

Taupō District Council
Infrastructure Strategy
2021-51

1. PURPOSE

The purpose of this Infrastructure Strategy is to identify issues that will face Council's infrastructure over the next 30 years, and to identify the options available for addressing the issues.

2. INTRODUCTION

Infrastructure is essential to connect people and place. In Aotearoa, the provision of services and facilities that meet the current and future needs of communities falls under the responsibilities of district councils.

Effective infrastructure planning is critical to ensure economic prosperity and to enable populations to access fundamental services and facilities of everyday living. However, building and maintaining infrastructure is expensive and requires careful and considered management to ensure the current and future needs of communities are provided for. Strategic and integrated planning is required to review, anticipate and adapt to changing scenarios

There are six themes that will influence the decisions we make about maintaining and managing our infrastructure over the next 30 years. These themes are:

- Population and demographic change
- Protecting the health of our communities
- Protecting the health of our environment
- Maintaining and renewing our infrastructure
- The resilience of our infrastructure
- Providing for the Māori world view

By understanding these themes mentioned above, the strategy will identify the issues facing our infrastructure and then discuss the options available for responding to the issues. As part of the discussion, this strategy will:

- Outline the most likely scenario for managing the infrastructure assets within the district over the next 30 years; and
- Show the projected capital and operating expenditure associated with managing the district's assets,
- Identify the significant decisions about capital expenditure that Council expects it will have to make; and
- Include the assumptions on which the scenario is based and providing information of the level of certainty or uncertainty associated with the scenario.

This strategy is updated every three years to reflect the changing themes, knowledge of assets and assumptions and to identify the impacts of changing circumstances. The last Strategy was adopted in 2018. Over time our knowledge will improve through improved performance and condition information. This will enable improved accuracy of asset renewal profiles and better investment decisions. Providing infrastructure is an important part of our role – it is expected that in 2021-22, spending on infrastructure will account for about 89 per cent of capital expenditure.

The Local Government Act requires Council to include the water supply, disposal of wastewater, stormwater drainage and the provision of roads and footpaths infrastructure assets in the infrastructure strategy. However, to ensure that we are thinking strategically for 'non-mandatory' assets, we have also decided to include the following Council infrastructure assets:

- Solid waste
- Community facilities like the AC Baths, the Taupō Events Centre, the Great Lake Centre and community halls.
- Parks and reserves

We will consider including our property and forestry portfolios in future infrastructure strategies.

3. THE IMPACT OF THE COVID-19 PANDEMIC

The impact of the Covid-19 pandemic, which first affected both New Zealand and the wider world in early 2020 will have significant ongoing impacts for the Taupo economy which will have resultant social impacts.

As an organisation responsible for undertaking a large number of infrastructure related projects, Council has the ability to help stimulate the economy through undertaking capital projects and renewals. This requires a fine balance between balancing the community's ability to pay, with providing economic activity through undertaking capital projects.

While Council may have adjusted the timeframes for some projects in order to 'smooth' the costs over the first couple of years of this strategy, it is acknowledged on the whole is committed to undertaking the required capital projects, upgrades and renewals that are needed to ensure the efficient running of this strategy. Covid-19 has not resulted in significant deviations from the course of the previous two infrastructure strategies.

4. COUNCIL VISION AND LONG-TERM DISTRICT STRATEGY 2021-31

Council vision

Our infrastructure contributes significantly to the Council vision, 'To be the most prosperous and liveable district in the North Island by 2022'. Infrastructure that is safe, efficient and meets the needs of our community, will assist us in achieving our Council values of 'world class, authentic, resilient, charming, vibrant, quality, value.'

The Long-term district strategy

The Long-term District Strategy outlines the ways that Council will reach our vision. Its key strategic guidelines are:

- Ensuring the Taupō District remains a great place to live
- Promote economic development
- Protect our water resources and use them wisely.
- Maintain the quality infrastructure that we have
- Keep rates and debt at a reasonable level while making us more resilient to future changes

The Long-term District Strategy can be accessed [here](#).

If we focus on achieving the strategic guidelines above, it will help ensure that the Taupō District is a prosperous and liveable district.

Where we want to be in 30 years

In 30 years, we want to:

- Have infrastructure that is in good condition and meets the levels of service required by the community.
- Be supplying enough safe drinking water to residents connected to Council's reticulated drinking water supplies.
- Have a healthy environment.
- Understand the condition of all assets so renewals are able to be accurately forecasted to maintain assets at the required level of service.
- Recognise and respond to the potential increase/decrease in demand on infrastructure from population growth/decline in the district and parts of the district.

- Recognise the changing demographics (in particular an aging population) across the district and respond to the required changes in the provision of services following fair and equitable decision-making processes for all communities.
- Understand the implications of our high non-resident population and peak holiday population and recognise that this makes us different to other districts and how this impact on the provision of services.
- Have infrastructure that is financially sustainable.

One of the components of creating a strong financial foundation is ensuring that we maintain our infrastructure to meet the current and future needs of the community. The key components of this involve continually improving the knowledge that we hold on our infrastructure and understanding the needs of the community. We need to look after what we already have and integrate the lessons learnt from past infrastructure failings, continually improving systems and processes as well as keeping abreast of updated science and research that may have bearing on how we manage our infrastructure assets. Well planned, reliable and safe Infrastructure is key for economic development. Building and maintaining quality infrastructure is one of the critical parts of the foundation required for a resilient and growing economy.

Council also provides a range of community infrastructure. Facilities like libraries and parks are provided to enhance the social environment and encourage a closer knit and well-functioning community. These facilities also provide an important economic benefit, creating a community environment that is attractive for people to live and work. We also provide a landfill, transfer stations and rubbish and recycling collections to ensure that waste in the district is disposed of safely.

There is a fine line between balancing wants and needs with affordability and sustainability and working within our financial strategy. Therefore, Council needs to prioritise our capital spend on infrastructure upgrades for drinking water and wastewater to meet legislation and consent requirements along with those place making projects that drive a prosperous community. Given the legal ownership of land by in which some of Council's infrastructure and services are located, there are opportunities to investigate other options for provision of infrastructure, such as private/public partnership with iwi/hapū.

Our water takes, use of water and treatment and disposal of wastewater, construction and maintenance of roads can all have impacts on our environment.

Council is required to prepare a financial strategy as part of its Long-term Plan. The purpose of the financial strategy is to facilitate prudent financial management by the local authority. The financial strategy and infrastructure strategy are interrelated as we cannot achieve our goals for infrastructure if we are not able to adequately fund this work. Conversely, it is difficult to keep rates affordable and sustainable and prudently manage our borrowings when new and upgraded infrastructure is required as a result of changing environmental standards and changes in demographics.

Financial strategy

The financial strategy continues the focus set out in previous Long-term plans on prudently managing our investments and borrowings, keeping rates affordable and sustainable and looking after the assets we have while maintaining levels of service.

The strategy outlines the Council's financial vision for the next 10 years and the impacts on rates, debt, levels of service and investments. It will guide the Council's future funding decisions and, along with the Infrastructure Strategy, informs the capital and operational spending for the Long-term Plan 2021-31. It identifies the challenges that we want to respond to with our financial goals.

We have set ourselves a number of financial goals that we intend to achieve by 2031. These goals support our three key principles for this financial strategy:

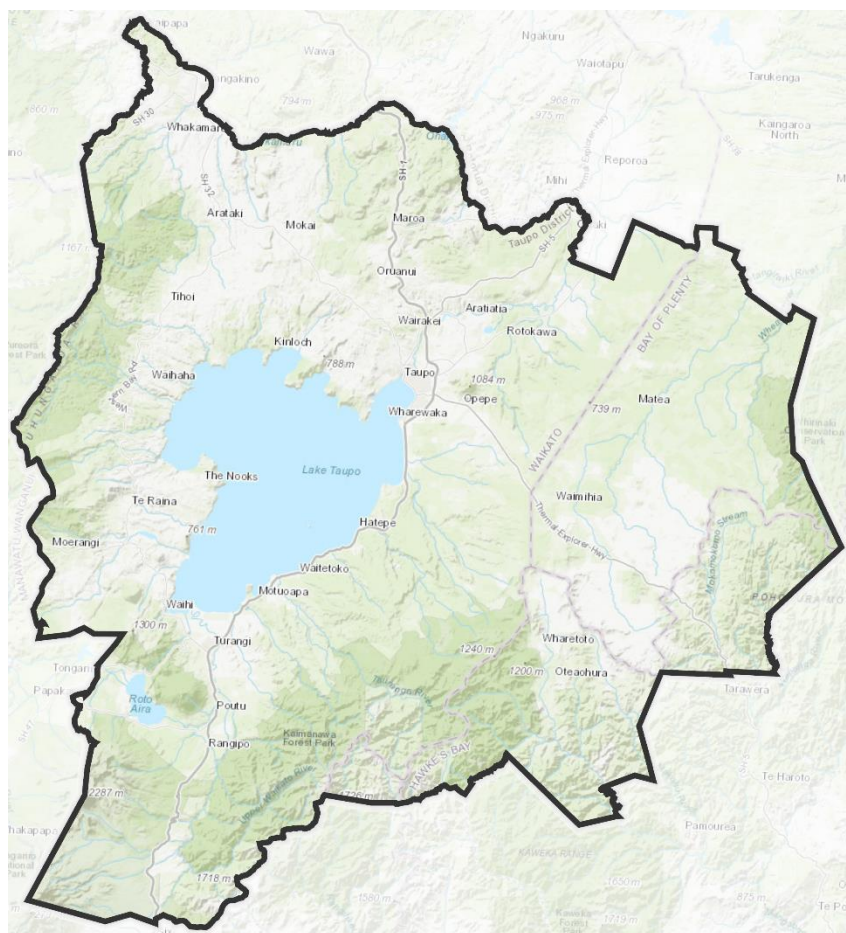
- Keeping rates affordable and sustainable
- Looking after the assets we have while maintaining levels of service
- Prudent management of our investments and borrowings

These goals are intended to assist in addressing the challenges that we have identified.

Financial Prudence	<ol style="list-style-type: none"> 1. Run a balanced budget in every year of the Long-term Plan. This means that operating income will meet or exceed operating expenditure in each year. 2. Maintain Council's AA Standard & Poors (S&P) credit rating
Income	<ol style="list-style-type: none"> 3. Annually review fees and charges revenue to ensure that they are set at the appropriate levels. 4. Continue the sale of surplus land assets to reduce debt. 5. Investigate opportunities for growing non-rate revenue to reduce the reliance on rates.
Rates	<ol style="list-style-type: none"> 6. Maintain the limit on rates revenue at 80% of operating revenue. 7. Limit rates increases to LGCI + 2.5% in each year of the long term plan.
Expenditure	<ol style="list-style-type: none"> 8. Continue to fund 100% of the wearing out of assets over their lifetime (funding of depreciation) in each year of the long term plan. 9. Continue to fund the growth component of capital expenditure projects by development contributions and developer agreements. 10. Improve the delivery performance of the planned capital expenditure programme by implementing a new planning and project management framework. 11. Increase third party funding for new community projects by building closer relationships with other agencies, government departments and community groups. 12. Look after the assets we have by providing sufficient renewal budgets from reserve funds or loans to meet the asset renewal programmes outlined in the asset management plans.
Borrowing	<ol style="list-style-type: none"> 13. Maintain gross external borrowing below 225% of operating revenue. 14. Maintain borrowing costs to below 10% of revenue in each year of the long term plan.
Levels of service	<ol style="list-style-type: none"> 15. Maintain levels of service as set out in the Long term plan 2021-31.
Planning for emergency events and contingencies	<ol style="list-style-type: none"> 16. Grow the disaster recovery reserve contributions from \$50k per annum to \$550k per annum by 2028. This will grow the disaster recovery reserve to \$6.7m by 2031. Due to the uncertainty of disaster events, no drawdown of the fund has been budgeted. 17. Maintain the capital of the TEL community fund to be available as part of a disaster recovery fund. 18. Maintain appropriate insurance cover, activity budgets and committed borrowing facilities to mitigate costs related to unexpected events.

It is always a balancing act between meeting the wants and needs of our communities while keeping rates affordable and sustainable. The financial strategy was prepared with this at the forefront of our thinking.

5. CONTEXT



Geographic

The Taupō District is located at the centre of the North Island and has a total area of 6,970km². This is made up of 6,354km² of land area and the remainder in waterbodies. The district makes up a significant part of the Taupō Volcanic Zone and straddles the Taupō Fault Zone. Lake Taupō was formed in the crater of a volcanic caldera. Its geomorphology means that at times it experiences earthquakes and volcanic activity.

Population and Demographics

There is an estimated usual resident district population of 37,203 people (Census 2018). The four largest settlements are Taupō, Turangi, Mangakino and Kinloch.

During the Census 2018, 29.9 percent of the population identified as being Māori, which is higher than the New Zealand average of 16.5 percent. Some localities have a higher proportion of population who are Māori, such as Turangi where 62.8% identify as Māori.

It is expected that our population will age and that our population will grow until 2035 and then start to decline.

Approximately 30% of homes throughout the district are holiday homes, however in some localities, such as Omori, this is up to 90%.

Natural resources

Lake Taupō is one of the district's most distinguishing features and is a resource of national significance. The lake is the largest body of fresh water in New Zealand and is an integral part of major power generating schemes. It offers some of the best trout fishing in the world and provides for a wide range of other active and passive recreational activities. The district is characterised by pumice, free-draining soils.

Geothermal resources significantly characterise the district, with features including mud pools, hot mineral springs, steam and sulphur and various geothermal fields such as Mokai, Ohaaki, Rotokawa, Tauhara, Tokaanu and Wairakei. A number of power stations, supported by these fields, add significantly to the local economy.

In the Taupō Volcanic Zone, there are elevated levels of arsenic in soils and waters as a result of geothermal activity. Some lakes and rivers have arsenic concentrations above the World Health Organisation's limit for arsenic in drinking water (0.01 mg/L).

Economy

Tourism is a significant contributor to the economy of the District. New Zealanders and overseas tourists love to holiday and visit our district to experience our wonders such as Lake Taupō. Hospitality, accommodation and retail are all key industries servicing the tourism sectors. Other key industries for the district include agriculture, forest and education and training and electricity generation.

Tāupo District Iwi/hapū

Council has a strong relationship with local Iwi and recognise and respect the importance of, and connection between, iwi and freshwater (wai Māori).

Council has Joint Management Agreements in place with Ngāti Tūwharetoa, Raukawa and Te Arawa River Iwi Trust. Central to the agreements is how Council and the iwi authorities will work together to promote the restoration and protection of the Waikato River.

Ngāti Tūwharetoa hold mana whenua and kaitiakitanga over the Central North Island including the Lake Taupō Catchment and part of the Waikato River, Upper Waikato, Whanganui, Rangitikei and Rangitaiki Catchments.

Ngāti Tūwharetoa are the descendants of Ngatoroirangi and Tia and other Tūpuna who have occupied the Taupō region since the arrival of the Te Arawa waka. Ngāti Tūwharetoa are linked by whakapapa to the lands and taonga (treasures) in this region. This connection establishes their mana whenua, kaitiakitanga, and rangatiratanga.

Tūwharetoa Māori Trust Board is the legal owners of Taupō waters. The term Taupō Waters refers to property including the lake bed, water column and air space of Lake Taupō and the Waihora, Waihaha, Whanganui, Whareroa, Kuratau, Poutu, Waimarino, Tauranga-Taupō, Tongariro, Waipehi, Waiotaka, Hinemaiaia and Waitahanui Rivers and the Waikato River, from the outlet of Lake Taupō to a place known as Te Toka a Tia, downstream and inclusive of Huka Falls.

Ngāti Tūwharetoa are in a unique position holding legal ownership of most of the waterways and waterbodies in the district as well as retaining ownership of most of the private land within the associated catchments.

Tūwharetoa Limited is the commercial company established to hold Tūwharetoa Settlement Trust's investment portfolios which includes forestry.

Ngāti Tūrangitukua is a Hapū of Ngāti Tūwharetoa and maintains Ahi kā roa - Mana Whenua in Te Mātāpuna. Ngāti Tūrangitukua claim the Kaitiakitanga and Rangatiratanga (Mana Whakahaere) over all properties and assets within its immediate area of influence and in accordance with its own tikanga and whakapapa.

Ngāti Tūrangitukua also recognises that the Hapū of Ngāti Tūwharetoa are interconnected and the relationship and interest of whānau and Hapū across the Mātāpuna are dynamic, bound by common whakapapa and whanaungatanga - Tūwharetoa ki Kawerau, Tūwharetoa ki Waiariki, Tūwharetoa ki te Tonga.

The Ngāti Tūrangitukua Claims Settlement Act was passed in 1999 and led to the return of ancestral land in the Turangi area to the Ngāti Tūrangitukua hapu. This land was taken by the crown for the construction of the Turangi township under the Public Works Act 1928 and the Turangi Township Act 1964. While most of the reserves in Turangi are owned by Ngāti Tūrangitukua, Council is required to maintain any land categorised as a reserve.

In order for Tuwharetoa land owners to use their land productively and sustainably, adequate infrastructure and services need to be in place in order to effectively support the development of Māori land. Restrictive or lack of access to infrastructure is a significant barrier for iwi/hapū to increase the productivity of Māori land and is a key impediment to unlocking Māori land potential.

Ngāti Tuwharetoa and Ngāti Tūrangitukua continue to express interest in the future infrastructure planning of the Taupō district. The success of effective, progressive and strategic infrastructure and service planning plays a fundamental role in achieving iwi/hapū social, cultural, economic and environmental aspirations. Active participation and engagement with decision making within their area of interest is an expression of kaitiakitanga, and enables Council to give effect to their legislative responsibilities to iwi/hapū.

6. ASSUMPTIONS

The following assumptions have been made in preparing this infrastructure strategy:

Natural Environment

- Our district is at risk of a range of natural hazards such as earthquakes, flooding, debris flows, slips, tornado, fire and volcanic activity.

Climate change

- Climate change impacts will not be significant between years 1-3 but we will review data on an ongoing basis to see if this needs to change for infrastructure strategies from 2031. Source: Taupō District Demographic Snapshot
- The impacts of climate change may disproportionately affect Māori communities within the Taupō district.

Service Delivery

- When we are required to renew the resource consents that we hold for our infrastructure, consent conditions will get more restrictive.
- Infrastructure needed for growth related development will be paid for by development contributions.
- The agreed levels of service are maintained.
- No change to the method used to deliver services, however greater collaboration and joint service delivery could be an outcome of iwi/hapū partnerships
- No change to the management of services.

Population and demographics

- Population growth across our district is expected to reflect the medium population projections provided by Statistics New Zealand and outlined in the Taupō District Demographic Snapshot.
- Limited structural change to population for years 1-3, increased aging structure by year 7 and until year 30. An aging population will put added pressures on specific services and may require different services. Source: Taupō District Demographic Snapshot
- The percentage of property owners that do not live in the district will remain at approximately 30 percent between years 1 and 3. We need to do more work to understand what this will be beyond year 3. Source: Demographic Snapshot.

Land use

- The level of growth for the district occurs as forecast in the Demographic Snapshot.
- Capacity for residential land which is already zoned will be more than sufficient for the next 30 years. Industrial/commercial land which is already zoned will be sufficient, for at least the next 10 years, as identified in TD2050. Further assessment of and provision of industrial/commercial zoned land will be undertaken as part of the district plan review.

Economy

- The wider economy will continue to be affected by the Covid-19 pandemic for the first five years of the strategy.
- There will be economic influences that will impact on Council's business that are out of its control.
- There will be contractors available to deliver the projects identified.

Legislation

- No new unfunded mandates from central government.
- Central government's water allocation strategy is consistent with current policy.
- Legislative change is anticipated over the next 10 years. Where direction has been provided by Central Government this has been taken into consideration. If unknown the status quo has provided the baseline for decisions.
- Legislation changes beyond 10 years is unknown.
- There will be a continued focus on environmental quality and therefore an increase in environmental standards.
- There is no reorganisation of local government that affects the Taupō District Council.

Treaty of Waitangi Obligations

- Council will give effect to the Treaty of Waitangi.
- Council will uphold and work collaboratively with iwi and hapū to give effect to Treaty Settlement legislation and any arrangements that result from these.
- Council will keep on top of changes to obligations under the RMA, LGA and other national level policies and frameworks.
- Council will comply with any changes that provide for iwi rights and interests in Freshwater.

Co-governance and co-management with iwi

- Council will look for opportunities to work with iwi partners in the planning for, and decision making on, the provision of infrastructure.
- Mana whakahoŋo agreements under the Resource Management Act between Council and iwi/hapū will be given effect in decision making processes.
- Council will give effect to the Joint Management Agreements in place with local iwi/hapū

Knowledge of state of infrastructure

- Current knowledge about the condition of underground infrastructure is not as comprehensive as we would like, but over the previous six years we have undertaken a programme to better understand our underground assets. We have gained a greater understanding of the condition of our assets. More work will be done over years 1 to 6, to further improve this knowledge.
- We have undertaken modelling on our roading network to help us determine more appropriate profiles for the renewal of both our road surfaces and pavements. Although there is further work to do the early results suggest that both surfacing and pavement renewal programmes will need to be increased.
- Current knowledge about the condition of our facilities is also not as comprehensive as we would like. We have done some work, but this work will be further developed over the first three years of the 2021 LTP.

Funding

- Funding levels agreed within the Long-term Plan are maintained across the first 10 years of the strategy.
- Inflation is consistent with BERL LGCI predictions.
- All financial figures in this document are inflation adjusted.
- NZTA financial assistance rates will remain at the current level for the period of the strategy.
- The increasing aging population is likely to affect the affordability of rates for a large proportion of the aging population.

Deliverability of the capital works programme

- The appropriate resources and contractors are available to tender and complete the projects that have been identified in this strategy.
- **Covid-19**
- **Critical variable = COVID 19**
- Since alert levels were implemented in March 2020, New Zealand has spent about 60% of this time in alert level 1. This reflects the embedding of government's COVID management plans. Government has also entered into agreements to obtain vaccines and the rollout has commenced in the 1st quarter of 2021. It is therefore assumed that the COVID situation in New Zealand is unlikely to significantly worsen. With the rollout of the vaccine expected to be

completed by mid-2022, it is anticipated that New Zealand will return to "normal" thereafter. We do not anticipate there will be any future nationwide lockdowns. Our expectation is the wider economy will remain stable. If there was further lockdowns, then the implications may include reduced revenue from council venues, consent revenue, delay of capital projects etc. This has high uncertainty.

- Council has made use of BERL in determining the inflation rates used in the Long-term Plan. BERL has considered the impact of COVID-19 on the economy and provided three scenarios. The Council has selected the mid scenario for the Opex and Capex inflation rates. Council therefore accept that COVID-19 has been considered within the economic assumptions.
- Council also consider the risks and impacts that material supply from overseas may be disrupted and the supplier market may be unable to cope with the increasing demand. This may impact the capital work programme that Council plans to do in the next three years.
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7. UNCERTAINTIES

Uncertainties	Level of uncertainty H/M/L	Potential effects
Growth	M	We may not be able to provide infrastructure for growth at the appropriate time and location. Council will ensure that we keep monitoring growth and adjust timing of projects accordingly.
Decline	L	We may experience population decline in some areas. This may cause surplus infrastructure capacity, resulting in affordability issues. We will keep monitoring and adjust the timing of projects and assess whether the projects are needed at all.
Demographic change	L	Demographic changes could result in a change in the demand for the types of infrastructure that we provide and we may not have programmed or allocated funding for this. This may mean that infrastructure will not be provided when required. We need to ensure that we understand the demands of the community to ensure that we know what infrastructure is needed, when and where the infrastructure is needed and that projects are programmed and that funding is allocated accordingly.
Peak population	M	The timing and intensity of our peak population (as a result in an influx of visitors) could result in a greater number of people for our current infrastructure to cope with. In the first three years of this LTP, we will undertake a project to gather information on the timing, quantum and location of peak population and keep monitoring and adjust timing of projects accordingly.
Non-resident population	H	A change in our resident /non-resident percentages could change the capacity required in our infrastructure at certain times of year. In 2016 42% of our property owners did not reside in the district. Surplus housing stock from declining populations in some parts of the district, could be purchased

Uncertainties	Level of uncertainty H/M/L	Potential effects
		as holiday homes resulting in a higher non-resident population. We need to understand whether this may happen and what the impacts on infrastructure could be.
Condition of assets	M	Although we have gained some knowledge of the condition of our underground assets over the past 6 years, we still have further condition assessment work to be done. This means that some of our renewals decisions are still planned on when we expect the end of life of the asset to occur, rather than making decisions based on the actual condition of the asset. This may compromise levels of service and means that there is an increased risk of an asset failing, resulting in increased replacement costs. Once we have complete information on the condition of all our assets we can then accurately forecast the timing of replacement and forecast finances.
Future funding	M	We may not be able to do projects that are planned in the capital schedule as future funding is not certain. We will prioritise projects, decide not to do projects or change the timing of them.
Natural hazard	M	We do not know the timing or quantum of natural hazards or even if they will happen at all. A natural hazard event could result in a loss of some or all services. Climate change is likely to cause an increase in the number of an intensity of weather-related natural hazard events.
Legislative changes	M	We do not know the timing or content of legislation changes so the impacts could be far reaching. We do know that environmental standards are increasing however we do not know the extent of these changes. This will result in increasing compliance costs to meet these new standards which could result in affordability issues.
Level of service and types of services required by community	M	We do not know what changes in levels of service the ratepayer will request over the 30 years.
Technology	H	Advances in technology such as electric and autonomous vehicles and treatment of wastewater, are all underway. However, we are uncertain how soon they will be available and at what cost and therefore how they will affect the provision of council infrastructure services.
Co-governance and co-management with iwi	M	We know that in the future, there will be increased opportunities for co-governance and co-management arrangements with iwi/hapū. While we know the details of some co-governance and co-management arrangements, we are committed to working with iwi/hapū regarding additional opportunities for further partnerships.
Deliverability of the capital works programme	M	If there are not enough contractors available to carry out the capital works programme, this will lead to time delays of projects being completed and cost increases.
Covid-19	H	Future lockdowns may impact the ability for capital projects to be undertaken.

Funding

Council funds the management of infrastructure assets through targeted rates, the general rate and subsidies from Central Government, like New Zealand Transport Agency and the Ministry of Health.

Under Section 101(3) of the Local Government Act, Council is required to outline how each group of activities that Council undertakes are funded and the reasons why. The infrastructure groups of activities are funded the following ways for the following reasons:

Water supply 100% targeted rate (by users of the scheme)

Reason: Individual property owners connected to or accessing Council's water supply benefit and are identifiable so a targeted rate for each scheme is considered the most effective way to charge for this activity. Metered water supplies (rural and commercial) are also charged.

Transport 100% general rate

Reason: A strong and safe transport network benefits the community as a whole and is a key component of the district's social and economic development. Users of the roads receive a direct benefit through an integrated road network. The general rate is the most effective way of funding this activity. Subsidies from central government (which include the District's share of petrol taxes) and development contributions are the most efficient way of targeting contributors.

Stormwater 100% general rate

Reason: The service is provided primarily for its environmental benefits to mitigate pollution and erosion effects on waterways. Stormwater services are also provided, to a lesser degree, for public safety (flooding risk from stormwater).

Wastewater 100% targeted rate (by users of the scheme)

Reason: Direct users of the wastewater system clearly receive the benefit. There is also a high public benefit in relation to the promotion of public health. A targeted general rate is applied to ratepayers that are connected to a wastewater scheme. This is considered the most efficient method of funding as the benefit users receive is the same regardless of volume. It is also not considered practical to measure and make specific household charges.

Solid waste

Litter control 100% general rate

Reason: Both ratepayers and residents receive a benefit from this service, therefore the most efficient and transparent funding method is the general rate. This activity contributes to the environmental and social considerations for the community as a whole.

Refuse collection 100% fees and charges

Reason: Refuse collection can be fully user funded, which also provides an incentive for residents and ratepayers to reduce their refuse volumes.

Solid waste disposal and minimisation 45%-55% targeted rate (set charge across each ratepayer), 45%-55% fees and charges

Reason: The funding split between a targeted rate and fees and charges is in an attempt to encourage waste minimisation. Individuals do not pay to recycle at the disposal facilities around the District which assists with reducing volumes to landfill.

Parks and reserves 90%-100% general rate, 0%-10% fees and charges

Reason: As the majority of parks and reserves in the District are available for the enjoyment of the public at any time the general rate is an effective way of funding this activity. Where Council is able to charge for specific parks and reserves, fees and charges are the most appropriate funding mechanism. A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

Sportsgrounds 90%-100% general rate, 0%-10% fees and charges

Reason: The community benefits from being able to use the facilities for general recreation, while clubs and individuals also benefit from the grounds at other times. There is also an economic benefit

through national and regional sports tournaments that bring sports people and their families to the District. These services can be partly funded separately by fees and charges, but there are limits to how much clubs, especially for school sports, can pay. This is reflected in the small fee and charge component. A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

Facilities

Pools: AC Baths 35%-45% fees and charges, 55%-65% general rate, Mangakino Pool and Turangi Aquatic Centre 0%-15% fees and charges 85%-100% general rate

Reason: Users are clearly identifiable. However, swimming pools provide a range of benefits to our communities. The Turangi and Mangakino pools recognise a significant public funding component (85%-100%) on the basis of wider social responsibility.

A public funding input (55%-65%) for the AC Baths is based on the economic and social benefits accruing to the wider community from the operation of the pool facility. There is also a wider range of services provided at the AC Baths which accounts for the higher level of fees applied. A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

Taupō Events Centre: 25%-35% fees and charges, 65%-75% general rate

Reason: The venue is used by groups and individuals which creates the ability to apply fees and charges. Council supports the use of the venue as it assists in meeting the social needs of current and future generations. This support is recognised in the split between fees and charges and the general rate. Increasing the fees and charges is likely to result in a reduction in community use. A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

Great Lake Centre: 15%-25% fees and charges, 75%-85% general rate.

Reason: The venue is used by groups and individuals which creates the ability to apply fees and charges. Council supports the use of the venue as it assists in meeting the social needs of current and future generations. This support is recognised in the split between fees and charges and the general rate. Increasing the fees and charges is likely to result in a reduction in community use. A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

When considering the funding of infrastructure assets, Council must consider the period over which the benefits of infrastructure assets occur to ensure the costs are shared fairly between today's beneficiaries and future beneficiaries. This is referred to as intergenerational equity. Infrastructure assets are made up of parts such as pipes, pump stations, manholes, tanks, buildings and playground equipment. All these components have a different estimated life, which are outlined in the Property, plant and equipment Accounting Policies, ranging from two to 100 years. The capital costs for these projects need to be shared by the beneficiaries over the lifetime of the assets. For operating costs, the period of benefit for the rates share is generally ongoing as Council regularly provides the service. The capital costs are shared over the generations that will benefit from the asset.

Community halls: 0%-10% fees and charges, 90%-100% general rate

Reason: The primary beneficiaries are those who use the community halls. However, the wider community benefits through enabling communities to be active and connected.

A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

Public toilets: 100% general rate

Reason: Given the impracticality of charging individuals and the wider community benefit of providing amenities for residents and visitors to the District the general rate is considered the most appropriate source of funding.

100% general rate is therefore considered the most appropriate and efficient funding source.

Superloo: 30%-50% Fees and Charges, 50%-70% General Rate

Reason: The District benefits from having visitors and providing public amenities is part of ensuring visitors enjoy their stay. Beyond user charges, the costs are only borne efficiently by the whole community and limited transparency benefits from distinct funding would be less than the transaction costs. The Superloo was built to offer a first class service and a fee reflects the enhanced service applied.

A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

District libraries: 0%-10% fees and charges, 90%-100% general rate

Reason: The District Libraries provide social and cultural benefits to the individuals that visit. There is also a wider community benefit which includes an ability to encourage education, a social environment and an important source of supplying public information. These community benefits are recognised in the split between fees and charges and the general rate.

A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

Taupō Museum and Art Gallery: 5%-15% Fees and Charges, 85%-95% General Rate

The Museum and Art Gallery provides cultural or recreational benefits to the individuals that visit. There is also a wider community benefit which includes economic, social and cultural benefits of protecting our history. These community benefits are recognised in the split between fees and charges and the general rate. Increasing the fees and charges is likely to result in a reduction in use.

A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

Housing for the elderly: 40%-60% fees and charges, 40%-60% general rate

The beneficiaries are the tenants who receive accommodation at affordable prices. There is a public and social benefit in having housing for the elderly units reflecting a community that cares.

A split of fees and charges, and the general rate is therefore considered the most appropriate and efficient funding sources.

Cemeteries: 0%-20% UAGC, 80%-100% fees and charges

Reason: Interment and maintenance of the district's cemeteries are mainly of private benefit. The users are the deceased and those related to the deceased and as such can be linked to individuals. There is an element of public good in terms of ensuring that public health requirements are maintained.

A split of fees and charges, and a UAGC is therefore considered the most appropriate and efficient funding sources.

Asset Management Plans

The Council manages \$1.2 billion worth of infrastructure and other assets such as our water networks and community facilities. Council uses the asset management approach to ensure assets are managed in an affordable, efficient, sustainable and effective manner to minimise the financial impact on Taupō District ratepayers and residents.

Asset Management Plans (AMPs) have been developed for water, wastewater, stormwater, transportation, solid waste, parks and reserves and facilities. Asset management plans, except those for parks and reserves and facilities, set out a 30-year programme for the management of specific groups of assets. They are tactical plans for achieving strategies resulting from the strategic planning

process. AMPs are a key component of the council planning process linking with the infrastructure strategy, the Long-term Plan and the Annual Plan.

They combine management, financial, engineering and technical practices to ensure that the level of service required by customers is provided at the lowest long-term cost to the community. They demonstrate that Council is managing the assets responsibly. The main benefits derived from Asset Management planning are:

- Improved understanding of service level options and standards.
- Minimum lifecycle (long term) costs are identified for an agreed level of service.
- Better understanding and forecasting of asset related management options and costs.
- Managed risk of asset failure.
- Improved decision making based on costs and benefits of alternatives.
- Clear justification of forward works programmes and funding requirements
- Improved accountability over the use of public resources.
- Improved customer satisfaction and organisational image.

Assumptions on the life cycle of key assets can be found within the Accounting Policies.

Levels of Service

Our target levels of service for each type of asset are identified in the asset management plans. They are derived from the following principles:

- **Community Outcomes:** Provide guidelines for the scope of current and future services offered and manner of service delivery and define general levels of service which the community wishes to receive.
- **Customer Expectations:** Information gained from customers on expected quality and price of services.
- **Statutory Requirements:** Legislation, regulations, environmental standards and Council bylaws that impact on the way assets are managed (i.e. resource consents, building regulations, health and safety legislation). These requirements set the minimum level of service to be provided.
- **Strategic and Corporate Goals:** Provide guidelines for the scope of current and future services offered and manner of service delivery and define specific levels of service which the organisation wishes to achieve.

Pre-engagement on the Long-term Plan 2021-31, carried out in the middle of 2020 provided an insight to where our community felt that changes to level of service were needed. Both parking and roading in Taupo town received a number of feedback, indicating that people desire a higher increase in level of service. In response, we have increase spending in the transport area, as detailed below. In addition, the town centre upgrade projects in Turangi and Taupo will help to improve levels of service.

In addition, when consulting on the Water Supply Strategy in 2019, Council received feedback indicating that our community feels that it is important than drinking water schemes are upgraded to achieve compliance with the Drinking Water Standards New Zealand. We have continued to schedule these upgrades to ensure that they are completed within the first 10 years of the strategy. There are several projects included this long-term plan which will increase the level of service. Where relevant, it has been identified where a change in level of service has resulted in improved public health outcomes. The project which will result in a change in an increase in levels of service are:

- Turangi Events Centre
- Asbestos removal and increased insulation at the Housing for the Elderly (improved public health outcomes)
- New cell, gas flare and liner cover at the Broadlands Road Landfill
- Flood mitigation at the Kimberly Reserve and stormwater improvements at Tui Street (improved public health outcomes)
- Installation of a roundabout at Kiddle Street and Arrowsmith Drive
- Seal improvements and roading improvements including Tirohanga Road and Anzac Memorial Drive
- Improved lighting, parking, signage and road marking for our transport network

- Acacia Bay cycle path
- Kinloch wastewater treatment plant balance tank (improved public health outcomes)
- Taupo wastewater irrigation expansion (improved public health outcomes)
- Turangi wastewater disposal system improvements (improved public health outcomes)
- Upgrades to the Kinloch, Bonshaw Park, Centennial Drive, Hatepe, Motuoapa, Omori and Whakamoenga Point drinking water schemes to achieve compliance with the Drinking Water Standards New Zealand (improved public health outcomes)
- Upgrades to the Water Treatment Plant relating to taste, odour and cyanotoxin (improved public health outcomes)
- Implementation of the water loss strategy.

In the latter years of this strategy it will be necessary to review the investment in infrastructure to maintain services at current levels. Council will need to consider the services, the level at which they are provided and what the district can afford. This is needs to be monitored in subsequent reviews of the infrastructure strategy.

Public health outcomes

If not delivered appropriately, infrastructure can lead to poor public health outcomes. A list of the risks, and how they're being mitigated is listed below:

- Unsafe drinking water can cause people to become sick, and in extreme cases, even cause death. Compliance with the Drinking Water Standards help to ensure that drinking water is safe. For our schemes which have not yet been upgraded to achieve compliance with the drinking water standards, we are managing the risk through Water Safety Plans which have to be approved by the Ministry of Health.
- Not undertaking renewals to our water and wastewater networks on time can result in risks to public health. We manage the risk by prioritising renewals based on risk.
- Not treating and disposing of wastewater and stormwater and solid waste adequately can cause poor health and environmental outcomes. We operate under strict resource consents relating to the treatment of wastewater. If we do not comply with the conditions of our resource consents, then council may be prosecuted.

Critical Assets

Our Asset Management Plans (AMPs) define critical assets as “Those assets with a high consequence of failure. They are often found as part of a network, in which, for example, their failure would compromise the performance of the entire network.” Copies of our Asset Management Plans for Water, Wastewater, Stormwater, Transport, Solid Waste, Property Assets and Parks and Recreation Assets can be found at www.taupo.govt.nz

We consider our critical assets to include assets such the water and wastewater treatment plants for our larger towns, significant public buildings and key transport networks, including bridges.

The failure of our critical assets is a key area of risk for council. Our asset management plans contain sections on critical assets. This section identifies the events that may disrupt our assets, and the adequacy of the controls that we have in place.

We have undertaken some work to understand our water and wastewater assets. This work is still in its infancy, but will get more sophisticated over time.

Water criticality

Asset criticality work was completed for all water supply assets in 2016. This work provided all major assets including treatment plants, pump stations, reservoirs and reticulation infrastructure a criticality rating.

In 2018, the water reticulation renewals strategy project, improved the criticality analysis for reticulation assets. Because of the Taupo District's high non-resident population, this project used a customised methodology and a customised method developed in conjunction with TDC staff that uses as a

combination of pipe diameters and facility importance ratings to determine the pipe criticality, The customised method was taken forward as the preferred methodology and has been used to provide criticalities for all TDCs reticulation assets to enable improved renewals planning to occur.

Assets which are likely to score a high rating as a critical asset are those which would disrupt service to a high number of people if they are unable to operate, such as the Taupo Water Treatment Plant and main water pipes.

The results of the criticality work have mean that we have been able to prioritise watermain renewals in conjunction with condition grade of pipes to determine an order. This was then adjusted based on local knowledge, engineering judgment, other factors (e.g. road sealing), and to ensure appropriate bundling of work for a renewals contract.

Deliverability of the capital works programme in the Infrastructure Strategy

Council has committed to a significant capital programme for the duration of this strategy in order to deliver the required infrastructure at the appropriate times and places across the district. There is also a 'back-log' of projects which have been committed to through previous Long-term plans and Annual Plans. Not undertaking projects at the time that they have been committed to increases risk of infrastructure failing. Council manages this risk by prioritising projects which could have environmental, public health or legislative risks or affect critical assets. In order to reduce the 'back-log' and deliver the enhanced capital works programme, since 2018, Council has invested in programmes and training to improve the deliverability of the projects that we deliver. This has included:

- In the 2020/21, undertaking a review of the organisation to ensure resources (including staff) are allocated appropriately.
- Adopted a project methodology (based on Prince2) which includes the use of business cases to ensure the right projects are delivered at the right time and align with both our strategic goals and our LTP cycle. The methodology ensures a phased approach to project delivery create consistent stage gates (initiation, plan, execute, close).
- Invested time at the outset to understand the full scope of our projects to improve our efficiency of execution.
- Prioritised our project portfolio against our strategic objectives to ensure we're delivering the right projects at the right time.
- Created a suite of templates and resources to ensure a simple and consistent methodology for delivering projects.
- Delivering project management training across the organisation to increase our available resource and capability while improving the overall quality of project delivery.
- Appointed a resource to mentor and advise on our project methodology.
- Project timetabling to minimise conflicts between projects and improve efficiency of delivery.
- Resource mapping to understand what is required to deliver our portfolio.
- Set up a Project Governance Group to oversee our project portfolio.
- Continuously improving on our project reporting.
- Reviewing the way that we procure projects. Where appropriate, and in line with our procurement policy, we bundle projects of a similar nature, similar location or similar work type or across a number of years together in one contract. This helps to increase efficiency and reduce costs.
- We have created some panels (a Consultant Panel; a District Plan Panel). These panels perform the Procurement work up front, meaning that our staff can quickly and easily choose the best organisation to perform the required work. This streamlines the initiation and planning phases of a project assisting with delivery. We have also commenced engagement of contractor panels for the delivery of CIP funded works. This will be rolled out for use in delivery of LTP projects where appropriate.
- There is work underway to update our guidelines and have a consistent approach for our procurement selection and our contract selection.
- Creation of various strategies such as the Water Supply and Transport Strategy to speed up delivery timeframes.

- Earlier optioneering through some of the larger project business cases rather than doing this during the delivery of the project.
- Initiating consents and land purchases a lot earlier than we have done previously
- Larger and longer contracts through bundling to minimise repetitive procurement resourcing and reduce the delivery timeframes
- Project Management –Large advancements in the way we define our scopes through scoping workshopping and exercises, increasing our closeout sessions so we have continual learning from project to project.
- Training of over 100 staff and key consultants in our project management methodology.
- Resourcing key dedicated project managers for selected projects.
- Utilising early contractor involvement where appropriate.

We have assumed that we will be able to deliver the capital works programme, however there is a high uncertainty associated with this.

ASSUMPTIONS

Council's investment (as outlined above) in project management methodology and the establishment of a project management office (PMO) will greatly assist in delivering our capital programme. The consultant and contractor market will gear-up to be able to meet the demands of increased infrastructure spending locally and in the region.

RISKS

Council will not be able to present projects to the market in time for them to be delivered as planned. The mitigation for this is the work Council has undertaken above.

The consultant and contractor market will not be able to deliver on our planned project timelines. Mitigations include early contractor involvement, Supplier panels, bundling of contracts.

FINANCIAL IMPLICATIONS

If projects are delayed loans may not need to be drawn down as planned which will reduce Council's overall debt and reduce interest costs in the short term.

IMPACT ON LEVELS OF SERVICE

There is a risk the community won't get the levels of service we expect to deliver. For example, if a renewals project is affected, it increases the risk that there could be a decline in levels of service along with possible asset failures.

8. THEMES

Six themes have been identified through the development of the infrastructure strategy and the underlying Asset Management Plans that describe the changing environment within which we will need to plan for, maintain and build infrastructure. These themes often relate to more than one type of infrastructure. As the infrastructure strategy covers 30 years we will need to continually monitor and update these themes to ensure we are working with the most up to date information. The six themes that we have identified are:

1. Theme one: Population and demographic change
2. Theme two: Protecting the health of our communities
3. Theme three: Protecting the health of our environment
4. Theme four: Maintaining and renewing our infrastructure
5. Theme five: Resilient infrastructure
6. Theme six: Providing for the Māori world view

Theme one: Population and demographic change

Council uses population projections from Statistics New Zealand. The population projections that we have used for the preparation of this strategy are based on the results of the 2013 Census because the results from the 2018 Census have not yet been published.

The projections that we have used show that:

- The districts population will continue to grow to 2038 and will then decline.
- The urban areas of Taupō town and Kinloch will continue to grow until 2038 and then start to decline. The population of Taupō town will increase from 24,190 in 2013 until it peaks at 27,260 in 2038 before slowly starting to decline. In Kinloch the population is projected to increase from 520 in 2013 to 780 in 2028 and then remain stable. The towns of Turangi and Mangakino have been experiencing population decline for some time and it is projected that this decline will continue.
- Currently there are an average of 2.4 people in each household. This is expected to decrease to 2.2 people per household in 2038. This trend towards fewer people in one household is driven by a number of factors but is heavily influenced by our aging population.
- The projected increase in population for Taupō town and Kinloch couple with the declining household size will result in greater growth in the number of households in these areas in the next 20 years. In 2013, there were 10,079 households in Taupō town, which is projected to increase to 11,709 in 2028 and 12,391 in 2038. In Kinloch the 217 households in 2013 are projected to increase to 339 in 2028 and peak at 355 in 2038.
- The aging population is demonstrated by the projected increase in the percentage of the district's population aged over 65 years. It is expected to nearly double from 5,800 in 2013 (17 % of the population) to 11,100 in the next 25 years (28% of the population).
- In 2016 42% of our property owners did not live in the district and in 2013 32% of our dwelling stock was unoccupied. This indicates that about 30% of our housing stock across the district are used as holiday homes. This methodology for calculating the number of holiday homes across the district is rather simplistic and likely to be inaccurate.
- There are large variations in the percentage of holiday homes across the district. For example, we believe that in places such as Taupō approximately 30% of the houses are holiday homes, whereas in settlements such as Kuratau, Whareroa, and Omori, approximately 90% are holiday homes.

These population and demographic projections have important implications for the infrastructure and services that we provide over the next 30 years and beyond. An example of this is that the age of our residents may influence where they want to live, and the types of infrastructure that they require. For example, a higher number of residents aged 65 years or older may increase the demand for smaller,

easy care properties close to town so that residents can walk or mobility scooter to town, whereas a more youthful population may demand more recreation facilities, such as skate parks.

Theme two: Protecting the health and safety of our communities

One of the reasons that Council provides infrastructure is so to help keep our communities healthy and safe. Council does this by:

- Providing treated drinking water to the towns and settlements.
- Providing raw (untreated) drinking water to industrial businesses connected to the Centennial Drive water supply.
- Treating and disposing of wastewater from our town and settlements.
- Disposing of stormwater from our roading network.
- Providing a safe local transport network.
- Encouraging our residents to be active through the provision of sportsgrounds, reserves and walking and cycling networks.
- Providing for the collection and disposal of solid waste and recycling

It is important that the infrastructure that Council provides is safe, sufficient and reliable, otherwise the impacts on our community can be significant, such as death or people becoming ill. Examples of this include provision of a reliable transport network and safe drinking water to urban communities because without it, there could be significant harm to the health and safety of our communities. In addition, if the discharges from activities such as wastewater, stormwater and solid waste aren't managed adequately, the discharges can make people sick

In addition, the provision of services such as reserves and the transport network are important for social connection and the wellbeing of our residents. The transport network allows people to connect with work, education and friends and family. Community facilities and reserves allow people to be active.

The provision of facilities that encourage residents to be active play an important role in ensuring that our community is healthy.

Theme three: Protecting the health of our environment

Council needs to ensure that our use of natural resources and discharges do not adversely affect our environment.

The use of natural resources and discharges to the environment are managed through regional plans. These plans require resource consents for the use of natural resources, such as water, and discharges to the environment such as to water, land and air.

Legislation and regional plans, which regulate natural resource use, are being changed to include more stringent environmental standards for resource use and allocation as a result of:

- Increased environmental and cultural expectations from our community.
- New legislation from central government, such as the National Policy Statement for Freshwater Management
- Legislation resulting from Treaty Settlements.
- Strategic documents aimed at protecting our environment, such as the Protecting Lake Taupō Strategy.

Changes to legislation and regional plans are described below:

- Recent changes to the National Policy Statement for Freshwater Management (NPSFM) and the introduction of new National Environmental Standard for freshwater were adopted by Central Government in August 2020. The changes will require that regional plans set acceptable environmental limits for the different freshwater management units (of water

- catchment) in their regions, and a plan to achieve those targets. These changes will see discharges of nitrogen, phosphorous, sediment and e-coli receiving greater scrutiny.
- Central government have announced that they intend on introducing new guidelines for the disposal of wastewater and stormwater. While we don't know the content of these yet, the introduction of these guidelines is likely to introduce tougher environmental limits. Complying with these limits are likely to come with increased costs.
 - Variation No. 5 - Lake Taupō Catchment to the Waikato Regional Plan, which became operative in July 2011, sought to protect the health of Lake Taupō by reducing the nitrogen leaching from land uses in the catchment entering the lake. This introduced policy and rules to manage land use in the Lake Taupō catchment by controlled farming practices and placing tighter controls on new urban development in the catchment. This plan change is currently being reviewed by Waikato Regional Council.
 - The Ngāti Tūwharetoa Deed of Settlement is the final settlement of all historical Treaty of Waitangi claims of Ngāti Tūwharetoa resulting from acts or omissions by the Crown prior to 21 September 1992 and is made up of a package that includes: an agreed historical account, Crown acknowledgements and apology cultural redress; and financial and commercial redress.
 - The Ngāti Tūwharetoa Claims Settlement Act was settled in March 2019. The Act requires the establishment of a joint committee, Te Kōpua Kānapanapa, who are tasked to prepare 'Te Kaupapa Kaitiaki', a plan for the Taupō Catchment. Te Kaupapa Kaitiaki will promote the sustainable and integrated management of the Taupō Catchment environment for the benefit of Ngāti Tūwharetoa and all people in the Taupō Catchment. Council must recognise and provide for the vision, objectives, desired outcomes, and values of Te Kaupapa Kaitiaki when it prepares or reviews its district plan.
 - In 2010 legislation was passed covering Ngāti Tūwharetoa, Raukawa and Te Arawa river iwi. The co-management arrangements under this bit of legislation covers the Waikato River from Te Toka a Tia near Taupō through to Karāpiro. This legislation has set up processes to improve the quality of important cultural sites like rivers such as the Rangitaiki River Forum and the Waikato River Authority. A key concern is to consider environmental standards in regional plans to ensure the health and the mauri of the Waikato, Waipā and Rangitaiki rivers are restored. An example is the Healthy Rivers/Wai Ora Proposed Waikato Regional Plan Change 1 which address the issue of declining water quality in the Waipā and Waikato Rivers by introducing regulations.
 - A Joint Management Agreement between Ngāti Tūwharetoa and Taupō District Council was signed in 2009. The agreement will see a joint committee established in which appropriately qualified iwi appointees will join councillors in resource consent and private plan hearings changes which apply to Māori multiple-owned freehold land. It is estimated that more than 50 per cent of the Taupō District's land area is owned by members of Ngāti Tūwharetoa.

Council is required to obtain resource consents from the regional council for many activities, including water takes for our water supplies, discharges to land from wastewater treatment plants, the discharge of stormwater to water and the discharge of solid waste and leachate to land. The changes to legislation and regional plans are making obtaining these consents more time consuming, more difficult and more expensive. The expiry dates for the different consents vary, depending on when they were granted, and the length of time that they were granted for.

We expect that the trend of increased environmental regulation will continue. This will have positive outcomes for our environment. However, it will also require Council to invest in more sophisticated technology, which will result in greater capital costs for our infrastructure. However, it may offer opportunities to consider other management frameworks such as private/public sector partnerships.

Theme four: Maintaining and renewing our infrastructure

A key strand of Council's district strategy for many years has been to look after the infrastructure assets that we have whilst maintaining levels of service. Generally, the majority of our infrastructure network is in good condition. It is important that we look after and maintain this infrastructure across all the settlements in the district by undertaking renewals at the appropriate time. This will maximise

the investment that we have in our infrastructure and avoid our infrastructure failing, resulting in expensive repairs. It will also ensure that there is no interruption in service to communities.

When components of our infrastructure are due to reach their expected end of life, we replace these components. This is undertaking renewals. If we carry out renewals too early, then this is an unnecessary cost to Council. If we wait too long to carry out renewals, then there is the risk that the asset may fail, resulting in expensive repair costs and possible disruptions to our infrastructure networks.

Asset renewal planning is at various stages across the asset groups, from renewal based on detailed asset condition information to renewal based on life expectancy. It is difficult to assess the useful life of an asset, especially assets which are located underground, such as water and wastewater pipes. Generally, manufacturers will give a minimum expected useful life for an asset, however there are a number of factors that can dictate the ultimate useful life of an asset. These relate to a range of aspects, including construction methods, environmental constraints, topography and soil types.

In the 2015 Long-term Plan we identified gaps in our knowledge about the condition of our underground pipe networks. Because of this, we started a ten-year programme to better understand the condition of our underground networks.

In addition, during the development of the 2018 Long-term Plan, the community told us that wastewater spills into the lake was unacceptable. We have increased the cleaning of our wastewater pipe network and we have also let a contract to complete condition assessments for our wastewater pipes. Assessments of Mangakino and Atiamuri have been completed and we expect to have this programme completed by 2022.

The assessment work we have completed to date has enabled us to develop accurate renewal programmes for the wastewater network for both Mangakino and Atiamuri based on comprehensive condition information. As more information comes available, we will be able to further refine our renewals profile.

Stormwater

The majority of stormwater assets have an expected age of 100+ years and are approximately halfway through that period.

Water

The condition assessment completed so far on water mains has identified the need for renewal of some 254.9km of asbestos concrete pipes and 9.5km of galvanised pipes across the district over the next 10 years. There is also a further 35km of AC pipe that needs renewal beyond the 10 years. This has been programmed in the 2021 LTP. Asset Management Plans will be updated to reflect a renewals programme based on this accurate condition assessment as it is obtained.

Transport

Modelling has recently been completed on our roading network to help us determine more appropriate profiles for the renewal of both our road surfacing and pavements. Although there is further work to do, the early results suggest that both surfacing and pavement renewal programmes will need to be increased. This has been included in the 2018 LTP and will be further refined as data integrity is improved.

Parks and reserves

Parks and reserves renewals are based on the condition and lifespan of the asset. This work has been undertaken to provide a robust renewals programme for 10 years. However our asset management programmes are not mature enough to provide detailed financial information for parks and reserves for years 11 to 30.

Community facilities

Community facilities renewals are based on life expectancy. Except for essential services like the server room for our information technology, community facility assets are replaced when they fail.

In the past, we have focused on the cosmetic condition of our facilities. We do not have detailed structural, seismic, asbestos and fire risk information for all of our buildings. We need to gather this condition information and then ensure buildings are brought up to standard where required. We have a plan to undertake condition assessments for all of our community facilities. The assessments will be prioritised depending on the number of people each building can accommodate. We will start with our larger community buildings, then undertake assessments on smaller buildings community buildings, such as community halls.

Where are we at with our condition assessments?

Due to the condition assessment programmes which started in 2015, we now better understand the condition of our water, wastewater and stormwater underground assets. This has resulted in a more accurate and refined renewals programme over the next 10 years, particularly for our underground water, wastewater and stormwater underground infrastructure assets. This will ensure that we continue to maintain levels of service. Council will continue to undertake condition assessments in order to improve the knowledge that it has on the condition of its assets.

Depreciation

Depreciation is the reduction in the value of an asset over time, due to wear and tear. Council funds 100% of depreciation of its assets over the asset's lifecycle.

The funding of depreciation is designed to ensure that today's ratepayers pay their "fair share" for the amount of the council's assets that they consume, essentially through wear and tear.

A review of the expected renewal expenditure against the depreciation to be funded across the core infrastructure assets for the 30 year period shows that across all those assets the value of the renewal expenditure varies from 40% - 60% of the value of depreciation collected. Depreciation reserves collected during the period will be required to fund anticipated forward renewal programmes beyond the 30-year time horizon. As asset condition and associated modelling becomes more refined then renewal profiles can be developed with more certainty.

Water renewals

Water renewals are at the higher end due to the targeting the renewal of AC and galvanised water mains over the next 15 years. These mains represent approximately 40% of the pipe network. The balance of the network is mainly plastic pipe with a life expectancy in the order of 100 years with much of it in the earlier stage of that period.

Wastewater renewals

Wastewater renewals tend to be more focussed by geographical area with the current renewal programme focused on the Mangakino township. Based on age the next significant period of renewals is likely to be in the 30 - 50 year time horizon. This profile is being further refined with the conditions assessment programme that commenced in the 2015 LTP.

Stormwater renewals

The majority of stormwater assets have an expected age of 100+ years and are approximately halfway through that period. Based on recent condition assessment of some of the older assets (35% of assets) it is anticipated that the stormwater asset will meet or exceed their anticipated design lives. That being the case depreciation collected on these assets is unlikely to be required until at least the second or third 30 year period.

Transport renewals

Transport renewals are primarily renewing the pavement or resurfacing it. There is also a relatively small stock of bridges and larger culverts the majority of which are also in the first half of an expected age in the order of 100 years. Due to this age, renewal of these assets is unlikely until beyond the 30 year time horizon.

Pavement deterioration modelling run in 2017 identified an increase in the pavement renewal or resurfacing programme from \$2.5m to \$4m. There is however further work required to improve the accuracy of the data on which the modelling is based. We expect this work to be completed in early 2020.

With the investment in condition assessment/renewal planning and subsequent renewals it is anticipated that any theoretical backlog based on age will be significantly refined and reduced during this LTP cycle.

Parks and reserves renewals

We have decided to include both of the parks and reserves asset classes in the infrastructure strategy because we consider it is important to outline the complete picture for Council's infrastructure assets. Previously we have lacked condition information and strategic direction for both parks and reserves and facilities. We have undertaken condition assessments for our playgrounds and developed a programme of renewals for our playgrounds.

Facilities renewals

Historically we have not had a comprehensive understanding of the condition of all of our facilities. We have focused on the cosmetic condition of our facilities and have not had detailed structural, seismic, asbestos and fire risk information for all of our buildings. We need to gather this information and then ensure buildings are brought up to standard where required and health and safety requirements are met. This will require some significant expenditure.

We have started undertaking condition assessments of community facilities. Because there are significant costs involved with undertaking the condition assessments, we have prioritised the order of these by risk. Once the rebuild of Waiora House has been completed, the plan is to undertake a programme of condition assessments for the remainder of the buildings that Council owns. The first buildings to have condition assessments undertaken will be the larger buildings that have a high number of visitors such as: the GLC, the Museum and the Taupō Events Centre. We will then work through other public buildings such as community halls. Once all the community buildings have been completed, then the focus will be on the remainder of buildings which do not have members of the public visiting, such as pump houses. We expect to have the condition assessments for our facilities completed by 2024.

We have a legacy of inheriting buildings from sports and community groups who have disbanded. For example, when a sports club or community group that owned club rooms that were located on Council reserve have disbanded there has been an expectation that Council would take over the ownership of these buildings. Often, these buildings are in a poor condition and Council incurs large costs to maintain or remove them. We have no criteria for what buildings we accept nor any process for the acquisition or disposal of buildings. Once we have completed the condition assessment for a building, we will assess whether we want to be in the business of owning that building.

Theme five: Resilient infrastructure and buildings

Infrastructure is necessary for the health and wellbeing of our community. We need to ensure our infrastructure is resilient and can continue uninterrupted in times of network failure in all but catastrophic natural hazards. Interruptions could include failures in the network, such as a water main bursting, or from natural hazards.

Natural hazards can include events such as storms, flooding, landslip, earthquake and volcanic eruption. Whilst we cannot predict exactly when such natural hazards may occur, we do hold information that provides us with likelihood and severity of events that may occur.

As a result of climate change we know that in the later years of this 30 year strategy, the number of significant weather events will increase, that rainfall events will worsen, droughts will occur more often and seas will rise. Council needs to take into account the other impacts of climate change and other natural hazards, such as flooding and earthquakes, when managing our infrastructure to ensure our communities are resilient to natural hazards.

The continued operation of Council infrastructure and services is important during and after natural hazard events (e.g. a resilient and safe water supply that people can rely on). The Christchurch earthquakes showed how communities can be significantly impacted and that planning ahead of an event is critical in determining the capacity/ability for communities to cope, respond and recover. In addition, resilience can be developed by ensuring planning is done which leads to new and renewed infrastructure being designed to cope with such events. For example, as we are expecting greater rainfall events then we need to ensure that new and renewed stormwater infrastructure is able to cope with the size and intensity of these rainfall events. (eg. pipe sizing). Key to resilience building is also ensuring the Council understand that impacts across the scope of environmental, social, cultural and economic wellbeing and how communities may be affected. Engaging with iwi/hapū will be key to increasing our understanding the impacts on Māori e.g. impact on whenua, wai, papakainga developments, marae, waahi tapu etc.

Theme Six: Providing for the Māori world view

Te Ao Māori considers all natural, physical and spiritual elements of the world to be intrinsically connected. Whakapapa is the binding concept that describes and connects all living and non-living things as descendants from Ranginui and Papatūānuku. The natural domains of the Taiao (environment) are the realms of their children in which tangata whenua (people of the land) have inherited rights and responsibilities to protect, preserve and maintain the environment through the active and enduring exercise of kaitiakitanga.

Tangata whenua and kaitiaki have responsibilities for the environment and for those that share the environment. Kaitiakitanga is not an obligation which iwi and hapū choose to adopt or to ignore, it is an inherited commitment that links all realms including the physical, spiritual, human and past and future worlds.

Tūwharetoa hold mana whenua and kaitiakitanga over the Central North Island including the Lake Taupō Catchment and part of the Waikato River, Upper Waikati, Whanganui, Rangitikei and Rangitaiki Catchments and are linked by whakapapa to the lands and taonga (treasures) in this region. This connection establishes their mana whenua, kaitiakitanga, and rangatiratanga including rights to establish and maintain a meaningful and sustainable relationships between whanau, hapū, marae and taonga tuku iho.

Expressions of their intrinsic connection to the whenua, wai and wider taiao have been well documented through iwi planning documents, Joint Management Agreement with Taupō District Council as well as reflected at a national level through legislation such as the National Policy Statement for Freshwater – Te Mana o te Wai. These planning documents also express social and economic aspirations and processes for effective engagement and decision making.

Ngāti Tūrangitukua is a Hapū of Ngāti Tūwharetoa and maintains Ahi kā roa - Mana Whenua in Te Mātāpuna. Ngāti Tūrangitukua maintains Kaitiakitanga over their rohe and area of interest in accordance with tikanga and further supports the right of whānau to manage and utilise their whenua and resources for their own benefit. Ngāti Tūrangitukua claim the Kaitiakitanga and Rangatiratanga (Mana Whakahaere) over all properties and assets within its immediate area of influence and in accordance with its own tikanga and whakapapa. Ngāti Tūrangitukua also recognises that the Hapū of Ngāti Tūwharetoa are interconnected and the relationship and interest of whānau

and Hapū across the Mātāpuna are dynamic, bound by common whakapapa and whanaungatanga - Tūwharetoa ki Kawerau, Tūwharetoa ki Waiariki, Tūwharetoa ki te Tonga.

The relationships between Iwi, taura here (Māori living in the district who may not affiliate to one of the iwi in this area) and the Council are significant. The Local Government Act places responsibilities on councils to recognise and respect the Crown's responsibilities under Te Tiriti o Waitangi. The Act establishes baseline principles on how Council should maintain and improve opportunities for Māori to contribute to local government decision-making. Further, we have joint management agreements that set out specific mechanisms for the relationship between Iwi and Council.

Council has entered into forums, collectives and agreements alongside Iwi and Māori, to assist in Māori Land Court matters, Treaty of Waitangi settlements, specific legislation discussions or negotiated agreements between our district iwi and Council recognising the leadership provided by Te Ariki, Tā Tumu te Heuheu.

There are a number of forums, collectives and agreements where Council collaborates with both Iwi and Māori generally around key instruments like our long-term and annual plans, hosting Council meetings and also special interest matters.

These agreements are important for our infrastructure, because in many instances Council owned infrastructure is located on land owned by Iwi.

Alternatively, there are instances where Council-owned infrastructure has the potential to have an impact on natural resources that are considered to be taonga by local iwi.

Section on co-management – mana Motuhake/TOW/rights and interests.

Section on Te Mana of Te Wai should be included here.

Section on Te Ture Whenua Māori Act should be included.

Te Mana o Te Wai

Te Mana o Te Wai refers to the integrated and holistic wellbeing of a freshwater body. Te Mana o te Wai ensures that the first right to the water goes to the water. It also ensures that water is able to nurture and provide for people as a koha (gift) to enable sustainable use. Te Mana o te Wai reinforces Iwi positions that 'I am the water and the water is me'. Protecting Te Mana o te Wai provides for the mauri of the water. This includes providing for te hauora o te taiao (health of the environment) te hauora o te wai (health of the waterbody) and te hauora o te tangata (the health of the people). • All New Zealanders have an obligation to achieve Te Mana o Te Wai whereby the water body has its own mauri and its own mana which must come first to protect the integrity of the river. This will be the basis for community discussions on freshwater values, objectives and limits. The NPS-FM refers to Te Mana o te Wai as a core concept for fresh water management. Iwi have argued that Te Mana o Te Wai should be given priority in any freshwater planning mechanisms.

9. INFRASTRUCTURE OVERVIEW

Asset condition

For each of the activities covered in this section, we provide an confidence rating about the condition of our assets. For each activity, there is an overall score provided between A and D. A score of A is the high score and indicates that we are reasonably confident about the condition of our assets, where as a score of D indicates that we do not have a very high confidence in the condition of our assets.

In general, we score higher where we have evidence to support the condition of our assets. Typically, we have more evidence to support the condition of our assets where they are newer assets and/or we

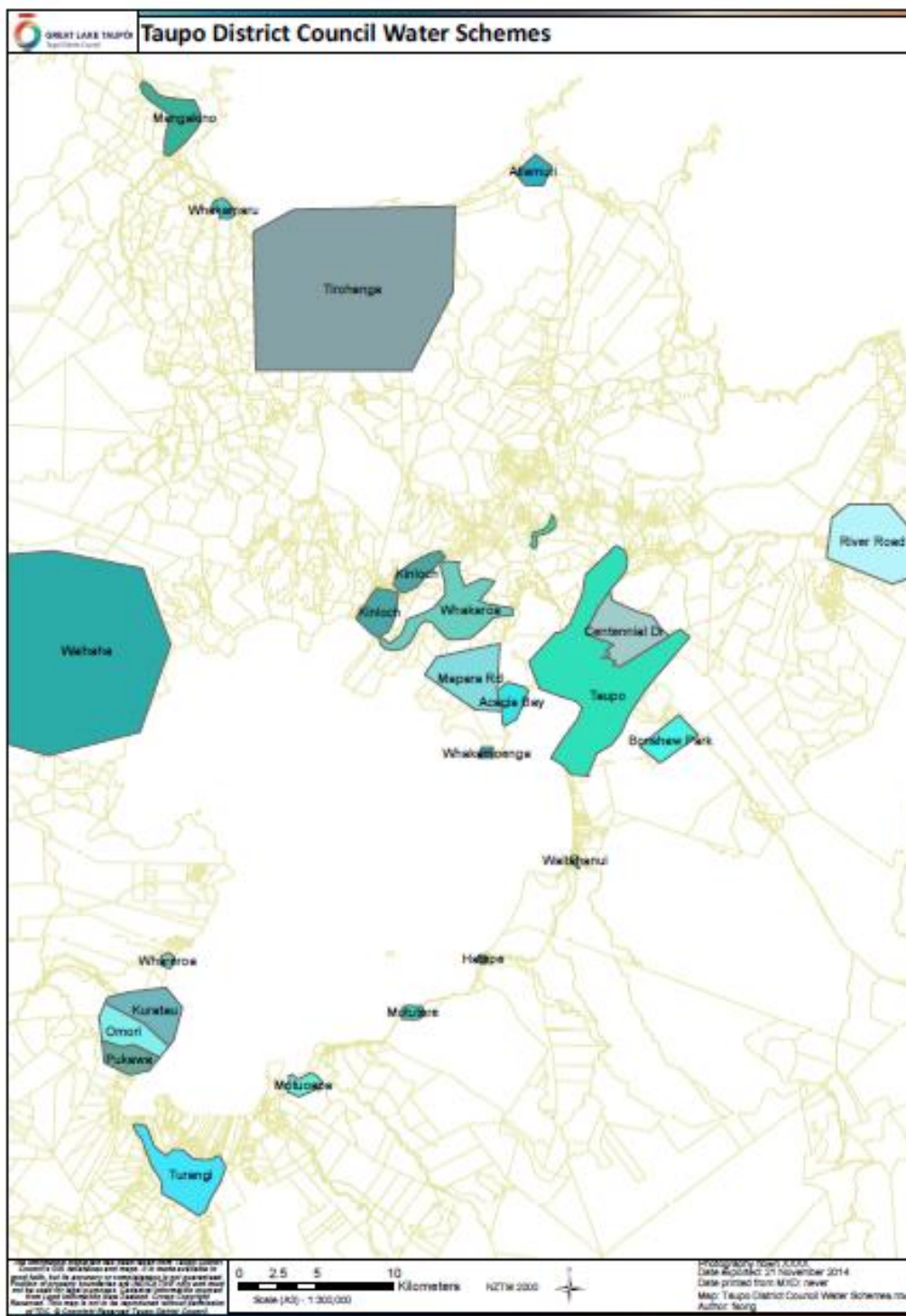
have completed an indepth investigation, such as assessment of underground water and wastewater assets.

Please note that the confidence rating for all each group of assets is an average and there will be variations between assets within the group. For more detail on the confidence of specific assets, please view the 2021 Asset Management Plan which can be viewed at www.taupo.govt.nz

We have a backlog of renewals, partly because there are a number of assets which were installed at the same time and have reached the end of their life. For example ,there is a backlog of water pipeline renewals associated with ageing asbestos and galvanised steel pipelines installed in the 1950s, 60s and 70s. This has an impact on the condition of our assets. The backlog means that assets aren't being renewed as quickly as they could be. As we work through the backlog of renewals, it will increase and improve the condition of our assets.

WATER

Council has 18 water schemes across the district. Each scheme is consented to take water from lakes, rivers, streams and bores within the district. Peak water demand across the district is high, mainly because of irrigation (gardens, golf courses, other recreation), and leaks from the system. Council adopted a Water Supply Strategy in 2019 which sets goals and targets to reduce our water use.



Taupō District Council water schemes

Asset – Water	Quantity
Asset Value	\$128 million (August 2020)
Water treatment plants	19
Water storage units, including reservoirs	92
Booster pumps	19
Pipes (km)	645.05km

Water Assets and Value

The overall confidence rating for the water asset information is B-. This is an average and more specific information is included below.

Attribute	Confidence Grade			
	D	C	B	A
Asset data				
Physical properties (length/size/materials)				
Location				
Age				
Condition				
Performance				
Deterioration rate				
Financial data				
<u>Opex</u>				
Operation costs				
Maintenance costs				
Asset management costs				
Interest rates				
Depreciation				
<u>Renewals</u>				
Unit rates				
Project scope				
Cost estimates				
<u>Capital works</u>				
Demand forecast				
Project timing				
Project scope				
Project costs				
<u>Project prioritisation</u>				

Over the past six years, Council has operated a programme of work to better understand the condition of our assets, in particular the underground assets. We are halfway through this project. For more information on this project, please read Issue 10 on page 43 of this document.

Resilience of the water network in the event of a significant event is a significant issue. We are planning on carrying out a programme to construct new reservoirs and earthquake strengthen existing reservoirs to improve resilience.

Water supply is a discrete service that directly benefits the households supplied so each water scheme is funded by a 100 per cent targeted rate on the users of that scheme.

Council has upgraded Taupō, Turangi and Mangakino treatment plants to meet required drinking water standards. The Waitahanui scheme has been decommissioned and Waitahanui has been connected to the Taupō scheme. Council's other smaller water supply systems will also need to be upgraded, at considerable cost to those communities.

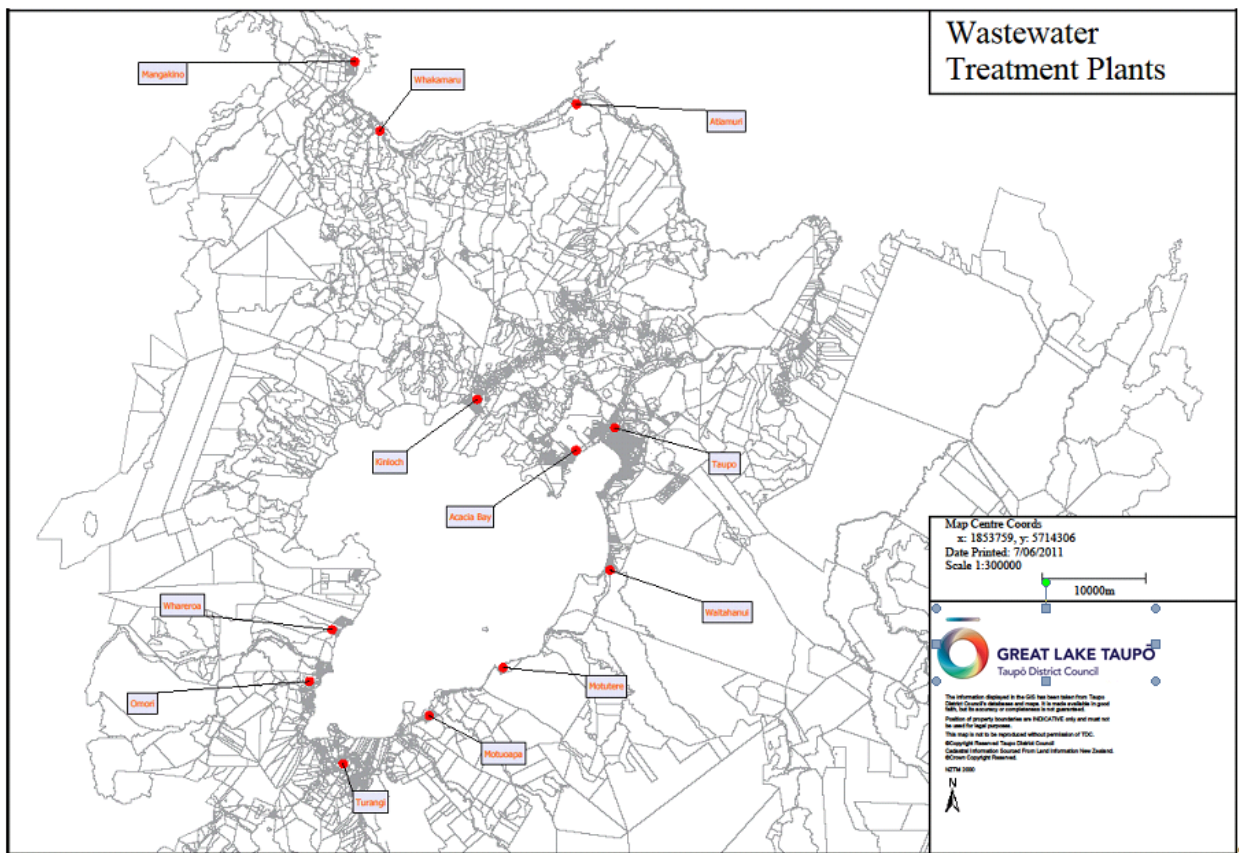
Council's water reticulation network is relatively new as much of the district's growth has occurred within the last 30 years. We have however determined that much of the AC pipe laid in the earlier years is nearing the end of its life. Renewal of the majority of this pipe has been provided for in the first 7 years of the strategy. The pipe networks within Turangi and Mangakino (both hydro construction towns) are nearing the end of their predicted life.

The functions of this activity such as asset management planning and operation of the water network are conducted in-house. Contractors are engaged to carry out construction projects associated with the water network.

Affordability of water rates will be an issue for some communities in the district, which is why council is consulting on moving to the district wide funding of water.

WASTEWATER

Taupō District Council provides wastewater services for 12 towns and communities in the district. Council has 15 consents from Waikato Regional Council to dispose of treated water and control odour. In addition, Council is responsible for reducing its nitrogen discharge into the Lake Taupō catchment by at least 20 per cent of 2005 levels by 2020, as part of the Lake Taupō Protection project.



Taupō District Council wastewater schemes

Asset - Wastewater	Quantity
Asset Value	\$220 million
Treatment plants	11

Wastewater Assets and Value

The overall confidence rating for the wastewater asset information is **B-** For more specific information on asset information, please see the table below.

Attribute	Confidence Grade			
	D	C	B	A
Asset data				

Physical properties (length/size/materials)									
Location									
Age									
Condition									
Performance									
Deterioration rate									
Financial data									
<u>Opex</u>									
Operation costs									
Maintenance costs									
Asset management costs									
Interest rates									
Depreciation									
<u>Renewals</u>									
Unit rates									
Project scope									
Cost estimates									
<u>Capital works</u>									
Demand forecast									
Project timing									
Project scope									
Project costs									
<u>Project prioritisation</u>									

Over the past six years, Council has operated a programme of work to better understand the condition of our assets, in particular the underground assets. We are halfway through this project. For more information on this project, please read Issue 10 on page 43 of this document.

Resilience of the wastewater network in the event of a significant event is a significant issue. Understanding underground asset condition is key to ensuring a resilient network.

Increased environmental compliance could result in affordability issues. For more information, please see Issue 8 of this document.

Ratepayers connected to a council wastewater scheme pay a district-wide targeted rate. This is because users of the wastewater system clearly receive a benefit but there is also a high public benefit in relation to the promotion of public health and benefit to the environment, especially lake water quality of treating effluent.

In the past 10 years, Council has upgraded the Turangi, Taupō, Mangakino and Motuoapa plants to meet capacity and consent requirements. As consents for other discharges are renewed plant upgrades are planned to meet the new consent requirements.

Council's wastewater reticulation network is relatively new as much of the district's growth has occurred within the last 30 years. Although the pipe networks within Turangi and Mangakino (both hydro construction towns) are nearing the end of their predicted life. Extensive condition assessment of the Mangakino network has been completed and renewals prioritised over the first 5 years of the strategy.

The functions of this activity such as asset management planning and operation of the wastewater network are conducted in-house. Contractors are engaged to carry out construction projects associated with the wastewater network.

STORMWATER

Taupō District Council provides stormwater services for our towns and settlements in the district. Council has three comprehensive discharge consents from Waikato Regional Council to discharge untreated stormwater into lakes, rivers and streams across the district.

Storm water Asset	Quantity
Asset Value	\$85 million (June 2017)
Pipes	215 km
Catchpits	799
Standard Manholes	3,853
Inlets	44
Attenuation ponds	38
CDS units	7
Enviropods	220
Outlets	361

Stormwater Assets and Value

The overall confidence rating for the stormwater asset information is **B-**. For more information on asset information, please see the table below.

Stormwater Asset Type	Performance Grade assigned to each Township																			
	ACACIA BAY	ACACIA HEIGHTS DRIVE	5 MILE BAY	KINLOCH	RIVER ROAD	TAUPO	WAIKAKEI	WAITAHANDI	HATEPE	KURATAU	MOTUOAPA	OMORI	PUKAWA	TAURANGA-TAUPO	TOKANNU	TURANGI	WHAREROA	ATIAMURI	MANGAKINO	WHAKAMARU
Zone assigned by TDC for Performance Grading	D	D	D	D	D	E	A	E	C	B	D	B	B	C	C	C	B	A	A	A
Pipeline	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Manholes	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Catchpits	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Inlets / Outlets	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Open Drains	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Channels	2	2	2	2	2	3	-	3	4	3	2	3	3	4	4	4	3	-	-	-
Flow Paths / Flow Routes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soakholes	-	-	-	-	-	3	-	-	-	-	2	-	-	-	-	-	-	-	-	-
CDS Unit	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chamber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debris Riser	2	2	2	2	2	3	5	3	4	-	2	-	-	4	4	4	3	-	-	-
PWR Dissipator	-	-	-	-	-	-	-	-	-	3	-	3	3	-	-	-	-	-	-	-
Reducer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silt Trap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stilling Chamber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

. Increased environmental compliance could result in affordability issues in the future . For more information, please see Issue 8 of this document.

The key issues for stormwater management are flooding, degradation in the functioning of overland flow paths, degradation of Lake Taupō, the Waikato River system and other aquatic environments in terms of local effects on water quality and public health and safety.

Climate change is predicted to increase the severity of weather events, so that there will be more intense flows, more often. This will have the greatest impact on our urban settlements, due the higher proportion of concrete and hard surfaces present in these areas.

Council’s stormwater reticulation network is a combined network of pipes and overland flow paths which are relatively new as much of the district’s growth has occurred within the last 30 years. Although the pipe networks within Turangi and Mangakino (both hydro construction towns) are nearing the end of their predicted life.

The functions of this activity such as asset management planning and operation of the stormwater network are conducted in-house. Contractors are engaged to carry out construction projects associated with the stormwater network.

TRANSPORT

Taupō District Council provides a transport network of 740km of sealed and unsealed roads and 340km of footpaths to allow goods and people to move around the district safely and efficiently by any transport mode including cycling, walking or passenger transport. State highways represent a significant amount of the roading within the district, including State Highway 1 which is the main north-south route for the North Island. State highways are not included in the quantities below.

Transport Asset	Quantity
Asset – Value	\$525M as at August 2020
Roads – sealed	740km
Roads – unsealed	54km
Footpaths	340km
Street lighting	4,238 lanterns
	2,828 poles
Traffic services	28,118 signs and markings
Bridges	21 road bridges (2 with shared ownership)
	4 foot bridges
Culverts	61 large culverts (diameter greater than 2m)
	2,373 small culverts (diameter less than 2m)
Cycle ways	1.2 km
Parking	97,708m ²
Structures	9 Taupo urban bus shelters

Transport Assets and Value

The overall confidence rating for Transportation asset information is **B+**. **This is an average, for more detailed information please see the table below.**

Asset Group	Component	ORC			ODRC		
		Quantity	Unit Cost	Value	Life	R/Life	Value
Carriageway	Formation	A	B	B	*	*	*

Asset Group	Component	ORC			ODRC		
		Quantity	Unit Cost	Value	Life	R/Life	Value
	Pavement	A	B	B	B	B	B
	Top surface	A	A	A	B	B	B
Bridges	Bridges	A	B	B	C	C	C
Drainage	Kerbs & Channels	A	B	B	B-C	B-C	B-C
	Culverts	B	C	C	B-C	B-C	B-C
	Catch pits	A	B	B	C	C	C
	Manholes	B-C	B	B-C	C	C	C
Footpaths	Piped systems	B-C	B	B-C	C	C	C
	Footpaths	A	B	B	B-C	B-C	B-C
Lighting	Street Lights	A	A	A	B	B	B
	Street Lights Columns	A	A	A	B	B	B
Parking	Off street car parks	B	B	B	B-C	B-C	B-C
Traffic Signs	Signs	A	A	B	B-C	B-C	B-C
	Sign posts	A	A	B	B-C	B-C	B-C
Structures	Retaining walls, guard rails, traffic islands, bus shelters.	C	C	C	C	C	C
Traffic Facilities	Edge marker posts raised pavement markers	C	A	C	C	C	C

Approximately 50 per cent of transport funding comes from the New Zealand Transport Agency.

Council's transport network is relatively young. The Taupō district has free draining soils so roads generally last longer than in other parts of the country.

The functions of this activity such as asset management planning and operation of the transport network are conducted in-house. Contractors are engaged to carry out construction projects associated with the transport network.

COMMUNITY FACILITIES

We look after 99 buildings. Some of these buildings are community facilities that members of the public visit and some of these facilities assist the running of the Council business such as depots and offices housing Council staff. Some of the buildings are owned by Council and leased out to community groups while we have one building located on Māori owned land

Community Facility Asset	Quantity
Asset Value	\$193 million
Swimming Pools	3
Social Housing	58
Venues	4

Community Facility Asset	Quantity
Libraries	2
Museum	1
Community halls	11
Council Administration Property	8

Community Facilities Assets and Value

There is detailed information on the condition of the community facilities assets. These can be found in Section 4 of the Community Facilities Asset Management Plan which can be found at www.taupo.govt.nz

Taupo District Council district's property assets include land, buildings and CCTV. Some of the buildings are modern and have been refurbished however there are some more than 50 years old. Throughout their lifecycles, the council's building components renewal plan ensures that the buildings, (new and old) are maintained to provide the level of service that the customer requires. In addition to this, some of the buildings that we own we have inherited in a poor condition.

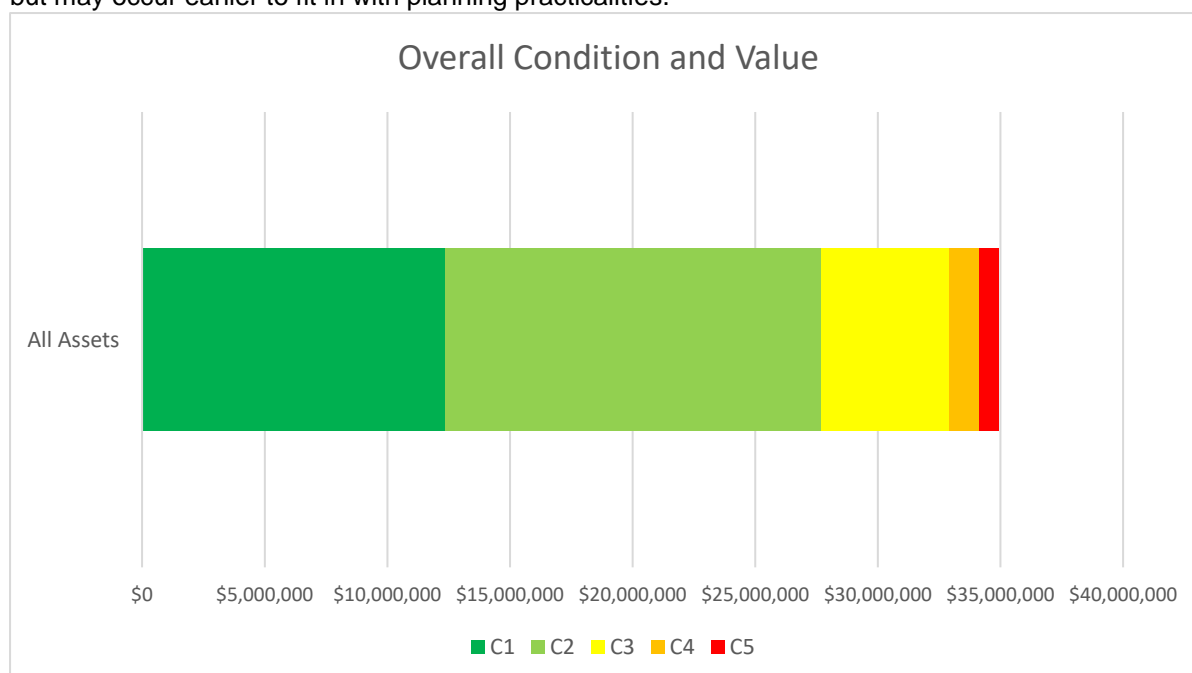
This activity is undertaken in house, and contractors are engaged to undertake aspects such as construction or repair, where appropriate.

PARKS AND RESERVES

Parks and reserves play an important part of the daily lives of our residents and are also focal point for visitors to our district. The open spaces that we provide range from lakefront reserves and playgrounds through to cemeteries and sportsgrounds.

This activity is undertaken in house, and contractors are engaged to undertake aspects such as construction or repair, where appropriate.

Comprehensive asset data is held in Council's SPM asset management program. Assets are rated on a scale of 1-5, with 5 being the lowest standard. Renewal is ideally undertaken at condition grade 5, but may occur earlier to fit in with planning practicalities.



Parks and Reserves Asset	Quantity
Asset Value	\$30 million
Parks	236
Sportsgrounds	6
Playgrounds	57
Cemeteries	3
Public toilet facilities	57
Lakeshore erosion protection assets	23

Parks and Reserves Assets and Value

SOLID WASTE

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

Solid Waste Asset	Quantity
Asset Value	\$3,900,000 (30 Jun 2017)
Landfill	1
Transfer stations	5

Solid Waste Assets and Value

Council provides a landfill and resource recovery centre at Broadlands Road. The resource consent for the Broadlands Road Landfill expires in 2027. Council will need to consider what the best options are for the district's waste disposal before renewing the Broadlands Road Landfill consent. In addition, Council also provides transfer stations at Turangi, Mangakino, Kinloch, Omori and Whareroa along with closed landfills at Taupō, Mangakino and Turangi. Council also provides street litter and recycling bins and Big Belly solar waste compactors for its communities.

The overall confidence rating for solid waste asset information is **B**.

The condition of the Solid Waste assets relates to their ability to perform to their required levels of service.

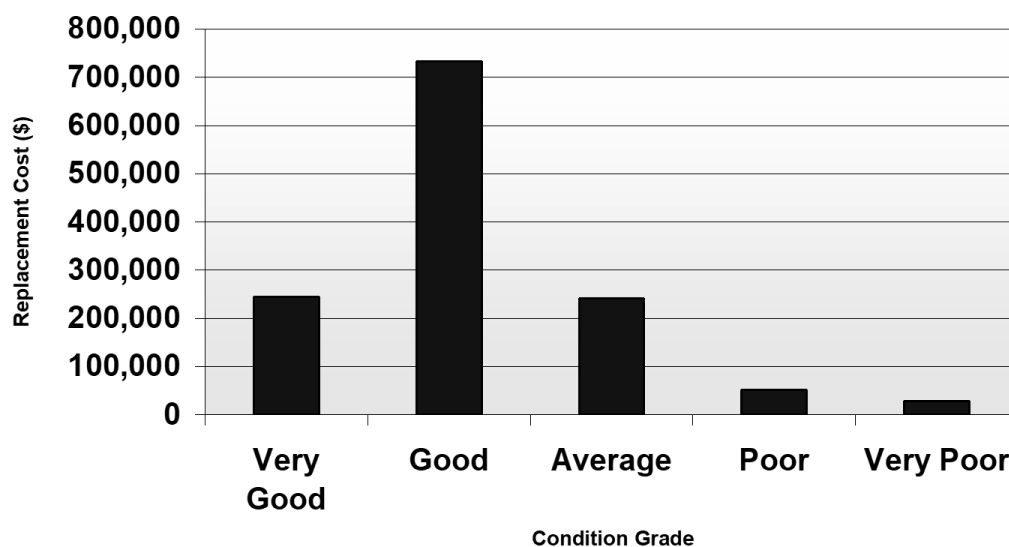
The assets are inspected to:

- Identify the individual elements as defined in the proposed National Guidelines.
- Determine the quantity of each element.
- Assign a condition grade to each element based on a visual condition assessment;
 - Grade 1 = very good
 - Grade 2 = good
 - Grade 3 = average
 - Grade 4 = poor
 - Grade 5 = very poor
- Assign a remaining life to each assessed element.
- Determine a replacement cost for each element.

Results from the analysis show that the solid waste assets are generally in good condition. Approximately 75% of the elements are in very good or good condition. The remaining 25% are in average to poor condition.

Asset condition can change rapidly and seasonally due to the change in facility usage over the summer period. The landfill and RTS sites can suffer varying amounts of “Wear and tear” from use by the public and hence monthly condition assessments are undertaken. The weather can also play a significant part on Solid waste asset conditions.

Figure 2:1



This activity is undertaken in house, and contractors are engaged to undertake aspects such as construction or repair, where appropriate.

The resource consent for the Broadlands Road Landfill is due to expire in 2027. The future of the Broadlands Road landfill is likely to be a significant issue in the 2024 Long-term Plan, Please see Issue 9 in this strategy for more information.

10. ISSUES AND OPTIONS

Theme: Nationwide reforms and population/demographic change

Issue one: Nationwide reform of the three waters (drinking water, wastewater and stormwater) and the Resource Management Act 1991 will impact the delivery of Council's infrastructure in the future.

Central government have announced changes which mean that within the short to medium term (three to five years), it is likely that the activities of drinking water, wastewater and possibly stormwater will not be undertaken by Council. They have also announced an intention to undertake reform of the Resource Management Act 1991.

Three waters

Since 2017, Central government have been reviewing how the three waters are being delivered across Aotearoa. The review has highlighted that as some drinking water schemes are required to upgrade in accordance with the Drinking Water Standards NZ (DWSNZ) and some wastewater schemes are required to upgrade to improve the quality of their discharges, this will come at significant costs for some communities. Drinking water and wastewater schemes which service small communities are going to be hardest hit. The government has been looking at how to enable these necessary upgrades to occur, while ensure that the costs are affordable for communities.

In 2018, Central Government passed the Water Services Bill, which will establish Taumata Arowai, a regulator for drinking water. In addition, a programme to look at the reform of the three waters across New Zealand has been agreed to. For more information, please see the Department of Internal Affairs website, www.dia.govt.nz.

At the time that this Infrastructure Strategy was prepared, the Government has indicated that its preferred option is for the three waters to be delivered by publicly owned entities which would oversee the delivery of these services across several regions.

Council will need to make a decision on whether to opt-in to the three waters services in the Taupo district being undertaken by a new, regional entity.

The Resource Management Act 1991 (RMA) has a significant influence on infrastructure. The regional policy statements, regional plans and district plans which are written under the RMA influence where different types of infrastructure should be located, how much water can be taken from a specific waterbody and what standard discharges such as wastewater discharge should be treated to.

The Government commissioned a report to determine what shape reform of the RMA should take. The recommendations include repealing the RMA and replacing it with two other pieces of legislation. The Government will undertake significant consultation prior to enacting some new legislation, and it is too early to anticipate what the changes will be. But in future infrastructure strategies, this will have a significant influence on the management of Council infrastructure.

Options	Implications
Council participates in the three waters reform programme being undertaken by Central government	It is likely that the three waters services for the district will no longer be undertaken by Council, and is likely to be undertaken by a public owned entity responsible for undertaking this across a significant part of the North Island.

	The funding costs of this are unlikely to be known at the time that this infrastructure strategy is adopted, however Council will ensure ongoing communication with our community.
Council does not participate in the three water reform.	Council may miss out on opportunities to ensure that the three waters services are affordable for our communities.

Preferred option: Council will participate in the three waters reform programme being undertaken by Central government.

Issue two: New infrastructure is required to cater for growth, primarily in Taupō town and Kinloch

A growing population, combined with fewer people in each house means that the growth in new dwellings is likely to be greater than the growth in population. These new dwellings are expected to be built mainly in Taupō town and Kinloch. Where they are built on land that is currently undeveloped (such as rural land), it will mean that new infrastructure, such as roading, stormwater, water, wastewater and reserves will need to be provided. If development occurs in existing built up areas, or new infrastructure is to be connected to existing infrastructure, then this may result in upgrades being required to existing infrastructure.

If we build new infrastructure in advance of development this would not be an efficient use of funding and could result in significant cost to ratepayers. There is the risk that the development may not occur in the area, or development may take longer to occur than we expect. This would mean that Council would be paying for cost of this development, without receiving any development contributions or new ratepayers to contribute towards these costs. This could have a significant impact on rates. This is why Council prefers to work alongside developers, including developments undertaken by Iwi and hapū to ensure that new infrastructure is constructed, when it is required.

We have adopted Taupō District 2050 which can be accessed at www.Taupō.govt.nz. TD2050 is a growth management strategy which provides clear guidance on where growth should occur in the district. This is to help ensure that the development that occurs within our district is well planned, and efficient. TD2050 had been developed through engagement with Iwi and our community. One of the actions that Council committed through the development of TD2050 is to work with Iwi to understand aspirations for papakāinga developments.

In the past, we have worked alongside developers to ensure that infrastructure is in place, when it is needed. The newly adopted National Policy Statement for Urban Development 2020 places obligations on Council to ensure that areas identified for growth are 'infrastructure ready' and that from 2024 we are providing for this in our Long-term Plans. This will require a change in approach. We are currently working through what this means, so that we can provide for it in future Long-term Plans.

Options	Implications
Infrastructure is built in anticipation of where and when we expect growth to occur.	We will need to work towards this approach to ensure compliance with the National Policy Statement for Urban Development. This will likely see infrastructure provided ahead of development occurring, which will see higher up front costs and may result in infrastructure laying idle.
We work alongside developers to ensure infrastructure is in place, when and where it is required (the status quo).	Installing infrastructure when it is required by working with developers will result in maximising the use of capital funding, but from 2024 onwards, may mean that Council is not meeting

	its obligations under the National Policy Statement for Urban Development.
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Preferred option: We will need to transition from working alongside developers to ensure infrastructure is in place when it is required, towards infrastructure being built in anticipation of where we expect growth to occur.

Additional work required to support the preferred option.

- Continue to update the demographic snapshot every three years.
- Continue to update the growth model every three years
- Ensure this revised population, demographics and expected growth information is provided to asset managers so it can be used in the infrastructure strategy and asset management plans
- Continue to regularly update and review Council's growth management strategy TD2020, to ensure that district's growth is occurring in a strategic manner.

Issue three: An aging population may drive a change in demand for the services that we provide

Population projections predict that the percentage of people who are aged 65+ years in our district will increase. Having a higher proportion of people who are aging is likely to result in demand for different services, or changes in the way we deliver some services. An aging population will require an approach to services that are accessible and affordable and allows the aged community to stay connected to each other, whanau and wider community. Examples of this are ensuring that our footpaths are suitable for all levels of mobility and to cater for the increased popularity and usage of new modes of transportation such as e-bikes. This presents opportunities to expand or improve existing recreational bike tracks. A desire to live within walking/biking distance to town centres may also encourage people to migrate closer to town. In turn this is likely to drive demand for an increased number of smaller houses and sections in the town peripheries, which will have an impact on our infrastructure such as water, wastewater and stormwater. It is important that Council is aware of when and where the population changes are occurring, so it is aware of when the change in demand for different services occurs.

Council needs to ensure that it can respond to changes in services that our customers require. As these demands are likely to change with the changing demographics of our communities we need to regularly ask the community what services and levels of service it wants. Then we can adjust service delivery accordingly. Council uses surveys and commissions research to understand the levels of services and services required by our community and to monitor the performance of Council's various business units.

Options	Implications
Continue with service delivery for existing services and at existing levels (the status quo)	Cost of existing service levels are generally known. Service delivery and levels of service are unlikely to meet the community's needs and desires.
Understand the ongoing service delivery through undertaking regular levels of service reviews (once every six years). A level of services review surveys our community to understand their needs, and recommends where adjustments to levels of service are required.	Cost of approximately \$30,000 to regularly survey the community to ascertain what services and levels of service they require. This will help inform Council's asset management planning, and help to make recommendations on where changes to levels of service are required. There is a risk that there will be demand for increased levels of service, which at the same time may not be affordable.

Preferred option: Understand the ongoing service delivery through undertaking regular levels of service reviews (once every six years).

Issue four: An aging population on fixed incomes facing increasing infrastructure costs may result in rates that are unaffordable for our ratepayers

Having an aging population and increasing infrastructure costs could result in substantial financial burden on the ratepayer. A declining population with more people on fixed incomes puts pressure on future funding of infrastructure as there are fewer people to contribute towards the cost of paying for maintenance and upgrades of the infrastructure networks. This challenge will make maintaining levels of service difficult. We may need to look at alternative ways of service delivery or innovative solutions as communities may struggle adapting to lower levels of service. There may be alternative funding models that could be considered to pay for increasing infrastructure costs.

We have assumed that an increase in people aged 65+ will mean that a greater proportion of our ratepayers will be on small fixed incomes. However a proportion of our ratepayers may also retire with substantial funds.

Options	Implications
Do nothing	Rates are likely to rise and may become unaffordable which may result in pressure to seek housing elsewhere. Some residents will then move out of the district.
Maintain current levels of service by looking at innovative solutions	We would need to undertake a comprehensive project that examines the social, cultural, environmental, economic factors to determine whether there are any practical and feasible solutions.
Lower levels of service	Whilst this should keep rates affordable it may be unacceptable to the community.

Preferred option: Where possible maintain current levels of service by looking at innovative solutions

Additional work required to support the preferred option.

- Undertake a project to establish projections for the proportion of our ratepayers that will be on a low fixed income.
- Undertake a project to look at innovative solutions for maintaining levels of service while keeping costs down
- Ensure affordability is a consideration during the development of the financial strategy

Issue five: It is projected that our population will decline but there is uncertainty about what the impact will be on the number of dwellings that need to be serviced by infrastructure

It is projected that in the long term, most of rural New Zealand will experience population decline. However, the impact of this population decline for the Taupō District is unknown due to the high number of holiday homes in our district.

There is uncertainty about how the impact of the projected decline will affect the existing infrastructure servicing the current housing stock. If more houses are available for sale, there is the potential that a higher proportion of our homes will become holiday homes. For example, the recent decline in population in Mangakino has resulted in an increased holiday home ownership in the town and no decline in the use of infrastructure at peak holiday times. If the population decline results in more of

the existing housing stock owned as holiday homes, there will be little or no impact on the provision of infrastructure except for a potential change in demand/usage over peak periods. Also, there will be similar number of ratepayers (although a higher proportion will reside elsewhere) to fund the provision of infrastructure.

We need to know more about the numbers and location of dwellings we will need to service in the long-term future to better plan for the provision and maintenance of our infrastructure.

Options	Implications
Do nothing	We will continue to provide infrastructure services to all dwellings in declining areas. This may not be an effective use of funding. We may have higher incidents of unpaid rates as houses sit empty.
Once the results of the 2018 Census are available, undertake a programme of work to determine household projections over the next 30 years.	This will enable better long term infrastructure planning.

Preferred option: Undertake a programme of work to determine household projections over the next 30 years

Additional work required to support the preferred option.

- Once the results of the 2018 Census are available, undertake a project to accurately identify the numbers of and future trends for holiday home ownership in the district and in particular how holiday home ownership will respond to declining populations.

Theme two: Protecting the health of our communities

Issue six: Communities may face health risks without safe and clean drinking water supplies

The Drinking Water Standards (DWSNZ) are national guidelines that give direction on how we should manage our drinking water supplies to ensure that they are safe. The Taupō, Mangakino, Turangi and Atiamuri water treatment plants have been upgraded and are fully compliant with the DWSNZ. We are currently undertaking upgrades to the Kinloch Plant to make it compliant by 2023

The other schemes all comply with bacterial compliance of the drinking water standards but not protozoa or chemical compliance. These schemes have Water Safety Plans prepared to make sure that we are appropriately minimising the risk. The Ministry of Health audits Council to ensure that we are being compliant with these plans

The Water Supply Strategy 2019 has provided us with a directive to accelerate the DWSNZ upgrades where possible. These upgrades come at considerable financial cost but the consequence to public health if left unchanged is much greater. Currently the users of each scheme fund the costs associated with upgrading each water scheme so affordability is an issue.

Of important consideration for our Council is the Government's Three Waters Review. The review has seen the introduction of Taumata Arowai, which is a new water service regulator, responsible for ensuring that Council's drinking supplies are compliant with the DWSNZ.

Options	Implications
Ensure upgrades to our water supplies are in line with the timeframes as originally set out in the Long-term Plan 2018-28 and our water	Cost of \$25 million over 10 years. Ensures communities are not at risk.

safety plans. These timeframes are developed and prioritised based on risk.	
Take longer to upgrade our water supplies than what is specified in our water safety plans.	Spreads the cost over longer time period but puts communities at risk for a longer period of time.
Complete all DWSNZ upgrades by xxx	Cost of \$xx million over xx years. Reduces the amount of time that our communities are at risk

Preferred option: Complete all upgrades by xxx

Issue seven: Upgrading our drinking water supplies to comply with the DWSNZ is going to be expensive for some of our communities.

Council operates 18 drinking water schemes. Each of these schemes is ‘ring-fenced’ – the users of the scheme all contribute towards the costs of undertaking maintenance, renewals and upgrades. This then determines the targeted rate that the user will pay for being connected to the scheme.

Upgrading our drinking water supplies to comply with the DWSNZ will be expensive. This means that on our smaller schemes, where there are only a few ratepayers connected, the cost is only shared amongst a few ratepayers. Targeted water rates will increase significantly for some users connected to our smaller schemes.

The government have given clear direction that the inability to afford upgrades is not a valid reason for not upgrading our supplies. We need to look at options to fund these upgrades.

Options	Implications
Status quo – continue to fund each scheme separately	Significant rate increases for users connected to our smaller drinking water supplies.
Undertake district wide funding for water – where each user pays the same targeted water rate	Insert cost implications once modelling is undertaken.
Keep the two rural schemes (Tirohanga and Waihaha) as funded separately. Undertake district wide funding for all other schemes.	Insert cost implications once modelling is undertaken.

Preferred option: Undertake district wide funding for water – where each user pays the same targeted water rate

Theme three: Protecting the health of our environment

Issue eight: Protection of the environment will drive increased costs for council’s wastewater and stormwater discharges

There has, and will continue to be, an increase in environment standards particularly in regional plans for discharges that affect water quality. These increasing environmental standards are a result of:

- Increased environmental and cultural expectations from our community.
- New legislation from central government, such as the National Policy Statement for Freshwater Management
- The requirement for resource management documents to give effect to key policy documents which are aimed at improving water quality in some catchments. These documents include Te Ture Whaimana o Te Awa o Waikato - Vision and Strategy for the Waikato River for the Waikato River catchment Te Ara Whānui o Rangitāki – Pathways of the Rangitāki for the

Rangitāki catchment and Te Kaupapa Kaitiaki', a plan which is being developed for the Taupō Catchment.

- Overwhelming evidence from the scientific community that the ability of our waterways to sustain the levels of pollutions are unsustainable.

Council holds regional council consents for discharges to water and land, particularly for discharges of treated wastewater, stormwater and solid waste. More stringent regional council controls over the quality of discharges (both direct and point source) into Lake Taupō became operative in 2011 and are currently being introduced to the Waikato River catchment. Regional consents are granted for a set period of time. Over the first 10 years of this strategy, there are a number of consents which are due to expire. When we have to reapply for these consents, it is likely that tougher conditions will be imposed, which will require Council to undertake upgrades and/or invest in technology which will come at a cost. There are some situations where applications to renew resource consent applications have been applied for, however the new consents have not yet been granted. This is provided for under Section 124 of the Resource Management Act 1991 (RMA) and we are still complying with our obligations under the resource consent and the RMA

- Hatepe water take consent – expires 1/01/2022. An application to renew this consent is currently being worked on and the application will be lodged with WRC before 1 June 2021.
- Motuaopa water supply discharge consent – expired 1/05/2017 – the application was lodged with WRC prior to the expiration date and the consent application is being worked on.
- Motutere water take – expires 31/08/2023. An application to renew this consent is being worked on.
- River Road water take – expires 1/06/2023. An application to renew this consent will be worked on in year 1 of the LTP
- Tirohanga water take and discharge consent – expires 1/09/2021. An application to renew this consent has been submitted to WRC.
- Turangi water take – expired 28/02/2017. An application to renew this consent has been submitted to WRC.
- The wastewater disposal for Taupo (Rakanui Road), Mangakino and Turangi are all operating on expired consents. New applications have been submitted with WRC
- The Atiamuri wastewater disposal consent – expires 14/03/2024. An application to renew this consent will need to be applied for prior to the consents expiry date.
- The comprehensive consent for stormwater disposal – expire 15/06/2027
- The consent for the Broadlands Landfill – expires in 2027.

The impacts for wastewater disposal

Increased regulation has had significant impacts on the management of wastewater in the Lake Taupō and Waikato River catchments. Council has invested significantly to reduce nitrogen discharges from wastewater treatment plants in the Lake Taupō catchment. It is important that these gains are maintained and work is programmed to improve discharges in the Waikato River catchment. The programme of upgrades identified in the Long-term Plan 2021-31 to these wastewater treatment plants is to ensure we meet anticipated or existing consent requirements.

Taupō District Council provides wastewater services for 12 towns and communities in the district. All of these plants, except Turangi, discharge treated wastewater to land prior to discharging directly to water. In 2019, Council agreed, in principle, that there should be no further discharges of treated wastewater from Council wastewater treatment plants directly to water in the Taupō District. One of the reasons for this is because discharge of wastewater, including treated wastewater, to freshwater is offensive to Māori.

There is going to be a continued expectation that we reduce the amount of nitrogen present in treated wastewater. This is going to be a challenge in areas such as Taupō and Kinloch which are

experiencing population growth. Generally, an increased number of people results in more wastewater to treat. Because of this, we are developing a Wastewater Nitrogen Strategy for the Lake Taupō Catchment. This will provide strategic direction on the actions that we need to focus on to continue seeing these reductions in light of population change.

The impacts for stormwater disposal

Council is also coming under increasing pressure from both the public and Waikato Regional Council to improve the quality of stormwater discharges. Stormwater is discharged into our lakes, rivers and streams and we recognise the importance of keeping these clean and healthy and protecting our environment. To achieve this, we have developed a programme for the installation of Enviropods, which remove litter and debris from stormwater along the lake and treatment devices at stormwater outlets. However further improvements are likely to be required when our comprehensive stormwater consent is renewed in 2027.

Further upgrades are likely to be required for both our wastewater and stormwater discharges in the 30 year period as environmental standards become more stringent. Such upgrades will require innovative technology and will be expensive.

Options	Implications
Ensure that we improve our discharges to protect the environment, in line with resource consent requirements (the status quo)	Provided for within existing budgets. Improvements in wastewater treatment plants to meet consent requirements will cost \$13 million
Improve our discharges to levels beyond what we are required to by resource consent conditions.	Costs unknown but will be in excess of what is provided for in existing budgets. Improvements to stormwater discharges \$5million.

Preferred option: Ensure we are improving our discharges to protect the environment and comply with consent requirements.

Additional work required to support the preferred option.

- Continue to monitor the quality of wastewater and stormwater discharges
- Early engagement with iwi/hapū and regional council for consent renewals
- Become involved in any other plan changes to the regional plan that will affect our wastewater and stormwater discharges.
- Develop a Nitrogen Strategy

Issue nine: We need to determine how best to dispose of our solid waste in the future.

Most of the waste generated by district is disposed of at the Broadlands Road Landfill station. This includes the waste that is disposed of at our transfer stations because it is transported from the transfer station to the Broadlands Road Landfill.

We operate the Broadlands Road Landfill in accordance with a resource consent granted by the Waikato Regional Council. This resource consent is due to expire in 2027. Before the expiry date, we will need to consider whether we apply to renew this resource consent.

Renewing the consent is likely to be expensive, and there are likely to be more stringent conditions imposed. Before renewing the consent, we need to undertake an assessment of the options available for disposal of the district's waste in the future. An alternate option could be to transport our waste to a landfill outside the district, either owned by a private company or another Council.

We will need to undertake a project to review the possible options for the future disposal of our waste, prior to the development of the Long-term Plan 2024-34 and conjunction with the Waste Minimisation Plan 2024. We expect this to be a significant decision for our community in 2024.

Options	Implications
Renew resource consent for Broadlands Landfill, without undertaking an assessment of the alternative options.	There will be no certainty that we are continuing with the best option for disposing of our solid waste into the future. We will not be meeting the decision-making criteria required under the Local Government Act 2002.
Undertake a project to assess all reasonable options for the future disposal of the district's solid waste.	Council and the community will be able to make an informed decision on what is the best option for disposing of our solid waste into the future.

Preferred option: Undertake a project to assess all reasonable options for the future disposal of the district's solid waste.

Theme four Maintaining and renewing our infrastructure

Issue ten: A range of council's assets may be nearing the end or are already at the end of their useful life and need renewal, however we do not know how many assets this issue potentially affects

A key component of Council's district strategy for many years has been to look after the infrastructure that we have while maintaining levels of service. Council programmes renewals of infrastructure assets based on detailed asset condition where possible or on life expectancy. Using life expectancy can result in additional unbudgeted expense and disruption to the service if assets fail before they are due to be renewed based on life expectancy assessments. To accurately programme renewals we need accurate condition assessment of our infrastructure assets. This coupled with robust asset management systems that capture the full the information about the assets enable Council to plan asset renewal programmes and provide for the funding of those renewals as outlined in the asset management plans.

Council started a ten-year condition assessment programme of some of our assets in 2015. We are now over half way through the programme and have a better understanding of the condition of our roading, water, wastewater and stormwater underground assets and now have a more accurate and increased renewals programme particularly for our water main and roading infrastructure assets over the next 10 years. This will ensure that we maintain levels of service.

Whilst we have much more information on the condition of our roading network, we still use expected life expectancy of infrastructure to plan when we undertake renewals. This can result in additional unbudgeted expense and disruption to the service if assets fail before they are due to be renewed based on life expectancy assessments.

In 2018 we included the community facilities and parks and reserves in the Infrastructure Strategy. At this time we acknowledged that the information we held on these facilities was limited, especially in relation to condition information and strategic information. The knowledge gaps that we identified included:

- No understanding of whether they are meeting community needs
- No criteria for what buildings we accept from other parties
- No process for the acquisition or disposal of buildings.
- No comprehensive understanding of the condition (structural, seismic, asbestos and fire risk) of all of our facilities and what is required to bring them up to standard and ensure that health a safer requirements are met.

As a consequence of this we lacked a clear financial picture for both parks and facilities beyond 2028. While there are still some gaps, we have undertaken some work. This includes:

- We have developed a list of priorities for the renewals programme for our playgrounds. We undertook condition assessments of our playgrounds and assessed these against the

condition information that we held for these assets. On average, playgrounds have a life expectancy of 15 years. We plan to renew on average, three playgrounds a year.

- We have commissioned an external party to help us develop best practice service levels, map our open spaces and to update our asset inventory.
- We have started undertaking a programme of condition assessments of community facilities. Because there are significant costs involved with undertaking the condition assessments, we have prioritised the order of these by risk. We expect this programme to be complete by 2025.

Options	Implications
Infrastructure is renewed based on life expectancy.	No cost for condition assessment but costs of replacing assets that fail before they are due to be renewed under life expectancy assessment is usually high. Possible loss of service due to asset failure.
Continue with programmes of work to undertake condition assessment programmes for water, stormwater and facilities. Infrastructure renewal is planned (optimisation based on investigation)	Costs for undertaking condition assessment projects. Optimising the life of the network and optimising the costs associated with renewals. Less costs in the long run. No loss of service for ratepayers.

Preferred option: Condition assessment is programmed for all infrastructure assets and infrastructure renewal is planned (optimisation based on investigation).

Additional work required to support the preferred option.

- Continue with condition assessment programmes.
- Consider biodiversity requirements in land that we are offered.

Theme four Maintaining and renewing our infrastructure

Issue eleven: Limited guidelines for the minimum standard of reserve land that we accept from developers.

Another gap that we have identified is that we have limited guidelines for the minimum standard of acceptable developed land that we receive from developers. Often when a residential development occurs, the developer will vest new reserve land with Council. Currently we do not have any explicit guidelines for whether land that we are offered is acceptable or not, particularly in terms of biodiversity offering. This means that in some circumstances the additional reserve land that we take on does not offer of residents the experience that it should. It sometimes means that Council receives undevelopable/leftover land which has limited or doubtful amenity, recreational and/or biodiversity benefits. We have recently been attempting to hold developers to higher standards of care in proposing reserve lands for Council ownership. However, this has been contingent upon individual officer assessments and is not codified into an adopted Council document outside of a very loose description in the Taupō District Council Code of Practice for Development of Land.

We will develop and implement guidelines with more specific descriptions of acceptable service level provision for proposed reserve land included in new developments. In addition, we are developing a biodiversity strategy that deals with Council owned land. This strategy will deal with biodiversity requirements for new reserve land.

Options	Implications
Do nothing (status quo)	We will continue to accept reserve land from developers that may not offer residents the experience that it should.
Develop and implement guidelines for proposed reserve land	There will be a small cost involved with developing the guidelines but will result in higher quality reserve land.

Preferred option: Condition assessment is programmed for all infrastructure assets and infrastructure renewal is planned (optimisation based on investigation).

Additional work required to support the preferred option.

- Continue with condition assessment programmes.
- Consider biodiversity requirements in land that we are offered.
- Explore opportunities for co-management/vesting of reserve land with iwi/hapū

Theme five: Resilient infrastructure

Issue twelve: The district is vulnerable to a wide range of events (including natural hazards) that could cause significant damage and disruption to council's services at any time

Council needs to ensure that our infrastructure and our communities are resilient to disruptions to our infrastructure networks, whether it be through a natural hazard, such as flooding and earthquakes, or failures in the network, such as a water main bursting. Resilience can be strengthened by ensuring planning for new and renewed infrastructure is designed to cope with such events. For natural hazards this means taking account of these when planning new or upgrading existing infrastructure. For security of supply, we need to ensure that there are contingencies when there is a failure in the network. An example of this includes the construction of new water storage reservoirs. We are also planning to install burst control valves in our existing reservoirs. This will ensure storage capacity is retained in the event of a significant network failure.

There is also the potential for disruption in supply to customers of essential services due to a component of one of our infrastructure networks failing. For example, there could be serious economic impacts to businesses if there is a disruption to the water supply because many businesses would no longer be able to operate. For example, a water main burst along Lake Terrace in 2019. This burst pipe resulted in the bank along the shores of Lake Taupō bursting and entering the lake. The footpath then collapsed onto the wastewater main, causing this to break and untreated wastewater entered the lake. A portion of Lake Terrace was closed for several months, which had significant social, cultural, environmental and economic impacts for the district.

An example of issues for iwi/hapū is the potential increase of flooding with climate change and the fact that current practice means flood control stops when Māori land starts and therefore Māori land is more susceptible to flooding.

System failure can happen because loss of power, mechanical or electrical malfunction. It is important to design resilience into the supply of services so if failures occur backup systems can be used, and service can continue. Council needs to ensure security of supply for water especially in areas of growth. A number of water supply reservoirs are planned in the next 30 years to ensure there is security of supply for water.

We also have 55 community housing units. As landlords, it is important that we have contingencies in place if for some reason, tenanted units are affected, damaged or unable to be lived in.

Options	Implications
Accept that we live with the risk of natural hazards that may cause disruptions to our infrastructure networks	No cost. High risk. Likelihood of disruptions to supply, health and safety as a result of network failures.
Plan for damage/failures in infrastructure from events including natural hazards and build in feasible contingences based on available natural hazard and climate change modelling.	Some costs but communities will have necessary services in the event of a failure in the network or natural hazard. When we build new infrastructure we include resilience in the

Options	Implications
	project. We do not plan for resilience for large scale natural hazards.
Encourage landowners to invest in low impact solutions such as onsite composting solutions and rainwater harvesting which will help reduce the impacts of these events on our infrastructure.	Uptake by the community is likely to be low and not uniform.

Preferred option: Plan for natural hazards and network failures and build in feasible contingences

Additional work required to support the preferred option.

- Continue to obtain information on the extent and likelihood of known natural hazards and how climate change may exacerbate these hazards.

Issue thirteen: The district is vulnerable to climate change, which is likely to have long-term impacts on the provision of our infrastructure.

The climate is changing. All recent scientific data shows that the globe is warming and this is starting to impact on the climate. As the atmosphere warms, it can hold more moisture – about 7% for every 1°C. What this means long-term is hard to specifically pinpoint, but indications are that rainfall events will worsen, droughts will occur more often and seas will rise. While sea level rise isn't a major concern for the Taupō District (at least from a direct impact standpoint), we need to be acutely aware of what the other impacts might be.

The Ministry for the Environment has released its climate change projections for the next 100 years. Projections for the Waikato region are:

- Temperature - compared to 1995, temperatures are likely to be 0.7°C to 1.1°C warmer by 2040 and 0.7°C to 3.1°C warmer by 2090.
- Rainfall - in Taupō, winter rainfall is projected to increase by 4 to 7 per cent by 2090.
- Wind - the frequency of extremely windy days is likely to decrease by 2 to 3 per cent.
- Storms - future changes in the frequency of storms events are likely to be small. However the ex-tropical cyclones will likely be stronger and cause more damage as a result of heavy rain and strong winds.
- Sea level rise - New Zealand tide records show an average rise in relative mean sea level of 1.7 mm per year over the 20th Century, and further rise is expected in the future.

Climate change has the potential to have significant impacts for local government, especially on our infrastructure. It may also impact tourism which could affect the local economy. Impacts are likely to include:

- **Warmer winters.** People are likely to enjoy the benefits of warmer winters with fewer frosts. This may have an impact on the ski fields at Mount Ruapehu and winter tourism.
- **Hotter summers.** This will bring increase water demand. This will impact our drinking water supplies. Hotter summers may also damage elements of transport infrastructure, causing damaged roads, with disruption and repair costs. It may also result in increased algal blooms in Lake Taupo, which may have impacts for our local economy and require additional treatment for our drinking water.
- **Flooding:** We are likely to experience more frequent, intense winter rainfalls. These are expected to increase the likelihood of rivers flooding which will impact our bridges and culvert. We may also experience flooding if our stormwater networks are overwhelmed.
- **River flows:** are likely to be lower in summer and higher in winter. Lower river flows in summer will raise water temperatures and aggravate water quality problems (eg, through increased algae growth). This may require additional treatment methods at our drinking water treatment plants.

Because of the increased likelihood of the events, we may find it more difficult to insure our assets against weather related events. This will mean that Council bears the costs of replacing these assets, rather than insurance companies.

We have started to develop an action plan to look at reducing the emissions that Council generates and also reduce the impacts of climate change on Taupo District Council. This plan includes aspects such as:

- Gas flare at the Broadlands Road Landfill
- We have implemented a Plan Change to the District Plan in relation to flood hazards
- We have introduced electric vehicles to the Council vehicle fleet.

Options	Implications
Accept that we live with the risk of climate change and disruptions to our infrastructure networks	Likelihood of disruptions to supply as a result of network failures or natural hazards.
Develop a plan for how we will deal with climate change.	There will be a cost to develop the plan which can be catered for within existing budgets.

Additional work required to support the preferred option:

- Keep updated on emerging climate change research, modelling and legislative changes.

Theme six: Provide for the Māori world view

Issue fourteen: We will consider fundamental concepts such as Te Mana o Te Wai when making decisions about our infrastructure

Documents such as the National Policy Statement for Freshwater require Council to consider fundamental Maori concepts such as Te Mana o Te Wai.

Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

The Māori world view considers everything living and non-living to be interconnected. Māori traditionally have their own system of resource management to sustain people and natural resources for the future. For Māori, water is the essence of all life, akin to the blood of Papatūānuuku (Earth mother) who supports all people, plants and wildlife. Rivers are valued as a source of spiritual, physical, and mental well being and provide important mahinga kai, cultural materials, as access routes and a means of travel, and for their proximity to important wāhi tapu, settlements or other historic sites. Indicators of the health of a river system (such as uncontaminated water and species gathered for food, continuity of flow from mountain source to the sea) can provide a tangible representation of its mauri. Water is a connector from the tangible to the intangible, and has pride of place as both tapu, sacred, and noa, normal.

There are issues where some our existing infrastructure, which was established decades ago, did not recognise the Māori world view which resulted in significant cultural, social and economic disparities for Māori communities. For example, our wastewater treatment plant at Turangi discharges wastewater to water. This goes against the concept of Te Mana o te Wai and is considered offensive and therefore continues to be strongly opposed by iwi/hapū. We are investigating how we can discharge this wastewater to land in the future and acknowledge the importance of engagement with local iwi/hapū to achieve improved environmental and cultural solutions. While options may come at considerable cost, it is the right thing to do.

As we engage more effectively with with Iwi/hapū in the future, there will be increased expectations to consider the Māori world view as well as more accountability for how Council decision making reflects iwi/hapū

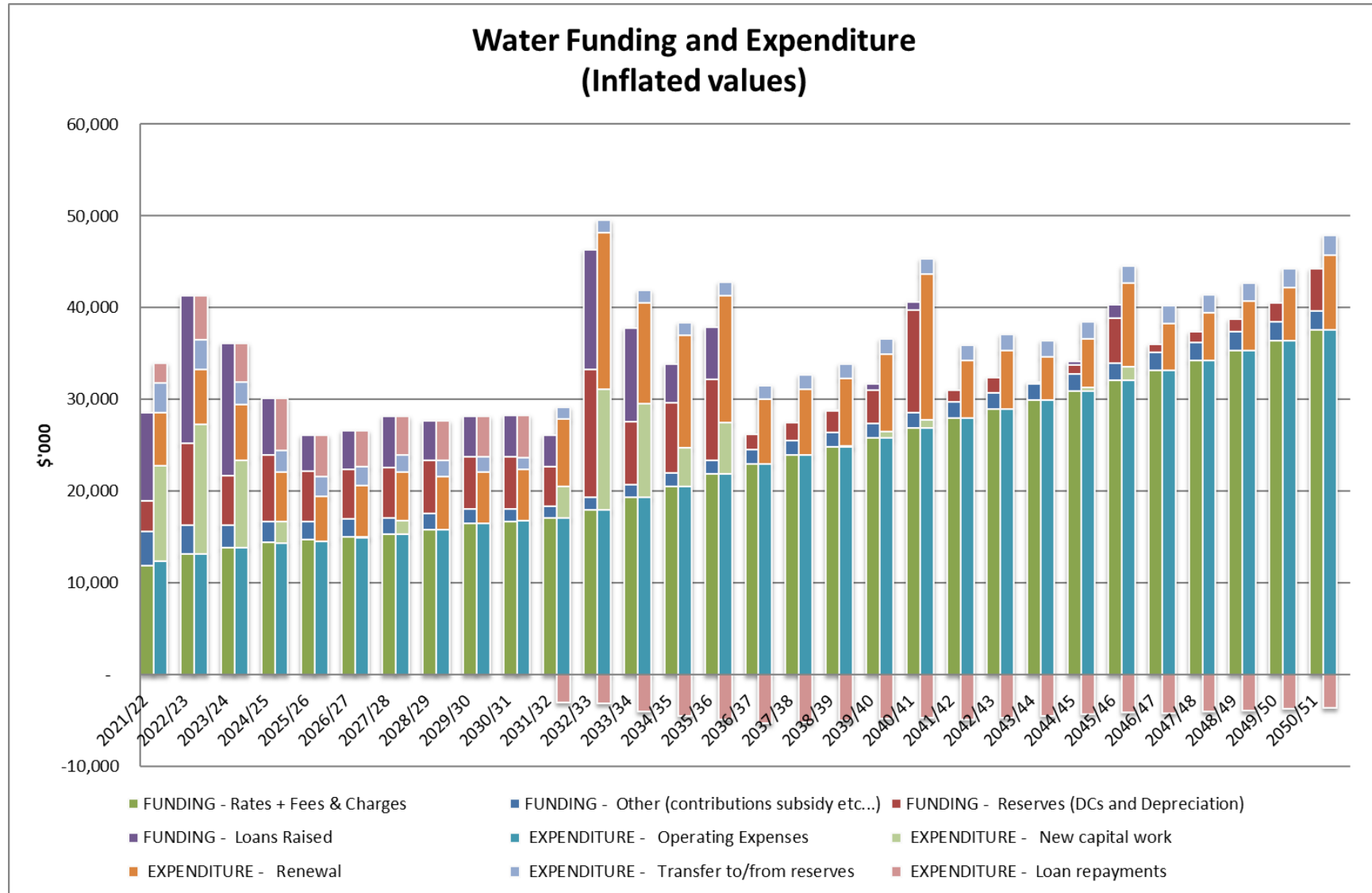
Options	Implications
A stronger commitment to recognizing and reflecting Māori world view in all future infrastructure planning that considers iwi/hapū cultural, social and economic growth aspirations	There will be significant cost implications to providing, improving and moving some infrastructure. We will have to prioritise and stagger these so that they are affordable.
Do nothing	We will not recognise the Māori world view and breach our obligations under.....

11. FINANCIALS

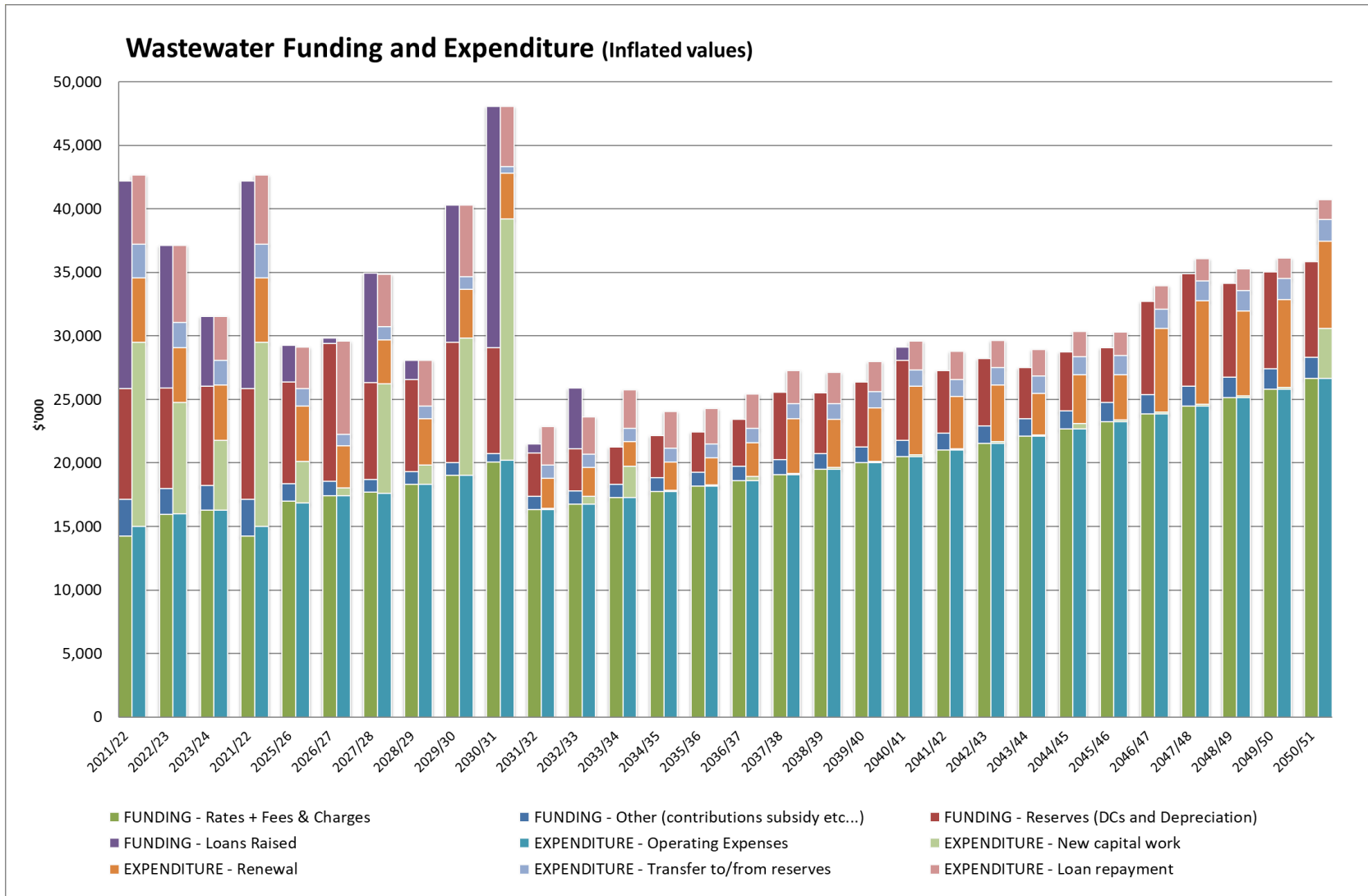
This section outlines the financial implications of the Council’s response to the issues which are outlined earlier in this strategy. The financial projections (most likely scenario) contained in the graph below for capital, renewal and operational expenditure are based on the following influences:

- Levels of service are largely maintained at current levels.
- The need to increase standards for wastewater treatment as resource consents expire.
- The need to increase standards for water treatment to meet the requirements of the Drinking-Water Standards for New Zealand.
- Modest growth is likely until around 2038 when population will decline, with increasing population of older residents.
- More reliable forecasts of renewal profiles for underground assets will continue as more asset condition is acquired. Tables and graphs below allow for inflation projections that are in line with those forecast by BERL for LGCI over the 30 years.
- Funding gap in transportation is unfunded depreciation representing the NZTA subsidy on renewals.

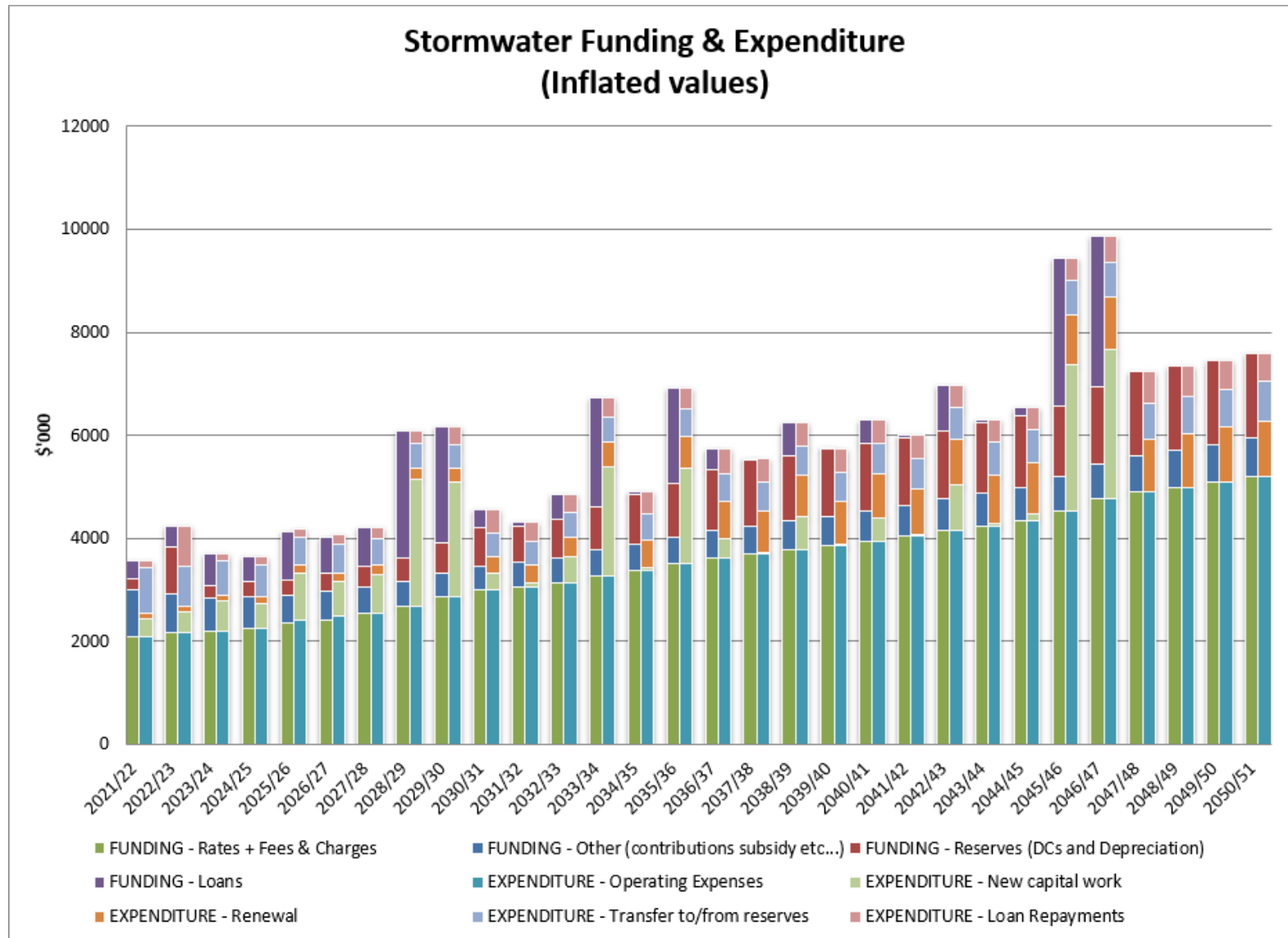
The financial projections are shown in for the 30 years except for parks and reserves and facilities which are for 10 years. The total projected spend over the next 30 years for water, wastewater, stormwater, solid waste and transportation and for 10 years for parks and reserves and facilities are outlined in the following graphs.



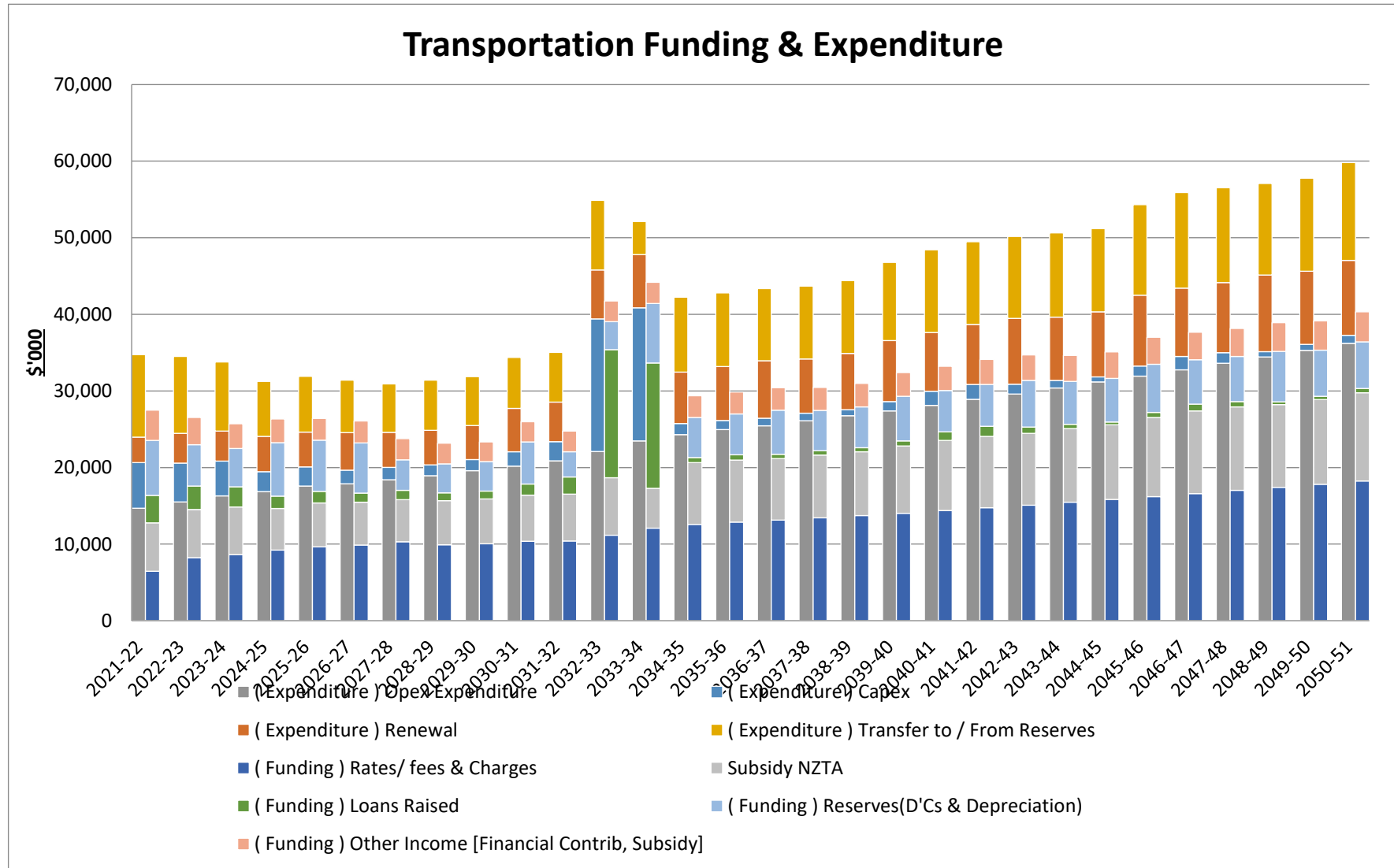
Proposed budget for Water expenditure 2021-51



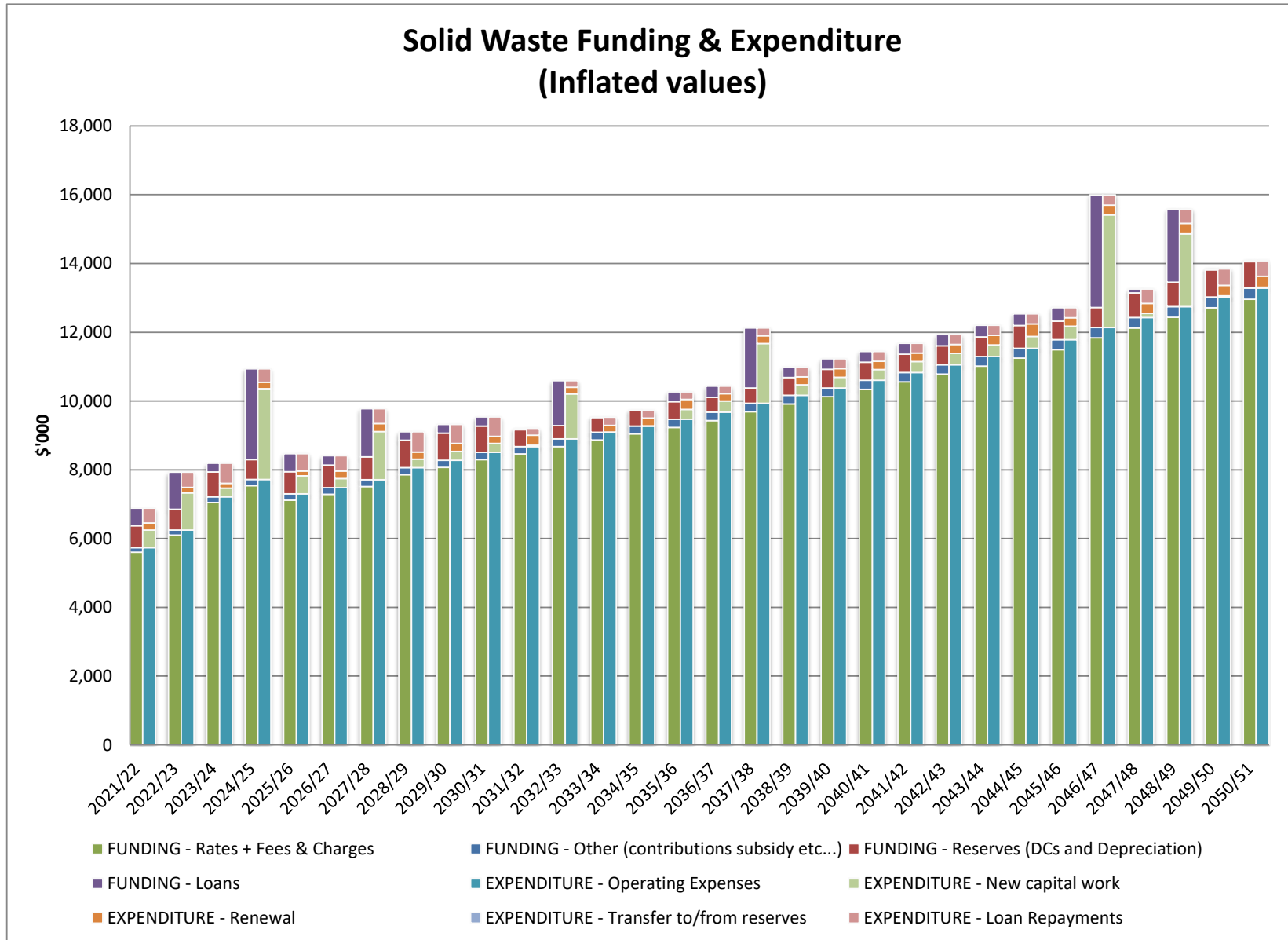
Proposed budget for Wastewater expenditure 2021-51



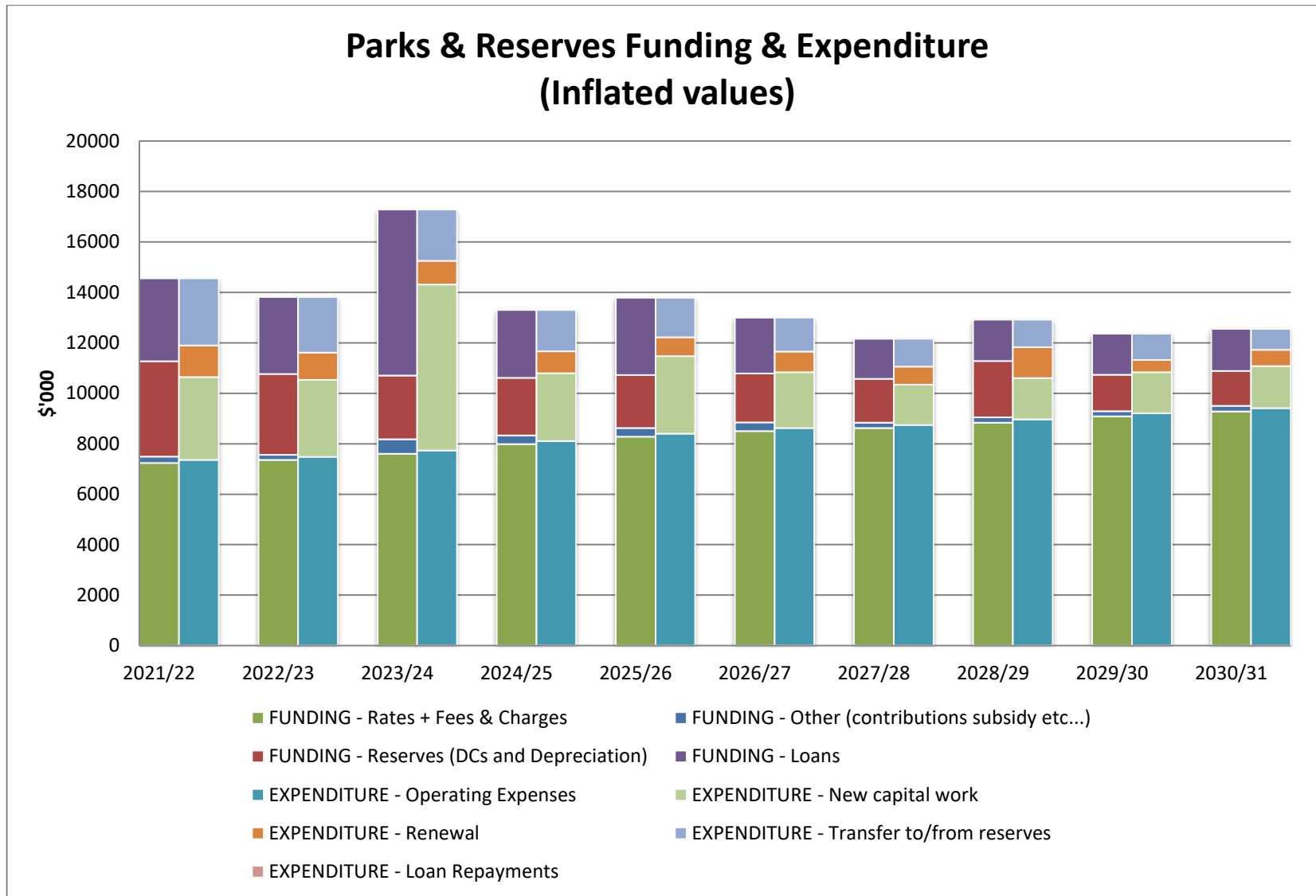
Proposed budget for Stormwater expenditure 2021-51



Proposed budget for Transport expenditure 2021-51

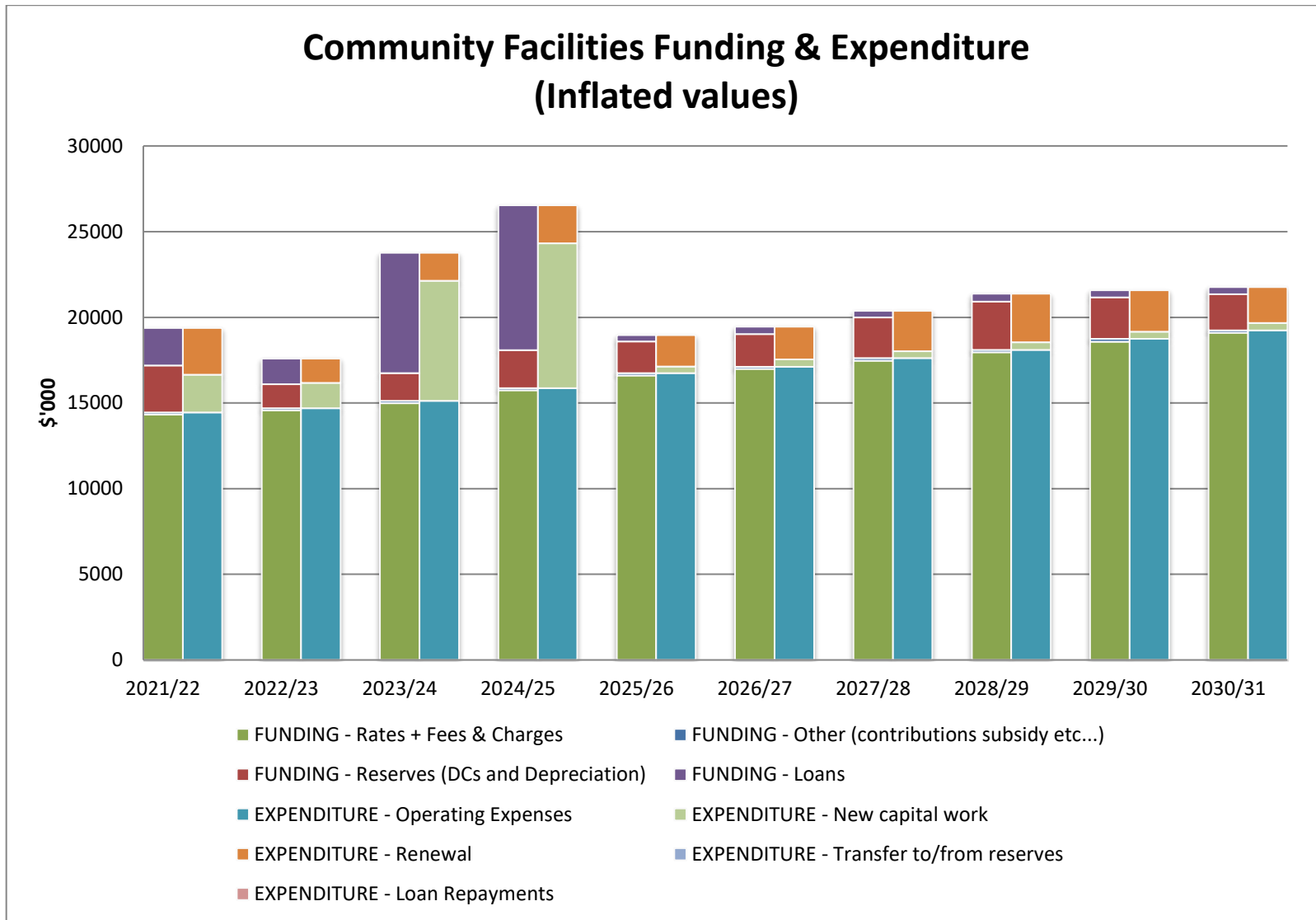


Proposed budget for Solid Waste expenditure 2021-51



Proposed budget for Parks and Reserves expenditure 2021-31

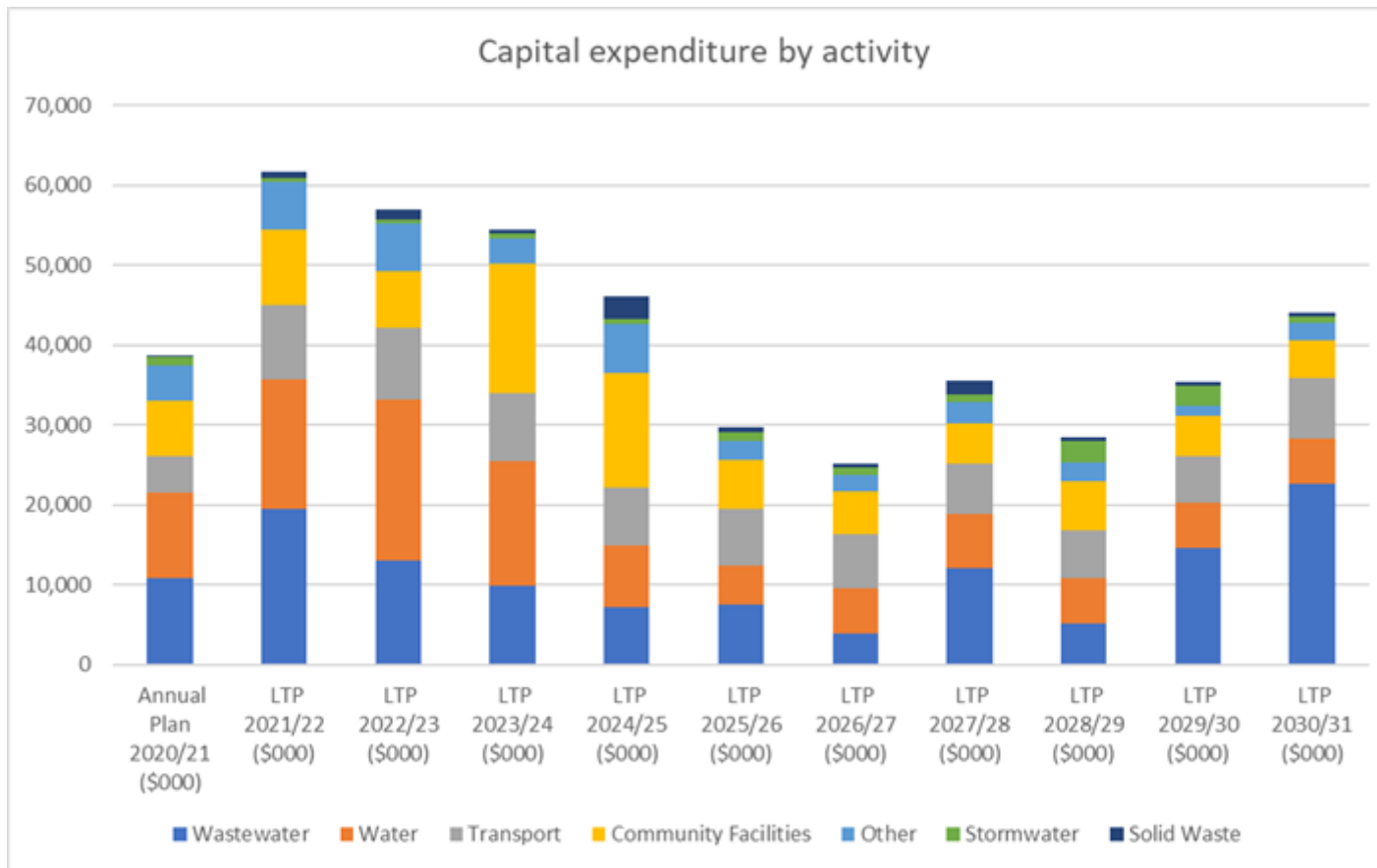
(Only 10 years of funding and expenditure information is available)



Proposed budget for Facilities expenditure 2021-31

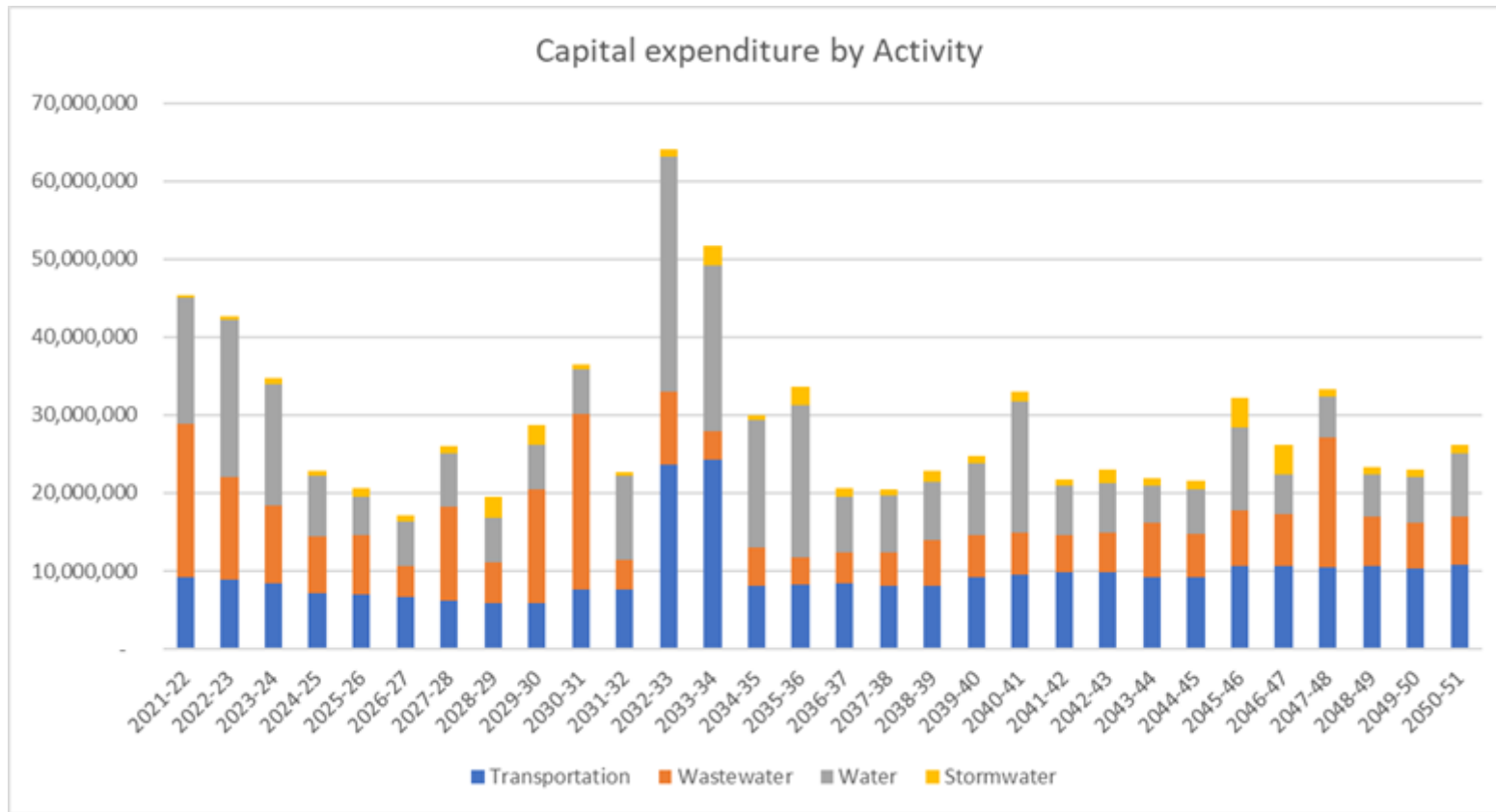
(Only 10 years of funding and expenditure information is available)

The graph below illustrates the proposed capital and renewal expenditure for each group of activities over the first 10 years of the plan



Capital expenditure by activity 2051-31

Note - Other includes the groups of activities Economic Development, Community Services, Investments and Democracy and Planning



Capital expenditure by transport, wastewater, water and stormwater activities 2051-31

Note: This does not include the Solid Waste and Community Facilities activities

12. SIGNIFICANT PROJECTS

This section outlines the significant decisions about capital expenditure that we expect will have to be made, when we expect to make them, the principal options that we expect to consider and the extent of the costs involved with each decision. For each project we have identified where the project is required to maintain or increase level of service (LOS), to cater for growth (Growth) or is a renewal (renewal). This classification has not been completed for projects beyond ten years (2031 onwards). The values included in the tables below have been inflated consistent with BERL LGCI predictions. We have identified the significant decisions about capital expenditure by identifying the capital projects that we believe will have high community interest. They are:

Water

Project	Growth/ LOS/ Renewal	Principal options	Implications	Capital cost and when project will occur	When the decision will be made
Strengthening of water reservoirs in Taupo	LoS	Strengthen reservoirs OR do not.	Protection of the water network in an earthquake.	\$4.1 million	Prior to 2034/25

Wastewater

Project	Growth/ LOS/ Renewal	Principal options	Implications	Capital cost and when project will occur	When the decision will be made
Turangi wastewater disposal system improvements	LoS	Improve the wastewater system OR do not improve the wastewater system.	Compliance with resource consent conditions and consideration of cultural values	\$20 million	Through the development of the 2027/37 LTP
Taupo wastewater irrigation expansion		LoS Improve the wastewater system OR do not improve the wastewater system.	Compliance with resource consent conditions and consideration of cultural values	\$17.5 million	Through the development of the 2027/37 LTP

Stormwater

None

Transport

Project	Growth/ LOS/ Renewal	Principal options	Implications	Capital cost	When the decision will be
Second bridge crossing	Growth	Build a new bridge, or implement measures to reduce traffic going across the bridge	Delays in travel times	\$390,000	Before 2032/33

Facilities and parks and reserves

Project	Growth/ LOS/ Renewal	Principal options	Implications	Capital cost	When the decision will be
Turangi Recreation and Activity Centre	LoS	Build a new facility OR do not build a new facility	Cost, community well being	\$15.9 million	Consultation with the community on the Long-term Plan 2021-31

Solid Waste

Project	Growth/ LOS/ Renewal	Principal options	Implications	Capital cost	When the decision will be
Broadlands Road new cell	LoS	Build new cell OR transport waste out of the district.	Transport costs, resource consent considerations	\$1.1 million	Between 2024 and 2027 through the development of future Waste Minimisation and Long-term Plans

13. FUTURE INFRASTRUCTURE STRATEGIES

This infrastructure strategy has improved on our previous infrastructure strategy by including issues for and 10 year financial information for facilities and parks and reserves activities. Further improvement of future infrastructure strategies is required to outline the complete picture for Council's infrastructure assets. This will enable us to plan for more effective long term management of this infrastructure in the future.

We will gather more information over the course of this strategy so we can undertake the following improvements in our next infrastructure strategy:

- Continued development of parks and facilities financial information so it can be included in the next 30 year infrastructure strategy
- Development of a section on critical assets to identify our critical assets and how we are going to manage them.
- Work towards providing indicative operational costs for the projects identified in the significant decisions about capital expenditure section.
- Consider including assets within Council's investment portfolio, such as forestry and property.