30 Year Infrastructure Strategy

ROTORUA LAKES COUNCIL

Te Kaunihera o ngā Roto o Rotorua

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Executive Summary

1.1 Introduction

Rotorua Lakes Council (RLC) is responsible for the provision of core and lifeline services that support the wellbeing of the Rotorua community. Our physical infrastructure needs to be developed, operated and managed in a manner that meets a host of statutory and regulatory objectives, is able to meet the community driven demand now and also to anticipate and enable effective services for the projected future demand as our city and demand grows. This 30-year Infrastructure Strategy summarises our plan to ensure services reliability, regulatory compliance and to gradually provide additional infrastructure capacity to support our predicted growth in a measured and fiscally responsible way.

This Infrastructure Strategy sets out the known condition of our assets and the integrated phases of work we need to do to maintain our core infrastructure in a stable condition to ensure we provide a reliable service to our community. The core physical infrastructure we provide to enable our community to function are land transport (roads and footpaths) and three waters (drinking water, stormwater and wastewater).

The purpose of an Infrastructure Strategy is to identify significant infrastructure issues as known at the time and for Council during the period covered by its strategy. To identify and recommend the principal options for managing those identified issues, and the operational, financial and risk implications of those options. This strategy includes the core infrastructure assets identified in section 101B (6) of the Local Government Act being:

Water supply

- Sewerage and the treatment and disposal of sewage (wastewater)
- Stormwater drainage (stormwater)
- Roads and footpaths (land transport).

1.2 Assets at a glance

RLC own and manage $1.966 billion (replacement value) of infrastructure assets which can be summarised as follows. This shows that the assets have expired by about 50% to 60%.

Table 1 Asset summary

Activities	Description	Replacement Cost	Depreciated Replacement Cost (DRC)
Water supply 	• Ten defined supply areas including three urban areas • Eleven water sources • Nine water supply treatment plants • Approximately 761km of pipelines • 15 water pump stations	$359.973 million (2023)	$187,662,525
Wastewater 	• 410 km of gravity pipelines and 164km rising mains • Services three urban areas of Rotorua (Ngongotahā, city and eastern suburbs) and some rural lakeside communities • Two wastewater treatment plants • 81 wastewater pump stations	$554.560 million (2023 and 2020)	$288,810,167

Activities	Description	Replacement Cost	Depreciated Replacement Cost (DRC)
Stormwater 	• 244km urban reticulated pipelines • 154km of stormwater channels • Service three urban areas of Rotorua (Ngongotahā, city and eastern suburbs) • Reporoa land drainage scheme	$220.005 million (2022)	$146,804,218
Land transport 	• 1,007 km of roads - 889 km sealed and 118 km unsealed • 80 road bridges • 28 major culverts • 383 km of footpaths • 52 km of cycling routes • 144 bus shelters	$831.477 million (2022)	$515,745,075
	TOTAL	**$1.966 billion**	**$1.139 billion**

Source: RLC's Revaluations (various) & RLC RAMM database (11 November 2023)

1.3 Current asset state

The current state of our assets in terms of design life expectancy has been assessed for the major land transport and three water asset classes (30 in total). This has been assessed as the percentage of design life expended and the predicted remaining useful life.

The assessment indicates that most major assets classes design life has been consumed within a range of a quarter to halfway. This is a significant renewal backlog that must be managed carefully and informed by risk and consequence criteria. A summary of this analysis is provided in Section 5.1 of the strategy.

Some of the most widespread assets such as gravity wastewater mains, stormwater mains and street lighting brackets are asset classes identified to be in poor or at risk categories (based on age and predictive modelling standards). These asset classes need to be carefully monitored to ensure that the future funding of renewal programmes are appropriate and adequate based on the risk analysis of failure.

Table 2 Renewal investment based on current asset state

Activities	Major asset classes	Renewal investment	Renewal action
Water supply 	Backflow, mains, meters, plant	–	Business as usual, continue with normal monitoring and renewals
Wastewater 	Gravity mains, grinder pumps, other	↑ ↑	Asset at risk, accelerate investigation and increase investment
	Pressure mains, manholes, chambers	–	Business as usual, continue with normal monitoring and renewals
Stormwater 	Consents	↑ ↑	The Comprehensive Stormwater Resource Consent for the urban areas was lodged with the Regional Council and public submission is underway.
	Mains, manholes, channels, other	–	Business as usual, continue with normal monitoring and renewals

Activities	Major asset classes	Renewal investment	Renewal action
Land transport 	Street lighting – brackets, railings, pavement – surface	↑ ↑	Asset at risk, accelerate investigation and increase investment
	Bridges, street lighting – poles, drainage, signals	↑	Start planning for renewal investment
	Footpath, street lighting – lights, surface water channels, minor structure, retaining walls, islands, traffic facilities, pavement – basecourse	–	Business as usual, continue with normal monitoring and renewals

It is intended to continue to improve asset condition data collection with emphasis on the most critical parts of our networks (based on risk) and to complete this asset predictive performance analysis to guide future infrastructure strategies and specific asset management plans. The objective is to ensure we keep our core infrastructure within acceptable industry performance and condition benchmarks to achieve sustainable future investments.

The asset condition and expected performance has been assessed at a high level for each activity and is covered in Section 5.1 of the strategy.

1.4 Significant issues

There are a number of significant issues facing our city, which may intensify in future years. RLC, through its Long Term Planning and various Strategies, aims to take active steps to manage and mitigate the foreseeable risks arising from those issues. These strategic issues do influence and impact the Infrastructure Strategy, the services we need to deliver the where and how.
In preparing this strategy, we have identified seven strategic issues that need to be at the forefront of infrastructure planning and decision making. Table 3 summarises key strategic issues, implications and Council's proposed plan of response. Section 2.2 of this strategy details the actions we will take to respond to the key strategic issues at district level as these are common to all activities.

Table 3 Significant issues affecting our infrastructure

Strategic issue	Implications	Council's response
1. Maintaining assets in a stable, reliable, and safe condition	• We know that we need to invest in our core infrastructure. We need to recognise the asset lives consumption backlog and ensure that there is not an unsustainable deficit created that is unaffordable for our current and future ratepayers. • Investment is also required to ensure that our assets meet the levels of service to our communities, meets legislative requirements, and are resilient to any disruption.	• Implement risk / consequence based critical asset renewal. • Continue with critical asset condition assessment as a priority. • Rely on responsive systematic asset maintenance.
2. Meeting future demands on infrastructure	• Te Arawa and RLC have identified safe, secure housing for all our people as our top shared priority to ensure positive, thriving communities. • Timing for growth enabling infrastructure is based on projected rate of population growth.	• Update and adjust timing for new capacity infrastructure through the Annual Plan process if growth accelerates greater than predicted. • Addendums to the Three Water Master Plans have been developed based on the latest growth predictions.

Strategic issue	Implications	Council's response
		• Transport modelling is being undertaken to understand the impacts of the Rotorua Future Development Strategy on the road network. The infrastructure improvements required are expected to be minor in nature (compared to three water networks) and will likely be required in the medium to long term.
3. Managing the impacts of legislative and policy change	There are various sector changes with new or proposed legislation that will impact the long-term planning for Council's assets and services network. These include the Resource Management system reforms, Future for Local Government (although these may change with the new Government) the water regulations both in terms of quality and financial plans.	• Lead agency awareness and systematic compliance with Standard Operating Procedures. • Anticipate and reflect changes in forward financial planning. • Keep a watching brief on the new Government's alternative proposals for three water assets. • Ensure Council makes Rotorua centric decisions when required. • RLC's investment programmes and supporting Activity Management Plan will be aligned to the strategic priorities in the new Government Policy Statement on Land Transport once adopted in 2024.
4. Embedding cultural values into the way we manage our infrastructure	• It can take considerable time and cost to ensure our capital projects are meeting cultural assessments and are appropriate and supported by our wider community. In some cases, we need to explore alternative asset development options and stage appropriate solutions overtime. • Monitoring of increasingly, legislation that is requiring that iwi have a greater role in the governance or decision making for key assets such as water. • RLC to give effect to the principles of te Mana o te Wai while performing functions or duties.	• Maintain effective and mutually beneficial relationship protocols. • Identify and provide for cultural elements and performance in designs. • Reinforce mutually beneficial partnership with iwi. • RLC is developing its understanding of te Mana o te Wai principle and the overallfocus is an outcome of water quality protection and improvements that will contribute to water life sustaining qualities. •
5. Climate change and environmental sustainability	• We need to prepare for the unpredictable impacts of climate change on the infrastructure assets as we are already experiencing events such as prolonged droughts and higher temperatures. Increased frequency and intensity of high rainfall events, which creates flooding risks and a health risk for our potable / drinking water. • The impacts of extreme weather events on our district's infrastructure in the last three years have been significant. Our roading network has been particularly impacted with multiple slip events over the last three years.	• Design new and renewed infrastructure within the 100 years climate change effects parameters. • Contribute to ongoing emission reductions. • Continueundertaking adaptation planning for our infrastructure assets aligned with the Government's objectives to build resilient infrastructure as set out in the National Adaptation Plan (2022). Strengthening our infrastructure resilience is a key focus.

Strategic issue	Implications	Council's response
	• Unprecedented rainfall in 2023 has caused flooding and rising lake levels at Rotorua, Rotomā, Rotoiti and Rotoehu (the three smaller lakes are interconnected).	• Work with Bay of Plenty Regional Council and other Te Arawa partners to understand and identify mitigation works to address the impact of rising lake levels on RLC's infrastructure.
6. Resilience of critical infrastructure	• Increasing demand and climate risk require focus in strengthening the infrastructural resilience of our core assets. • Infrastructure resilience is expected to be tested in Rotorua as it is exposed to a variety of natural hazards including earthquake, landslides, flooding, volcanic eruption, storms and rising lake levels. These natural disasters can cause considerable damage to infrastructure assets and affect the reliable delivery of service.	• Prioritise asset improvement interventions based on risk/consequences. • Develop gradual redundancy for critical parts of infrastructure for business continuity. • Consider how we can ensure that our lakeside communities are able to continue to be connected through extreme weather events, and whether the current infrastructure solutions continue to be appropriate. • Strengthen our water storage reservoirs, key bridges and pump stations with appropriate capital investment so they are resilient to earthquakes.
7. Maintaining institutional knowledge and capability (i.e. people resilience).	• Many of RLC's senior engineers are nearing the end of their careers. This reflects a national issue of limited capability and capacity in the industry coupled with a tight labour market.	• Maintain an appropriate balance of internal and external resourcing to ensure Council has suitable capacity and capability as engineers retire and new staff develop. • Develop and implement a Workforce Capability Plan to cater for exit plans and succession planning. • Continue to increase internal capability by providing multiskilling opportunities for RLC staff.

1.5 Funding depreciation

Figure 1 shows the annual renewals of $23.5 million versus annual depreciation of $29.5 million for the combined core assets. This shows that there is a gap of around $6 million per year which is mainly due to land transport renewals being less than annual depreciation at this point in time. It is proposed to review the level of renewal investment versus annual depreciation to inform the next Long Term Plan.

Figure 1 Combined renewals and depreciation (uninflated) 2024-2054

1.6 Overall investment strategy

Table 4 shows the total expected capital and operational expenditure for each infrastructure activity over the 30 year period 2024 to 2054.

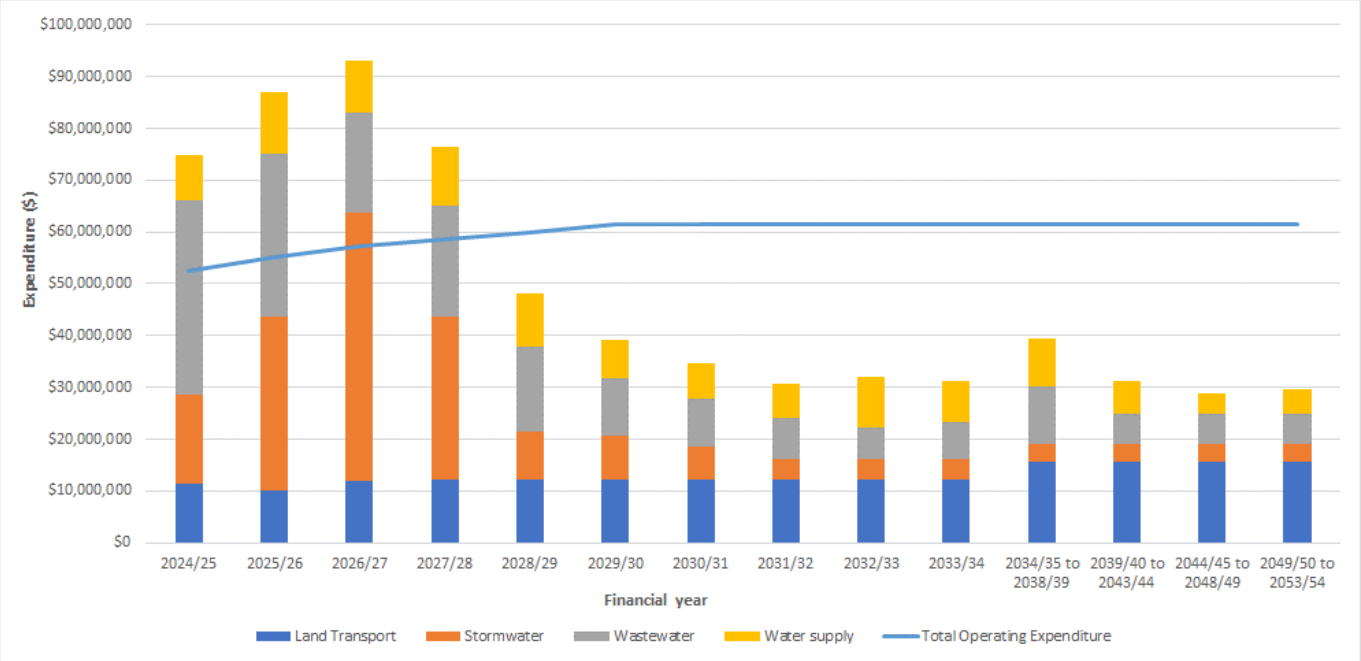
Table 4 Expected total operating and capital expenditure (uninflated)

Activity	Capital Expenditure			Operational Expenditure
	Renewals	Growth	Levels of Service	Operating
Water Supply	$119,965,000	$61,686,000	$30,834,400	$385,444,603
Wastewater	$180,000,000	$88,735,000	$43,794,000	$747,219,454
Stormwater	$90,000,000	$130,970,958	$18,200,000	$166,526,891
Land Transport	$299,512,515	$25,800,000	$108,087,000	$519,395,134
Sub Totals	**$689,477,515**	**$307,191,958**	**$200,915,400**	**$1,818,586,082**
	$1,197,584,873			
Total	**$3,016,170,955**			

Source: RLC LTP budget (as at March 2024)
Note: Depreciation has been excluded from the Operational Expenditure in the amount of approximately $30 million per annum and is on par with the renewal forecast. The operating depreciation differs to the asset valuation depreciation slightly due to corporate modelling adjustments.

Figure 2 shows the most likely scenario for total operating and capital expenditure for combined assets.

Figure 2 Combined infrastructure operational and capital forecast (uninflated) 2024-2054



Source: RLC LTP budget (as at March 2024)

Over the next 30 years it is expected that:

- Planned expenditure on renewals across all infrastructure activities is generally constant.
- Significant capital expenditure to enable growth in the first four years, particularly stormwater (with external Government funding).
- The Rotorua Wastewater Treatment Plant Upgrade in the first two years takes a large portion of the capital expenditure programme (growth).
- Transport capital expenditure to enable growth increases from 2027/28.
- Resealing about 7% of our roads each year for the next 30 years to ensure assets renewed sustainably.

2.0 Introduction

Rotorua Lakes Council (RLC) is responsible for the provision of core and lifeline services that support the wellbeing of the Rotorua community. Our physical infrastructure needs to be developed, operated and managed in a manner that meets a host of statutory and regulatory objectives, is able to meet the community driven demand now and also to anticipate and enable effective services for the projected future demand as our city and demand grows. This 30-year Infrastructure Strategy summarises our plan to ensure services reliability, regulatory compliance and to gradually provide additional infrastructure capacity to support our predicted growth in a measured and fiscally responsible way.

This Infrastructure Strategy sets out the known condition of our assets and the integrated phases of work we need to do to maintain our core infrastructure in a stable condition to ensure we provide a reliable service to our community. The core physical infrastructure we provide to enable our community to function are land transport (roads and footpaths) and three waters (drinking water, stormwater and wastewater).

Our infrastructure must be safe, reliable and in a stable condition to meet future demand and our levels of service. We want no shocks or surprises, so we aim to understand what we have and ensure that it is fit for purpose. To do this we need to understand and plan for how infrastructure will need to change to remain fit for purpose. Change can be required to meet new technologies, environmental considerations (such as carbon neutrality), changing community expectations and patterns of use.

We need to consider how our population is changing and what impact this may have on demand for our core infrastructure. We need to be able to answer the questions: Where do we need to provide new capacity? Where and how might we redevelop redundant capacity or transform our infrastructure?

The 2024 Infrastructure Strategy is broadly aligned with the intent of the 2021 strategy. We aim to clearly present our investment plans to adapt to climate change and strengthen the resilience of our infrastructure. We are taking a long term view to respond to the current shortfall in housing and to better plan for growth.

2.1 Purpose of this strategy

The Infrastructure Strategy aims to ensure that our infrastructure services are provided to an appropriate standard. This strategy will identify the significant capital decisions that we need to make over the next thirty years to deliver safe, reliable, and stable infrastructure that keeps pace with demand and the changing face of our city.

The strategy is a component of the Long Term Plan. It identifies what we are going to do to provide our services, manage our infrastructure, continue to grow our city sustainably, care for our environment, and overcome our issues and challenges. It aligns with our Financial Strategy, in which we determine what we can afford to do, when we can afford to do it and how we will fund it.

Through our Long Term Plan and subsequent annual plans, we will consult with our community about our infrastructure plans, balancing risks and financial trade-offs to allocate funds to maintain, renew and improve our core infrastructure to meet the agreed levels of service.

The purpose of an Infrastructure Strategy is to identify significant infrastructure issues as known at the time and for Council during the period covered by its strategy. To identify and recommend the principal options for managing those identified issues, and the operational, financial and risk implications of those options. This strategy includes the core infrastructure assets identified in section 101B (6) of the Local Government Act being:

- Water supply
- Sewerage and the treatment and disposal of sewage (wastewater)
- Stormwater drainage (stormwater)
- Roads and footpaths (land transport).

2.2 Significant issues

There are a number of significant issues facing our city, which may intensify in future years. RLC, through its Long Term Planning and various Strategies, aims to take active steps to manage and mitigate the foreseeable risks arising from those issues. These strategic issues do influence and impact the Infrastructure Strategy, the services we need to deliver the where and how.
RLC operates in a financially constrained environment which requires regular trade-offs to be made between competing priorities. We struggle to achieve our priorities within our means, needing to fund deferred maintenance and renewals of our infrastructure assets, and fund our ambitious economic growth plans as these are pivotal in driving future employment and prosperity for our community. Strategic issues have been identified that make it hard to balance our infrastructure services while meeting our strategic priorities and regulatory requirements.

In preparing this strategy, we have identified seven strategic district infrastructure issues that need to be at the forefront of infrastructure planning and decision making.

- Maintaining assets in stable, reliable and safe condition
- Meeting future demands on infrastructure
- Impacts of legislative and policy changes
- Embedding cultural values
- Climate change and environmental sustainability
- Resilience of critical infrastructure
- Maintaining institutional knowledge and capability (i.e. people resilience).

Table 5 details the implications and the actions we will take to respond to the key strategic issues at district level as these are common to all activities. The significant issues for each activity are covered in Section 5.

Table 5 Significant district issues affecting our infrastructure

Significant district issues	Discussion and implications	Council's response
Ongoing effort to maintain assets in stable, reliable and safe condition	We know that we need to invest in our core infrastructure. We need to recognise the asset lives consumption backlog and ensure that there is not an unsustainable deficit created that is unaffordable for our current and future ratepayers. Investment is also required to ensure that our assets meet the levels of service to our communities, meets legislative requirements, and are resilient to any disruption.	**Land transport:** We monitor the age and condition of our transport assets through inspections and analysis in our RAMM database. We also monitor and report on our customer and technical service levels for the infrastructure assets (this applies to three waters as well). We report to our funding partner Waka Kotahi New Zealand Transport Agency (Waka Kotahi) on various performance measures and we are compared with other similar sized councils.
		Three waters: We have adopted a proactive and risk-based waters renewal strategy as good industry practice, rather than using asset age. To enable this, we are gathering evidence in the next three to ten years to inform our renewal programmes with a focus on water supply and wastewater assets. Capacity drives our stormwater upgrades more than the current asset state. Continue with surveying our critical below ground wastewater assets in the short to medium term (about 20% of our pipelines). The assessment programmes are being accelerated through our long-term contractor.
Meeting future demands on infrastructure	Rotorua is continuing to grow, with substantial greenfields development predicted, along with intensification of existing residential areas. While much of our infrastructure has capacity to provide for some of this growth-related demand, our service provision is not consistent. Factors such as more extreme storm events (climate change) are already placing pressure on our infrastructure in some locations. Te Arawa and RLC have identified safe, secure housing for all our people as our top shared priority to ensure positive, thriving communities. Timing for growth enabling infrastructure is based on projected rate of population growth.	**All activities:** We have taken a long term view to respond to the current shortfall in housing and to better plan for growth through following two strategic planning initiatives (refer to Section 3.4 for detail): • Draft Rotorua Future Development Strategy (2023). • Housing for Everyone – Plan Change 9. Update and adjust the timing for new capacity infrastructure through the Annual Plan process if growth accelerates greater than predicted. Refine the infrastructure capital programmes to ensure investment provides for current and future demand. Te Arawa and RLC developed the He Papakáinga, He Hápori Taurikura Homes and Thriving Communities Strategic Framework (2020). The strategy describes the challenges the district faces and the strategies that will be used to ensure everyone can enjoy a good quality of life, now and into the future. This strategy belongs to the communities of the Rotorua district, and is overseen by the critical partnership between Te Arawa, the wider community and RLC. RLC's infrastructure asset groups including three waters and land transport need to be aligned to this strategic framework for future demand planning.

Significant district issues	Discussion and implications	Council's response
		Land transport: There is an ongoing annual traffic counting programme to understand current vehicle demand. Transport modelling is being undertaken to understand the impacts of the Rotorua Future Development Strategy on the road network. The infrastructure improvements required are expected to be minor in nature (compared to three water networks) and will likely be required in the medium to long term.
		Three waters: Addendums to the Three Water Master Plans have been developed based on the latest growth predictions as defined in the Future Development Strategy and Plan Change 9. The three water capital programmes have been updated based on the latest growth predictions.
Legislative and policy changes	There are various sector changes with new or proposed legislation that will impact the long-term planning for Council's assets and services network. These include the Resource Management system reforms, Future for Local Government (although these may change with the new Government) the water regulations both in terms of quality and financial plans. **Government Policy Statement** - The Government Policy Statement on Land Transport (2024) remains in draft for the incoming Government to confirm the strategic priorities for the sector.	**All activities:** Lead agency awareness and systematic compliance with Standard Operating Procedures. Anticipate and reflect changes in forward financial planning. **Three waters:** Keep a watching brief on the new Government's alternative proposals for three water assets. Ensure Council makes Rotorua centric decisions when required **Land transport:** RLC's investment programmes and supporting Activity Management Plan will be aligned to the strategic priorities in the new Government Policy Statement on Land Transport once adopted in 2024.
Embedding cultural values into the way we manage our infrastructure	It can take considerable time and cost to ensure our capital projects are meeting cultural assessments and are appropriate and supported by our wider community. In some cases, we need to explore alternative asset development options and stage appropriate solutions overtime. Monitoring of increasingly, legislation that is requiring that iwi have a greater role in the governance or decision making for key assets such as water. RLC to give effect to the principles of te Mana o te Wai while performing functions or duties. Te Mana o te Wai draws on a te ao Māori perspective to recognise the whole-of-system approach to wai, from maunga to moana, or ki uta ki tai.	**Three waters:** Maintain effective and mutually beneficial relationship protocols. Identify and provide for cultural elements and performance in designs. Reinforce mutually beneficial partnership with iwi. RLC is developing its understanding of te Mana o te Wai principle and the overallfocus is an outcome of water quality protection and improvements that will contribute to water life sustaining qualities. We have adopted this approach with finding an acceptable solution for the Rotorua Wastewater Treatment Plant. The three parties (RLC, Te Arawa Lakes Trust and CNI Iwi Holdings) have Kawenata (a partnership agreement) to find the right outcome for mana whenua and the wider Rotorua community. The kawaneta has been guided by Te Tūāpapa o ngā Wai o Te Arawa (Te Arawa Cultural Values Framework, refer to Section 3.2.1) and under the agreement, the parties will work to develop a long-term solution.

Significant district issues	Discussion and implications	Council's response
		The principles of Te Mana o te Wai are considered in the operational management of the water supply through a multi-faceted approach: • Management of abstraction rates and volumes so that only what is needed is taken from the source. • Water demand management in the network through sectorisation, pressure management, and leak detection to ensure water is used efficiently. • Jointly held resource consents with iwi. As many of RLC's water take consents near renewal, this has presented an opportunity for consents to be issued jointly to Council and iwi. Consultation with mana whenua during the application process and following granting of joint resource consents has enabled iwi to share and incorporate their aspirations for the management of the water source and surrounding whenua into the operational management of water supply.
Climate change and environmental sustainability	We need to prepare for the unpredictable impacts of climate change on the infrastructure assets as we are already experiencing events such as prolonged droughts and higher temperatures. Increased frequency and intensity of high rainfall events, which creates flooding risks and a health risk for our potable / drinking water. The impacts of extreme weather events on our district's infrastructure in the last three years have been significant. Our roading network has been particularly impacted with multiple slip events over the last three years. Unprecedented rainfall in 2023 has caused flooding and rising lake levels at Rotorua, Rotomā, Rotoiti and Rotoehu (the three smaller lakes are interconnected) and breaking the 1972 record. This has impacted residents and resulted in flooding of roads and slips around certain areas of both lakes. It has impeded road access to properties (including due to flooding of the Rotorua end of Manawahe Road). It has also resulted in infrastructure like jetties and ramps becoming submerged.	**All activities:** Design new and renewed infrastructure within the 100 years climate change effects parameters. Contribute to ongoing emission reductions. Continue undertaking adaptation planning for our infrastructure assets aligned with the Government's objectives to build resilient infrastructure as set out in the National Adaptation Plan (2022). Strengthening our infrastructure resilience is a key focus. Work with Bay of Plenty Regional Council and other Te Arawa partners to understand and identify mitigation works to address the impact of rising lake levels on RLC's infrastructure. As part of our Climate Change Action Plan, we have taken the following approaches as a response to climate change. • Emissions reduction - Adopting an emissions reduction target that aligns with the New Zealand national target. • Mitigation - Identified five priority themes to shape our actions for the next ten years. This includes Transportation and urban form and Leadership, advocacy and economic opportunity themes. • Adaptation – Identified key areas where we need to reduce our vulnerability to the impacts of climate change. Refer to Section 4.4 - Risk Management on specific proposed climate change actions. The immediate focus to the impacted lakeside communities has been on providing any assistance residents may require with people's safety the primary concern. Longer term solutions will need to be considered and we will need to change our approach to infrastructure management and planning to respond.

Significant district issues	Discussion and implications	Council's response
Resilience of critical infrastructure	Increasing demand and climate risk require focus in strengthening the infrastructural resilience of our core assets. Infrastructure resilience is expected to be tested in Rotorua as it is exposed to a variety of natural hazards including earthquake, landslides, flooding, volcanic eruption, storms and rising lake levels. These natural disasters can cause considerable damage to infrastructure assets and affect the reliable delivery of service. Parts of the transport network are susceptible to weather related events. However, most of the network has alternative routes except for Tarawera community. It is important to respond to incidents such as closed roads due to road slips or under slips, as well as keeping the road drains fully maintained.	All activities: • Prioritise asset improvement interventions based on risk/consequences. • Develop gradual redundancy for critical parts of infrastructure for business continuity. • Consider how we can ensure that our lakeside communities are able to continue to be connected through extreme weather events, and whether the current infrastructure solutions continue to be appropriate. • Strengthen our water storage reservoirs, key bridges and pump stations with appropriate capital investment so they are resilient to earthquakes. .
Maintaining institutional knowledge and capability (i.e. people resilience)	Many of RLC's senior engineers are nearing the end of their careers. This reflects a national issue of limited capability and capacity in the industry coupled with tight labour market. It is recognised that there is a need for technical staff to be developed and have real opportunities to be retained within the industry long term.	All activities: • Maintain an appropriate balance of internal and external resourcing to ensure Council has suitable capacity and capability as engineers retire and new staff develop. • Develop and implement a Workforce Capability Plan to cater for exit plans and succession planning. • Continue to increase internal capability by providing multiskilling opportunities for RLC staff

3.0 Strategic Context

3.1 National context

Local authorities play a broad role in promoting the social, economic, environmental, and cultural well-being of their communities, taking a sustainable development approach. The Future for Local Government Panel released its final report in June 2023. It has made 17 recommendations for the incoming government to decide after the general elections in October 2023. The report presents an opportunity for councils to better position themselves to deliver community aspirations.

There are various sector changes with new or proposed legislation that will impact long-term planning for Council's assets, although these may change with the new Government. These include the Resource Management system reforms, Future for Local Government and Emergency Management Trifecta Programme.

Taumata Arowai is the drinking water regulator under the Water Services Regulator Act 2020. Taumata Arowai administers the Water Services Act 2021 for ensuring safe drinking water. There is greater level of compliance, monitoring and enforcement under this new regime such as the new Drinking Water Quality Assurance Rules.

Increasingly, legislative reform is moving to enhance the statutory requirements for Māori involvement in the management of key taonga or assets. Water holds a central role in Māori sense of identity and well-being. This has been recognised in the Water Services Regulator Act with the establishment of a Māori advisory board for Taumata Arowai, increased engagement requirements by local government with their local iwi, and giving effect to Te Mana o te Wai while performing functions or duties under the Act.

Changing expectations of local government place further pressure on already constrained budgets. Many councils, like RLC, are facing issues maintaining their current service levels, renewing aging assets, and future proofing for growth, while prudently managing the impact on rates and debt levels.

3.2 Rotorua context

3.2.1 Mana whenua

Rotorua was established over one hundred years ago, with the signing of the Fenton agreement between the Crown and Ngāti Whakaue on 25 November 1880.

According to oral history, many of Rotorua's Māori residents trace their ancestry to Tamatekapua, the captain of the Arawa canoe that is believed to have arrived in New Zealand six centuries ago. Kahumatamomoe, a Te Arawa ancestor, journeyed inland where he discovered Lake Rotorua and settled at what is now Kawaha Point.

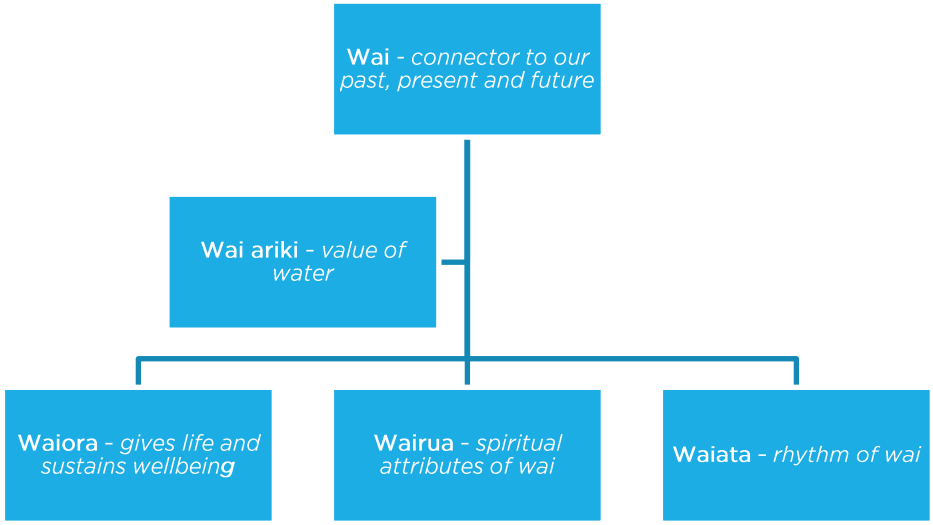
Today, Rotorua continues to have a strong Te Arawa culture and manaakitanga (hospitality) which underpins the experience sought by many tourists to the district. We are considered a centre for Māori culture and expression.

The partnership with mana whenua is embedded in the way RLC works. A partnership agreement with Te Tatau o Te Arawa, who represents the collective interests of Te Arawa, captures our shared vision and goals and our intention to build an enduring partnership that is beneficial to the Rotorua community.

Major infrastructure projects require significant input from mana whenua to ensure cultural considerations are understood and provided for, alongside other factors. Our aim is to collectively agree what and how our new infrastructure is constructed to ensure our growth is sustainable and we protect the values and taonga that make our district special.

The Te Tūāpapa o ngā Wai o Te Arawa (Te Arawa Cultural Values Framework) was developed by the Te Arawa Lakes Trust and articulates the value in relation to the long term aspirations for the Te Arawa Lakes. The guiding Te Arawa values are summarised below.

Figure 3 Guiding Te Arawa values



Ways in which RLC is giving effect to te Mana o te Wai starts with the fundamentals of building relationships and partnerships with mana whenua in the relevant rohe. RLC's Te Arawa Partnership Team provide advice to the Infrastructure Teams to assist in effective and meaningful engagement with iwi. One of the outcomes of fostering partnerships with mana whenua has been the return of, and planned return of, land that many RLC water supply sources are situated on to iwi.

3.2.2 Our district

Within New Zealand, Rotorua's volcanic landscape of lakes, calderas and geothermal features is unique. The compact size of the city, the geothermal features and the ready access to parkland, lakes, forests and rural landscapes, are attractive for residents and visitors alike. The total size of the Rotorua district is 261,906 hectares. This consists of 41% forest, 43% agriculture and 8% lakes. The region includes 18 lakes, three major rivers and seven geothermal fields.

Climate change will impact the Rotorua district. We need to plan for the impact of an increased number of storm events on our core infrastructure and the impact of increased temperatures on the quality and availability of our drinking water supply and on the levels of our lakes and rivers.

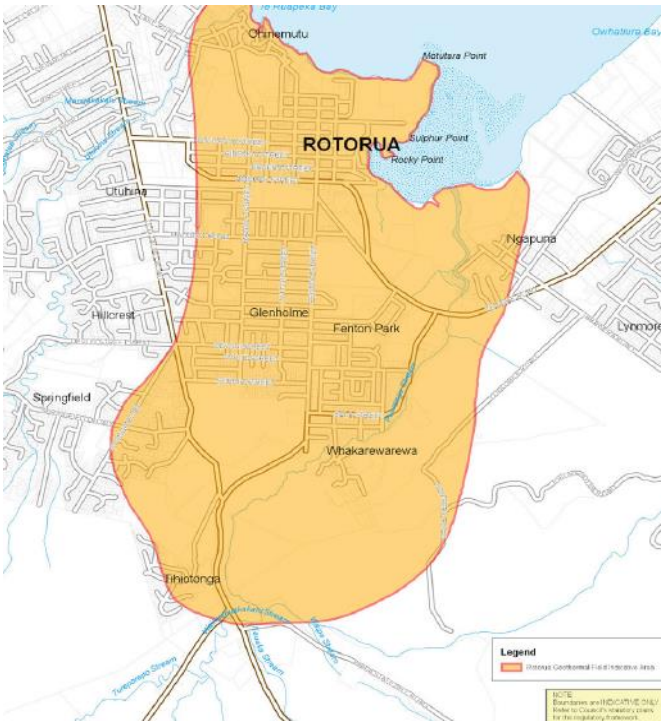
3.2.3 Natural hazards

The two major natural hazards that impacts Rotorua district are geothermal and flooding.

The Rotorua Geothermal System is one of twelve systems in the Bay of Plenty Region and is a by-product of volcanic activity in the Taupō Volcanic Zone. The Taupo Volcanic Zone is a geothermal field extending from White Island off the Bay of Plenty Coast to Mt Ruapehu far to the south.

The Rotorua Geothermal System underlies part of Rotorua City, from the southwestern end of Lake Rotorua to the Whakarewarewa Valley, as shown in Figure 4. Geothermal hazards include high temperature fluids and steam, gas, ground collapse and hydrothermal eruptions. About 20% of our underground assets are affected as the gas and heat speed up material decomposition. Above ground assets of metallic material are affected by the corrosive gases.

Figure 4 Indicative boundary of Rotorua Geothermal



Source: Bay of Plenty Regional Council, The Science Story (July

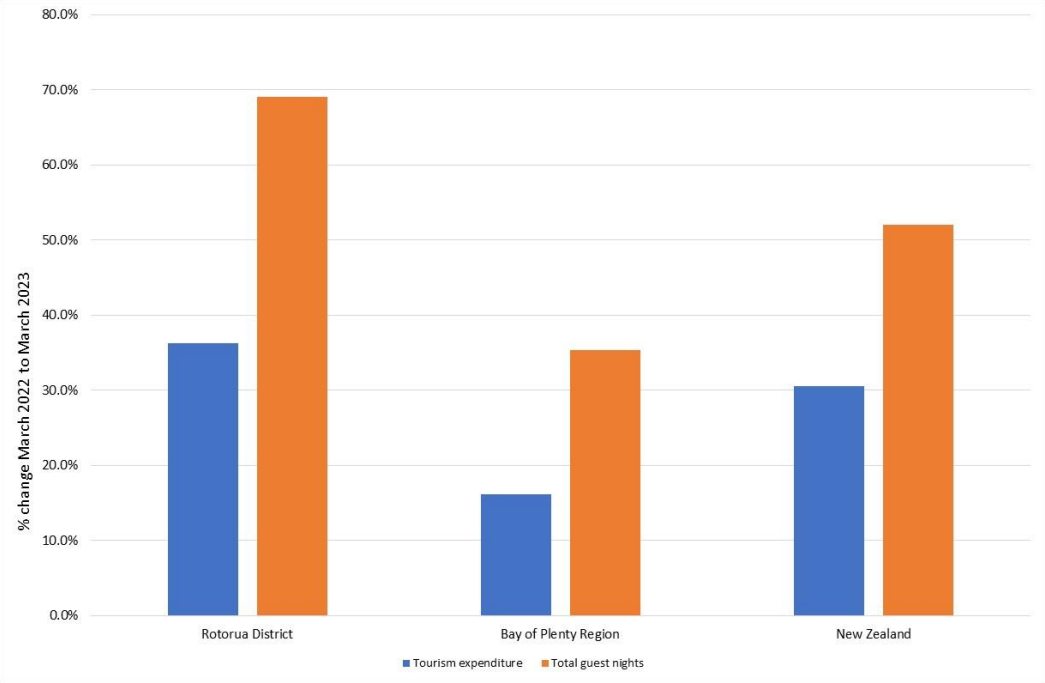
The urban stormwater systems were designed to cater for the initial development and engineering standards at that time. As the development area expands, the existing stormwater system requires increased capacity. Flooding sometimes occurs where growth planning has occurred in ad hoc manner and infrastructure has not been upgraded.

Flooding has also submerged roads and parks structures and restricted access to properties at Rotomā and Rotoehu Lakes, mainly due to lake level increases. This was due to unprecedented rainfall in 2023 and not development related. There are no river outlets in the Rotomā or Rotoehu Lakes (unlike other lakes), and with no existing outlet infrastructure in place.

3.2.4 Our economy

A strong tourism sector has been a key element in our district's economic success. While Rotorua has a diverse economy including forestry and wood processing, agribusiness, research and manufacturing, tourism is its largest employer. With the international border reopening after the pandemic, the resumption of international tourism has provided a lift to both tourism expenditure and guest nights for Rotorua District as shown in the figure below. The Rotorua District tourism expenditure and guest nights for the year to March 2023 exceeds national and Bay of Plenty Region results.

Figure 5 Tourism trends (March 2022 to March 2023)



Source: Infometrics (March 2023)

The Bay of Plenty Region economy showed resilience in the year to March 2023. The Bay of Plenty Region and Rotorua District economic activities both grew at 3.2% p.a. and 3.1% p.a. respectively, according to Infometrics provisional GDP estimates. This is just ahead of 2.9% p.a. growth nationally as shown below. The Rotorua District economic growth was driven by strong contributions from the transport, professional services, and arts and recreation industries. Economic growth in these industries was likely linked to a recovery for Rotorua's tourism sector compared to the previous two years.

Table 6 GDP and employment growth (March 2022 to March 2023)

Indicator	Rotorua District	Bay of Plenty Region	New Zealand
Gross domestic product (GDP) provisional	3.1%	3.2%	2.9%
Employment (place of residence)	1.1%	2.1%	2.2%

Source: Infometrics (March 2023)

The Bay of Plenty Region employment growth was 2.1% p.a. in the year to March 2023. The Rotorua District employment growth was lower at 1.1% p.a. for the same period and lower than nationally at 2.2% p.a.

3.2.5 Our community

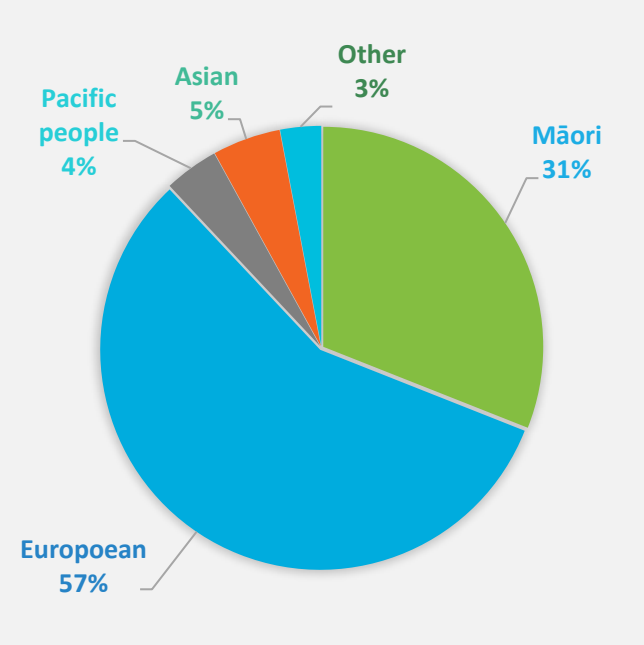
The Rotorua Lakes district is home to approximately 76,800 people (estimated as at 30 June 2022). Our population is projected to continue growing, reaching approximately 90,800 by 2051 (under the baseline scenario).

Our population is aging. Currently, 15% of our population is aged 65 years or above, which is projected to increase to 23% by 2051 (under the baseline scenario). While we have many young people, 22% of our population is under 14, this is expected to decline to 18% by 2051.

The number of households is projected to grow from 30,166 in 2022 to 37,034 in 2051 (under the baseline scenario). Given the aging population, the average household size is also expected to fall.

31% of our district's population identifies as Māori (as at 2020 refer to Figure 6) and this is projected to fall to 29% by 2051 (under the baseline scenario). The European ethnic group will rise from 57% in 2020 to 60% by 2051.

Figure 6 Ethnic composition of Rotorua Lakes district



Source: Infometrics, Rotorua District Employment, Population, Household and Visitor Projections (March 2020)

3.3 Strategic infrastructure linkages

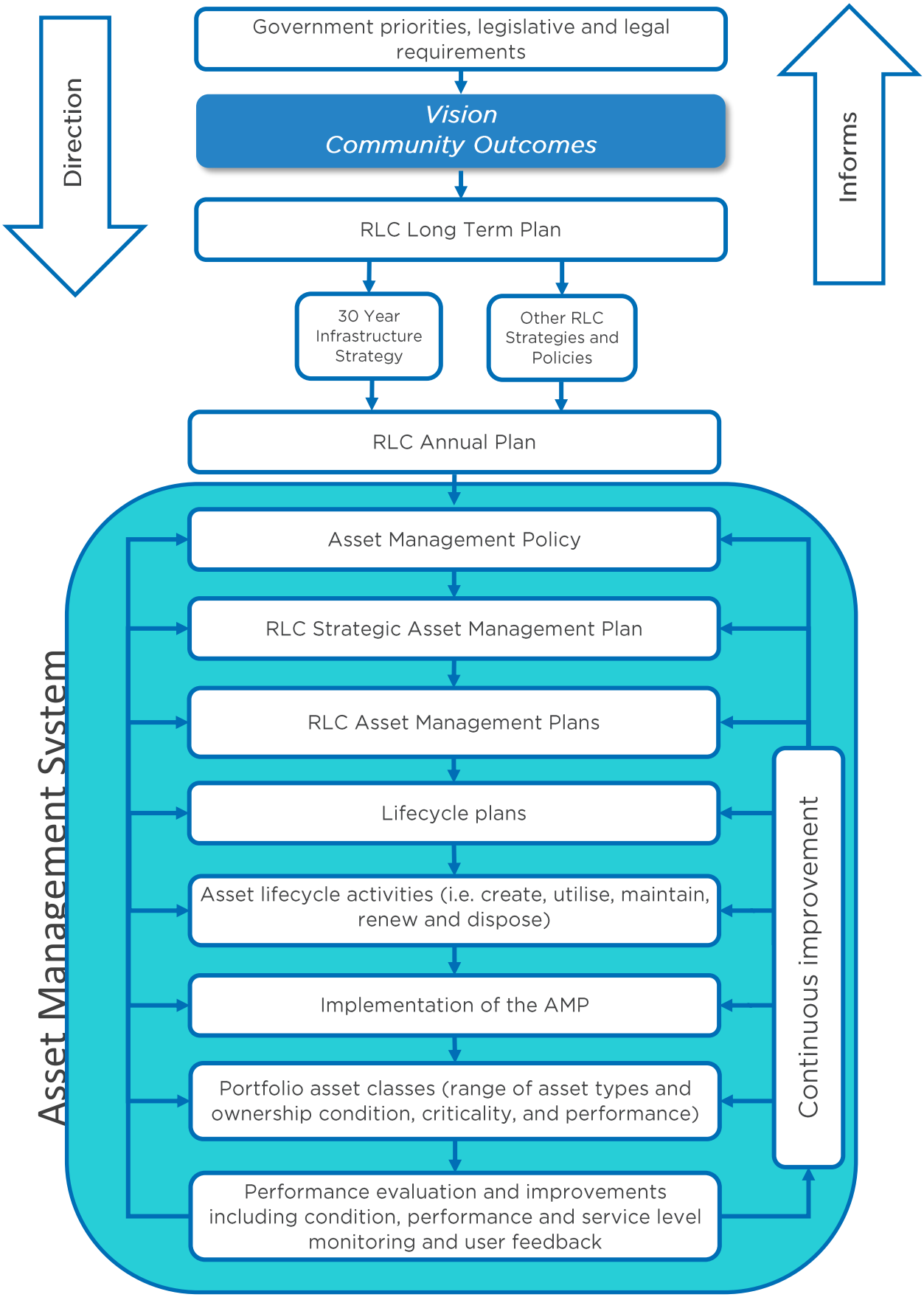
RLC's Vision seeks to continue developing the Rotorua district in a way that responds to growth but at the same time retains and works to enhance the unique character of our place that is special to us all. Supporting this vision are nine Community Outcomes.

	Active	The accessibility of our lakes, forests, open space networks and the quality of our facilities create opportunities for everyone to be active throughout their lives.
	Safety	Our communities, businesses and visitors feel safe across our district.
	Tangata whenua aspirations	We recognise and support the aspirations of Tangata Whenua and Mana Whenua and partner to grow economic and social opportunities and benefits for everyone.
	Housing	All residents have access to a range of housing options that ensures they can live in quality, homes that are safe and healthy.
	Employment and economy	We enable businesses to grow with confidence through increasing investment opportunities. There are employment options across a range of sector.
	Tourism	We are a world class destination, with a vibrant inner city and a positive reputation.

	Environment – mauri taiao	We are committed to protecting and improving our lakes, waterways, forest and green space environments.
	Connected and resilient	Our communities are cohesive and prepared for the effects of climate change and natural hazards and we invest in safe and reliable infrastructure.
	Arts and culture	Rotorua's unique cultural identity is the foundation for attracting and delivering a diverse range of events, increasing activity and vibrancy and driving economic benefits within our facilities and for our district.

The link between our Vision and Community Outcomes and our asset management framework are illustrated in Figure 7. Importantly, this link is in two directions. Our strategic documents direct our infrastructure planning, the nature and level of our asset management investment, and our asset management system provides key information and inputs that inform our strategic thinking.

Figure 7 The relationship between RLC's strategic documents and the Asset Management System



3.4 Growth planning

Housing is one of the biggest issues already facing our community and a Council priority to focus on. Social housing is the urgent priority, impacting the most disadvantaged in our community. We are partnering with Te Arawa to deliver safe, secure housing for all our people to ensure our community thrives.

We have taken a long term view to respond to the current shortfall in housing and to better plan for growth through two strategic planning initiatives:

- The draft Rotorua Future Development Strategy (2023) is a long term strategy and provides direction on how and where growth will happen over the next 30 years. It has been estimated that we need more than 9,700 additional homes and more spaces for businesses in the next 30 years. There will be a mix of housing choices with 57% delivered through intensification in existing urban areas and 29% delivered through new greenfields.
- Housing for Everyone – Plan Change 9 is a change that we are making to the Rotorua District Plan to encourage greater development and housing choice. It proposes changes to the current rules to better support intensification. This will enable medium density living across most of our urban area, and high density living close to and in the city centre and in our commercial centres.

4.0 How We Manage Infrastructure

4.1 Achievements since 2021

We have made some progress on implementing the key actions identified in the 2021 Infrastructure Strategy, as outlined below.

Table 7 Summary of key achievements

Asset class	Achievements since 2021
All	• Developed draft Rotorua Future Development Strategy (2023) as a long term strategy on providing direction growth over the next 30 years. • Developed draft Environmental Strategy as a long-term approach (strategic plan) to managing RLC's programmes and environmental practices.
Water supply 	• Completed assessment of the impact of the Future Development Strategy to the current water supply network. Updated the capital programme for the 2024/2034 LTP to reflect the required capital works investment to enable the projected growth. • Commenced the water demand management programme with network pressure reduction throughout the Rotorua area and implemented an ongoing leak detection programme. • Multiple new reservoirs were installed for increased storage capacities during peak periods at Kaharoa, Rotoma and Eastern supplies. • Plant asset database has been updated and is current with valuations and conditions assessments completed. This provides for a strong foundation for a comprehensive renewal programme. • Submitted water take renewal applications for 2 major urban water sources and preparing the water take renewal applications of 2 other water sources. This will secure the long term water sources for the whole Rotorua Urban area.
Wastewater 	• Commenced working with key stakeholders including iwi to explore and identify a better, more sustainable alternative for the disposal of treated effluent from the upgraded wastewater treatment plant. • Construction of sewerage scheme proposals for the lakeside communities to mitigate the impacts on the lake water quality. • The resource consent application for the proposed upgrade of the existing plant has been approved and works has commenced. • Entered into a long term contract with an experienced operator as a partner to undertake the design, build and operation of the Rotorua Wastewater Treatment Plant upgrade. • Completed assessment of the impact of the Future Development Strategy to the current wastewater network. Updated the capital programme for the 2024/2034 LTP to reflect the required capital works investment to enable the projected growth.
Stormwater 	• The Comprehensive Stormwater Resource Consent for the urban areas was lodged with the Regional Council and public submission have closed. • Growth enabling stormwater works are currently being planned and implemented. This includes several stormwater detention dams within the urban area. • Eastern wetlands stormwater installation completed at Hannahs Bay. This work is intended to improve stormwater quality before it discharges into the lake.
Land transport 	• Upgraded eight at level zebra crossing to raised zebra crossings. • Installed traffic calming interventions along 2 urban streets. • Two staff achieved Waka Kotahi approved procurement qualifications. • Working closer with the Regional Council on flooding issues.

4.2 Levels of service

4.2.1 Customer levels of service

The level of service framework in Figure 8 below, shows the alignment and strategic linkages between our Vision, Community Outcomes, Infrastructure Strategy, Asset Management Plans and the activities. The Community Outcomes are draft and to be adopted as part 2024 Long Term Plan.

The customer levels of service for infrastructure are set out in Table 8 which include customer outcomes (i.e. responding to unplanned water interruptions) as well as meeting legislative requirements (i.e. compliance with resource consents). The technical Activity (Asset) Management Plans provide supporting detail and technical levels of service for each activity, performance measures and past results against targets. It also shows the achievement for 2022/23 based on the Annual Report.

Figure 8 Levels of service framework

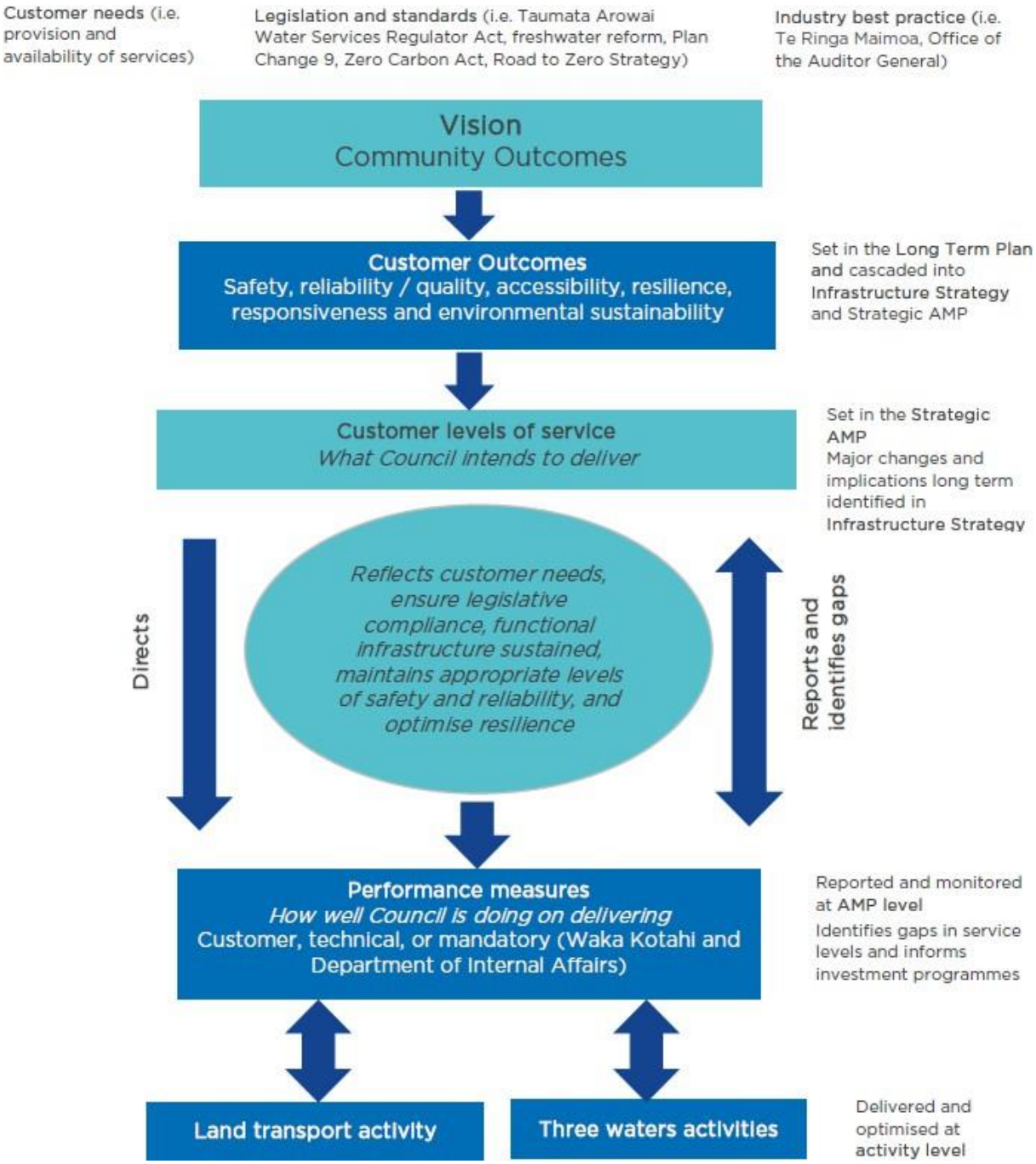


Table 8 Customer levels of service

Community Outcomes (draft to be adopted with 2024 Long Term Plan)	Customer Outcomes	Customer levels of services – activity outcomes			
		Water supply	Wastewater	Stormwater	Land transport
Safety	Safety	Water is safe to drink Good quality water is supplied to consumers	Mitigate the risk of environmental and public health impacts	Stormwater systems protect houses from flooding in urban areas	Provides safe network for users and community to use
Connected and resilient; Tangata whenua aspirations	Quality / Amenity / Reliability	To provide reliable water networks	To provide reliable wastewater networks	To provide reliable stormwater networks	Provide an effective and good quality transport network (STE) Provide an effective and good quality transport network (annual resurfacing %) Footpath assets are fit for purpose Provide reliable travel times in and around the city

Community Outcomes (draft to be adopted with 2024 Long Term Plan)	Customer Outcomes	Customer levels of services – activity outcomes			
		Water supply	Wastewater	Stormwater	Land transport
Connected and resilient	Resilience	Water supply disruption during natural disaster events is minimised	Wastewater disruption during natural disaster events is minimised	Stormwater disruption during natural disaster events is minimised	Access is provided to the network of local roads
Housing; Tangata whenua aspirations	Accessibility / Availability	Water pressure and flow appropriate for its intended use	All urban residents are provided with adequate wastewater provision	All urban residents are provided with adequate stormwater system	Community has access to a range of travel choices (number of cycleway users) The land transport network is managed in a manner that assists the economic development of the district
Employment and economy	Responsiveness	Provide prompt responses for service	Provide prompt responses for service	Provide prompt responses for service	That customer service requests are dealt with promptly and appropriately
Environment – mauri taiao	Environmental sustainability	Water resources are used efficiently and sustainably	Protection is provided to the environment	Protection is provided to the environment	Effects on the natural environment are minimised

Key (based on 2022/23 results):

No data, new measure or not measured	Achieved 	Needs attention	Not achieved 	No data / new measure

4.2.2 *Proposed changes to levels of service*

The service areas where Council wishes to improve its actual performance and / or changes to the levels of service are described in the table below. These are discussed further in the Section 5 at the activity level.

Table 9 Proposed changes to levels of service

Activities	Proposed changes to levels of service
Water supply, wastewater, stormwater 	• There are no proposed changes to the levels of service for the three water activities as it has been assumed that the mandatory levels of service will remain unchanged until the form of the three water assets are determined by the new Government.
Land transport 	• The land transport sector is introducing a new framework called differential levels of service. This will enable a better understanding between levels of service, risk and cost. • Council is introducing an initial differential level of service with the 2024 AMP / funding round.

4.3 Risk management

The approach for managing our core infrastructure balances risk and performance while providing cost effective services. Infrastructure risks can be considered in terms of global, national, corporate and asset risks, as conceptualised in Figure 9. At an activity level, these various infrastructure risks need to be considered holistically as part of the asset management planning approach, and not taken in isolation. The Activity / Asset Management Plans for each activity provides the detail as to how this is addressed.

Figure 9 Infrastructure risk concept

4.3.1 Climate change impacts and actions

Climate change is a major management issue facing all infrastructure providers and the built environment.

Climate change alters weather extremes. For Rotorua District, it is expected that more extreme hot days (30+ °C), longer periods of dry weather, and higher risk of flooding when rain occurs. Weather extremes will increase and become more severe. Rare and extreme floods (one in 100-year events) will occur three times more often in Rotorua by 2090 (based on Climate Change Projections and Impacts for the Bay of Plenty Region, 2019, Bay of Plenty Regional Council and NIWA).

RLC's overarching response to climate change is detailed in Section 2.2 including implementing the initiatives in the Climate Change Action Plan and Environmental Strategy. Our specific proposed actions are outlined in Table 10 at activity level with further detail in each Activity / Asset Management Plan.

Table 10 Proposed climate change actions

Activity	Most likely effect due to climate change	Proposed actions
Water supply	• Access to water (land / springs ownership) • Potential contamination of water sources from extreme flooding events • Vulnerability of critical pipelines to land slips	• Investigate additional water sources for future years through the Water Supply Master Plan process • Review the Water Safety Plans including investigate mitigation measures • Continue to use seismically resistant materials for critical assets • Development of Water Demand Management Plan with objective of reducing the leakage levels to acceptable level through leak detection surveys, pressure management and targeted renewal programme.
Wastewater	• Inflow and infiltration increases, and reduces pipeline capacity during events resulting in more overflow events • Increased electricity costs to pump highly diluted wastewater due to higher volume of inflow and infiltration • Pump station vulnerability due to flooding inundation	• Identify wastewater pump stations at risk due to flooding inundation • Development of cost effective inflow and infiltration programme and policy direction on private laterals • Assessment of critical underground wastewater pipelines • Entered into a long term wastewater contract to have appropriate resources for keeping the wastewater network resilient.
Stormwater	• Increased flooding due to pipe capacity issues • Land stability issues causing increased sediment runoff into waterways / lakes	• The development of the Stormwater Master Plan that takes into consideration climate change modelling and levels of uncertainty for infrastructure design • Development of Environmental Strategy to improve water quality long term
Land transport	• Road slips / under slips • Erosion undermining road sections and bridges • No / limited access to communities with single roads • Submerged roads restricting access to properties at Rotomā and Rotoehu Lakes	• Identification of critical bridges and culverts and development of renewal management strategies • Increased need to waterproof road surfaces (more sealing lengths) • Increased frequent inspection / maintenance of road drainage systems • Identification of vulnerable road corridors to water erosion, slips, undermining

Activity	Most likely effect due to climate change	Proposed actions
		• Entered into a long term road maintenance contract to have appropriate resources for keeping the land transport network resilient • For the impacted lakeside properties: – Consider long term solutions – Development of Community Adaptation Plans

4.3.2 Key national risks

The key national risks that we are managing are summarised in Section 2.2 – Significant Issues, and mostly related to legislative changes. These risks will increase with the proposed legislative changes and increased compliance and quality management requirements from regulators including Taumata Arowai. The draft Government Policy Statement on Land Transport (2024) signals the Government's shift to investing in improving people's wellbeing and the liveability of places. The proposed strategic priority Sustainable Urban and Regional Development is about people accessing social, cultural, and economic opportunities through a variety of transport options.

4.3.3 Corporate risk context

Our approach to risk management is defined in our Enterprise Risk Management Policy (2023). RLC is committed to managing risks effectively in order to achieve its strategic objectives and protect the interests of its stakeholders. A culture of risk management ensures RLC understands and considers risk when making decisions. It also recognises that risk management can also provide opportunities for improvement.

Our risk management approach is underpinned by the following risk hierarchy (decreasing order):

- Corporate risk register
- Activity risk register
- Project risk assessments.

4.3.4 Key asset risks

We manage our asset risks through our asset management planning process, maintaining our institutional knowledge and capability supported by our service providers. The asset management planning process follows an annual cycle. The latest asset information including risks, and user requirements are analysed and input to the development of the renewal forward work programmes.

The overarching approach for renewal programmes is to define timely asset replacement and the consequences (i.e. a reduction in level of service or increase in risk) if these are deferred (although these practices are still evolving). This helps inform the decision makers and prioritise the significant capital programme. The Activity / Asset Management Plans contain the justification for programmes to inform the budgets.

A key element of our asset management planning approach is to define our critical and non-critical assets. This helps us with the day to day operations of the core infrastructure as well as our renewal strategies. An overarching principle is not to have any unforeseen critical asset failures. Our risk based approach to renewing our assets gives priority to public health issues first then critical assets (refer to Section 2.2). This will ensure we have resilient infrastructure.

4.3.5 Critical assets

Critical assets are significantly important to the community and defined as assets that need to be managed to prevent failure due to potential consequences. The most critical assets are shown in the table below at activity level (state highways are not owned by Council but shown for completeness).

Table 11 Summary of critical assets

Activity	Critical assets
Water supply	• Cross country mains • Mains between water sources/head works and reservoirs • Rising mains, pump stations, treatment plants, reservoirs, and pressure control valves • Telemetry links
Wastewater	• Trunk and rising mains • Pump stations • Treatment plants
Stormwater	• Pump stations including rising main • Culverts, ponds and detention dams
Land transport	• Single access roads to communities • Follow the hierarchy of One Network Road Classification (i.e. a road with higher classification is more critical than roads with lower classification) • Local roads, Tarawera Road, for access to Tarawera and Okareka communities • Critical roads such as bridges, major culverts and retaining walls required with contingency planning for emergency events • Roads with a high number of crashes considered critical from a safety perspective • State highways (5, 30, 30a, 33 and 36) as complement the local transport network configuration and provides support with diversion routes as necessary

4.4 Reliability of information

RLC continues to improve its data collection and quality in relation to its assets. Council is committed to improving its knowledge and understanding of the assets. It is important that the data and information used in renewal planning is reasonable. This provides assurance that the forward works plans represent good use of funds.

4.4.1 Three waters data reliability

The data confidence for the three water assets is summarised in the table below. The data for three waters assets are recorded in Council's asset management system for most asset classes. The data confidence of the three waters asset data has been classified as reliable for inventory completeness and age, and uncertain for condition (in accordance with Āpōpō / International Infrastructure Management Manual).

Table 12 Data confidence for three water assets

Activity	Major asset classes	Asset age	Asset condition	Inventory completeness	Overall
Water supply	Reticulation	A	A	A	A
	Plant	B	C	C	C
Wastewater	Reticulation	A	C	A	B
	Plant	A	B	A	A/B
Stormwater	Reticulation	B	C	B	B/C

Key:

- A: the data is accurate (±5%) and based on reliable documentation
- B: data is based on some supporting documentation but is less certain (±15%)
- C: uncertain data, fair amount of assumptions and local knowledge used to reach the conclusions (±30%)
- D: very uncertain data where there is no formal documentation to base an assessment on (±40%)
- E: Unknown

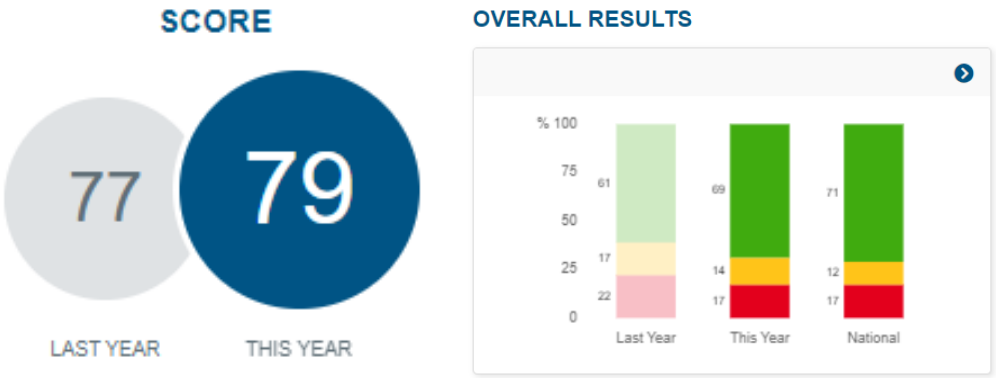
Gaps have been identified in the following areas:

- The extent of the effects of climate change on three waters, the impact on infrastructure and how it will be funded.
- The condition of the three water assets.

4.4.2 *Land transport data reliability*

The data accuracy, completeness and timeliness of land transport assets were independently assessed for the 2022/23 year (by the Te Ringa Maimoa). RLC have scored an annual score of 79/100, an improvement on 2021/22 (77/100), as shown below. RLC continue to address the gaps in their data knowledge through a combination of RLC staff knowledge, its maintenance providers and its improvement programme.

Figure 10 Data quality results for 2022/23



Source: Te Ringa Maimoa November 2023

5.0 Infrastructure Overview

5.1 Assets at a glance

5.1.1 Asset summary

We own and manage $1.966 billion (replacement value) of infrastructure assets which can be summarised as follows. This shows that the assets have expired by about 50% to 60%. The replacement value of the wastewater treatment plants and pump stations is valued to be $121 million based on the 2020 valuation (as at 1 July 2020). This is the latest valuation available when developing this strategy.

Table 13 Asset summary

Activities	Description	Replacement Cost	Depreciated Replacement Cost (DRC)
Water supply 	• Ten defined supply areas including three urban areas • Eleven water sources • Nine water supply treatment plants • Approximately 761km of pipelines • 15 water pump stations	$359.973 million (2023)	$187,662,525
Wastewater 	• 410 km of gravity pipelines and 164km rising mains • Services three urban areas of Rotorua (Ngongotahā, city and eastern suburbs) and some rural lakeside communities • Two wastewater treatment plants • 81 wastewater pump stations	$554.560 million (2023 and 2020)	$288,810,167
Stormwater 	• 244km urban reticulated pipelines • 154km of stormwater channels • Service three urban areas of Rotorua (Ngongotahā, city and eastern suburbs) • Reporoa land drainage scheme	$220.005 million (2022)	$146,804,218
Land transport 	• 1,007 km of roads - 889 km sealed and 118 km unsealed • 80 road bridges • 28 major culverts • 383 km of footpaths • 52 km of cycling routes • 144 bus shelters	$831.477 million (2022)	$515,745,075
	TOTAL	**$1.966 billion**	**$1.139 billion**

Source: RLC's Revaluations (various)

5.1.2 Current asset state – age

The current state of our assets in terms of design life expectancy has been assessed for the major land transport and three water asset classes (30 in total) and summarised in the following table. This has been assessed as the percentage of design life expended and the predicted remaining useful life.

The assessment indicates that most major assets classes design life has been consumed within a range of a quarter to halfway. This is a significant renewal backlog that must be managed carefully and informed by risk and consequence criteria. A summary of this analysis is provided in Section 5.1 of the strategy.

Some of the most widespread assets such as gravity wastewater mains, stormwater mains and street lighting brackets are asset classes identified to be in poor or at risk categories (based on age and predictive modelling standards). These asset classes need to be carefully monitored to ensure that the future funding of renewal programmes are appropriate and adequate based on the risk analysis of failure.

Specific actions for asset classes identified to increase renewal investment are:

- Complete the survey of large culverts and we will replace the assets assessed in very poor condition. This will contribute to strengthening our transport network resilience.
- Start asset condition surveys of the critical above ground assets and take samples of critical below ground assets. Start analysing breaks of the underground pipes. Use this data collected on our critical assets to inform the development of risk-based renewal programmes.

It is intended to continue to improve asset condition data collection with emphasis on the most critical parts of our networks (based on risk) and to complete this asset predictive performance analysis to guide future infrastructure strategies and specific asset management plans. The objective is to ensure we keep our core infrastructure within acceptable industry performance and condition benchmarks to achieve sustainable future investments.

Table 14 Total remaining useful lives based on age

Activities	Major asset class	Median across asset class		Renewal
		% of design life expended	% of remaining useful life	investment
Water supply	Backflow	37%	63%	–
	Mains	34%	66%	–
	Meters	33%	67%	–
	Plant	27%	73%	–
Wastewater	Gravity mains	73%	27%	↑↑
	Pressure mains	10%	90%	–
	Manholes	50%	50%	–
	Chambers	12%	88%	–
	Grinder pumps	73%	27%	↑↑
	Other (electrical panels)	73%	27%	↑↑
Stormwater	Mains	39%	61%	–
	Manholes	38%	62%	–
	Channels	6%	95%	–
	Consents	66%	34%	↑↑
	Other (chambers, silt traps)	33%	67%	–
Land transport	Bridges	57%	43%	↑
	Footpaths	42%	58%	–
	Street lighting – poles	56%	44%	↑
	Street lighting – brackets	71%	29%	↑↑
	Street lighting – lights	4%	96%	–
	Drainage	56%	44%	↑
	Surface water channels	40%	60%	–
	Minor structures	32%	68%	–
	Railings	94%	6%	↑↑
	Retaining walls	12%	88%	–
	Islands	19%	81%	–

Activities	Major asset class	Median across asset class		Renewal
		% of design life expended	% of remaining useful life	investment
	Signals	59%	41%	↑
	Traffic facilities	44%	56%	–
	Pavement – basecourse	45%	55%	↑
	Pavement – surfaces	75%	25%	↑↑

The grades for categorising the percentage of the remaining useful lives are:

Table 15 Grades for remaining useful lives

Grade	Grade description	% of remaining useful life
1	Excellent Fit for future	% of RUL ≥ 85%
2	Good Adequate for now	85% > % of RUL ≥ 60%
3	Fair Continue with normal monitoring	60% > % of RUL ≥ 40%
4	Poor At risk	40% > % of RUL ≥ 10%
5	Very poor Unfit for sustained service	% of RUL < 10%

The grades for categorising the percentage of the total design lives expended are:

Table 16 Grades for design lives expended

Grade	Renewal investment		% of design life expended
1	–	Business as usual	% of design life expended ≤ 40%
2	–	Continue with normal monitoring and renewals	40% < % of design life expended ≤ 50%
3	↑	Start planning for renewal investment	50% < % of design life expended ≤ 60%
4	↑↑	Asset at risk, accelerate investigation and increase investment	% of design life expended > 60%

5.1.3 *Asset condition and performance*

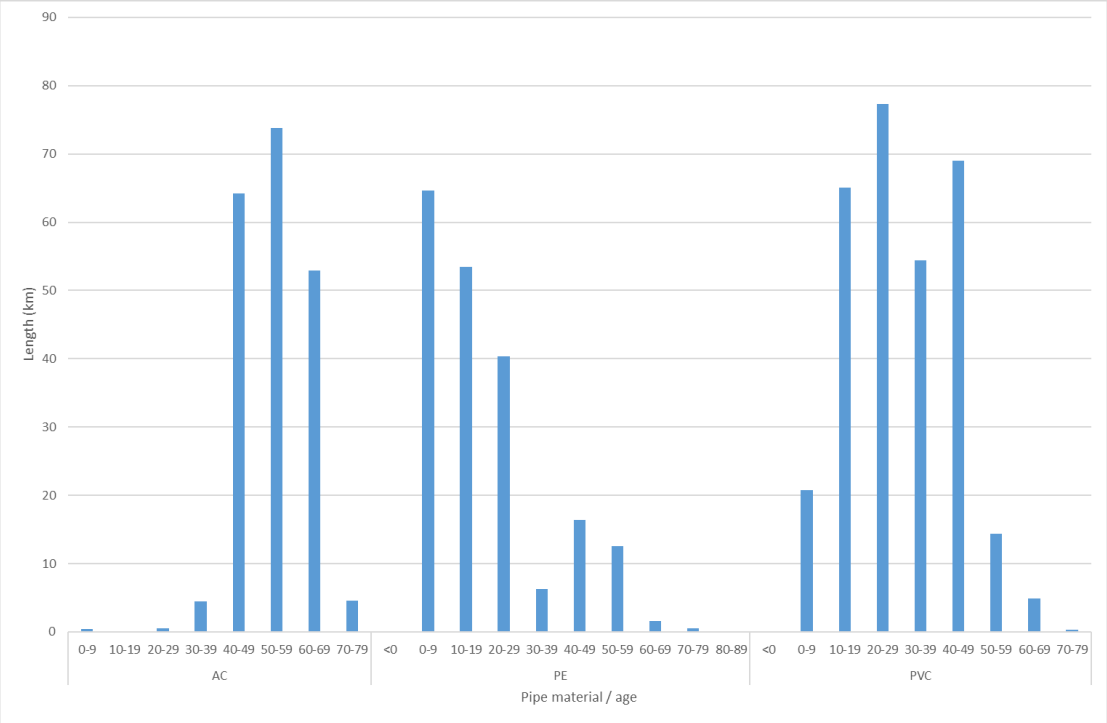
Water supply

We continue to address the gaps in our knowledge of the three water assets with our plans underway to improve this. There may be implications on maintaining the levels of service as well as increased costs for unplanned maintenance with assets failing. This is mitigated by:

- Ongoing monitoring of the achievement on meeting the performance measures as set out in our Asset Management Plans and against acceptable industry benchmarks (this applies to wastewater and stormwater as well).
- A proactive regime is in place to monitor the proper balance between planned and unplanned maintenance expenditure to understand trends overtime with our Network Maintenance Contractors / Partners.

Most of the water supply pipelines (or 66%) are plastic pipes (PE and PVC materials) as presented in Figure 11. They are between 10 and 50 years old so are considered relatively young.

Figure 11 Water supply pipeline age and material



Source: RLC's Infor (as at November 2023)

Our oldest watermains are asbestos concrete pipe material (26% of the pipelines) and are between 40 and 70 years old. This group is indicative of the problematic pipe materials that are known to fail. These assets will need replacement in the short to medium term. There is a replacement programme in place to address the asbestos concrete pipelines. There is risk that customers will have unacceptable water outages as it takes time to implement our targeted renewal programme. We have complete records of the pipe material types and age.

Asset performance of Council's water supply network is assessed in terms of water leakage and water quality as follows:

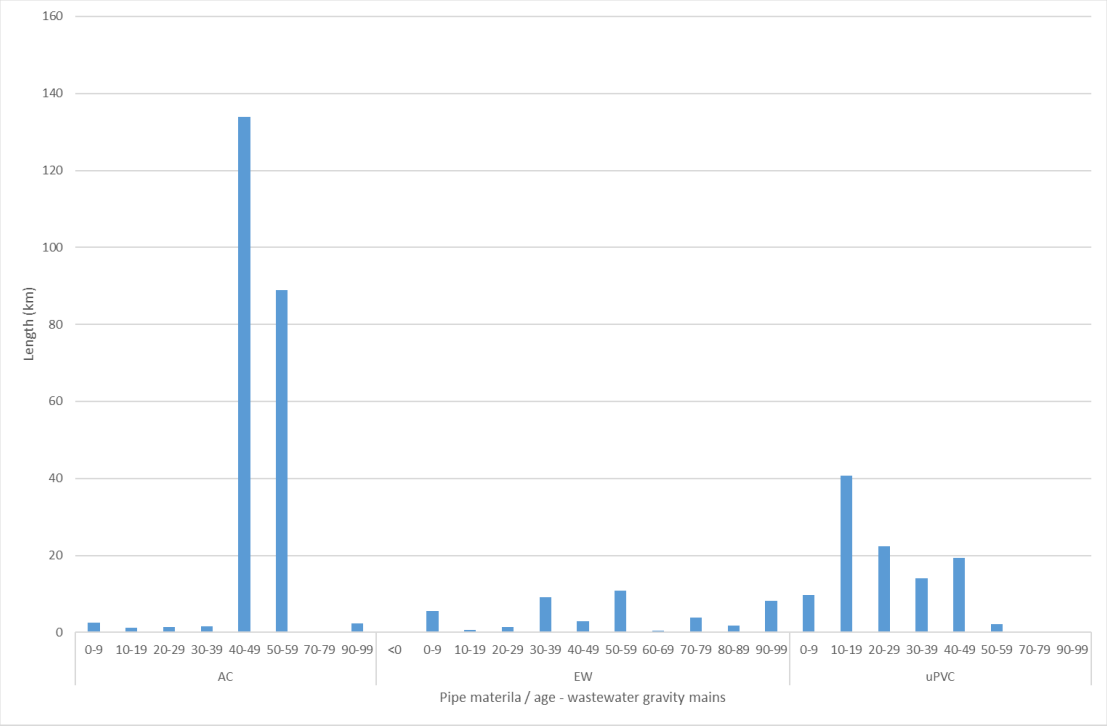
- Water leakage – Council assessed its water losses as part of the water master planning process. Water loss can happen for a range of reasons, including leaks and breaks in the network and this results in Council treating more water than is needed. Part of this programme was assessing the assumed real water losses using an acceptable industry benchmark known as the Infrastructure Leakage Index. The three supply areas were assessed at 2.5 for Eastern, 3.2 for Central and 4.6 for Ngongotahā (without the demand management programme). The area with the highest water loss performance indicator was Ngongotahā. As an indicator, between 4 and 6 is considered poor leakage management. Note that an index less than 4 equates to possibilities for further improvement. Council will start implementing demand management programme over the next three years. This includes increasing the renewal budget to replace leaky rider mains. Our rider mains are known to be the main source of leakage,
- Water quality – Council has a suite of plans and processes to provide assurance that it is providing safe drinking water. These include the Water Safety Plans, Water Source Risk Management Plans, operating procedures, and operations and maintenance manuals for the treatment plants.

  Council's water quality is measured monthly against the mandatory performance measures and reported in the Annual Report. All ten water treatment plants are compliant with the Taumata Arowai's Water Quality Assurance Rules and Standards.

Wastewater

About 60% of the wastewater network (underground gravity mains) is made of asbestos concrete material and most are 40 to 60 years old as shown in the figure below. Asbestos concrete pipe material is known to be brittle. Although there is less than 10% of our rising mains in asbestos concrete pipe material, these need to be replaced. These are our critical assets and have unacceptable consequences if they fail (i.e. overflow incidents and potentially environmental pollution of waterways).

Figure 12 Wastewater pipes by material and age



Source: RLC's Infor (as at November 2023)

We intend to get a better understanding of the current state of the wastewater assets with our long term contractor with a focus on the critical below ground assets as noted above. There is a large amount of asbestos concrete pipes of similar age that may need to be replaced at a similar time, but we need to gather evidence to inform the renewal programme.

Asset performance of Council's wastewater network is assessed in terms of overflows and inflow and infiltration as follows:

- Dry weather overflows. A dry weather overflow is an uncontrolled wastewater discharge that is not associated with a rain event. All pump stations are connected to a monitoring system so we can monitor and report failures. This helps us to effectively mitigate dry weather overflows from entering the environment and for reporting to the Regional Council.

  Dry weather overflows are reported on as a mandatory performance measure and to the Bay of Plenty Regional Council. Blockage incidences occur from time to time but our asset performance for dry weather overflow events meet the industry accepted benchmarks.
- Wet weather overflows. These incidents occur periodically, mainly during significant rainfall events at weak points in the system such as pump stations and low lying areas where gully traps are inundated with floodwaters. A wet weather overflow has limited environmental effect as it is diluted and the need to address this is being tested.

We have a known overflow hotspot at Victoria Street where two pump stations feed into a large gravity main. During high intensity rainfall events, both pump stations experience significant flow increase that necessitates all pumps in each pump station to operate simultaneously for prolonged periods. This can result in wastewater overflows at the receiving manhole. The increase in flow is a quick response to rainfall and is mainly attributed to inflow and infiltration to the network system.

The Victoria Street trunk main is programmed to be upgraded so it will have more capacity and better flow control. We also have plans to upgrade our wastewater treatment plant so it will be able to handle the known peak design wastewater flow going into the plant.

- Inflow and infiltration. We know operationally that some of our catchments are leaky. This is the term used to describe groundwater and stormwater entering into dedicated wastewater system resulting in the system becoming overloaded and overflows occurring.

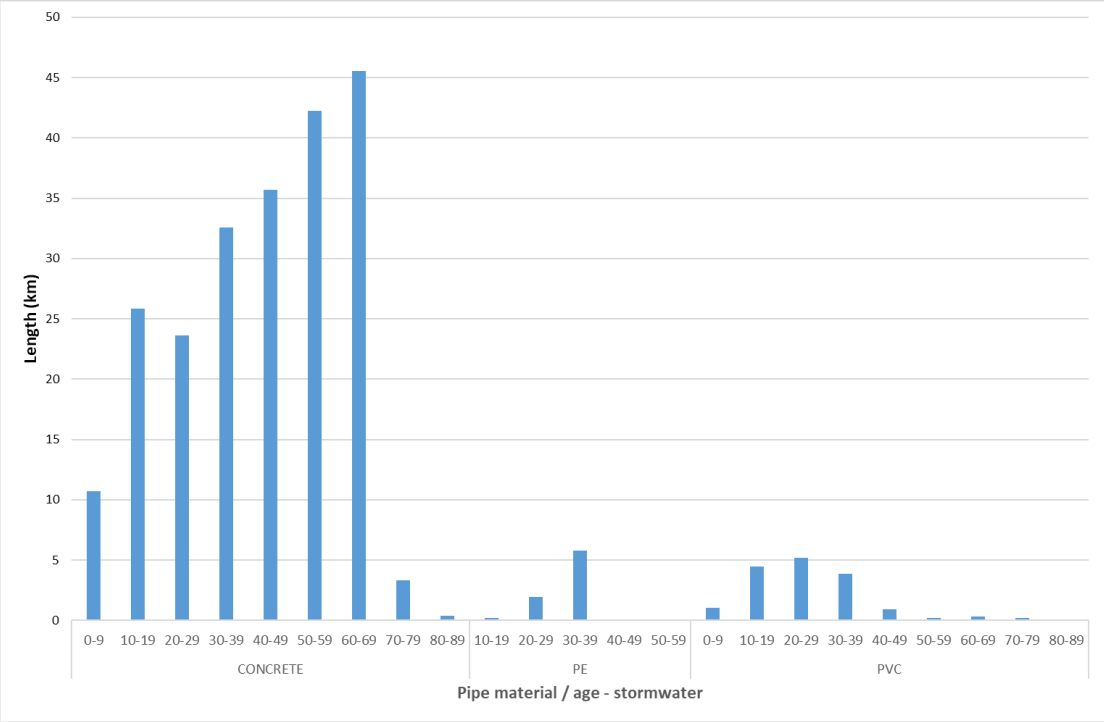
  As part of improving the network resilience, we intend to assess inflow and infiltration across the catchments to prioritise our efforts and develop a cost effective and targeted programme. A preliminary assessment of a leaky catchment (Pukuatua and Ranolf Streets) showed that there was not significant improvement after the rehabilitation works of the defective pipes.

  Effective inflow and infiltration management will be achieved through ongoing detection and reduction strategies employed by our long term contractor, and policy direction on private laterals established. The inflow and infiltration programme will also inform our proposed wastewater capital works programme, so all the interrelated issues are considered at catchment level. The inflow and infiltration programme is currently being developed by our contractor.

Stormwater

Most of the stormwater network (84%) is concrete material and most are 10 to 70 years old as shown in Figure 13 . Although there is a proportion of the network towards the end of its life of 80 years, stormwater assets can generally still function if there is structural integrity (i.e. no major defects).

Figure 13 Stormwater pipes by material and age



Source: RLC's Infor (as at November 2023)

Asset condition has not been formally assessed for the stormwater network to date. We intend to move to a programme of planned condition surveys to help us better understand the state of our stormwater assets. Asset performance of our stormwater network is assessed in terms of capacity constraints (flood protection) and stormwater quality. There was one flood incident reported in 2021/22 as a mandatory performance measure.

Land transport

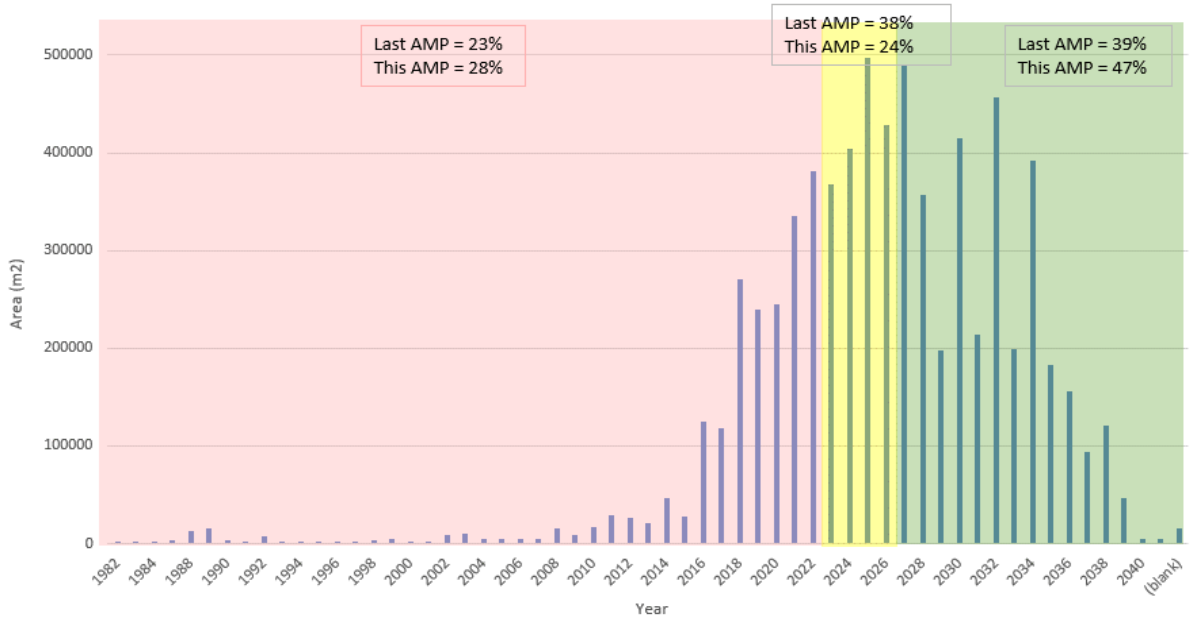
Performance and condition across the various land transport asset classes is as follows:

Pavements

As our assets continue to age, they also deteriorate and require replacement to be kept in a fit for purpose condition. In regard to the road surfacing, 28% of the network sealed area has exceeded the theoretical asset life and 24% due to be resealed within the next five years, as shown in the figure below.

This shows that most assets are resurfaced within the optimal time (7 to 8% per year). Some assets have exceeded their predicted design life but generally are performing adequately. Most of the network is performing adequately but cannot sustain reduction in investment levels.

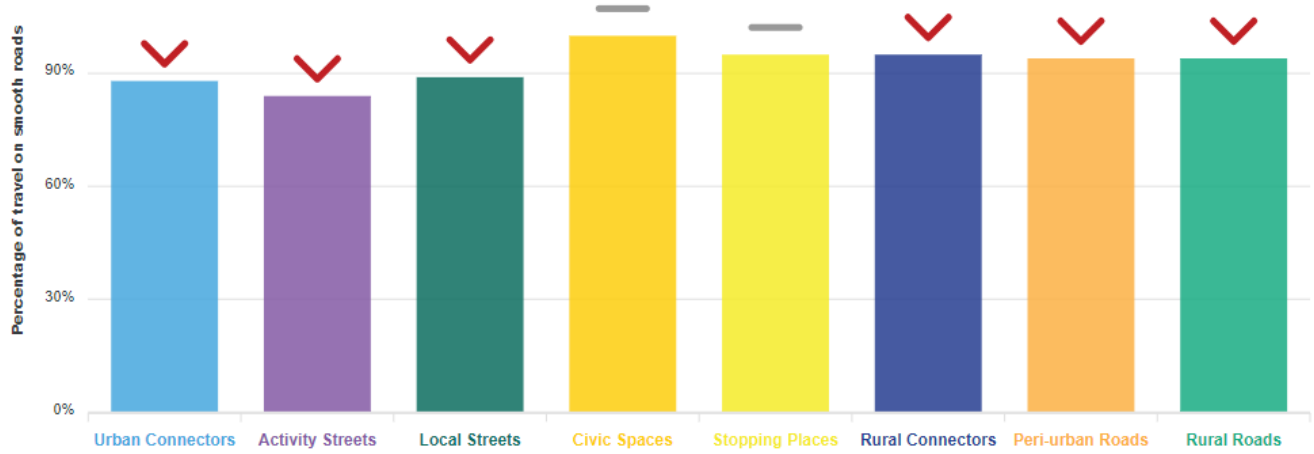
Figure 14 Resurfacing age profile



Source: RLC RAMM database (as at October 2023)

The average quality of roads is measured in terms of Smooth Travel Exposure. RLC's roads are still performing well with all roads categories achieving around the 90% for 2022/23 as shown in the figure below. RLC has a target Smooth Travel Exposure of above 75% so we are achieving this even though the network has experienced flooding events and funding constraints to fix a number of identified issues / faults on the network.

Figure 15 Ride quality trends



Source: Te Ringa Maimoa

Road safety – One Network Framework reporting shows that there is a trending decrease in crash rates. RLC is a partner in the Road to Zero Strategy and supports the philosophy of this strategy. Statistics for the last five years highlight that our crash trends are decreasing and the work that we have undertaken over the last three to five years is having a positive outcome on network safety. We continue to invest in safety programmes to help further reduce the number of injuries occurring on our network as an engaged custodian of the transport network within our district.

Unsealed road condition – The condition of our unsealed roads is heavily influenced by the weather, particularly the rain. A general lack of aggregate and running surface (due to lack of funding) makes repairs to scouring, aggregate loss, corrugations and potholes, have limited long-term lasting effect. Add forestry logging activities which exacerbate the issue as their loadings accelerate deteriorations. Our roads were never designed to sustain harvesting loads, and this continues to be an ongoing challenge. Pavement failures are now commonplace and are particularly evident during winter months requiring the reactive application of aggregate to repair the failure.

Bridges

Bridge condition – Over half of the bridge stock (73%) are over 50 years old (oldest being 90 years old), a further 15% is between 21 and 49 years old and the remainder less than 20 years old. The useful life of bridges for Council is currently set at 100 years except for timber bridges which is set at 70 years. 83% of the bridges have been assessed to be in average or better condition.

Bridge performance – It is important that Council's bridge network is accessible to heavy vehicles that support the district's economy. Changes in legislation allows heavier, longer, higher and more trucks on New Zealand roads and need to ensure the resilience of our infrastructure meets these factors. There are currently eight bridges that are inadequate for the heavy vehicles (known as 50Max High Productivity Motor Vehicles).

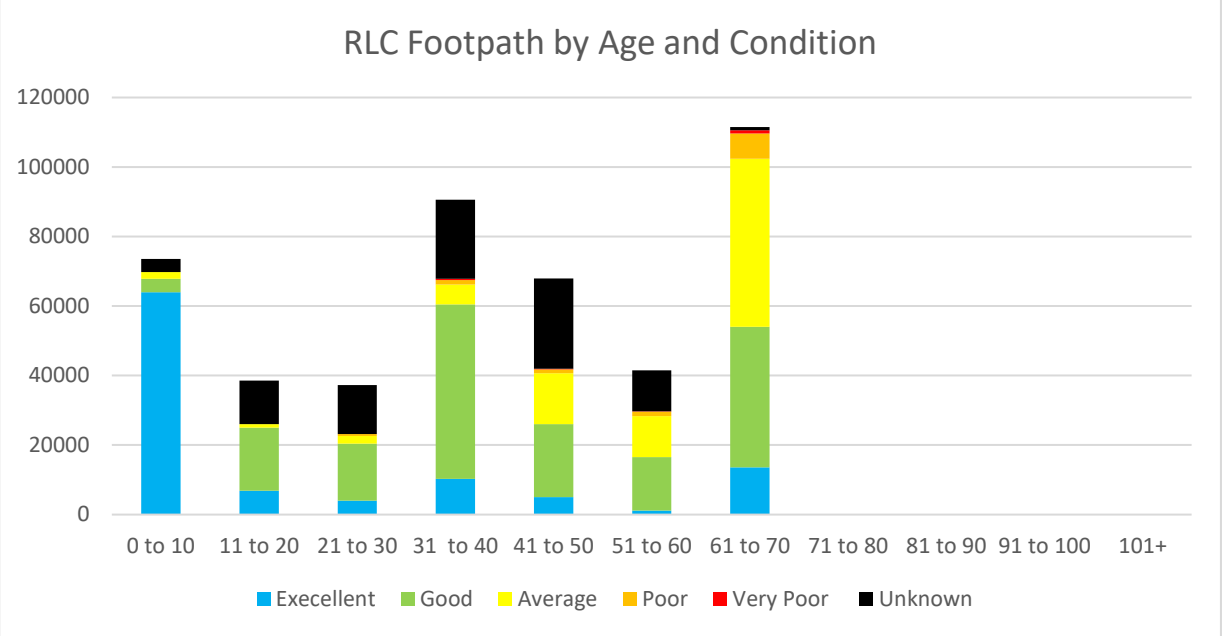
Footpaths

Footpath condition – Most of the footpath network (or 89%) is constructed from concrete, with 6% asphalt concrete and the remaining 5% from other materials (such as timber, metal or interlocking blocks). Useful life for concrete footpaths is set at 100 years. This puts 66% of the network length is under halfway through their asset life as shown in the figure below.

The asset condition of footpaths is assessed through the identification of defects with inspections. RLC is working on validating the unknown conditions as this will play an important role in developing our muti-year renewals programme.

Footpath performance – There is approximately 80km of footpaths that do not meet RLC's current minimum width standard of 1.4m. Asset condition along with footpath width will be used to inform our footpath renewal programme.

Figure 16 Footpath length by age and condition



Source: RLC RAMM database (as at November 2023)

Road drainage

Catchpits – Over half of the assets (64%) are over the useful life of 50 years. Keeping the renewal programme up with the rate of deterioration is important, however the age of large amounts of the catchpits appear to have been defaulted to 25/12/1965 (58 years old) but 92% of the assets are recorded as in good or excellent condition.

Culverts – Most of the assets (89%) are over 50 years old and have a useful life of 100 years, so are half-way though their life. Culverts play an important part in the drainage management process that allows the network to remain open. We are surveying our large culverts (greater than 600mm in diameter) to assess the condition grades. Keeping these critical assets in good condition is important for strengthening our transport network resilience.

5.2 Water supply

5.2.1 Background

We are responsible for the provision of safe drinking water to ten defined water supply areas. Ten water treatment plants supply reticulated schemes with approximately 761km of pipes supplying properties through approximately 24,786 connections.

Public water supply is provided to domestic, commercial, industrial, and rural communities to ensure public health. Our commercial and industrial water users are metered as well as the rural users. The three urban schemes (Central, Eastern and Ngongotahā) supply a total of 78% of all water demand. The Central scheme accounts for 58% of all district water supply.

5.2.2 Strategic water supply challenges

The key challenges for the water supply activity are summarised in the table below with further detail in the Asset Management Plan.

Table 17 Summary of water supply key challenges

District infrastructure issues	Key issues	Discussion / management response
Maintaining assets in stable, reliable and safe condition	**Renewing infrastructure** Asset age is generally still used for planning the water renewals programme. Although the water supply network is relatively young and therefore in generally good condition, we know that we need to adopt a proactive and risk-based renewal strategy as good industry practice.	• We will continue with asset condition surveys of the critical above ground assets and take samples of critical below ground assets. • We will start analysing breaks of the underground pipes. We will use the data collected on our critical assets to inform the development of risk based renewal programmes.
Meeting future demands on infrastructure	**Servicing new development areas** The Rotorua Lakes District is projected to increase in population. Based on our Water Supply Master Plan (2020), the Rotorua urban area is forecast to accommodate this additional demand if the existing consented takes are rolled over and the proposed demand management programme is implemented.	• We know that strategic planning is important to guide long term infrastructure planning. We have developed the Water Supply Master Plan (2020) as an overarching framework to consider interrelated issues for planning. • We have completed an assessment of the impact of our Future Development Strategy to the current water supply network. Our 30 year capital programme for the 2024/2034 LTP has been updated to reflect the required capital works investment to enable the projected growth. • We have submitted water take renewal applications for 2 major urban water sources and preparing the water take renewal applications of 2 other water sources. This will secure the long term water sources for the Rotorua Urban area. It has been predicted that there is sufficient water (at rolled over rate) to enable predicted development on the urban areas (Central, West and East). This is based the demand management programme achieving the outcomes predicted.

District infrastructure issues	Key issues	Discussion / management response
Impacts of legislative and policy changes	**Restrictive consent conditions** Most of the current water take consents are all expiring in the next ten years. The current abstraction limits may not necessarily be rolled over.	• If the water take is reduced, alternative sources will need to be developed such as groundwater.
Resilience of critical infrastructure	**Infrastructure resilience** A key focus is strengthening our infrastructural resilience as some of our assets have limited redundancy.	• We have adopted an integrated approach with our water supply master planning process to consider growth, consenting requirements as well as reducing risk. • We have investigated improvements to strengthen resilience particularly between the Central and Eastern supply areas. • Seismic resistant materials are considered when we replace critical assets. Factors that are considered include location and consequences. We undertake a pragmatic evaluation at the renewal planning stage on a case by case basis.
Climate change and environmental sustainability	It is important that the water supply network is managed sustainably so that wastage is minimised.	• We have commenced the water demand management programme with network pressure reduction throughout the Rotorua area and implemented an ongoing leak detection programme. • At this point in time, universal metering (i.e. metering all water connections) has not been adopted. It may be considered in future as best industry practice and strong environmental benefits, and if supported by a strong business case.

5.2.3 *Significant issues and options*

Significant issues for the water supply activity and principal options for managing these issues are detailed in the following table. The highlighted option is preferred as the most likely scenario and when Council expects significant decisions will be required. Note that risk is assessed with the option undertaken. Indicative cost estimates are provided for evaluating wide range of options only and not part of Long Term Plan budgets (this applies to wastewater, stormwater and land transport).

Table 18 Significant issues and options for water supply

Significant water supply issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
Changes to legislation resulting from new Government policies and initiatives	1. Continue with water services remaining in house.	• There are likely to be increased costs to address health / safety concerns / issues from the Taumata Arowai • This will be resourced through existing budgets • Not eligible for funding through Government's three waters reform programme • Government may force amalgamation for councils that do not collaborate regionally		Current budgets are known ($91m for capital projects for 10 years uninflated)	Current budgets are known ($79m for capital projects for 10 years uninflated)	Current budgets are known ($43m for capital projects for 10 years uninflated)	H
	2. Explore aggregation at regional / sub regional level with neighbouring councils to determine best service delivery model and be eligible for the Government's funding package.	• Costly to set up water Council Controlled Organisation but will be eligible for central government funding • A dedicated water Council Controlled Organisation with no other competing priorities will be expected to better prioritise investment decisions across the region leading to better environmental		Higher level estimates from industry of reduction in capital programme with aggregation (1.25% reduction per year, ***indicative estimated cost*** $650k	Reduction in capital programme with aggregation (***indicative estimated cost*** $480k reduction in capital programme over 10 years in real terms)	Reduction in capital programme with aggregation (***indicative estimated cost*** $385k reduction in capital programme over 10 years in real terms)	H

Significant water supply issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
		and community outcomes than the Councils can individually achieve • Potentially loss of community involvement in water decisions • Council needs to opt into reform programme to be eligible for funding		reduction in capital programme over 10 years in real terms) - based on previous DIA estimation.			
	3. Maintain a watching brief on the changes of Government's Three Waters Proposal and evaluate other options as information becomes available.	• Central government may force amalgamation for councils that do not aggregate regionally • Implications from water reforms on service delivery including the impact of Taumata Arowai and changes to legislation are still unfolding and happening at a rapid pace	*Option 3 is preferred as the most likely scenario* – Continue to keep watching brief to understand the best service delivery option for our community. RLC has set up a long term wastewater contract that potentially could be expanded to cover water supply at a later stage. *Decision required by Council* – Decision on participating in reforms and preparation for the formation of water services entities will be guided by the Government	Current budgets are known ($91m for capital projects for 10 years uninflated)	Current budgets are known ($79m for capital projects for 10 years uninflated)	Current budgets are known ($43m for capital projects for 10 years uninflated)	H
Resource consents need renewing but there is uncertainty about what the conditions involve.	1. Secure new resource consents at current abstraction limits.	• Dependent on early engagement with stakeholders and iwi to be successful • This option is dependent on the Regional Council rolling over current abstraction limits • Additional / alternative water sources not required	*Option 1 is preferred as the most likely scenario* – Allocate funding and resourcing to secure new resource consents and monitoring of conditions. *Decision required by Council* – Underway and decision expected by the Regional Council by 2026. Decision required before expiration of current consents:	$1.25m	-	-	H

Significant water supply issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
		• Dependent on implementing aggressive water loss management programme • There are additional capital costs to develop new water source /s if the consent quantities are not rolled over • Impact of Te Mana o te Wai needs to be considered • Considerations need to be given to FDS which has an impact on intensification to infrastructure capacity.	• Karamu-Takina Spring: October 2026 • Rewarewa Spring: October 2026 • Wai-iti Stream: October 2026 • Lake Rotoma: October 2026 • Mamaku Bores: January 2031				
	2. Investigate alternative supplies and / storage for Central and Eastern supply areas if consent not rolled over and capital investment required.	• Dependent on early engagement with stakeholders and iwi to be successful • Takes time to plan, consult including cultural issues, secure funding, and implement new capital works • Impact of Te Mana o te Wai needs to be considered		$5.8m	-	-	H
	3. Reduce demand through aggressive water loss management programme.	• Demonstrates to the Regional Council using water wisely • Reduces the volume of water needed from the springs and costs to treat the water	***Option 3 is preferred as the most likely scenario*** – Undertake aggressive water loss management programme.	$300k (based on $30k per annum on demand management activities)	$300k over ten years	$300k over ten years	M

Significant water supply issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
		• Achieves good benefits but may require universal metering to be fully effective long term	***Decision required by Council*** – This is conditional on budget being adopted then the water loss management programme can be implemented.				
Increasing trend of unbilled unaccounted for water	1. Implement demand management programme as per Water Master Plan.	• This includes network pressure reduction programme and active leak detection programme	***Option 1 is preferred as the most likely scenario (ongoing)***- Continue to monitor water loss in each of the water supply area. Develop remedial plans to address issues identified. ***Decision required by Council*** – This is a current practice and will continue. No formal Council decision is required.	$1.9m over ten years	$1.9m over ten years	$1.9m over ten years	L
	2. Targeted renewal of pipeline assets that are known to fail and leak including AC mains and rider mains.	• Operationally we know that most of the leakage or failure came from rider mains and services pipes. • Certain pipe materials including AC are also known easy to fail. These will be replaced with priority. • RLC is undertaking a case study to inform the development of a targeted rider main replacement programme.	***Option 2 is preferred as the most likely scenario (medium term)*** – Plan and undertake the replacement programme as required to actively reduce leakage. ***Decision required by Council*** – This is conditional on budget being adopted then the capital works can be implemented.	$4.25m pa average over 10 years	$3m pa	$3m pa	M

Significant water supply issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
	3. Implement district wide metering for residential properties.	• The cost implication to ratepayers is unknown at this stage. • Can potentially be politically challenging and require time for moderation. • Will require public consultation		$5-10m	-	-	H
Strengthening our infrastructural resilience as some of our critical assets have limited redundancy.	1. Continue with adopted risk management approach and strengthening resilience at scoping design stage for renewal and new works projects.	• Option 1 is the current general approach • Opportunities are identified progressively as assets fail or upgraded • Any significant expenditure would mitigate the high risk	***Option 1 is preferred as the most likely scenario (ongoing)***- Continue to look for opportunities to strengthening infrastructure resilience at scoping design stage for renewals and new works projects ***Decision required by Council*** – This is a current practice and will continue. This option is shown for completeness and therefore no formal Council decision is required.	Medium cost for resilience strengthening as part of capital projects (about $1.8m+ over ten years)	Medium cost for resilience strengthening (about $1.8m+ over ten years)	Medium cost for resilience strengthening (about $1.8m+ over ten years)	M We have time to implement upgrades
	2. Replace the critical assets with modern materials and install duplicate mains to mitigate the risks in the Central (Matipo Utuhina Pump station rising mains) and Eastern supply areas (Waipa rising main). Install Eastern Wharenui Road transfer main connecting Wharenui Road Reservoir to trunk main from Tarawera Road reservoir No. 1.	• Options 2 and 3 are interlinked • The existing critical asset for the Central Supply Area is asbestos concrete material and less likely to fail once duplicated with modern material • The aged rising mains will be duplicated with new assets and be more robust	***Option 2 is preferred as the most likely scenario (long term)*** – Undertake the critical asset replacement and install duplicate mains to mitigate the risks in the Central and Eastern supply areas. ***Decision required by Council*** – This is conditional on budget being adopted then the capital works can be implemented.	$2.145m	$585k	$2.5m	M Reduces asset risk with this approach

Significant water supply issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
	3. Connect the Central and Eastern supply areas with an emergency main to mitigate risk for priority customers, which will also provide additional temporary supply during peak demand to avoid exceeding consented water take limits. New storage reservoirs in Central and Eastern Areas for resilience.	• Provides additional supply during emergencies for priority customers such as hospitals and schools • Provides additional temporary supply during peak demand to avoid exceeding consented water take limits • Improves security of supply and fire flow capacity to the Scion Innovation Park Development Area	*Option 3 is preferred as the most likely scenario (long term)* – Undertake the emergency connecting mains to strengthen resilience between the two largest supply areas. *Decision required by Council* – This is conditional on budget being adopted then the capital works can be implemented.	$5.74m	$5m	$3.5m	M Reduces asset risk with this approach
Impact of intensification to the local network infrastructure and parts of the main network infrastructure from implementing Future Development Strategy (FDS)	1. Utilise an ad hoc planning approach for water provision in growth areas based on Spatial Plan.	• Bulk infrastructure is not planned to meet current or future demand, or sequenced • Spatial Plan not based on the latest demand projections • District is unattractive for developers as Council difficult to work with • Development occurs ad hoc		Low cost from existing resources and budgets (about $250k pa for minor capital growth projects)	Low cost from existing resources and budgets (about $250k pa for minor capital growth projects)	Low cost from existing resources and budgets (about $250k pa for minor capital growth projects)	H

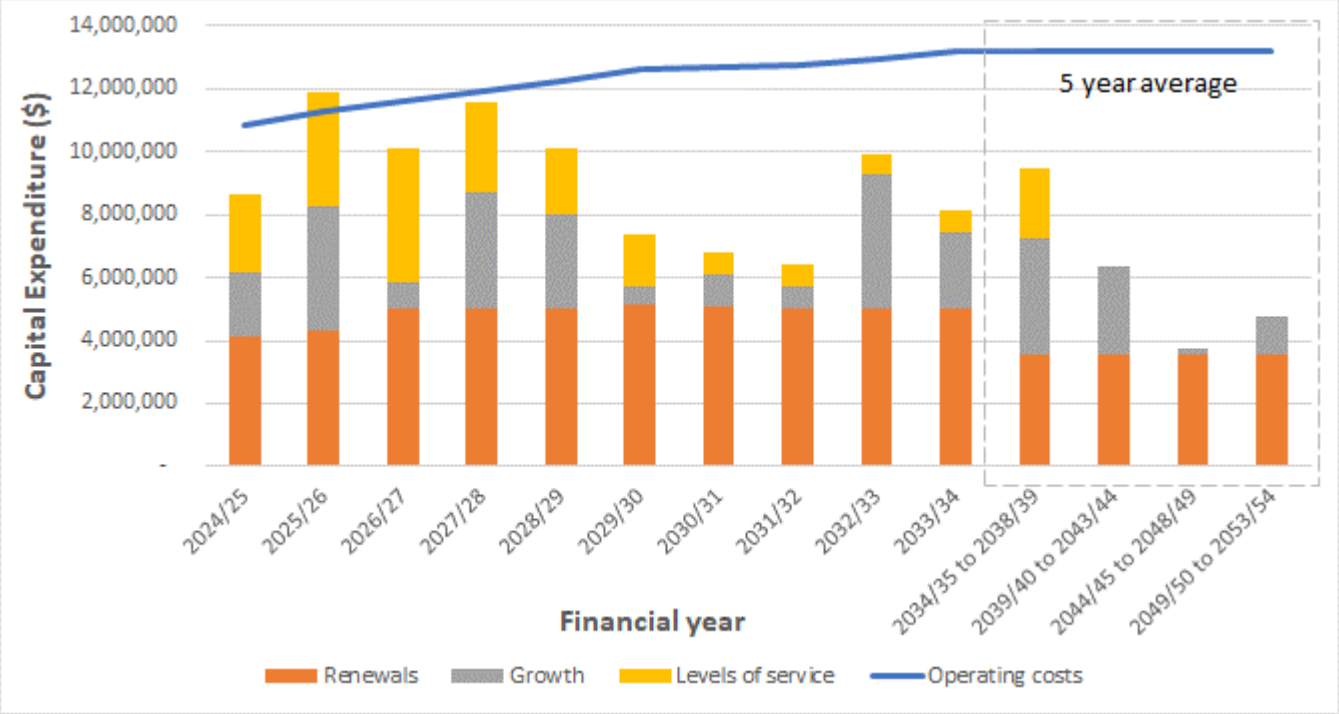
Significant water supply issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
	2. Use the Water Supply Master Plan in conjunction with FDS to guide long term planning and the capital works programme to address current and future demand for enabling sustainable development.	• Bulk infrastructure is planned holistically • Based on realistic forecast of development, where it will likely occur and when • The FDS defines density (predicted) only at area/sector level. The impact of the intensification could be assessed only at headworks infrastructure level. • The impact of the intensified development at a local level could only be assessed during the development application stage.	*Option 2 is preferred as the most likely scenario* – Implement and use the Water Supply Master Plan to guide long term planning and the capital works programme. *Decision required by Council* – This is a current practice and will continue. This option is shown for completeness and therefore no formal Council decision is required. The implementation of the growth enabling capital programme is conditional as budget being adopted.	$22.3m total (for ten years)	$32.4m total (for ten years)	$7.02m total (for ten years)	M

5.2.4 *Water supply expenditure forecasts*

Figure 17 presents the expenditure forecast for water supply which is based on the following assumptions:

- Demand forecasts are based on the adopted demand management programme.
- The current water take consents for the Eastern, Central and Hamurana Kaharoa areas will be renewed without any reduction from the current abstraction limits.
- Additional capital investment to develop new source will be required if current water takes limits are reduced.
- Universal water metering will not be adopted during the ten year Long Term Plan period, unless supported by a strong business case.
- Existing service levels will be maintained.
- Changes to the Government's three waters proposal might have a significant impact on this activity and with uncertainty.
- We will provide services at the levels forecast in our Water Supply Asset Management Plan and 2024 Long Term Plan.
- Over the next 30 years it is expected that Council's major capital expenditure items include asbestos cement pipes and trunk mains renewal programme.
- Infrastructural resilience – Eastern, Central and Ngongotahā Supply Area improvements to address risk, security of supply and meet future demand.

Figure 17 Water supply expenditure forecasts (uninflated)

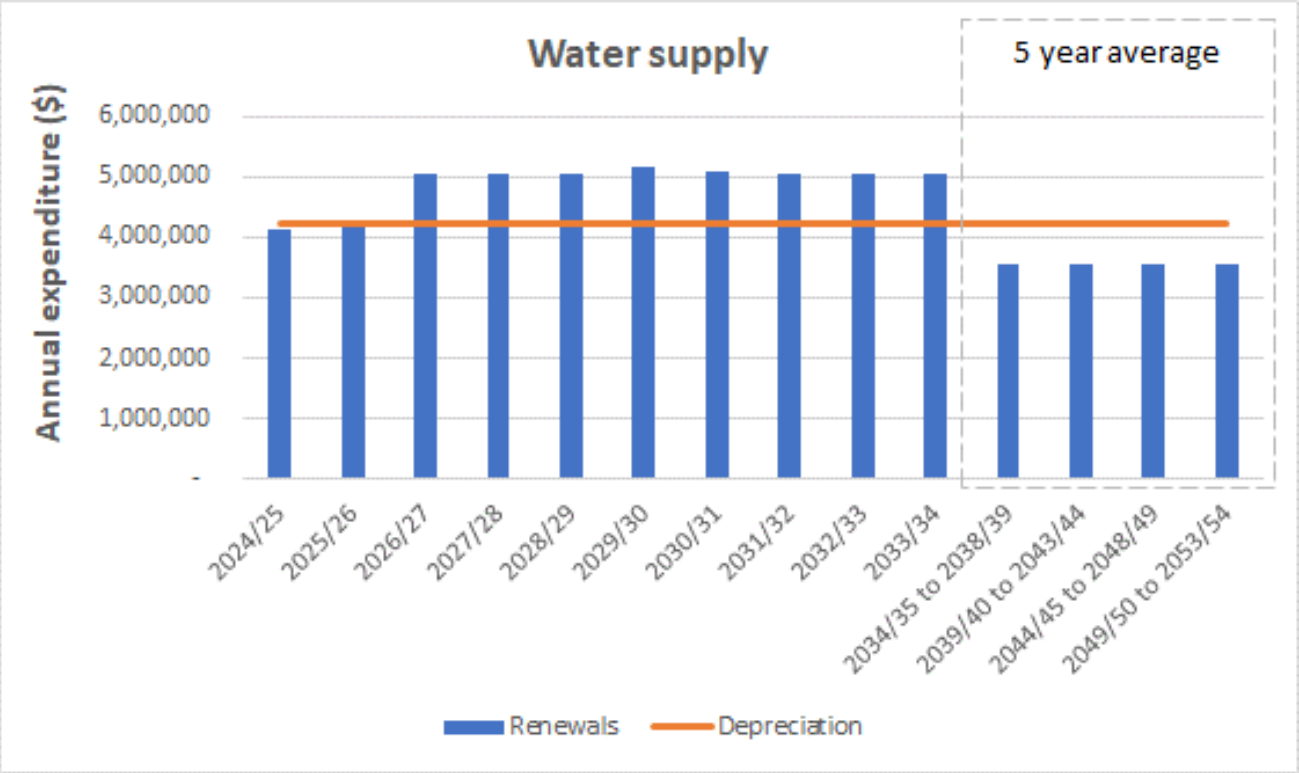


Source: RLC LTP budget (as at January 2024)

Note: Depreciation has been excluded from the operational expenditure.

Figure 18 shows that our forecast renewal expenditure of $4.2 million per annum on average is matches the annual depreciation of $4.2 million in the first decade then drops below this level.

Figure 18 Water supply renewals versus depreciation (uninflated)



5.2.5 *Funding this activity*

Council funds its water supply activity through:

- Targeted rates and fees and charges for the operational programme:
  - uniform annual charge for unmetered properties (included with the property rate charges)
  - volume charge for metered properties (where meters are installed) based on the actual volume of water consumed
- Loans for the capital programme.

5.3 Wastewater

5.3.1 Background

We are responsible for the collection, treatment and disposal of wastewater from the three urban areas of Rotorua (Ngongotahā, city and eastern suburbs) as well as some rural lakeside communities. The public wastewater network of approximately 410km of gravity mains and 164km of rising mains that protect the community's public health and the receiving environments from the effects of wastewater and by-products. Two wastewater treatment plants service properties through approximately 23,681 connections.

Resource consents are required for discharging into water bodies and onto planted forestry and are issued by the Bay of Plenty Regional Council. The main purpose of a consent is environmental protection and is driven by the Resource Management Act. These consents are subject to requirements that restrict the volume of water that can be discharged and stipulate the water quality parameters the discharged water must meet.

5.3.2 Strategic wastewater challenges

The key challenges for the wastewater activity are summarised in the table below with further detail in the Asset Management Plan.

Table 19 Summary of wastewater key challenges

District infrastructure issues	Key issues	Discussion / management response
Maintaining assets in stable, reliable and safe condition	We have limited information available for the current state of our underground assets and this is a focus in the short to medium term.	• We are surveying our critical below ground wastewater assets in the short to medium term. The assessment programmes are being accelerated through our long-term contractor. A renewal programme will then be developed, and a significant capital investment programme is expected. • We need to formally understand the asset condition of our above ground assets (such as treatment plants, rising mains, and pump stations) as these are our critical assets.
Impacts of legislative and policy changes	**Resource consents** Currently, the treated effluent from the plant is irrigated to pass through the land in Whakarewarewa Forest before the groundwater discharges to Lake Rotorua to protect the lake water quality. Discharging through irrigation of Whakarewarewa Forest is no longer viable as a sustainable option for several reasons including cultural concerns.	• We have started working with key stakeholders including iwi to explore and identify a better, more sustainable alternative for the disposal of treated effluent from the upgraded wastewater treatment plant. • The resource consent application for the proposed upgrade of the existing plant has been approved and works has commenced. The upgraded Rotorua Wastewater Treatment Plant and new discharge point is expected to be undertaken over the next three years.
Climate change and environmental sustainability	**Lake water quality** The Rotorua Te Arawa Lakes are important for our District, regionally and nationally. The communities of Lake Tarawera, Lake Rotoehu (Kennedy Bay and Otautu Bay), Ngamotu and Mamaku are currently serviced by private wastewater systems. They are at risk of polluting our lakes.	• We have started developing the proposals to construct sewerage scheme for the lakeside communities to mitigate the impacts on the lake water quality. • The implementation of the Tarawera Sewerage Scheme is underway. Initial planning for the remaining schemes is underway and allowed for in the 30 year capital programme.

District infrastructure issues	Key issues	Discussion / management response
Meeting future demands on infrastructure	**Servicing growth** The Rotorua Lakes district is projected to increase in population. There is also pressure for Council to service other small communities / villages currently serviced by private wastewater systems.	• We service growth in the following three ways: 1) Installing bulk infrastructure for new development areas; 2) Extending services areas; 3) Servicing other sewerage scheme areas with Council reticulation and treatment plants. • We have completed an assessment of the impact of our Future Development Strategy to the current wastewater network. Our capital programme for the 2024/2034 LTP has been updated to reflect the required capital works investment to enable the projected growth.
Impacts of legislative and policy changes	**Long term wastewater approach** There are significant wastewater challenges driven by higher future consent requirements, environmental protection, Government's freshwater reform programme coupled with growth which will require significant investment.	• We have entered into a long term contract with an experienced operator as a partner to manage the asset risks and provide cost certainty.

Future challenge - Lake Rotorua nutrient management

The Bay of Plenty Regional Council's Lake Rotorua Nutrient Management Proposed Plan Change 10 introduces rules to limit the amount of nitrogen entering Lake Rotorua from land use. The rules will affect rural properties in the Lake Rotorua Catchment as well as our Rotorua Wastewater Treatment Plant.

Lake Rotorua can cope with 435 tonnes of nitrogen a year from all sources in the catchment (urban and rural areas). The 435 tonnes have been shared and the Rotorua Wastewater Treatment Plant was given a Nitrogen Discharge Allocation of 30 tonnes, for the 2001 to 2003 benchmark period.

Our existing plant and land treatment system typically removes up to 370 tonnes of nitrogen a year. Increased volumes of stormwater and groundwater into our wastewater system reduces the treatment plant's ability to effectively remove nitrogen. After the proposed upgrade, the Rotorua Wastewater Treatment Plant will have increased ability to remove nitrogen and is anticipated to remove up to 450 tonnes of nitrogen a year by 2051.

Low levels of nutrients are returned to our environment even with best wastewater treatment practices. By 2031, the nitrogen discharged to the lake will be around 34.7 tonnes in an average rainfall year (41 tonnes in a high rainfall year). By 2051, the nitrogen discharged to the lake will be around 39 tonnes in an average rainfall year.

To protect lake water quality, we need to ensure the total load of nitrogen to the lake from all sources does not increase. As our population grows, we need to offset the increasing level of nitrogen discharged from the treatment plant with an equivalent reduction elsewhere. There are a number of ways we can achieve this:

- Buying, acquiring or transferring nitrogen discharge allocations.
- Actions to directly reduce the nitrogen entering the lake.
- Reduce wet weather inflow and infiltration reaching the treatment plant by implementing the inflow and infiltration programme once developed.

We are exploring options to increase nitrogen discharge allocations in future. This will be dependent on how the upgrade plant is performing and how predicted growth is tracking.

5.3.3 *Significant issues and options*

Significant issues for the wastewater activity and principal options for managing these issues are detailed in the following table. The option preferred as the most likely scenario has been identified and when Council expects significant decisions will be required.

Table 20 Significant issues and options for wastewater

Significant wastewater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
Changes to legislation resulting from new Government policies and initiatives	1. Continue with water services remaining in house.	• There are likely to be increased costs to address health / safety concerns / issues from Taumata Arowai • This will be resourced through existing budgets • Not eligible for funding through Government's three waters reform programme • Government may force amalgamation for councils that do not collaborate regionally		Current budgets are known ($167m for capital projects for 10 years uninflated)	Current budgets are known ($85m for capital projects for 10 years uninflated)	Current budgets are known ($60m for capital projects for 10 years uninflated)	H
	2. Explore aggregation at regional / sub regional level with neighbouring councils to determine best service delivery model and be eligible for the Government's funding package.	• Costly to set up water Council Controlled Organisation but will be eligible for central government funding • A dedicated water Council Controlled Organisation with no other competing priorities will be expected to better prioritise investment decisions across the region leading to better environmental and community outcomes than the Councils can individually achieve • Potentially loss of community involvement in water decisions • Council needs to opt into reform programme to be eligible for funding		Higher level estimates from industry of reduction in capital programme with aggregation (1.25% reduction per year, ***indicative estimated cost*** $2m reduction in capital programme over 10 years in real terms) – based on previous DIA estimation.	Reduction in capital programme with aggregation (***indicative estimated cost*** $900k reduction in capital programme over 10 years in real terms)	Reduction in capital programme with aggregation (***indicative estimated cost*** $650k reduction in capital programme over 10 years in real terms)	H

Significant wastewater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
	3. Maintain a watching brief on the changes of Government's Three Waters Proposal and evaluate other options as information becomes available.	• Central government may force amalgamation for councils that do not aggregate regionally • Implications from water reforms on service delivery including the impact of Taumata Arowai and changes to legislation are still unfolding and happening at a rapid pace	***Option 3 is preferred as the most likely scenario*** - Continue to keep watching brief to understand the best service delivery option for our community. ***Decision required by Council*** – Decision on participating in reforms and preparation for the formation of water services entities expected from late 2021 to 2023 (legislation is still being passed).	Current budgets are known ($167m for capital projects for 10 years uninflated)	Current budgets are known ($85m for capital projects for 10 years uninflated)	Current budgets are known ($60m for capital projects for 10 years uninflated)	H
Expectations from stakeholders, regulator, and iwi for continued compliance to the standard / consent for the lake water quality.	1. Continue to meet existing resource consent conditions long term to keep within consented water quality limits to minimise the impact of the treated effluent discharged from the wastewater treatment plants.	• Meets current minimum resource consent requirements • May not result in substantial positive environmental improvements • Unlikely to receive long-term resource consent on the current terms		Current budgets are known (part of wastewater operational activity budget about $200k pa)	Current budgets are known (part of wastewater operational activity budget about $200k pa)	Current budgets are known (part of wastewater operational activity budget about $200k pa)	M
	2. Continue to implement the Rotorua Te Arawa Lakes Strategy with partner organisations Te Arawa Lakes Trust and Bay of Plenty Regional Council for a holistic and integrated management approach.	• Better alignment with Māori values and community aspirations • Meets longer term vision for the lakes as set out in the Rotorua Te Arawa Lakes Strategy • Improves lake water quality	***Option 2 is preferred as the most likely scenario*** - Continue to implement the Rotorua Te Arawa Lakes Strategy with the partner organisations.	Current budgets are known but solution still to be agreed upon with consenting process; $46m for Rotorua Wastewater Treatment Plant	Current budgets are known (about $200k pa for ongoing support)	Current budgets are known (about $200k pa for ongoing support)	M

Significant wastewater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
			Decision required by Council – This is a current practice and will continue. This option is shown for completeness and therefore no formal Council decision is required.	upgrades and Sustainable Forest Approach; $12.5m for Tarawera wastewater scheme; $7.8m for Rotoehu wastewater scheme			
Implications of the Bay of Plenty Regional Council's Plan Change 10 that limits the mass load of nitrogen to Lake Rotorua	1. Acquiring or transferring Nitrogen Discharge Allocations to offset the increase in the load of nitrogen to the lake as population grows.	• Requires proposed environmental fee to be accepted in the community • Requires polluter and land use development with funding environmental improvements • Polluter pays principle still relatively new nationally • Requires the polluter to fund mitigation or purchase Nitrogen Discharge Allocations to cover the increase in nitrogen load to the wastewater treatment plant.	***Option 1 is preferred as the most feasible scenario (and longer term)*** - Acquire or transfer Nitrogen Discharge Allocations funded by the proposed environmental fee. ***Decision required by Council*** – This approach may be contentious with the community. Expected full Council decision will be required in 2022 to 2024.	Options for charging proposed environmental fee still to be agreed and adopted; Develop policy internally and engagement process (about $200k); then implement policy at about $200k pa initially	Ongoing implementation of policy at about $20k pa	Ongoing implementation of policy at about $20k pa	M
	2. Actions to reduce the nitrogen entering the lake from the Rotorua wastewater treatment plant.	• Reduces pollution rather than offsetting • Better future environmental alignment with iwi values and community aspirations • Negligible opportunity to reduce nitrogen load as the treatment plant is close to the limit of its technology.	**Option 2 is the most likely scenario in conjunction with Option 1.**	Inflow and infiltration work will be undertaken by our long term service contractor (about $100k pa)	Council will enforce through trade waste compliance (about $100k pa)	Council will enforce through trade waste compliance (about $100k pa)	H

Significant wastewater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
		• Ongoing action to reduce inflow and infiltration into the wastewater network.					
Impact of intensification to the local network infrastructure and parts of the main network infrastructure from implementing FDS	1. Utilise an ad hoc planning approach for water provision in growth areas based on Spatial Plan.	• Bulk infrastructure is not planned to meet current or future demand, or sequenced • Spatial Plan not based on the latest demand projections • District is unattractive for developers as Council difficult to work with • Development occurs ad hoc		Low cost from existing resources and budgets (about $250k pa for minor capital projects)	Low cost from existing resources and budgets (about $250k pa for minor capital projects)	Low cost from existing resources and budgets (about $250k pa for minor capital projects)	H
	2. Use the Wastewater Master Plan in conjunction with FDS to guide long term planning and the capital works programme to address current and future demand for enabling sustainable development.	• Bulk infrastructure is planned holistically • Based on realistic forecast of development, where it will likely occur and when • The FDS defines density (predicted) only at area/sector level. The impact of the intensification could be assessed only at headworks infrastructure level. • The impact of the intensified development at a local level could only be assessed during the development application stage.	***Option 2 is preferred as the most likely scenario*** - Implement and use the Wastewater Master Plan to guide long term planning and the capital works programme. ***Decision required by Council*** – This is a current practice and will continue. This option is shown for completeness and therefore no formal Council decision is required.	(about $63.6m in total for growth capital projects)	(about $25m in total for growth capital projects)	-	M

5.3.4 Wastewater expenditure forecasts

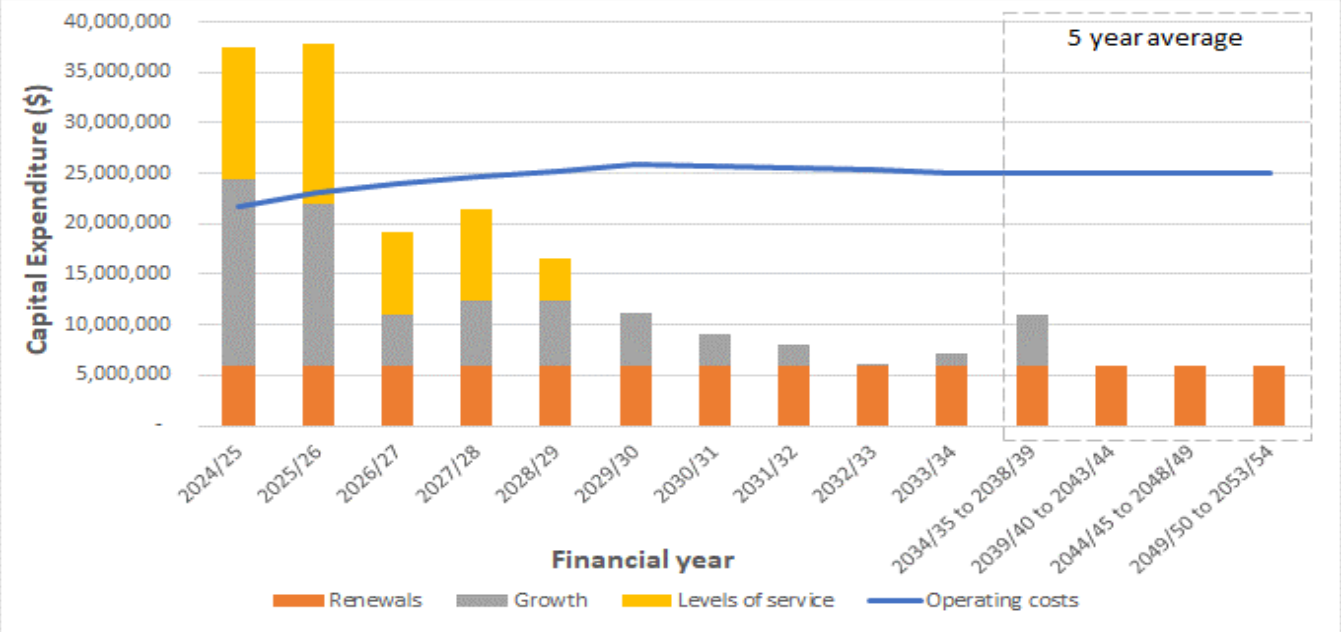
Figure 19 presents the expenditure forecast for wastewater which are based on the following assumptions:

- The Government's freshwater proposals to improve ecological health will require a higher environmental standard.
- The conditions and cost implications of the future resource consents for the treated effluent alternative discharge from Rotorua Wastewater Treatment Plant are uncertain.
- The Sustainable Forest Approach costs are indicative as some workstream elements (including resource consents) are still to be secured and therefore the final design and extent of the upgrade and preferred option (for the Sustainable Forest Approach) are not yet known.
- Changes to the Government's three waters proposal might have a significant impact on this activity and with uncertainty.
- We will work towards offsetting the increasing level of nitrogen discharged from the Rotorua Wastewater Treatment Plant through Nitrogen Discharge Allocations.
- Effective inflow and infiltration management will be achieved through ongoing detection and reduction strategies employed by our long term contractor.
- We will provide services at the levels forecast in our Wastewater Asset Management Plan and 2024 Long Term Plan.

Over the next 30 years it is expected that Council's major capital expenditure items include:

- Upgrade of Rotorua Wastewater Treatment Plant to meet higher environmental standards and growth in the district in the first two years of this strategy ($36 million).
- Sustainable Forest Approach costs of $9.75 million in the first 5 years of this strategy.
- District wide pipe renewal programme to initially address the critical gravity mains in poor condition the replace assets as they deteriorate at $6 million per annum.
- Bulk infrastructure to service future growth areas in Central, Eastern and Ngongotahā areas based on latest growth predictions.
- Extension of sewer systems to service unreticulated lakeside communities to mitigate risk of pollution.

Figure 19 Wastewater capital expenditure forecasts (uninflated)

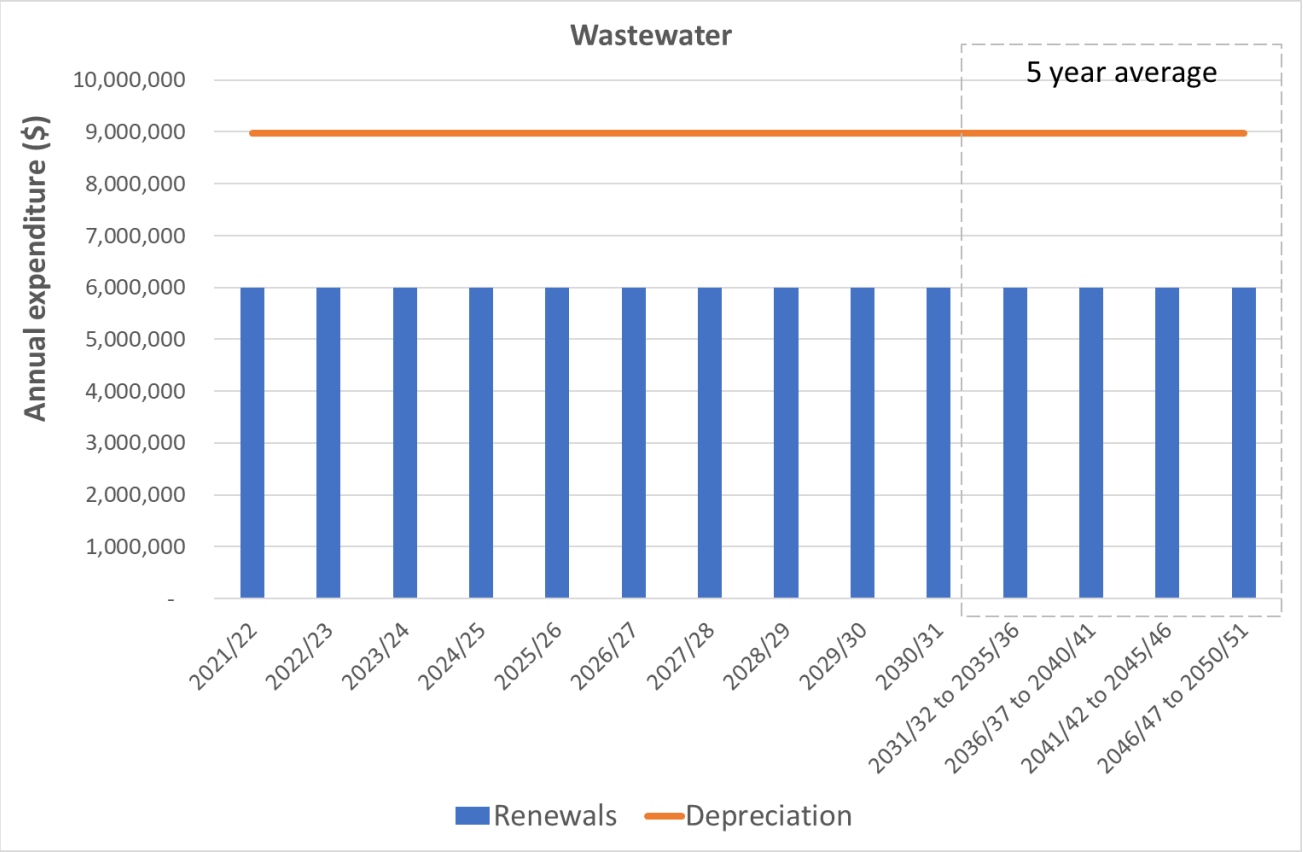


Source: RLC LTP budget (as at January 2024)

Note: Depreciation has been excluded from the operational expenditure.

Figure 20 shows that our forecast renewal expenditure of $6.0 million per annum is less than the annual depreciation of $9.0 million. There is a gap between renewals and depreciation because Council has only allowed for network renewals in this strategy. Currently, there are only minor renewals undertaken for the Rotorua Wastewater Treatment Plant as it is getting upgraded.

Figure 20 Wastewater renewals versus depreciation (uninflated)



5.3.5 *Funding this activity*

Council funds its wastewater activity through:

- Targeted rate for sewerage disposal based on a per pan charge in urban serviced areas.
- Separate targeted rates for the capital costs for connected properties in defined rural areas.
- Trade waste fees and charges.
- Loans for the capital programme.

5.4 Stormwater

5.4.1 Background

Stormwater is the runoff of rainwater which requires management and disposal using various drainage systems. The stormwater activity protects people and property from flood damage. It also minimises the adverse effects of stormwater discharges into the lakes and waterways of the district. We are responsible for 244km of urban reticulated pipelines and 154km of open drains.

There is stormwater reticulation servicing the three urban areas of Rotorua (Ngongotahā, city and eastern suburbs). The stormwater activity also includes the Reporoa land drainage scheme which serves the farming community.

5.4.2 Strategic stormwater challenges

The key challenges for the stormwater activity are summarised in the table below with further detail in the Asset Management Plan.

Table 21 Summary of stormwater key challenges

District infrastructure issues	Key issues	Discussion / management response
Maintaining assets in a stable, reliable and safe condition	Traditionally the stormwater activity is mainly a reactive service compared to water supply and wastewater activities. We have limited asset condition information and knowledge of our stormwater network.	Condition surveys have generally only been undertaken in response to an issue. We intend to move to a programme of planned condition surveys to help us better understand the state of our stormwater assets.
Impacts of legislative and policy changes	**Resource consents** Application status of the Comprehensive Stormwater Resource Consent.	The Comprehensive Stormwater Resource Consent for the urban areas was lodged with the Regional Council and public submission have closed. Key points of the submissions are: • Management of high risk industrial sites as they impact on water quality. • Management of high risk industrial sites as they impact on water quality. We know that there will be higher requirements than we currently have including comprehensive reporting. This will require us to be more proactive in stormwater management than our current practices.
Meeting future demands on infrastructure	**Servicing growth areas** Although our population is projected to continue growing, stormwater demand is linked indirectly to population growth with the creation of impervious or paved surfaces. This is not a linear relationship. Demand for stormwater infrastructure is directly related to the creation of imperviousness and rainfall.	We know that the existing stormwater systems at the bottom of catchments cannot cope with the effects of growth in urban areas. Growth enabling stormwater works are currently being planned and implemented. This includes several stormwater detention dams within the urban area. We will need to invest more in bulk stormwater infrastructure to enable development and cater for increased scale and severity of rain events due to climate change impacts. We have developed a Stormwater Master Plan (similar to water supply) to ensure that we make cost effective investment decisions. The plan has considered the implication of the FDS which has an impact on intensification. Our stormwater growth enabling projects are also subsidised by Government to increase additional housing stocks.

5.4.3 *Significant issues and options*

Significant issues for the stormwater activity and principal options for managing these issues are detailed in the following table. The option preferred as the most likely scenario has been identified and when Council expects significant decisions will be required.

Table 22 Significant issues and options for stormwater

Significant stormwater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
Changes to legislation resulting from new Government policies and initiatives	1. Continue with water services remaining in house.	• This will be resourced through existing budgets • Not eligible for funding through Government's three waters reform programme • Government may force amalgamation for councils that do not collaborate regionally		Current budgets are known ($166m for capital projects for 10 years uninflated)	Current budgets are known ($35m for capital projects for 10 years uninflated)	Current budgets are known ($35m for capital projects for 10 years uninflated)	H
	2. Explore aggregation at regional / sub regional level with neighbouring councils to determine best service delivery model and be eligible for the Government's funding package.	• Costly to set up water Council Controlled Organisation but will be eligible for central government funding • A dedicated water Council Controlled Organisation with no other competing priorities will be expected to better prioritise investment decisions across the region leading to better environmental and community outcomes than the Councils can individually achieve • Potentially loss of community involvement in water decisions • Council needs to opt into reform programme to be eligible for funding		Higher level estimates from industry of reduction in capital programme with aggregation (1.25% reduction per year, ***indicative estimated cost*** $1m reduction in capital programme over 10 years in real terms) – based on previous DIA estimation.	Reduction in capital programme with aggregation (***indicative estimated cost*** $1.3m reduction in capital programme over 10 years in real terms)	Reduction in capital programme with aggregation (***indicative estimated cost*** $1.3m reduction in capital programme over 10 years in real terms)	H

Significant stormwater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
	3. Maintain a watching brief on the changes of Government's Three Waters Proposal and evaluate other options as information becomes available.	• Central government may force amalgamation for councils that do not aggregate regionally • Implications from water reforms on service delivery including the impact of Taumata Arowai and changes to legislation are still unfolding and happening at a rapid pace	***Option 3 is preferred as the most likely scenario*** - Continue to keep watching brief to understand the best service delivery option for our community. ***Decision required by Council*** – Decision on participating in reforms and preparation for the formation of water services entities expected from late 2021 to 2023 (legislation is still being passed)	Current budgets are known ($166m for capital projects for 10 years uninflated)	Current budgets are known ($35m for capital projects for 10 years uninflated)	Current budgets are known ($35m for capital projects for 10 years uninflated)	H
The implications of the National Policy Statement for Freshwater Management 2020 on RLC's water quality improvements. **This will dictate the re drafting of the Regional Policy Statement and will be the basis for assessing our Comprehensive Stormwater Resource Consent applications and setting conditions.**	1. Negotiate with the Regional Council to ensure the conditions are similar to the lodged application.	• Consent requirements are understood and budgeted for • May not achieve good environmental outcomes • Potentially not meet new requirements of the National Policy Statement for Freshwater Management 2020		Current budgets are known (about $50k to $100k pa)	Current budgets are known (about $50k to $100k pa)	Current budgets are known (about $50k to $100k pa)	H
	2. Develop evidence based strategy and programmes to be more proactive in stormwater quality than our current practices, aligned with the new requirements.	• Meets longer term vision for the lakes as set out in the Rotorua Te Arawa Lakes Strategy • Improves freshwater quality • Achieves good environmental outcomes but may not be immediate • There may ongoing operational costs that need to be considered as well as capital before adopting this approach	***Option 2 is preferred as the most likely scenario*** - Develop evidence based strategy and programmes to be more proactive in stormwater quality. ***Decision required by Council*** – Strategy will be expected to be adopted by Council in the medium term (2024/25 to 2025/26).	Strategy development including data consolidation about $200k for external support; Stormwater quality capital improvements about $0.5m pa	Stormwater quality capital improvements ***indicative estimated costs*** $0.5m to $1m pa	Stormwater quality capital improvements ***indicative estimated costs*** $0.5m to $1m pa	H

Significant stormwater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
		• Aligned to the new requirements • Supports Council's vision of enhanced environment and protects the unique character of Rotorua					
Significant challenges with addressing the flooding in urban flood prone areas. **Insufficient capacity of regional infrastructure (stream) resulting in capacity limitations of local infrastructure.**	1. Continue to respond reactively to flood events and manage operationally.	• Politically unacceptable at local, regional, and national levels • Potential risk to life • High level of property damage • Local communities disrupted • Unaffordable for community to address as not planned for • Does not allow time to adapt and / mitigate to climate change effects		Budget impacts may be significant after a major flood event; about $0.5m pa for minor capital and $3m pa for service level improvements including capacity	Budget impacts may be significant in the medium term if analysis requires greater investment; ***indicative estimated costs*** $5m+ pa	Budget impacts may be significant in the long term if analysis requires greater investment; ***indicative estimated costs*** $5m+ pa	H
	2. Continue to develop Comprehensive Flood Risk Management Plan collaboratively with the Regional Council, iwi, key stakeholders, and the community (as recommended by the independent panel).	• Identifies predicted habitable floors that may flood in future district wide and how Council will mitigate this (may not necessarily be large pipe solution) • Effect of climate change on stormwater infrastructure can be planned long term	***Option 2 is preferred as the most likely scenario*** - Continue to develop Comprehensive Flood Risk Management Plan to help better understand predicted habitable floor flooding. ***Decision required by Council*** – This is a current practice and will continue. This option is shown for completeness and therefore no formal Council decision is required.	$5m over ten years for addressing local flooding issues only	$5m over ten years for addressing local flooding issues only	$5m over ten years for addressing local flooding issues only	H

Significant stormwater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
	3. Develop an Emergency Management Plan, in conjunction with the community, including clearly understood and communicated trigger levels for flood warnings and evacuations (as recommended by the independent panel).	• Coordinates efforts of the different agencies involved • Improved communication and readiness of the community • Improves resilience of people • Supports vulnerable people in the community particularly the elderly • Risk to life minimised	***Option 3 is preferred as the most likely scenario*** - Develop an Emergency Management Plan as a high priority that can be used district wide. ***Decision required by Council*** – The Emergency Management Plan will be developed within existing budgets and does not require formal Council adoption to implement.	Low cost from within existing budget ($50k to $75k from operational budget; one off cost)	-	-	M
	4. Develop the investment programme to address the high priority flood prone areas in all urban catchment.	• The risks and effects of future flood events are mitigated • There is time to plan and implement flood protection works • Improvement works to ensure public safety (i.e. risk to life), property damage and disruption to local communities • Effect of climate change on stormwater infrastructure can be planned long term	***Option 4 is preferred as the most likely scenario (longer term)*** - Develop investment programmes prioritised district wide using hierarchy of flood mitigation options. Working with Regional Council on options. ***Decision required by Council*** – RLC's share of the investment programmes will be presented to full Council for approval as part of the Long Term Plan three yearly cycles.	Budget impacts expected to be significant. It is expected that most of the investment will be required on the Regional Council's stormwater network. (***indicative cost share*** $5m to $10m in total)	Budget impacts expected to be significant (***indicative cost share*** $5m to $10m in total)	Budget impacts expected to be significant (***indicative cost share*** $5m to $10m in total)	M Reduces flood risk to acceptable level

Significant stormwater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
	5. Ask private owners to invest in their own flood resilience solutions (i.e. flood readiness plans, ground contouring to prevent the overland flow from entering the house).	• Difficult to enforce • Requires high level of community engagement • May be politically unacceptable • Improves resilience of people instead of hard asset solution • Ongoing operational and development issues to respond to		Low cost from within existing budget ($15k pa - part of staff costs to enforce / educate)	Low cost ($15k pa - part of staff costs to enforce / educate)	Low cost ($15k pa - part of staff costs to enforce / educate)	M
Impact of intensification to the local network infrastructure and parts of the main network infrastructure from implementing FDS	1. Utilise an ad hoc planning approach for stormwater provision in growth areas based on Spatial Plan.	• Bulk infrastructure is not planned to meet current or future demand, or sequenced • Spatial Plan not based on the latest demand projections (used for 2018 Long Term Plan) • District is unattractive for developers as Council difficult to work with • Development occurs ad hoc • Flooding is exacerbated with additional impervious areas into existing stormwater networks		Low cost from existing resources and budgets (about $250k to $500k pa for capital growth project)	Low cost from existing resources and budgets (about $250k to $500k pa for capital growth project)	Low cost from existing resources and budgets (about $250k to $500k pa for capital growth project)	H
	2. Use the Stormwater Master in conjunction with FDS to guide long term planning and the capital works programme to address current system deficiencies (where practical) and future demand for enabling sustainable development and mitigate environmental risk from more runoff.	• Bulk infrastructure is planned holistically • Based on realistic forecast of development, where it will likely occur and when • Opportunities to regenerate existing urban areas incorporating water sensitive design and improving amenity values for the community • The FDS defines density (predicted) only at area/sector level. The impact of the intensification could be assessed only at headworks infrastructure level.	***Option 2 is preferred as the most likely scenario (longer term)*** - Implement and use the Stormwater Master Plan to guide long term planning and the capital works programme. ***Decision required by Council*** – This is a current practice and will continue. This option is shown for completeness and therefore no formal Council decision is required.	$128m for Central, Eastern and Western growth enabling upgrades	-	-	M

Significant stormwater issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
		• The impact of the intensified development at a local level could only be assessed during the development application stage.					

5.4.4 Stormwater expenditure forecasts

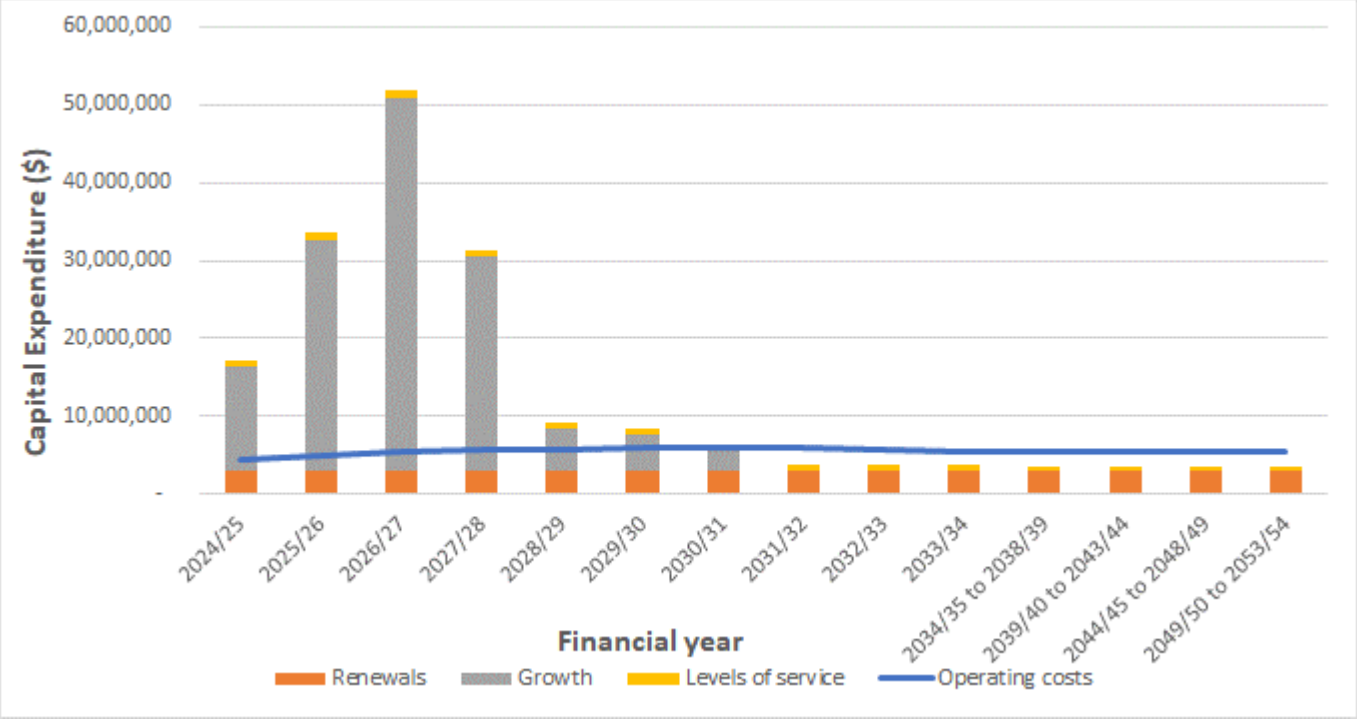
Figure 21 shows the forecasted expenditure for stormwater which are based on the following assumptions:

- The Comprehensive Stormwater Resource Consent will be impacted by the new requirements of the National Policy Statement for Freshwater Management 2020 through the Regional Policy Statement.
- Legislative and regulatory changes will require stormwater treatment.
- Changes to the Government's three waters proposal might have a significant impact on this activity and with uncertainty.
- We will continue to replace end of life infrastructure with infrastructure sized to accommodate climate change.
- We will provide services at the levels forecast in our Stormwater Asset Management Plan and 2024 Long Term Plan
- RLC will use the Central Government funding for accelerating the Central, Eastern and Western growth enabling upgrades.

Over the next 30 years it is expected that Council's major capital expenditure items include:

- Stormwater renewal at $3 million per annum to replace poor condition assets.
- Stormwater reticulation enhancements to address local flooding at $18.2 million.
- Stormwater network expansion for urban areas growth enabling upgrades of $131 million.

Figure 21 Stormwater capital expenditure forecasts (uninflated)

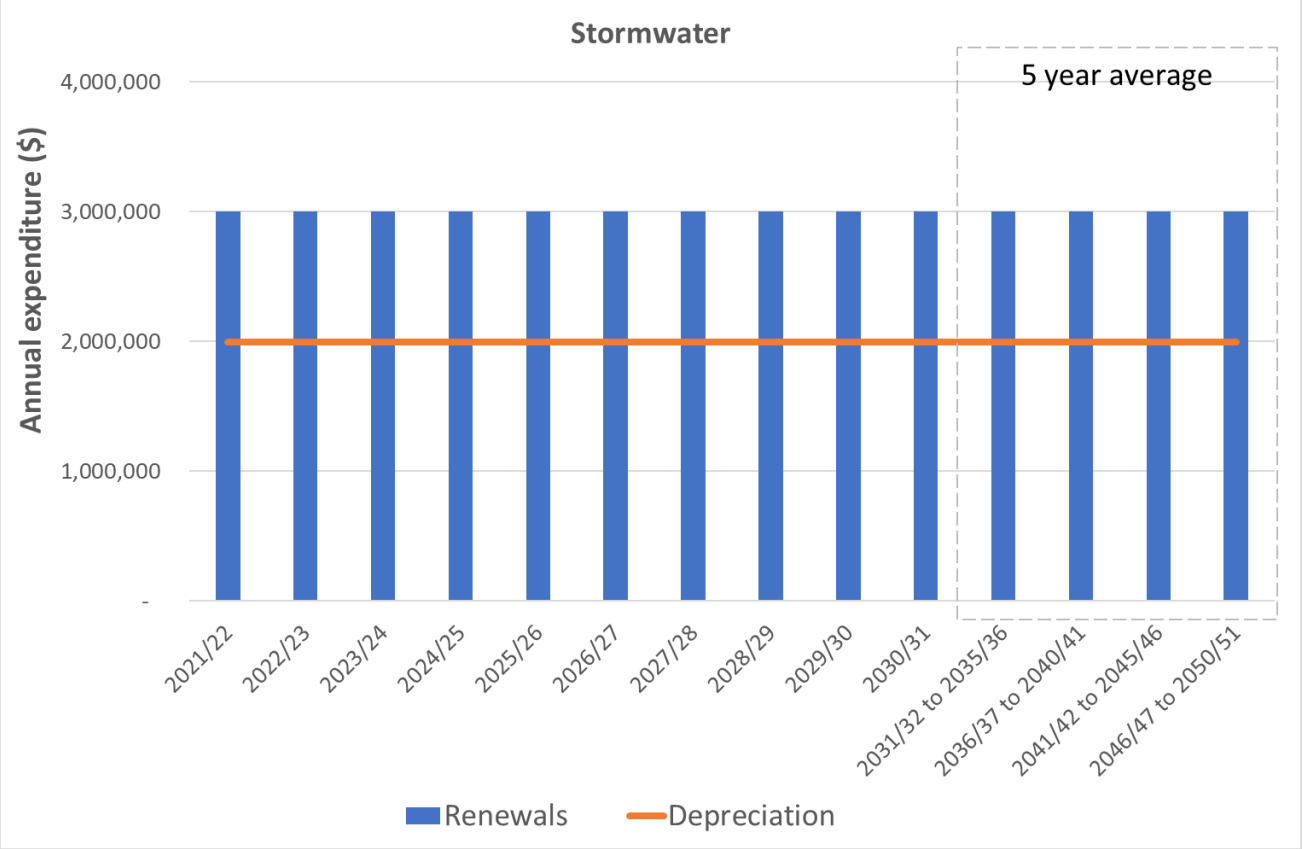


Source: RLC final LTP budget (as at March 2024)

Note: Depreciation has been excluded from the operational expenditure.

Figure 22 shows that our forecast renewal expenditure of $3.0 million per annum is higher than the annual depreciation of $2.0 million. We expect that this gap will reduce as we collect better data on the state of our stormwater assets and develop condition based renewal programmes.

Figure 22 Stormwater renewals versus depreciation (uninflated)



5.4.5 *Funding this activity*

We fund our stormwater services through:

- General rates (as a uniform annual general charge) and fees and charges for operational programme.
- Central Government funding for the Eastern and Western growth enabling upgrades ($104 million for the first five years).
- Loans for the capital programme.

5.5 Land transport

5.5.1 Background

Council owns and manage land transport assets including over 1,000km of roads (sealed and unsealed), 80 road bridges, 383km of footpaths, 52km of shared paths, 5,056 streetlights, over 54km of culverts, 517km of kerb and channel and 10,963 signs, to mention a few.

Rotorua is in the heart of the North Island and its transport system plays a key role in connecting the central and upper North Island. Rotorua has key routes that connect primary industry with the Port of Tauranga, is a tourist destination, and provides tourism links to Taupo, Waikato and Auckland. Rotorua Airport is regionally significant and serves both the district's tourism and business sectors.

5.5.2 Strategic land transport challenges

The key challenges for the land transport activity are summarised in the table below with further detail in the Activity Management Plan.

Table 23 Summary of land transport key challenges

District infrastructure issues	Key issues	Discussion / management response
Maintaining assets in stable, reliable and safe condition	Road death and serious injuries. Pedestrian and vehicle interactions	• Safety programmes • Pedestrian crossing improvements • Speed reduction plans
Maintaining assets in stable, reliable and safe condition	Affordability to meet both asset needs and levels of service.	• Appropriate level of investment that maintains transport assets in perpetuity • Ensures assets are functional and meets levels of service
Climate change and environmental sustainability	Reduce the number of vehicles travelled (VKT) in cars.	• Increased alternative modes of transport and reduced demand for car journeys • Increase in patronage numbers • Holistic approach to mode share working with Waka Kotahi and BOPRC • Provide greater transport options to support changing demographics (i.e. aging population), increasing cycle demand and user expectations
Resilience of critical infrastructure	Parts of the network vulnerable to flooding. Communities become isolated.	• Increased alternative modes of transport and reduced demand for car journeys • Increase in patronage numbers • Holistic approach to mode share working with Waka Kotahi and BOPRC • Provide greater transport options to support changing demographics (i.e. aging population), increasing cycle demand and user expectations
Meeting future demands on infrastructure	Infrastructure does not support or allow growth in the district.	• Take ownership of growth modelling • Bring skillset inhouse • Proactive not reactive response to growth and demand.

5.5.3 *Significant issues and options*

Significant issues for the land transport activity and principal options for managing these issues are detailed in the following table. The option preferred as the most likely scenario has been identified.

Table 24 Significant issues and options for transport

Significant land transport issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
Safety – Continue to invest in safety programmes	1. Seek additional funding to increase the number of safety programmes.	• Affordability in constrained environment • Unacceptable high rates rises • More safety projects delivered • RLC safety statistics improve significantly		Seek high level of funding to undertake more work ($3.6m pa)	Seek high level of funding to undertake more work ($3.6m pa)	Seek high level of funding to undertake more work ($3.6m pa)	H
	2. Continue with RLC's road safety programmes which are aligned with the draft GPS as well as the safety education programmes.	• Continue funding at current levels • Focus on pedestrian safety improvements • Achieve defined set of KPIs • Local road improvement programme (LCLR) • Implementation of Regional Speeds Reduction Plan	• ***Option 2 is preferred as the most likely scenario:*** Continue with RLC's road safety programmes. • ***Decision required by Council:*** Updating the Road Safety Programme is part of ongoing network management	Low Cost, Low Risk budget ($3m pa)	Low Cost, Low Risk budget ($3m pa)	Low Cost, Low Risk budget ($3m pa)	H

Significant land transport issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
Sustainable infrastructure – Funding will not be sufficient to maintain the transport assets to agreed level of service and at a sustainable level	1. Current maintenance and renewal programmes reduced in response to corporate drivers of expenditure reduction, particularly in the operational area	• Deterioration of the network and ultimately increased costs • Not meeting the agreed levels of service • Assets are deteriorated to a point that the community cannot afford to pay for their replacement • Investment burden is shifted to the next generation to pay for • Compromises safety and resilience • Current budget does not allow for cost escalation (less work delivered). • Resulted in service gaps • Tension with community to maintain LoS with no rates increase		Continue with no budget change $15.3m pa ($8.5m pa for maintenance programmes and $6.8m pa for renewal programmes)	Continue with no budget change $15.3m pa ($8.5m pa for maintenance programmes and $6.8m pa for renewal programmes)	Continue with no budget change $15.3m pa ($8.5m pa for maintenance programmes and $6.8m pa for renewal programmes)	H
	2. Increase in funding for maintenance, renewal and resilience programmes to meet both asset and levels of service needs	• Appropriate level of investment that maintains transport assets in perpetuity • Ensures assets are functional and meets levels of service • Keep transport network within acceptable industry levels for asset renewals • Ensures safety issues are addressed • Supports the commercial uses of our roads and therefore the district's economy	• ***Option 2 is preferred as the most likely scenario:*** Fund the maintenance, renewal and resilience programmes at a sustainable level. • ***Decision required by Council:*** This is conditional on budget being adopted as part of the Long Term Plan then these programmes can be implemented.	A total of $20.3m pa ($10.3m pa for maintenance programmes and $10m pa for renewal programmes). Requires additional LTP and external funding	A total of $20.3m pa ($10.3m pa for maintenance programmes and $10m pa for renewal programmes). Requires additional LTP and external funding	A total of $20.3m pa ($10.3m pa for maintenance programmes and $10m pa for renewal programmes). Requires additional LTP and external funding	H

Significant land transport issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
Mode demand – Continue to offer mode choices to help reduce vehicle use (measured by VKT)	1. Provide limited infrastructure options	• Do not meet community requirements around mode demand • Do not meet government objectives of alternative transport modes • Patronage numbers decline		$120k pa for bus shelter maintenance	$120k pa for bus shelter maintenance	$120k pa for bus shelter maintenance	H
	2. Continue current programme including improved public transport network, developing urban cycle network, upgrading footpaths to cater for full range of users with a focus on pedestrian safety.	• Increased alternative modes of transport and reduced demand for car journeys • Increase in patronage numbers • Holistic approach to mode share working with Waka Kotahi and BOPRC • Provide greater transport options to support changing demographics (i.e. aging population), increasing cycle demand and user expectations • Achieves better outcomes including improved efficiency, reduced carbon emissions and improved public health • Supports improved environmental outcomes with reduced car use	• ***Option 2 is preferred as the most likely scenario:*** Continue current programme to develop and implement alternative mode choices. • ***Decision required by Council:*** Work with regional council on bus routes.	Mode demand budgets includes bus shelters maintenance & improvements, public transport infrastructure walking and cycleway network. ($2m pa)	Mode demand budgets includes bus shelters maintenance & improvements, public transport infrastructure walking and cycleway network. ($2m pa)	Mode demand budgets includes bus shelters maintenance & improvements, public transport infrastructure walking and cycleway network. ($2m pa)	M
Resilience – Parts of the network are vulnerable and susceptible to weather related events.	1. Continue with current initiatives including addressing stability issues where risk is high, undertake resilience assessments with planning capital projects, maintain Emergency Management Planning and collaborate with Waka Kothai on suitability of diversion routes.	• Lack of investment in resilience programmes will make the network more vulnerable to both high and low probability events • Increased delays in the ability for the network, businesses and communities to recover from events • Not meeting community outcomes and risk of isolating communities • Bridge damage resulting in network disconnection • Impact on the safety of road users		Budget request for $405k pa bridge renewals and $200k for structure component replacement	Budget request for $405k pa bridge renewals and $200k for structure component replacement	Budget request for $405k pa bridge renewals and $200k for structure component replacement)	H

Significant land transport issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
		• Ongoing weight restrictions • Limitation to the type of freight vehicles able to use Council roads					
	2. Explore capital investment options to raise the level of the road to isolated lakeside communities to eliminate the current resilience risk of high lake levels.	• May not be physically practical or economically viable to address with capital engineering solution • Provision of an alternative and safe route if the main route is disrupted		Potentially high capital costs (***indicative estimated costs*** $10m+)	Potentially high capital costs (***indicative estimated costs*** $10m+)	Potentially high capital costs (***indicative estimated costs*** $10m+)	M
	3. Continue with the accelerated programme to assess the condition of the large culverts. Replace the large culverts assessed in poor and very poor condition over ten years. Investigate and strengthen the bridges with weight restrictions to cope with new mass limit rules. Utilise LCLR budget to build resilience into the network.	• Improved journey reliability and functionality of the network • Reduces risk of failure of the road drainage systems • Strengthening of bridge structures to allow alternative routes to be utilised safely • Results in lowered risk of failure of pavements during storm events (i.e. road slips or under slips)	• ***Option 3 is preferred as the most likely scenario:*** Complete the condition assessment of the large culverts and replace assets in poor state. Coupled with investigate and strengthen the bridges with weight restrictions to cope with new mass limit rules. • ***Decision required by Council:*** This is conditional on budget being adopted then the large culvert renewal and bridge strengthening programme can be implemented.	Drainage, structures and LCLR budget $3.8m pa	Drainage, structures and LCLR budget $3.8m pa	Drainage, structures and LCLR budget $3.8m pa	M

Significant land transport issue	Options	Implications of the options	Most likely scenario for managing the issue	Year 1 to 10	Year 11 to 20	Year 21 to 30	Risk (L/M/H)
Growth planning – Limited strategic transport planning to enable growth as defined in the draft Future Development Strategy	1. Continue to react and respond to growth as and when it happens.	• Reactive work will impact on the planned programme, budget and resources • Delivery of infrastructure not aligned to need • Road congestion in growth areas					H
	2.Transport model updated with latest data (10yr, 30yr 50yr) so aligned with Future Development Strategy Bring modelling inhouse by building internal capability.	• Ready for Future Development Strategy • Work closely with Waka Kotahi • Ownership of model.	• ***Option 2 is preferred as the most likely scenario:*** take ownership and upskill staff to run growth modelling • ***Decision required by Council:*** Invest in growth planning to align with direction of Rotorua	*(indicative estimated costs $150k pa)*	*(indicative estimated costs $150k pa)*	*(indicative estimated costs $150k pa)*	M
	3.Rely on external resources to undertake traffic modelling for RLC.	• Increase in external consultant costs • Consistency of approach by different providers		$50k	$50k	$50k	M

5.5.4 Transport expenditure forecasts

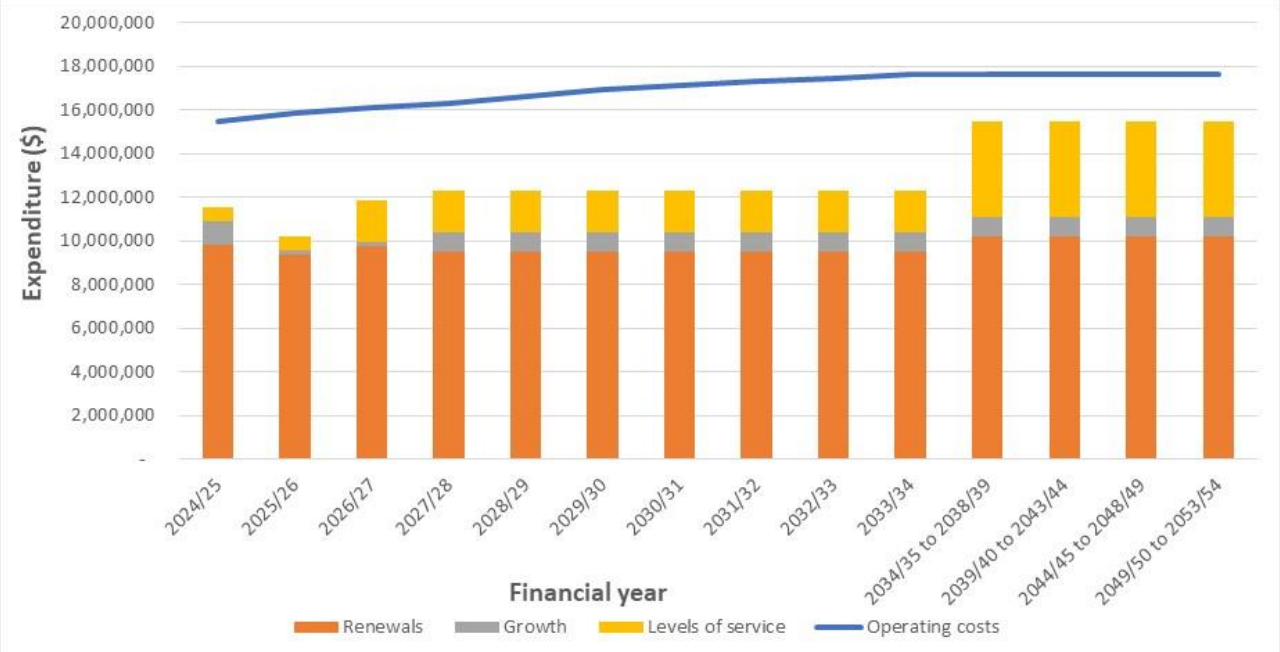
Figure 23 presents the expenditure forecast for transport which are based on the following assumptions:

- Waka Kotahi will continue to provide us with subsidised funding for the road network over the next 30 years at the current levels.
- We will continue to fund at the levels in the Long Term Plan and ten year forecasts stated in our Long Term Plan.
- We will provide services at the levels forecast in our Land Transport Activity Management Plan and 2024 Long Term Plan.

Over the next 30 years it is expected that Council's major capital expenditure items include:

- $5.4 million to reseal 7% (Council to confirm) of our roads each year for the next 30 years to ensure assets renewed sustainably.
- $11m to replace the large culverts in poor condition.
- Local road improvements to address safety issues at $62 million.
- Upgrading of the footpath network to cater for range of users at $18 million.
- Strengthening the resilience of bridges including component replacements at $19.8 million.

Figure 23 Transport expenditure forecasts (uninflated)

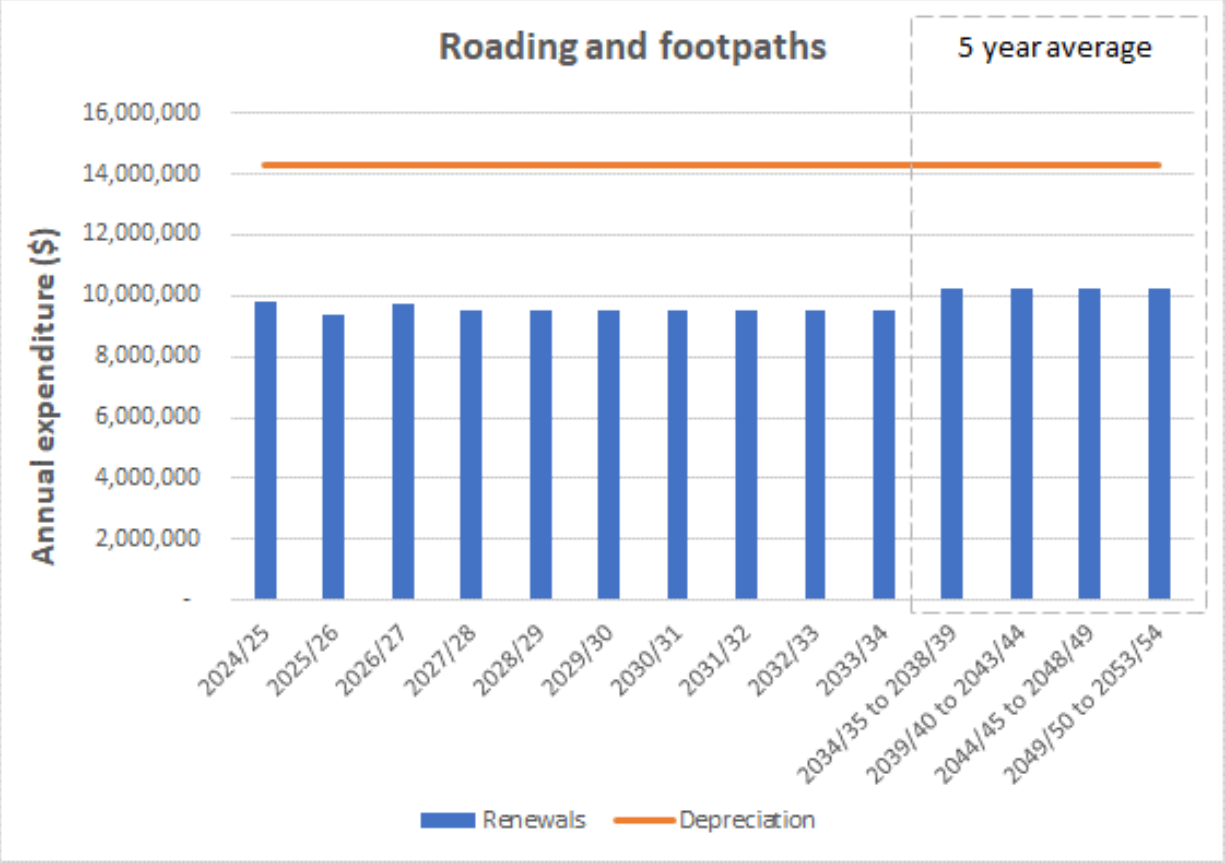


Source: RLC final LTP budget (as at March 2024)

Note: Depreciation has been excluded from the operational expenditure.

Figure 24 shows that our forecast renewal expenditure of $9.9 million does not match the annual depreciation of $14.3 million. We intend to review this difference between the level of renewal investment and depreciation to inform the next Long Term Plan.

Figure 24 Transport renewals versus depreciation (uninflated)



5.5.5 *Funding this activity*

We fund our land transport services from a range of sources:

- Waka Kotahi subsidies (FAR).
- Targeted rate based on land value.
- Fees and charges for road corridor access applications.
- Other funding sources.

6.0 Financial Summary

6.1 Decisions we expect to make

We will need to make a number of key decisions over the duration of our strategy. Some of these decisions will be significant to the district and some will not. Key decisions and action that will need to be made by elected members over the next 30 years include:

Table 25 Summary of key decisions

Activity	Key decisions	Decisions required by Council
Three waters	We will implement the water supply, wastewater and stormwater capital projects to enable growth as per the Future Development Strategy.	This is conditional on Long Term Plan budgets being adopted then the water supply, wastewater and stormwater capital works can be implemented.
Wastewater	We will implement the Sustainable Forest Approach once the alternative treated discharge point is agreed and consent conditions are known.	This is conditional on sufficient budget secured in the 2024 Long Term Plan.
Stormwater	Investment in stormwater quality will be required as part of the resource consent (currently being processed).	This is conditional on Long Term Plan budgets being adopted then the stormwater capital works can be implemented.
Land transport	We will implement the Road to Zero Strategy to prioritise safety risks across the network holistically.	Revising the Road Safety Programme is part of ongoing network management.
	We will continue with our maintenance and renewal programmes that targets interventions at appropriate levels consistent with good industry practice and meeting agreed levels of service.	This is a current practice and will continue. This option is shown for completeness and therefore no formal Council decision is required.
	We will continue to monitor the high lake levels at Rotomā and Rotoehu and the impact on the access to properties.	Council decision on a long term solution for the properties with restricted properties. The solution may not necessarily be infrastructure related.

Further detail is provided in each activity significant issues and options tables.

6.2 Summary of key financial assumptions

The financial assumptions for the most likely scenario for the district are as follows:

- There will need to be significant expenditure in the long term to meet higher environmental standards for wastewater discharges.
- There will need to be significant expenditure in the long term to meet requirements for the management of three waters.
- We will maximise the useful and economic lives of our assets.
- We will use risk management practices to maximise assets and the management of risk of a critical asset failing.
- Climate change impacts will increase requiring better management of assets.
- There will be increased costs for the acquisition, implementation, compliance and monitoring of resource consents.
- Waka Kotahi will continue to provide subsidised funding to the Council for the road network over the next 30 years at the current level.

- Significant operational and capital costs to remediate weather damaged assets, particularly the impact on the roading network. We will continue to apply to Waka Kotahi for emergency funding with flood damaged roads.
- The Development Contribution Policy (2022) only covers three water assets (under review for land transport and other infrastructure assets).
- All financial information presented in our strategy includes inflation, except for the graphs which present the renewal and depreciation expenses.

6.3 Funding depreciation

Figure 25 shows the annual renewals of $23 million versus annual depreciation of $29.5 million for the combined core assets. This shows that the forecast renewal expenditure for all activities is less than depreciation over the 30 year period. The gap is mainly due to wastewater and land transport renewals less than annual depreciation at this point in time.

Figure 25 Combined renewals and depreciation (uninflated) 2024-2054

6.4 Financial forecasts

Table 26 shows the total expected capital and operational expenditure for each infrastructure activity over the 30-year period 2024 to 2054.

Table 26 Expected total operating and capital expenditure (uninflated)

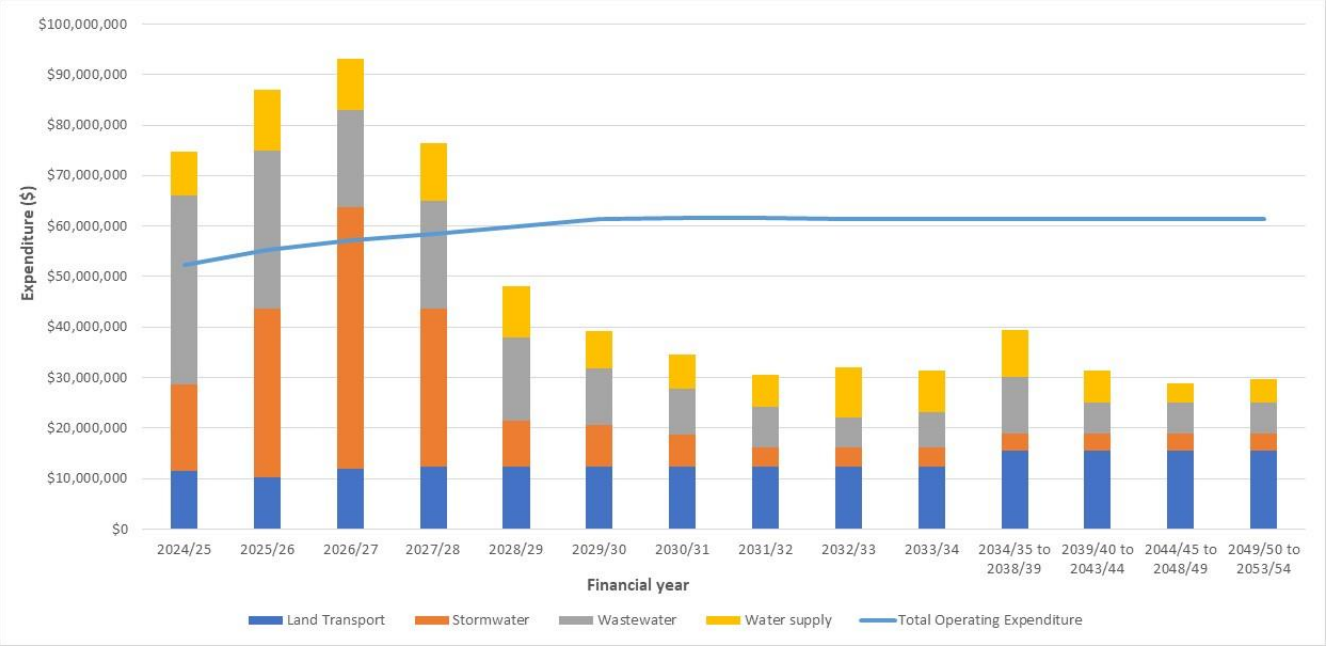
Activity	Capital expenditure	Operational expenditure
Water supply	$212,485,400	$385,444,603
Wastewater	$312,529,000	$747,219,454
Stormwater	$239,170,958	$166,526,891
Land transport	$433,399,515	$519,395,134
Total	**$1,197,584,873**	**$1,818,586,082**

Source: RLC LTP budget (as at March 2024)

Note: Depreciation has been excluded from the Operational Expenditure in the amount of approximately $30 million per annum and is on par with the renewal forecast. The operating depreciation differs to the asset valuation depreciation slightly due to corporate modelling adjustments.

Figure 26 shows the most likely scenario for total operating and capital expenditure for combined assets.

Figure 26 Combined infrastructure operational and capital forecast (uninflated) 2024-2054



Source: RLC final LTP budget (as at March 2024)

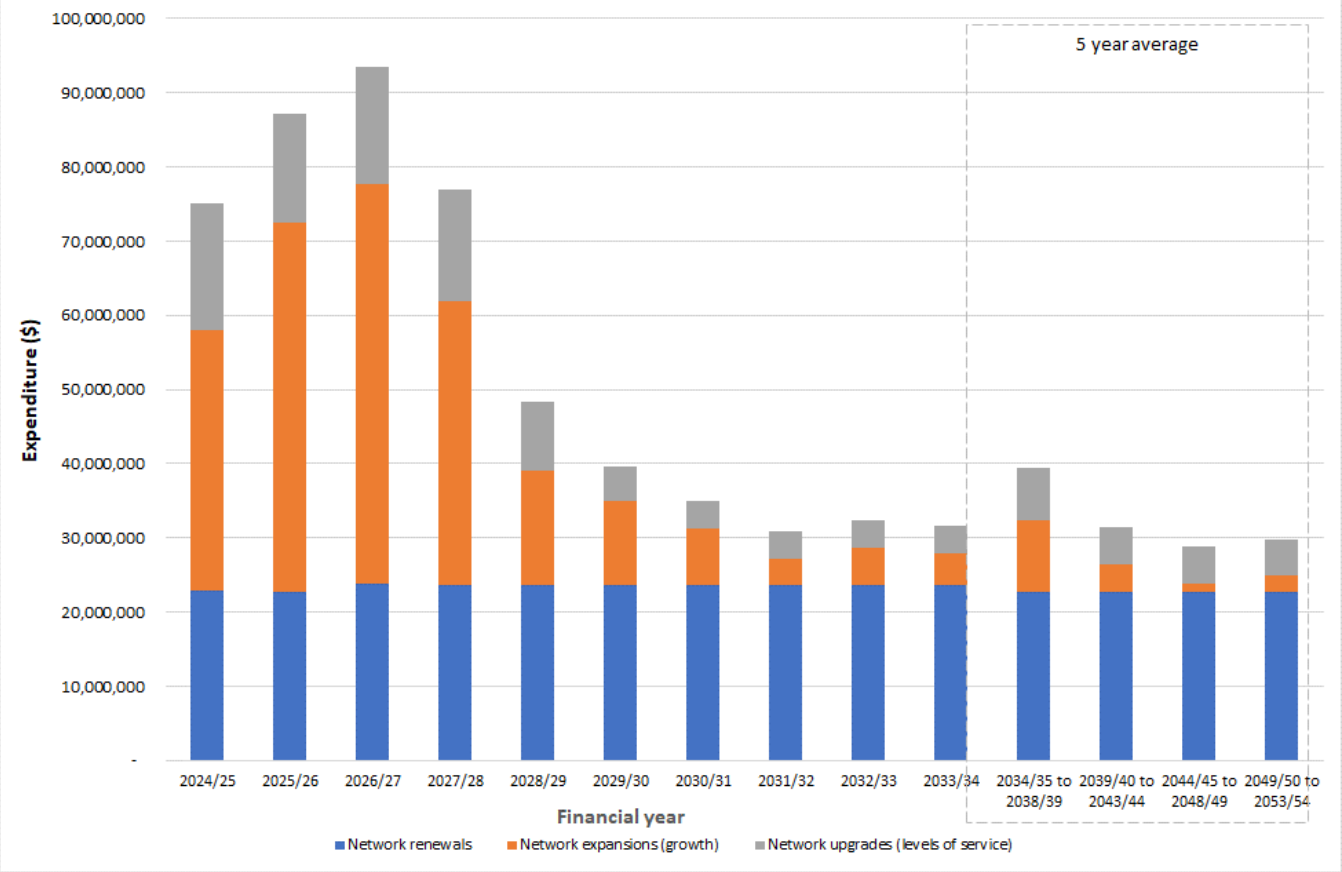
The breakdown by capital categories for each activity over the 30 year period 2024 to 2054 is summarised in Table 27 and in Figure 27. This shows that renewals are 57% of the total capital expenditure followed by growth at 26% and levels of service by 17%. Note that the operational expenditure totals include overheads and finance costs but excludes depreciation costs.

Table 27 Combined capital expenditure by category (uninflated)

Activity	Capital Expenditure			Operational Expenditure
	Renewals	Growth	Levels of Service	Operating
Water Supply	$119,965,000	$61,686,000	$30,834,400	$385,444,603
Wastewater	$180,000,000	$88,735,000	$43,794,000	$747,219,454
Stormwater	$90,000,000	$130,970,958	$18,200,000	$166,526,891
Land Transport	$299,512,515	$25,800,000	$108,087,000	$1519,395,134
Sub Totals	**$689,477,515**	**$307,191,958**	**$200,915,400**	**$1,818,586,082**
	$1,197,584,873			
Total	**$3,016,170,955**			

Source: RLC final LTP budget (as at March 2024)

Figure 27 Combined capital expenditure by category (uninflated)



Source: RLC LTP budget (as at March 2024)

Over the next 30 years it is expected that:

- Planned expenditure on renewals across all infrastructure activities is generally constant.
- Significant capital expenditure to enable growth in the first four years, particularly stormwater (with external Government funding).
- The Rotorua Wastewater Treatment Plant Upgrade in the first two years takes a large portion of the capital expenditure programme (growth).
- Transport capital expenditure to enable growth increases from 2027/28.
- Resealing about 7% of our roads each year for the next 30 years to ensure assets renewed sustainably.

6.5 Funding implications

There are funding implications from significant capital expenditure in this first ten years to meet the:

- Higher environmental standards.
- Upgrading the Rotorua Wastewater Treatment Plant
- Ensure our land transport network is preserved.
- Investment in stormwater capacity to facilitate development and population growth.
- To ensure our networks are resilient.

The largest change since the 2021 Infrastructure Strategy is the greater investment in the transport network (opex and capex), and the Rotorua Wastewater Treatment Plant upgrade. The impacts of these investment are:

- Increase in annual depreciation for the wastewater treatment plant once upgraded.
- Outsourcing of the operational management and day to day risk for the wastewater services.
- Increased operational requirements to cover the maintenance and improvements in pavement condition and road drainage.
- Increased capital expenditure from 2027/28 onwards for the transport network to support growth.

This is discussed in more detail in our Financial Strategy.

7.0 Assumptions and Uncertainty

7.1 Uncertainty and implications

In developing this strategy, we have identified a few things that we do not know. This uncertainty has a flow on effect on the identification of issues, options for dealing with issues, and how we can best respond.

The identified areas of uncertainty are:

- Legislative changes, National Policy Statements and National Environmental standards and meeting regulator requirements that may require significant changes to the way we plan, manage and fund the infrastructure.
- The impact of the new Government's alternative proposals for three water assets.
- The current water take consents for the Eastern, Central and Hamurana Kaharoa areas may not be renewed at the current abstraction limits in terms of quantity. This may require new source /s to be developed with associated capital cost implications.
- Future stormwater consent conditions may require us to be more proactive in stormwater quality management than current practices.
- The conditions and cost implications of the future resource consents for the treated effluent wastewater discharge point.
- The effect of climate change on RLC's infrastructure. As Council develops its understanding of the impact from climate change, the long-term response will need to be adapted for how to manage those effects on the infrastructure.
- Further work is required to understand what years 11-30 look like across the infrastructure classes as at the moment there are gaps in information which do not enable to RLC give certainty of what the future is expected to look like. We intend to gather evidence particularly the condition of our critical assets in the next three to ten years. This will help us develop robust and risk based renewal programmes.
- There are various levels of reliability of information across its infrastructure activities. Gaps have been identified (refer to Section 4.4).

7.2 Key planning assumptions

This strategy is based on the following assumptions:

Table 28 Significant assumptions

Significant assumption	Level of uncertainty	Impacts	Mitigation
Vision: That our Vision will apply for the duration of this 30-year strategy.	Low	The various planning documents will need to be reviewed and realigned with any new vision.	Any significant changes will likely occur with the Long Term Plan three yearly cycle so adequate time to make changes.
District population - Our District population is projected to continue growing, reaching approximately 90,800 by 2051 (based on the baseline scenario).	Medium	Population growth is significantly higher than forecast in a localised area, putting pressure on infrastructure. Or population significantly declines resulting in under-utilisation of infrastructure.	RLC will continue to monitor population change in the district. RLC will continue to monitor and update as things change at district level and regionally. Planning tools such as master plans for three waters and transport modelling are used to with the latest growth predictions.

Significant assumption	Level of uncertainty	Impacts	Mitigation
Lakes co-management - We will continue with our partner organisations Te Arawa Lakes Trust and Bay of Plenty Regional Council to ensure the integrated management of our lakes.	Medium	Rotorua Te Arawa Lakes are important for our District and co-management is vital for holistic and long term approach.	RLC will continue to foster the partnership as there are significant long term benefits to the District, regionally and nationally.
Waka Kotahi funding assistance - Waka Kotahi will continue to provide us with subsidised funding for the land transport network over the next 30 years at current levels.	Low	There is risk that sufficient funds will not be available to pay for planned capital projects.	This is an established and mature process and plenty of opportunities to negotiate.
Levels of service - Levels of service are defined in the Activity / Asset Management Plans for each activity, to meet legislative requirements and agreed to / accepted by the communities. Given financial pressures and the challenges faced by RLC, there is no intention to alter them.	Low	Significantly enhanced service levels are demanded by the community or imposed by the government. This will lead to additional cost and / or resourcing requirements.	RLC regularly monitors existing service provision within its operation on a day to day basis. Minor changes may be made to service levels where budget, contracts and resources allow. Major changes in service levels will be confirmed with the community through the Long Term Plan process.
Delivering the customer outcomes - Activity / Asset Management Plans will test the affordability of delivering the customer outcomes.	Low	Any significant customer outcomes are generally shared in national industry forum such as Te Ringa Maimoa as common across local government.	The asset management planning process is relatively mature and is the acceptable industry mechanism for testing service levels, risk and financial forecasts with the community.
Asset lives - RLC will maximise the useful and economic lives of our assets.	Medium	This will impact on the timing of replacements and the amount of rates collected for funding depreciations.	Continue to analyse the useful lives of the major asset classes as new information becomes available, with focus on the critical assets.
Risk management practices - Council will use risk management practices to maximise assets and the management of risk of a critical asset failing.	Medium	Large number of customers and critical facilities such as schools and hospitals may experience unacceptable outages.	Continue to monitor the performance of critical assets with targeted maintenance and renewal strategies.
Three waters proposals - Legislation with the three waters reform will have a significant impact on these activities and at a rapid pace.	High	The three waters proposals will impact service delivery. It is unclear which direction the new Government will take with service delivery options and management structures. Funding three water investment needs remains a significant issue nationally.	RLC will keep up to date with the new Government's proposed three water programme and evaluate options as information becomes available.
Climate change - Climate change will affect our District over the medium to long term in line with projections provided by the Ministry for the Environment.	Medium	The effects of climate change are more severe than expected, resulting in additional costs to mitigate impacts and increasing damage to Council infrastructure.	Council activities will build appropriate mitigation responses into infrastructure development. RLC will implement its Climate Action Plan (2021) including the impacts on infrastructure assets.

Significant assumption	Level of uncertainty	Impacts	Mitigation
Abstraction limits - The current water supply consents for the Eastern, Central and Hamurana Kaharoa areas will be renewed without any reduction from the current abstraction limits, and all those consents expiring in the next ten years.	High	Alternative supplies and / or storage many need to be investigated if consent not rolled over.	Continue with water loss management programmes to reduce demand to demonstrate to the Regional Council using water wisely. Continue with seeking joint resource consents with iwi to enable and share their aspirations for the management of the water source and surrounding whenua into the operational management of water supply.
Universal water metering - Universal water metering will not be adopted unless supported by strong business case.	Medium	This may be a requirement by Regional Council for new resource consents. It may also be a future requirement for securing any external funding.	Continue with implementing existing metering policy consistently coupled with education programme on water conservation.
Resource consents - There will be increased costs for the acquisition, implementation, compliance and monitoring of resource consents.	Medium	Additional resources may be required to meet increasing compliance requirements. This will result in additional operational costs for the activity.	Monitoring of compliance with existing resource consent conditions will provide a compliance for future processes. Work collaboratively with the Regional Council and Taumata Arowai on pragmatic monitoring programmes.
Wastewater investment - There will need to be significant expenditure in the long term to meet resource consent requirements for wastewater discharges.	High	The investment requirements may be unaffordable for our community and may not provide good environmental outcomes.	Work with our long term partner on cost effective options to manage the asset risks.
Lake Rotorua nutrient management - We will work towards offsetting the increasing level of nitrogen in the urban discharge through nitrogen discharge allocations.	High	The total load of nitrogen to the lake increases. The Regional Council enforces Plan Change 10 with RLC for its actions from the Rotorua Treatment Plant.	Continue to investigate charging an environmental fee (or a transfer of nitrogen in lieu of payment) that will be used to offset the increasing load of nitrogen in the treatment plant discharge as the population and community grow.

8.0 Strategy Improvement

The key improvement tasks identified through the development of Council's 2024 Infrastructure Strategy are summarised in the table below. This is part of continuous improvement process and will ensure that Council is best prepared for the 2027 Infrastructure Strategy. These actions should be read in conjunction with the technical improvement tasks provided in the Asset Management Plans.

Table 29 Strategy improvement actions

Strategy element	Improvement actions	Activity	Timeframe	Priority
Policy	Align RLC's investment programmes and supporting Activity Management Plan (2027) to the strategic priorities in the new Government Policy Statement on Land Transport once adopted in 2024.	Land transport	2024/25 to 2026/27	H
People capability	Develop a Workforce Capability Plan to cater for exit plans and succession planning.	All	2024/25 to 2027/28	M
Growth / funding	Review the Development Contribution Policy to assess if the scope should be widened to cover land transport and other infrastructure assets such as parks.	All	2024/25 to 2026/27	H
Asset renewals	Review the level of land transport renewals compared to annual depreciation so the activity is sustainable.	Land transport	2025/26 to 2026/27	H
Environmental management	Explore options to increase nitrogen discharge allocations in future.	Wastewater	2024/25 to 2026/27	H