Water Supply Summary

Introduction

Taupō District Council provides water for use by individuals, households, commerce, industry and firefighting. This water supply asset management plan enables Council to manage and demonstrate its stewardship of water assets on behalf of its communities in order to provide services cost-effectively, both now and into the future.

Strategic issues

Council operates within the context of these strategic issues:

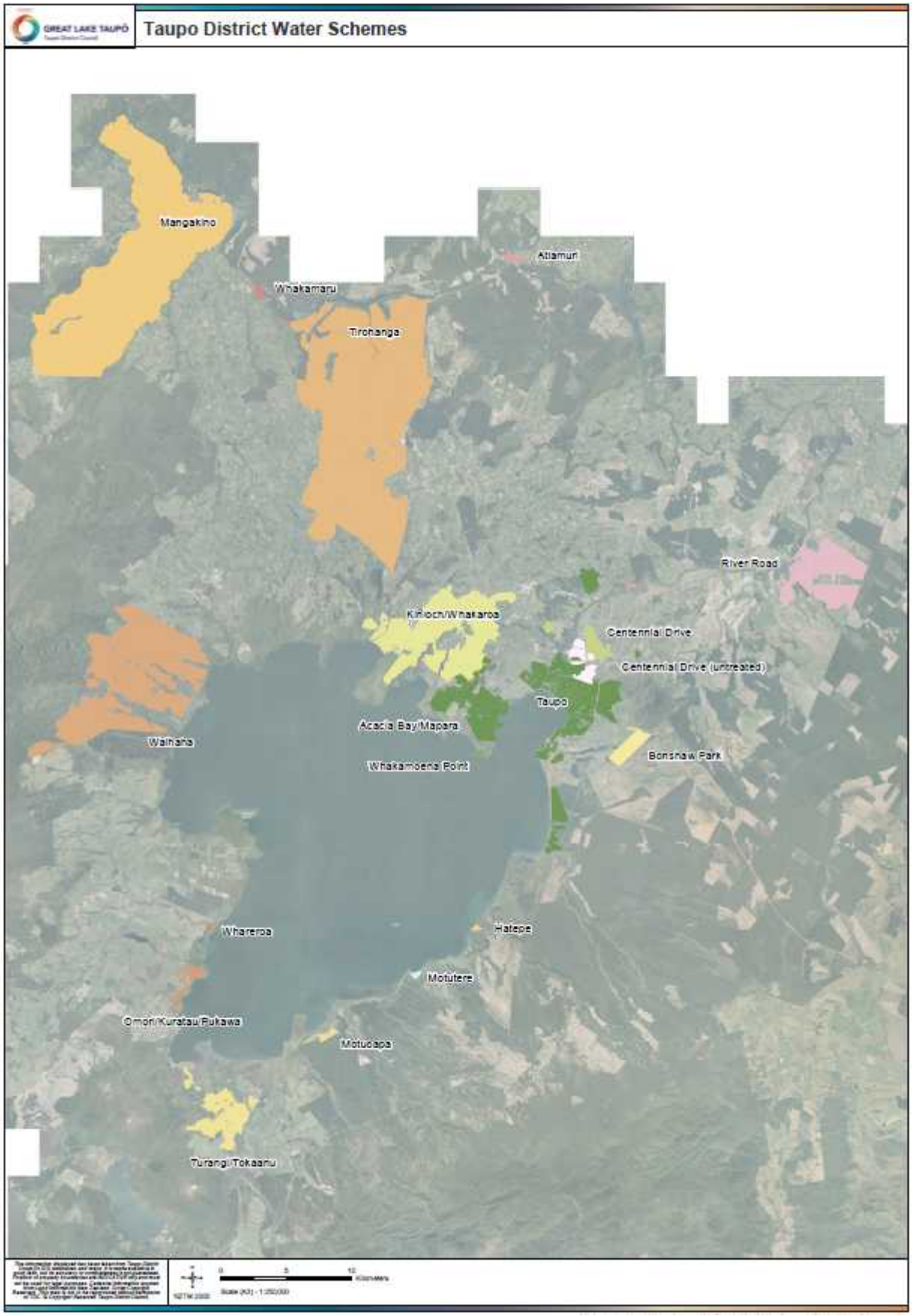
- Drinking water standards and the associated funding impacts (capex and opex) on communities
- Water allocation and water demand management
- The size and number of water schemes Council owns and operates, and the associated funding issues for Council.
- Providing for ongoing growth across our communities
- Ageing assets and corresponding construction renewal backlog
- Upcoming water reform and water regulation changes

Water supply assets

Council operates 18 water schemes for its communities, servicing most of the district's population. Collectively the assets for water supply have a replacement value of $128 million (Aug 2017). The water supplies and properties connected are displayed below.

Scheme / Zone	Properties Connected
Acacia Bay / Mapara Road	*Included in Taupo scheme
Atiamuri	76
Bonshaw Park	69
Centennial Drive (treated and untreated)	75
Hatepe	119
Kinloch / Whakaroa	1,348
Mangakino Township	765
Motuoapa	482
Motutere (campground only)	1
Omori/Kuratau/Pukawa	1,239
River Road	69
Taupō / Wairakei / Waitahanui	12,970
Tirohanga	106
Turangi Township/Tokaanu	2,417
Waihaha	31
Whakamaru	77
Whakamoenga Point	53
Whareroa	198
Total	**20,095**

There are a further 1,247 properties who have connections installed but have not yet connected or using the supply.


Taupo District Water Schemes
Mangakino
Whakamaru
Tirohanga
Atiamuri
River Road
Kinloch/Whakaroa
Centennial Drive
Centennial Drive (untreated)
Taupo
Acacia Bay/Mapara
Waihaha
Whakamoenia Point
Bonshaw Park
Whareroa
Hatepe
Motutere
Omori/Kuratau/Pukawa
Motuoapa
Turangi/Tokaanu

Communities that do not receive Council water supply within the District include: 5 Mile Bay, Waihi Village, Waitetoko, te Rangiita, Orutaua, Motutere Point, Mission Bay, areas of Motuoapa and Whakamaru, and some rural households with their own supplies. 5 Mile Bay, Waihi Village, and part of Whakamaru are planned for connection to Council water supply. Council has no plans to expand its supply network to the remaining communities at this stage.

Levels of Service

Council owns and operates its water assets so that it can provide water to its various communities to the required level of service:

- Drinking water provided by Council is safe to drink (compliance with the drinking water standards)
- There is sufficient capacity to meet current demands and future growth
- The reticulation system is maintained (water loss analysis)
- System failures are addressed in a timely fashion (response times)
- Users are satisfied with water supply
- Demand will be managed efficiently
- Water for fire-fighting in urban supply areas meets volume and pressure standards FW2

Water Supply Strategy

In 2019 Council adopted a new Water Supply Strategy. The Water Supply Strategy sets the direction on how Council will manage our drinking water supplies. The strategy sets 5 outcomes including:

1. We ensure the protection of public health
2. We recognise Te Mana o Te Wai
3. We use water responsibly and sustainably
4. We support the Communities Growth aspirations
5. We ensure that our water supply system is financially sustainable

Goals and responses are included within the strategy that describe how these outcomes be achieved. The Asset Management Plan looks to deliver on the outcomes of the Water Supply Strategy along with the direction set within other Council strategic planning documents such as the Infrastructure Strategy.

State of the assets

Water

Council's single-most important strategic asset is its water which is allocated by WRC, via consents. Council has water take consents to abstract water from lakes, rivers, streams and bores within the district for each of its supplies. Each consent has its own conditions, which must be met, monitored and reported.

Taupo District has relatively abundant natural water resources including rainfall averaging 1,100 mm/yr, the country's largest lake, significant rivers and easily tapped groundwaters and springs.

As water resources become fully allocated, there is a requirement to show water is being utilised efficiently. There will be increasing pressure to justify water take consents and increasing requirements to show the allocated water takes are being well managed.

Hence, with the growing regional and central government focus on efficient use of water resources, the responsibility falls on local authorities to demonstrate prudent management. Council has developed a Water Demand Management Plan (WDMP) as required under the Waikato Regional Plan.

Peak day water demand across the district is high, mainly because of large increases in population during events and holiday periods, as well as due to irrigation (gardens, golf courses, other recreation), and leaks from the system, (which may be on private property as well as within the public network).

While current consents provide sufficient water for the district, increasing demand for fresh water across the country means that new consents or increases to water takes within consents may be more difficult to acquire and demonstration of efficient use will be required.

Water treatment, reservoir and pump stations

Central government has set drinking water standards, requiring communities to have demonstrably safe drinking water by managing contaminations risks.

Taupo, Turangi and Mangakino have appropriate treatment to enable full compliance with the drinking water standards.

The remaining 15 water supplies require a solution to enable compliance with the requirements of the Health Act and drinking water standards. Projects to achieve compliance have been scheduled across years 1 to 4 of the LTP. Operational cost changes have also been planned as these upgrades occur.

Council also has a significant number of reservoirs and pump stations across the District. Many of the reservoir assets in particular are nearing end of life and an increased level of condition assessment is expected in coming years to enable maintenance and renewals programmes to be better informed.

Water reticulation

Reticulation assets include pipes (both gravity and pumping), fire hydrants, valves, water meters, and supporting infrastructure such as chambers and manholes. Water reticulation age and condition across the District is variable. There remains significant quantities of asbestos cement and galvanised pipelines, and associated infrastructure estimated to be beyond their useful life. The current construction backlog value is estimated at in excess of $30M. A large water reticulation renewals programme is planned in the LTP to reduce the construction backlog, corresponding potential for asset failures and the disruption and risks associated.

Demand forecast

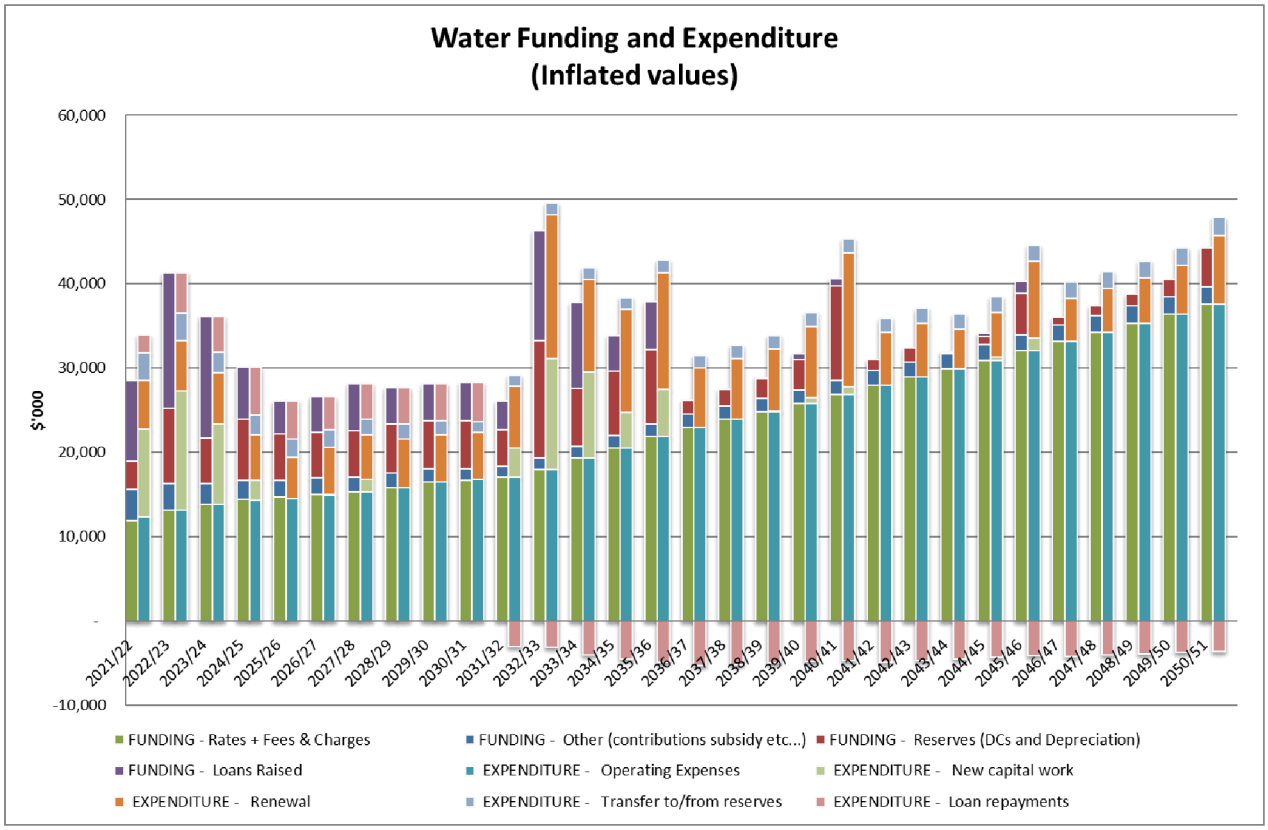
The recent review of the Council's growth model (water) projects at Council will be supplying water to a further 979 properties in the next 10 years. In the past couple of years growth has exceeded expectations and may continue to do so. As growth occurs Council is required to invest in the infrastructure to support this growth. Therefore Council must act to meet these demands and has done so by including specifc growth projects within the LTP. The growth rate at Kinloch has continued to strongly exceed the growth model. Therefore, timing of future growth projects in Kinloch are based on a greater growth rate than the growth model suggests.

Financials

The financial projections (most likely scenario) contained in the graph below for capital, renewal and operational expenditure are based on the following influences:

- The need to upgrade water treatment plants to comply with the drinking water standards.
- Ongoing growth and corresponding investment in infrastructure to support this growth.
- Significant renewal spending for underground assets and reservoirs.
- Tables and graphs below allow for inflation projections that are in line with those forecast by BERL for LGCI over the 30 years.

The total projected spend over the next 30 years for water is outlined in the following graph.



New works

The significant portion of new works is associated with meeting drinking water standards compliance for our water supplies. This includes membrane plant upgrades at Kinloch, Omori, Hatepe, Motuoapa and Centennial; UV plant upgrade at Motutere Point; connection of Whakamoenga Point and Bonshaw Park to the Taupo water scheme; bore head improvements at Atiamuri, Whareroa and Whakamaru; general improvements at Turangi and Mangakino; and cyanotoxin treatment at Taupo.

Council will also be extending the Turangi water network to service Waihi Village, and the Whakamaru network to currently un-serviced parts of the township in new works projects.

There will also be significant new works required to keep up demand on services due to growth. These projects include; new reservoirs in Kinloch and Taupo and pipeline upgrades in Taupo across the Control Gates bridge, and in Richmond Heights and and Wairakei.

Renewal

Of the $49.3 million dollars allocated to water renewals over the next 10 years approximately $38 million is for water pipe renewals with the remaining being primarily treatment plants, and pump stations.

Operations & maintenance

Operations and maintenance costs are projected to average $6.7 million per year for the next 10 years, which is 40% higher than the past 3 years. The increased operations costs are required to meet:

- Increased costs to operate and maintain more sophisticated treatment facilities.
- Increases in expenditure on network operations e.g. pipe flushing program and back flow protection checks.

Risk management

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

- Public safety matters related to inadequate water treatment
- Fire, damaging the reticulation network due to structural/electrical damage to the water treatment plants or pump stations
- Earthquake, damaging water treatment plants, and possibly also causing electrical or electronic failures, and/or structural and mechanical damage
- Flooding, making water treatment plants inaccessible or making them inoperative because of damage or tank contamination.
- Tomos, causing breaks in the reticulation system
- External contractor failure, leading to failures in the network, service failures, and /or drinking water standard failures

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

Technical Notes

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 analysis from a number of sources (technical, financial, customer service)

Improvement Programme

Councils are required to have improvement programmes to improve their asset management planning. Improvement actions are documented, and Council staff work through the actions during the development of the plan.

International Infrastructure Management

The plan is considered an intermediate plan based on the requirements of the International Infrastructure Management Manual. This plan incorporates recommendations from the last review carried out by Waugh Infrastructure Ltd in 2018.

Changes Post Consultation

The following changes have been made to the draft Asset Management Plan following the public consultation process and subsequent Council deliberations.

- TBC