consumption in their areas of responsibility. (ongoing)	• In Place. • Site Managers receive water metered invoices charged to their cost centres. • Specific advice to managers when trends indicate excessive consumption.
3.3.4	Review expenditure at Long Term Plan process to reassess costs/benefits of water metering. (ongoing)	• In place and on-going. • Report provided as part of previous Long Term Plan processes. • To date concluded that universal metering not cost effective. Resources directed into network improvements as explained in Section 2.
3.3.5	Assess the viability of undertaking water audits on the largest commercial consumers. This will require assessment of available resources.	• No formal programme of proactive auditing in place, mainly due to resourcing issues. • Trade waste staff now incorporated into the 3-waters function, and take note of and advise on water use practices during their site visits. • All metered consumers receive notification when trends indicate excessive or unusual consumption patterns.