Infrastructure strategy 2024

Final Consultation Version 17 – 29 February 2024

Supporting information for the proposed
Long Term Plan 2024-2034 Consultation Document

THAMES COROMANDEL DISTRICT COUNCIL

INFRASTRUCTURE STRATEGY

1 Introduction

Infrastructure provides an important foundation for healthy, thriving communities and prosperous economies.

This Infrastructure Strategy (the Strategy) is prepared under the requirements of section 101B of the Local Government Act 2002 and must cover the infrastructure used to provide roads and footpaths, water supply, wastewater, and stormwater.

The Strategy outlines how TCDC intends to manage its essential infrastructure assets, taking into account the need to:

- renew or replace existing assets
- respond to growth or decline in the demand for services reliant on those assets
- allow for planned increases or decreases in levels of service provided through those assets
- maintain or improve public health and environmental outcomes or mitigate adverse effects on them
- provide for the resilience of infrastructure assets by identifying and managing risks relating to natural hazards and by making appropriate financial provision for those risks
- increasingly work in a collaborative manner with other government agencies, stakeholders and partners

Investing in and effectively managing our infrastructure assets accounts for a significant proportion of Council's annual expenditure.

1.1 Purpose

The Strategy provides an overview of:

- Issues that we have identified as likely to have a significant impact on our infrastructure over the next 30 years
- Options that we have identified for managing each of these issues and the implications of these options
- Significant capital projects that we expect to undertake over the next 30 years

1.2 Our Infrastructure Strategy at a glance

Our approach to managing our existing assets efficiently and effectively and investing in new infrastructure assets wisely will be based on the following principles:

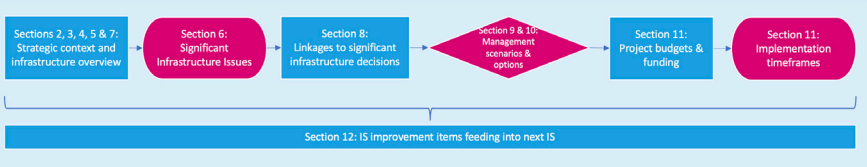
- Making best use of our existing infrastructure and ensuring good stewardship of the investments that we have already made
- Managing our assets based on quality information
- “Right sizing” our infrastructure assets
- Building back better to ensure resilient infrastructure
- Applying an adaptive management approach to infrastructure planning
- Ensuring that we balance the need for enabling infrastructure with long-term demand.
- Taking an integrated and collaborative approach to land use and infrastructure provision
- Consideration of differing service levels

1.3 Linkages with other documents

The Strategy provides a 30 year view on infrastructure management issues and requirements and has close alignment and linkage with the Long Term Plan, Financial Strategies, and Asset Management Plans.

1.4 Overview of the IS document

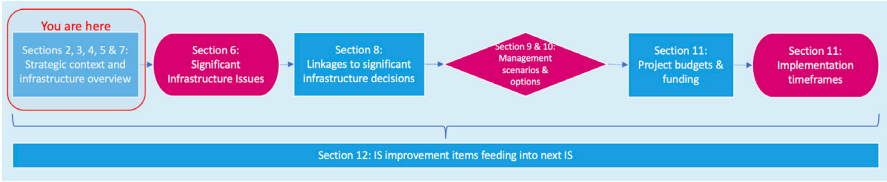
The flow/linkage diagram below provides an overview of the document and indicates how the sections within this Infrastructure Strategy link together:



The linkage diagram above is included at the start of each key section of the document to help the reader understand where they are in the IS and how the sections integrate.

2 Our Strategic Context

The document linkage diagram below highlights where you are in the IS:



Our approach to investing in and managing our infrastructure assets is guided by Council's vision, values and outcomes.

2.1 Council's Vision and Key Priorities

Vision:
Our Coromandel – the place to live, work and play.

Priorities

- A collaborative district
- A vibrant and safe district
- A connected and resilient district
- Sustainable services and infrastructure

2.2 Council's Values

- Financially responsible with ratepayers' money
- Integrity, transparency, and accountability in our actions
- Creating strong partnerships with our district's iwi

- Working with and having meaningful relationships with both our resident and non-resident communities
- Being an effective, innovative, and responsive organisation

3 Our Infrastructure Journey

Over the last three years, we have:

- Experienced severe weather and cyclone events in 2023 that have affected our key infrastructure assets including roads, solid waste transfer stations and 3 Waters. Response and recovery initiatives have affected routine operational activities and planned project delivery with resources and funding diverted to cyclone recovery priorities.
- We have made significant investment in our water treatment plants in response to the new drinking water standards. Thus far, upgrades have been completed at Whitianga, Tairua, Coromandel, Pauanui, Wentworth Valley, Moana Point, Beverley Hills. The remaining treatment plants are programmed to be upgraded over the next three to four years.
- The Shoreline Management Pathways project was adopted in September 2022. This has started to have significant influence on the strategic direction and long-term adaptation of Council's infrastructure.
- The Thames and Surrounds Spatial Plan was adopted in October 2022 .This will provide strategic planning direction and prioritisation of future infrastructure servicing in the area.
- Bedded in a new roading professional services contract. As part of this contract, a co-located model with our roading consultant was established.
- Improved the performance of real time monitoring for our water and wastewater treatment systems
- Commenced a water treatment and improvement programme
- Continued the development of consistent asset management processes and practices to guide how all assets are managed
- Continue to roll out detailed investigations into the underground 3-waters assets to help inform renewal planning
- 3-waters stimulus funding from central government was used to support the installation of water meters in Whitianga and Whangamatā as part of the water reform process. This project is still in progress.

While we have made good progress, this Strategy signals that further work is needed.

4 Overview of Infrastructure Assets

The Strategy draws together information from the Asset Management Plans for the following activities:

Table 4-1: Infrastructure Categorisation

Infrastructure	Planning & Management	Operations	Capital Delivery
Roads and footpaths	Inhouse	Outsourced	Outsourced
Coastal and Hazard Management	Inhouse	Inhouse	Outsourced
Solid Waste	Inhouse	Outsourced	Outsourced
Water supply	Inhouse	Inhouse	Outsourced
Stormwater	Inhouse	Inhouse	Outsourced
Wastewater	Inhouse	Inhouse	Outsourced

[1] Asset values in this document are based on market valuation for buildings and depreciated replacement cost for all other assets. Total value referenced from 2023/2024 Annual Report p. 90.

Infrastructure	Planning & Management	Operations	Capital Delivery
The infrastructure assets are covered in this Strategy in accordance with the Local Government Act 2002 Section 101B Infrastructure strategy requirements			

The value of these assets is estimated at $1.558M[1], and ranges from pipes under the ground to reservoirs, roads, footpaths, bridges, refuse transfer stations, and coastal and hazard management assets.

Some of our assets are defined as “critical assets”. These are assets where failure would result in unacceptable consequences. The failure of a critical asset may, for example, have an unacceptable impact on our ability to deliver necessary services, on the health and safety of our communities, on our economy, or on the quality of our environment. Key information about each of the infrastructure types covered in this Strategy is provided in the following section.

4.1 Roads and Footpaths

Council is responsible for the planning, provision, development, operation and maintenance of the District’s land transportation network and facilities to local communities, including local roads, footpaths, service lanes, street lighting, bridges and carparks owned by us. This ensures that the movement of people and goods around our District and within local communities is safe, efficient, convenient and pleasant.

Critical roading and footpath assets include bridges and large culverts and retaining structures. We have 697 kilometres of roads

(498 kilometres sealed, 205 kilometres unsealed), 175 bridges, and 294 kilometres of footpaths. The land transport activity represents almost half of our infrastructures' value, at $974.6 million.

4.2 Coastal and Hazard Management

The key objective of the Coastal and Hazard Management strategy is to provide protection for coastal communities, coastal facilities, coastal reserves, and public spaces across 400km of coastline around the Coromandel Peninsula. The activity will support resilient communities, recreation, tourism, commercial fishing, public amenities, and aquaculture activities. These works include seawalls, backstop walls, groynes, and storm bunds which provide coastal protection to property, reserves and roads. Council also undertakes dune replenishment and beach re-nourishment to manage the effects of coastal hazards on existing development and infrastructure. We currently manage 18 hard protection coastal assets – including critical assets at Moanataiari, Buffalo Beach, Flaxmill Bay, Thames, Te Puru and Cooks Beach.

Council understands that climate change is a significant issue for the District and undertook the Shoreline Management Pathway project, adopted in 2022, to help plan and prioritise for expected impacts. These impacts include sea level rise, increasing storm intensity, increased coastal erosion and coastal inundation. 138 coastal adaptation pathways (or action plans) were developed to set out a strategy for individual locations in the District to respond to climate change overtime. The adaptation pathways also include recommendations relating to coastal protection assets (i.e. build, remove, enhance). These documents have informed the Coastal AMP, which covers both hard and soft coastal assets.

As a result of the strategies developed in the coastal adaptation pathways, five new significant projects within the next ten years have been identified – storm bunds (with seawalls in places) at Tairua, Thames, Te Puru and Tararu and a seawall at Macrocarpa Reserve, Buffalo Beach and Whangamatā within the next 15-20 years. We also expect the need for these projects to increase over time as the impacts of climate change increase.

4.3 Solid Waste

Solid Waste activity vision defined in the new Waste Management and Minimisation Plan (WMMP) (2023-2029)[2]is 'to take action towards a circular economy and sustainable future'. The WMMP, adopted by Council in September 2023, has been prepared in accordance with the requirements of the Waste Minimisation Act 2008, and sets a number of key objectives and actions relating to the management of the community's waste over the 2023-2029 period; key activities include rubbish and recycling collection and disposal to protect public health and the environment. We promote recycling, reuse and resource recovery with the objective of reducing the amount of waste going to landfill. We operate a weekly kerbside refuse and food scraps collection, and a fortnightly recyclables collection service. We operate seven transfer stations where refuse and recycling can be dropped off.

The operation of the seven refuse transfer stations and collection and disposal of household kerbside refuse, recycling and food scraps is outsourced to an external contractor under a long-term contract. We also manage and monitor seven closed landfill sites.

[2] https://www.tcdc.govt.nz/Our-Services/Rubbish-and-Recycling/Waste-Minimisation/Waste-Management-Minimisation-Plan

Critical solid waste assets include the Coromandel, Matarangi, Pauanui, Tairua, Thames, Whangamatā and Whitianga refuse and recycling transfer stations. Should there be any new developments (for example by private developers) in the vicinity of any refuse transfer station facility, then Council may consider alterations to these facilities to accommodate upcoming community needs.

4.4 Water supply

Water supply is the provision of clean water to dwellings and commercial premises. It helps to ensure the availability of safe water for drinking and cleaning purposes to maintain public health, and the provision of water for firefighting to assist public safety.

In addition, we promote efficient water use and ensure that water demand management practices are implemented. Critical water supply assets include water sources, treatment plants, filter stations, pump stations, reservoirs and large trunk mains.

Our water supply network draws approximately 60% of the water supplies directly from rivers or streams and approximately 40% from groundwater via wells. Unlike large urban areas, where scale allows for a large, interconnected network of water sources and supplies, our District has a number of separate water supply systems, each serving a distinct community. The Council operates 12 water supplies and 48 reservoirs, with over 600 kms of pipes supplying water to approximately 19,700 water connections across the district. Due to their physical separation, it is not practicable to connect our water supplies up to allow the transfer of water from one community to another. This means that each community must rely solely on its own supply. The exception is when water is tanked in from other areas in times of severe water shortages.

4.5 Stormwater

Stormwater is the result of heavy or sustained rainfall resulting in the need to manage the disposal of surface water. This District is particularly vulnerable to heavy rainfall due to its geography. We have several stormwater systems located throughout the peninsula to manage runoff and reduce surface ponding, and to reduce risks to public health, safety and property. Critical stormwater assets include five stormwater pump stations, along with seven stormwater detention ponds, 221 km of stormwater pipelines, soakage cells and bulk stormwater assets which convey large quantities of stormwater. There is a strong linkage between the Stormwater and Coastal and Hazard Management activity.

4.6 Wastewater

Council collects, treats and safely disposes of treated wastewater (sewage) from properties and businesses. Effective management of the District's wastewater is important to maintain public and environmental health. In areas where they are in place, wastewater systems help to protect the environment by ensuring that untreated wastewater does not infiltrate our water catchments and coastal areas. Critical wastewater assets include 10 wastewater treatment plants, 131 pump stations and over 400 kms of piped mains.

5 Overview of the Thames-Coromandel District

5.1 Physical Context

Thames-Coromandel District covers around 230,000 hectares of land, of which about 65% is covered by indigenous forest. Approximately one third of the District is conservation land managed by the Department of Conservation. The District is divided by the steep, rugged Coromandel Ranges which run down the middle of the peninsula. The nature of the peninsula means that some parts of the District are prone to landslides, subsidence, geological instability and rock falls.

The peninsula's 400 km coastline consists mostly of short beaches and bays separated by rocky cliffs. The Coromandel township area and eastern coast of the peninsula are characterised by natural harbours. The coastal environment is subject to coastal processes including erosion and inundation and the effects of climate change.

The climate is moderate, with warm summers and moderate winters. The District experiences fairly high rainfall due to the high ranges, although this varies depending on location. The geography means that it is prone to adverse weather events and natural hazards such as landslides and flooding, and low-lying areas are at risk of tsunami.

It is expected that climate change will impact the environment globally and locally, with changes in wind and weather patterns, sea level rise, and increased flood risk and frequency of extreme weather events predicted. Climate change is not expected to create new hazards, but it may change the frequency and intensity of hazards. Changes in climate are likely to affect the low-lying and coastal areas of the District.

Coastal erosion is expected to increase as a result of sea level rise and an increase in the frequency and magnitude of storm surges. For a number of coastal roads and townships around the District, coastal erosion combined with rising sea levels could become a significant issue for our infrastructure.

The peninsula shows considerable signs of historic volcanic activity and is situated on remnants of the Coromandel Volcanic Zone. Geothermal activity is still present on the peninsula, with hot springs in several places, including at Hot Water Beach.

5.2 District Growth

Council recognises that growth and development are ongoing in the District and will continue over the period of the 2024-2034 Long Term Plan. While our growth projections indicate a moderate level of growth to 2029, and a gradual decline to 2054, Council is keen to encourage new growth and development by addressing any infrastructure and zoning barriers that currently exist.

Our current financial constraints limit our ability to fund the infrastructure required to support new growth in the short term. In the longer term, Council anticipates that it will be in a better position to support growth through infrastructure provision. Spatial planning is a useful tool for integrating our infrastructure and land use planning and spatial plan for our main settlement, Thames, was adopted in October 2022. Spatial plans for other areas in the district will provide us with a clearer direction for future growth and infrastructure provision.

5.3 Long-term Impact of COVID-19

The COVID-19 pandemic has caused an increase in the level of uncertainty in relation to our economic and demographic projections. In addition to the negative impact on our tourism sector,

there have already been unforeseen impacts, like a stronger housing market. The potential for COVID-19 to alter demographics and projections is acknowledged, and we will need to be responsive to changes, such as to our demographic projections, the tourism sector of our economy, development pressures and infrastructure requirements.

5.4 Demographic Context

Understanding where, how and when the population of the District is likely to change in the future is critical for the effective planning and management of our infrastructure. Different demographic groups have different needs and preferences.

Our largest settlements are Cooks Beach, Coromandel, Matarangi, Pauanui, Tairua, Thames, Whangamatā, and Whitianga. Each of these main settlements has different population and growth characteristics.

5.5 Population change[3]

Population growth in the District was relatively modest from 1996 to 2013, as the District grew from 25,400 to 27,300. From 2013, the rate of growth picked up, and the District reached 34,260 in 2023. The recent increase in growth has been driven by increased flows of people from Auckland and overseas. The extended closure of the country's borders in response to the 2020 COVID-19 pandemic has affected the District's short-term growth, and there is ongoing uncertainty about its projected growth in the medium to long term.

For this reason, the Council has adopted a medium-growth projection for this Strategy.

Looking ahead, under the medium growth projection, the population is projected to grow modestly to reach 35,911 in 2034, and 35,737 by 2054.

In the coming 10 years, while the overall population in the District is growing, the strongest growth is expected in the Mercury Bay Community Board area, increasing from 10,618 in 2023 to 11,752 in 2034 under the medium projection.

5.6 Demographic Change [4]

The District has an ageing population. In 2023, around 34% of our usually resident population was aged 65 and over, which is approximately twice the national average. The over-65 age group will continue growing strongly in the near term to reach 41% in 2033, before growing more slowly to reach 43% by 2053.

The proportion of the population aged 20-64 years of age will drop from 48% of the population in 2023 to 43% in 2033.

5.7 Dwelling and rating unit growth[5]

In 2023 there are around 27,300 dwellings in the District. A medium growth scenario is assumed under which the number of dwellings will increase by 1,500 between 2023 and 2034, at an average of 140 more dwellings per year. This is a steady fall from a peak of 360 in 2023, driven by a challenging macroeconomic environment

[3] Forecasts based on 2024 LTP Assumption information based on Infometrics Ltd report

[4] Forecasts based on 2024 LTP Assumption information based on Infometrics Ltd report

[5] Forecasts based on 2024 LTP Assumption information based on Infometrics Ltd report

in the short-term, and slowing population growth in the long term. From 2038, dwelling numbers are assumed to remain static, reflecting flat population and household growth.

Dwelling growth will be strongest between 2022 and 2034 in Matarangi (1.0%pa) and Whitianga (0.8%pa). Growth will be solid in Coromandel (1.0%), Cooks Beach (0.7%pa) and Hāhei (0.7%pa). Even under a zero dwelling growth scenario, construction activity is likely to continue as dwellings reach the end of their economic lives, housing intensification requires demolition of old dwellings, and sea level rise prompts retreat in some areas.
A medium growth scenario is assumed, and rating units are projected to increase by 1.0%pa to 31,600 in 2034, and by 0.3%pa to 33,800 in 2054.
Residential rating units are projected based on assumed dwelling growth. Industrial and commercial rating units are projected based on forecast districtwide employment growth.
All other rating units are assumed to remain constant over time, which reflects that they are either constrained by available land or limited information is available about their growth trend.

6 Overview of Significant Infrastructure Issues

The document linkage diagram below highlights where you are in the IS and how this section relates to the next sections in the IS:

We recognise that we plan, deliver and manage infrastructure in an increasingly complex, dynamic and ever-changing environment. Being mindful of our local context (detailed in Section 5), key significant issues and impacts helps us make good infrastructure management decisions for the community. These significant issues are detailed below:

Key issue	Description	Significance rating 1-low, 5-high
Key Interdependencies	Identifying infrastructure assets and services interdependencies and the need for inter-agency -management collaboration is of increasing importance.	**5**
Affordability	Significant cost increases are being experienced. There is the need to respond prioritise and fund infrastructure investment requirements	**5**
Climate change, Natural hazards, Coastal hazards and resilience	The emerging climate change impacts and issues are increasingly impacting on communities in the District.	**4**
Peak demand	This issue of large influx of holiday-makers over summer particularly affects: Water supply – where management arrangements are under review as part of the Water Services Reform Solid waste services	**4**
Age and condition of assets	There are significant numbers of aging assets across the asset portfolio and Infrastructure condition assessment and renewals is important as assets age	**3**
Changing standards and service expectations	Increasing regulatory requirements and community infrastructure service expectations	**2**
District Growth	District growth spatial and structure planning and associated implementation plans support development of the District. There is particular focus on enabling Thames and surrounds growth.	**2.5**
Water Services Reform	The reform programme direction is awaited from the new Government. Until this becomes clearer, Council will continue to operate and maintain 3 Waters services	**5 (short term)**

6.1 Key Interdependencies

A new key issue on Interdependencies has been added in response to the changes over the past 3 years and the recognition of the increasing importance of identifying infrastructure assets and services interdependencies and the need for management collaboration within TCDC and across agencies. Simply put, there are assets and services provided by others that TCDC is reliant on or impacted by. These include:

- Regional Solid waste disposal at a private landfill facility at Tirohia
- National roads, SH25 and 25a, managed and operated by Waka Kotahi impacting:
  - TCDC solid waste haulage
  - Tourism
  - Council operations
- Flood protection infrastructure owned and managed by Waikato Regional Council.
- Potential Water Services provision arrangements yet to be determined under new Government direction
- Stormwater control and management utilising TCDC parks and reserves as overflow and detention areas
- TCDC development and growth planning requiring other agency input and collaboration

These points highlight the range of interdependencies with other agencies and the need for increased Council engagement and collaboration. This will require additional time allocation by asset managers and engineers and their consultants.

6.2 Affordability

The District's ratepayers vary in their profiles, background and ability to pay. For example, while some ratepayers may be considered more affluent, there are also significant elements of socio-economic deprivation. This, coupled with an older and ageing population, can create significant affordability issues.

The issue of affordability presents constraints for the ongoing provision of cost-effective infrastructure services. Projects have had to be prioritised, and in some cases deferred. Throughout this process of evaluation, more weight has been given to Council's core infrastructure and associated services and to critical assets. There is potential for this prioritisation and budget constraint to increase risks to the delivery of services or require unbudgeted expenditure. Prioritisation and management of risk will continue to be a focus throughout the delivery of Council's activities.

6.3 Climate Change and Coastal Hazards

Climate change poses an increasing risk to our coastal areas. The peninsula's 400 km coastline is subject to coastal processes including erosion and inundation and these are likely to be intensified by the effects of climate change and rising sea levels.

Coastal erosion is expected to increase as a result of rising sea levels and fluctuations, the frequency and magnitude of storm surges, changes in tides and rainfall patterns. Rising sea levels combined with coastal erosion could have a significant impact on our infrastructure assets particularly those in low-lying and coastal areas. Some of our infrastructure is already at risk from coastal hazards.

Rising sea levels could also result in a higher groundwater table, causing salination of low-lying water supplies and reducing how quickly water drains away after rain. This may in turn have a negative impact on water quality and on the health of our communities and natural ecosystems.

Informed and proactive planning will help to minimise the direct and indirect costs of climate change. Infrastructure planning will need to ensure that future assets are located appropriately, are of sufficient standard and have adequate capacity to cater for predicted climate change. Future infrastructure works (to build new or renew existing infrastructure) will need to consider projected sea level rise. Relocation of assets may need to be considered if they are at risk.

The Council uses guidance and direction from the New Zealand Government to inform how we plan and prepare for the predicted impacts of climate change. We have developed a Coastal Management Strategy and are now developing a Shoreline Management Plan. This will allow us to undertake effective planning to support the adaptation of council assets, services and our coastal communities to coastal hazards.

The Shoreline Management Plan was adopted in September 2022 and an adaptive management strategy has been developed. The outcome of this project has implications for infrastructure and is driving future funding requirements (e.g. Coastal Hazards projects and Transportation and 3-waters resilience/improvement related projects). Council will need to stay informed regarding changing legislation as this will likely impact the SMP and project priorities.

6.4 Natural Hazards

The District is exposed to a variety of other natural hazards that can result in disruption to services and damage to our assets, which can lead to unforeseen and often high costs to remedy. These include:

- Flooding
- Severe storm events
- Landslides and slips
- Tsunami
- Drought
- Earthquakes
- Volcanic eruption

The Coromandel Ranges attract high intensity rainfall events on a regular basis which makes the District prone to significant water ponding and inundation. The ranges have short, steep catchments which provide short warning times before the effects of heavy rain impact; this can be exacerbated by coastal locations and high tides. Predictions suggest that climate change may result in increased frequency and intensity of some hazards, such as storm events and flooding.

The potential effects natural hazards can have on infrastructure can be catastrophic. In order to reduce the impacts and protect the community Council aims to provide resilient infrastructure. This is achieved through:

- Adopting safety and resilience in design
- Monitoring natural trends and patterns
- Developing policies strategies and programmes
- Developing contingency and emergency response plans
- Identifying vulnerable and at-risk assets and categorising them in asset data systems
- Reporting on emerging trends and issues

6.5 Peak Demand

Around half of our ratepayers do not live in the District full-time and our population varies significantly at different times of the year. Demand on infrastructure is at its highest during the summer period, when the population of the District is estimated[6] to increase to around five times the normal resident population. This is due to the large proportion of non-resident ratepayers who occupy their holiday homes over these period and other holidaymakers and tourists who visit the District.

The District also experiences fluctuating peaks during long weekends and popular events held during the non-summer holiday period. This presents some challenges for how we plan for, and provide, infrastructure and services.

There is some uncertainty about how COVID-19 will continue to affect tourism. However, domestic tourism is expected to remain high in the short term, and longer term the total projected visitor numbers to the District are expected to continue to increase. This means that peak demand pressures will continue and are likely to increase over the next 30 years.

Managing demand for services and usage of our assets during peak periods will be a key part of our response.

[6] A study by Qrious estimated that during the period between 22 December 2016 and 22 January 2017 our population reached a peak of around 126,298 overnight visitors and around 146,456 day visitors.

6.6 Age and Condition of Assets

The age and condition of our assets affects the level of service that Council can deliver and the likelihood that assets will fail. Regular maintenance, renewal and replacement of our infrastructure, in particular our critical assets, are important to ensure that they continue to deliver services and provide the foundation for a prosperous economy and healthy, thriving communities across the District.

Managing our assets for their full lifecycle requires integrated planning and good underlying data. Decision-makers need reliable information about assets to manage maintenance and renewal needs and to make sound decisions about when to invest in new infrastructure assets. Accurately and regularly assessing the condition of many of our infrastructure assets can be difficult, particularly for those that are underground, like water supply pipes. While we have good information about the age and condition of some of our assets, like roads and footpaths, we need to improve the age and condition information for many of our 3-waters and coastal assets. This will continue to be a focus over the 2024 LTP period.

We will need to ensure that we minimise our costs through the application of good asset management practices and by providing services for the least whole of life cost.

Limited change is expected in the management of our assets, as long-term maintenance contracts are in place to ensure continuity of service to specified standards. These contracts were all secured through the Council's adopted procurement practices.

Council has developed fit for purpose project management systems to ensure that we maintain assets and build new assets in a professional manner. These systems are continually being reviewed and revised.

6.7 Changing Standards and Service Expectations

National standards and expectations around how we treat our environment have been changing and are likely to continue to change over the next 30 years. Some of our infrastructure assets need resource consents, which require assets to meet certain standards or conditions around the impact that they have on our natural environment. For example, resource consents place restrictions on the amount of water allowed to be drawn from a water supply source and on the impact that stormwater and wastewater discharges have on our environment and water quality. As our assets age, or when resource consents are renewed, new standards or conditions may be required. If our assets do not meet the consent conditions, there are likely to be costs associated with renewing or upgrading them so that they comply with higher standards.

National standards require that buildings owned by Council meet standards, including how they would perform in the event of an earthquake. A new national system for identifying and managing earthquake prone buildings was introduced in 2017; priority issues have been addressed and there are no IS infrastructure related buidings requiring major improvements.

As the expectations, preferences and demands of our communities for different types of services change, we will need to consider how we ensure infrastructure and facilities remain fit for purpose while ensuring ongoing affordability and financial sustainability.

6.8 District Growth - Enabling Thames and Surrounds

Thames is the District's key service town and is strategically located about an hour's drive to three major urban growth centres: Tauranga, Auckland and Hamilton. To date the growth experienced in these centres has not spilled over to Thames, despite consistent GDP and employment growth in the Thames ward.

A number of factors have contributed to this, including the area being constrained by topography and natural hazards, unsupportive planning provisions, underinvestment in enabling infrastructure, perceived lack of recreational and other amenities, and a town centre that does not inspire development. For some areas of Thames, significant infrastructure investment is required to enable development.

In October 2022 Council adopted the Thames and Surrounds Spatial Plan to help overcome some of these barriers. Thames Township, Kauaeranga Valley, Totora Valley, Kopu, and Matatoki North/Kirikiri have been identified for urban intensification and growth in the short to medium term, with long term growth signalled for Matatoki and Puriri.

The spatial plan has identified the Key Infrastructure Moves required to enable growth. Multi modal transport connections will connect new growth nodes to the town centre, and new public transport connections will improve access to Auckland and Hamilton. Water treatment and storage capacity needs to be increased, and extensions made into Totora and Matatoki. A future water take from the Kirikiri stream should be investigated, as well as connections to the improved Thames South water network. The existing wastewater treatment plant is near capacity and will need to be complemented with, or replaced by, a new WWTP closer to where future growth will occur (works are planned over the period 2024-2029, see Section 10.6). Investment in stormwater management and coastal protection as described in the Coastal Adaptive Pathways Plan will protect the commercial centre and low lying residential and employment areas from the impacts of climate change (Works are planned in Thames and Kopu over the period 2027-2034).

The speed of development of new growth areas is dependent on the timing and sequencing of infrastructure investment, appropriate district plan provisions, and market demand.

The impacts that these significant issues have on infrastructure planning and delivery are highlighted in the following sections of this Strategy.

6.9 Water Services Reform

Late in 2020, the previous Government introduced a Three Waters Reform programme followed by a number of key pieces of legislation having been enacted that will affect future service delivery arrangements. However, following the 2023 general elections the new Government has signalled a change in Water Services reform direction and it is envisaged that the reform process may well have a protracted timeframe. Council is awaiting information about the future direction of 3 Waters reform.

Infrastructure challenges such as renewal, resilience, service standards and changes in growth and demand exist regardless of the agency that provides these services. Therefore, Council will continue to apply the same standards of completeness and robustness as if these activities were to stay in local authority ownership.

7 30 Year Infrastructure Strategy

Managing infrastructure with modest population growth and increasing standards and service level expectations, coupled with seasonal population fluctuations, is challenging. Finding the right balance between competing demands, preferences and needs against available financial resources, extreme weather events and the rugged topography of the Coromandel are just some of the unique challenges that we must manage together.

7.1 AM Policy and Maturity Targets

Good asset management processes and practice is a key enabler that facilitates the implementation of the Infrastructure Strategy. The Council adopted a revised Asset Management Policy in 2020 (A review of this Policy is proposed in 2024).

The policy stipulated that target Asset Management practice maturity index is at least 'Core'. Based on this the AM maturity index for Council's core infrastructure (Land Transport and the 3Waters) is 'Intermediate' and the other infrastructure portfolios AM maturity index is 'Core'.

7.2 Management Approach

Our approach to ensuring that we manage our existing assets efficiently and effectively and invest in new infrastructure assets wisely is based on the following key principles:

- Making best use of our existing infrastructure and ensuring good stewardship of the investment that we have already made
- Regular, programmed and prudent maintenance
- Cost-effective programmed renewals, while maintaining service levels and managing risk
- Wise new capital investment based on sound forecasting and assessment of the significant issues
- Collaborative management approach with all stakeholders and partners
- Build in infrastructure resilience wherever possible
- Development of adaptive infrastructure management strategies able to respond to regulatory and climate change

7.3 Infrastructure Information and Data Management

Infrastructure information management is a core aspect of asset management and there are a range of processes and systems across the TCDC asset portfolio. The core infrastructure activities have more complex and detailed asset systems. Continuous asset data improvement is applied across the asset portfolio.

Asset information informs a wide range of asset management activities including:

- Asset performance monitoring
- Asset condition assessments
- Customer complaints and mitigations
- Maintenance and repairs record keeping and analysis
- Consent monitoring and management
- Modelling
- Renewals planning
- Growth planning
- Asset revaluations
- Financial forecasting
- Performance reporting

The table below summarises the information and data confidence levels across the infrastructure portfolio; more detailed information can be found in the asset management plans.

Table 7-1: Data confidence grading, criticality and improvements

Infrastructure Class	Data confidence*	Criticality rating? Yes/No	Key Improvement
Land Transport	B-Reliable Reliable +- 2-10% uncertainty	Yes (Based on Road Classifications)	Ongoing data improvement focus on unsealed road condition and bridge condition
Flood management & control	C-Medium Reasonably Reliable +-10-25% uncertainty	No	Ongoing data improvement -focus on asset audits
3Waters	B-Reliable Reliable +- 2-10% uncertainty	Yes	Update of Criticality ratings Ongoing data improvement -focus on below ground assets
Solid Waste	B-Reliable Reliable +- 2-10% uncertainty	No	Ongoing data improvement-focus on asset audits

*See Appendix 1 data confidence grading chart for confidence definitions

Analysis of asset data aids AM decision making and renewals forecasting programmes, therefore, there are ongoing asset data improvement activities across the infrastructure asset classes. Focus is on ensuring completeness of asset data information and then on improving the levels of asset information including asset makes, models, pipe diameters and materials, technical information installation dates, condition, criticality and remaining life, unit rates. More detailed information can be found in the asset management plans.

7.4 Assumptions

The table below identifies potential key assumptions for the 2024-34 LTP which have been informed by the environmental scan. The assumptions will inform the 2024-34 LTP and will be included as part of the consultation document and draft LTP for community consultation.

Please note:

1. Actual results will likely vary from the information presented, but the assumptions are based on the best information known at the time. These assumptions have been developed specifically for the Council's ten year planning purposes.
2. "NEW" before an assumption title indicates the assumption is not in the 2021-2031 Long-term Plan but is proposed to be included in the 2024-2034 Long-term Plan.
3. The 'Level of Uncertainty' column is colour coded to indicate the level of uncertainty: red = high, amber = medium, green = low.

Table 7-2: 2024 LTP/IS Assumptions (at 29 February 2024)

<table>
<tr><th>No.</th><th>Assumption</th><th>Risk</th><th>Level of uncertainty</th><th>Potential effects and mitigation measures</th></tr>
<tr><td colspan="5">Demographics
The projection data for this topic were produced by Infometrics Ltd, who were contracted to provide comprehensive employment, population, household dwelling and rating unit projections for Thames-Coromandel District covering the period 2022-2054. Council has adopted Infometrics' medium growth scenario in its planning for this LTP</td></tr>
<tr><td>1.</td><td>Our Population Growth
A medium growth scenario is assumed under which the District's population will grow at 0.4%pa over 2023 to 2034 and 0%pa over 2034 to 2054. The population will increase to around 35,900 people in 2034, then ease slightly to around 35,700 people in 2054.
Population by Community Board
(Infometrics medium projection)
<table>
<tr><th>Community Board</th><th>2023</th><th>2034</th><th>2054</th></tr>
<tr><td>Coromandel-Colville</td><td>3,681</td><td>3,869</td><td>3,718</td></tr>
<tr><td>Mercury Bay</td><td>10,618</td><td>11,752</td><td>12,438</td></tr>
<tr><td>Tairua-Pāuanui</td><td>3,200</td><td>3,331</td><td>3,335</td></tr>
<tr><td>Thames</td><td>11,641</td><td>11,363</td><td>10,364</td></tr>
<tr><td>Whangamatā</td><td>5,120</td><td>5,597</td><td>5,883</td></tr>
<tr><td>Total</td><td>34,260</td><td>35,911</td><td>35,737</td></tr>
</table></td><td>Population growth across the district, each community board area and settlement occurs at a higher rate than the relatively low rates assumed. The assumed population growth is mainly driven by the District continuing to attract new residents in or near the 65-years-and-older age group.
Historically this has been the age group in which the District has made strong internal migration gains due to the lifestyle choices in the District. If the lifestyle preferences of this age group change, the assumed growth may not occur.
The population may change at rates different than projected, for example increase due to investment made by Council to attract people and jobs into the district.</td><td>Low</td><td>Slower or faster population increases may affect service levels, infrastructure expansion, renewal programmes, and costs (where there are an increased or decreased rates requirements). These effects would be exacerbated by the demands on infrastructure and services during the peak holiday periods.
Over or underestimating the demand for services based on planned growth (positive or negative) can have a significant effect on financial estimates.
The potential effects include:
The availability of funding to sustain services
Changes in estimates to reconfigure service levels, for example there can be an additional cost, albeit short-term, to scale back service.
Underestimated demand for service results in a 'catch-up' scenario where Council and the community face a reactive situation.
The risk of over- or under-estimating the population increase has been factored into the decision to assume a medium growth scenario. Annual reviews of the</td></tr>
</table>

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
		A reduction in population will impact the rating base and the ability of communities to fund services. Either scenario could result in Council's planned services not aligning with community needs.		Council's rating base will be able to address any major deviations from the assumed population increase. Council will continue to monitor changes in the District's population and adapt activity provision to efficiently and effectively meet needs.
2.	**Age Demographics** The New Zealand population as a whole is ageing, and the District's age demographics reflect this trend. Population ageing is caused by the transition to lower birth rates and lower death rates. Under the assumed medium population growth scenario, the population aged 65 years and older is projected to increase from 34% of the District's total population in 2023 to 41% in 2033 and 43% in 2053. This means that from 2033 onwards, over two out of every five residents will be aged 65 years or older. The proportion of the population aged 20-64 years of age will drop from 48% of the population in 2023 to 43% in 2033.	More people aged 65 and over, compared with families with young children, move to the District, and the proportion of older people is greater than projected. A lesser risk is that more young and young working family age groups move to the District, significantly increasing this age group as a proportion of resident population.	Low	The 65+ age demographic often have fixed incomes, and this may affect their ability to pay rates and recover from disaster events. They may also need new or different services and facilities to promote their well-being. Any significant variation to the assumed aging population profile may result in certain sectors of the community experiencing lower than expected levels of service. If the proportion of younger people grows, the Council may have to redirect funding to particular activities to suit a younger population. The Council will continue to monitor demographic change and adapt or redirect activities to meet those needs where possible, within reasonable costs.
3.	**Peak Population** The District will continue to attract a summer population increase of around five times the number of permanent residents. Although the COVID-19 pandemic and the damage to roads caused by severe weather events in early 2023 reduced the numbers of visitors for a few years, the 'peak population' numbers are assumed to grow again over the medium to long term (3-10 years). The highest proportion of visitors to the District over the peak summer period (22 December to 5 January) will continue to be from the Auckland and Waikato regions.	Further damage to roads, delays with repairing the roading network and other economic or other drivers could significantly decrease visitor numbers in the short term (1-3 years). The key travel routes for visitors are the state highways that are not managed by the Council.	Medium	Visitors' needs for services and facilities at peak periods put pressure on the Council's infrastructure and services because they are far in excess of what the usually resident population requires and raise expected operating expenditure. Council needs to balance its residents' and ratepayers' needs for infrastructure and services with those of visitors who are here during peak population periods. Any significant change in peak population visitors would require a review of funding mechanisms.
4.	**Dwelling Growth** In 2023 there are around 27,300 dwellings in the District. A medium growth scenario is assumed under which the number of dwellings will increase by 1,500 between 2023 and 2034, at an average of 140 more dwellings per year. This is a steady	Economic conditions and the discretionary nature of the housing market cause variations in dwelling growth from that assumed.	Low	If dwelling numbers grow slower than is projected, there could be less demand on Council's infrastructure and services. There could also be fewer properties paying the costs of providing infrastructure services.

<table>
<tr><th>No.</th><th>Assumption</th><th>Risk</th><th>Level of uncertainty</th><th>Potential effects and mitigation measures</th></tr>
<tr><td></td><td>fall from a peak of 360 in 2023, driven by a challenging macroeconomic environment in the short-term, and slowing population growth in the long term. From 2038, dwelling numbers are assumed to remain static, reflecting flat population and household growth.
Dwelling growth will be strongest between 2022 and 2034 in Matarangi (1.0%pa) and Whitianga (0.8%pa). Growth will be solid in Coromandel (1.0%), Cooks Beach (0.7%pa) and Hāhei (0.7%pa).
Even under a zero dwelling growth scenario, construction activity is likely to continue as dwellings reach the end of their economic lives, housing intensification requires demolition of old dwellings, and sea level rise prompts retreat in some areas.

Dwelling increase by Community Board
(Infometrics medium projection)

<table><tr><th>Community Board</th><th>2022</th><th>2034</th><th>2054</th></tr><tr><td>Coromandel-Colville</td><td>2,467</td><td>2,693</td><td>2,696</td></tr><tr><td>Mercury Bay</td><td>9,329</td><td>10,311</td><td>10,349</td></tr><tr><td>Tairua-Pāuanui</td><td>4,285</td><td>4,526</td><td>4,529</td></tr><tr><td>Thames</td><td>5,409</td><td>5,568</td><td>5,570</td></tr><tr><td>Whangamatā</td><td>5,488</td><td>5,785</td><td>5,795</td></tr><tr><td>Total</td><td>26,978</td><td>28,885</td><td>28,939</td></tr></table></td><td>Dwelling growth in settlements, ward areas and across the District occurs at higher or lower rated than assumed.</td><td></td><td>Higher numbers of dwelling units than projected could put pressure on the Council's ability to provide infrastructure and services. However, there would be more properties to pay the cost of providing Council infrastructure and services.

The Council regularly reviews dwelling unit numbers.</td></tr>
<tr><td>5.</td><td>Rating Unit Growth
A medium growth scenario is assumed and rating units are projected to increase by 1.0%pa in 2034, and by 0.3%pa in 2054.
Residential rating units are projected based on assumed dwelling growth. Industrial and commercial rating units are projected based on forecast districtwide employment growth.</td><td>Rating unit growth occurs at higher or lower rates than assumed in the District, in the community board areas or settlements.</td><td>Low</td><td>Economic conditions and the discretionary nature of the housing market can cause variations in rating unit growth from that assumed.

The main financial effect of slower than projected growth can be a reduction in budgeted rating revenue and development contributions. It can result in increased debt levels and associated interest expense for capital</td></tr>
</table>

<table>
<tr><th>No.</th><th>Assumption</th><th>Risk</th><th>Level of uncertainty</th><th>Potential effects and mitigation measures</th></tr>
<tr><td></td><td>All other rating units are assumed to remain constant over time, which reflects that they are either constrained by available land or limited information is available about their growth trend. The forecast for rating units over the next ten years is shown on the table below.

<table><tr><th>Year</th><th>Total number of rating units</th></tr><tr><td>2023</td><td>28,210</td></tr><tr><td>2024</td><td>28,480</td></tr><tr><td>2025</td><td>28,694</td></tr><tr><td>2026</td><td>28,896</td></tr><tr><td>2027</td><td>29,061</td></tr><tr><td>2028</td><td>29,226</td></tr><tr><td>2029</td><td>29,396</td></tr><tr><td>2030</td><td>29,508</td></tr><tr><td>2031</td><td>29,613</td></tr><tr><td>2032</td><td>29,701</td></tr><tr><td>2033</td><td>29,781</td></tr><tr><td>2034</td><td>29,832</td></tr></table></td><td></td><td></td><td>projects. If the rating base were to reduce, there could be an increase in rates.

An increase in the overall rating base could result in a decrease in rates for rating units as the total rates are spread across a larger base. Higher than projected rateable units could put pressure on the provision of some infrastructure, such as wastewater, water supply and stormwater.
The Council regularly reviews rating unit numbers.</td></tr>
<tr><td colspan="5">External Factors</td></tr>
<tr><td>6.</td><td>Economic Outlook (To be reviewed up to June 2024)
Global and national forecasts signal ongoing uncertainty in economic growth. The Treasury forecasts (https://www.treasury.govt.nz/publications/efu/pre-election-economic-and-fiscal-update-2023) slow national economic growth to continue over the next eighteen months as high inflation necessitates high interest rates. High interest rates are expected to constrain economic growth to a quarterly average of 0.4% over the next year. After a period of slow growth, the Treasury expects annual inflation to return to within the Reserve Bank of New Zealand's target by December 2024 and interest rates to gradually ease from late 2024. From mid-2025 economic growth is projected to grow slowly. However, the</td><td>Economic growth stalls or is slower than expected.</td><td>High</td><td>Ongoing uncertainty in the international, national and local economy has the effect of perpetuating affordability issues, slowing development and delaying cost recovery through rates and development contributions in particular. Infrastructure may not be in place or planned for in response to increasing visitor numbers or business demands.
Financial pressures on households and businesses may affect rates affordability (see Assumption 8 below).
A cautious approach is needed in the short-term. The Council will regularly monitor economic conditions.</td></tr>
</table>

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
	subdued global growth outlook weighs on export demand and prices. From actual GDP growth of 1.2% in 2022, Treasury forecasts future GDP % growth as follows: 2024 1.3% 2025 2.0% 2026 3.3% 2027 3.2% The District's economic momentum is heavily restrained. Despite experiencing a strong resurgence after the COVID-19 pandemic, the severe weather events in 2023 have caused the momentum to ease. Current estimates show annual growth to 30 September 2023 has slowed to 0.8%pa. The weather events and ebbing of national tourism momentum have impacted the local tourism-related sector. The tourism sector will remain under pressure until 2024. Significant pressures remain on the agricultural sector due to high on-farm costs and falling export prices. The reduced flow of visitors and persistent cost-of-living challenges have dragged annual consumer spending growth into the negatives for the first time in several years. Assuming the roading network is fully restored by mid-2024, economic growth in the longer-term can be assumed to return to pre-pandemic (2019) levels and generally follow the national trend in GDP growth, as it has historically.			
7.	**Tourist and Visitor Numbers** *(To be reviewed up to June 2024)* The number of visitors to the District will remain constrained until work to recover from the severe weather events in January and February 2023, including repairs to the District's roading network, is completed. An increase in visitors is unlikely in the short-term, while the District's roading and other infrastructure remains in a state of repair and recovery.	Visitor numbers may not return to pre-pandemic levels in the medium to longer term. Reduced visitor numbers in the medium to longer term will continue to have consequential negative effects for the District's economy and well-being.	High	Reduced visitor numbers through the period of the Long Term Plan will have a significant negative impact on the District's economy. The Council's Recovery Plan for the 2023 weather events includes actions to support local businesses with grants and other services to keep them sustained until infrastructure repairs are completed. The implications from increasing or decreasing visitor numbers will be considered in Council's future planning.

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
	In the medium to long term visitor numbers will return to pre-pandemic levels.			
8.	**[NEW] Rates affordability** Average household income will remain static, and the individual share of national GDP over previous 30 years will continue to decrease. The average household income in the District was $73,500 in 2023, which was lower than the New Zealand average of $125,177. It is assumed economic affluence will not be a key driver of demand for increased Council services from the majority of the community.	A combination of the ageing population and short-term slow economic growth mean rates affordability is unlikely to change in the medium-long term.	Low	Matters affecting people's income are largely outside the Council's control, a cautious approach is needed in the short-term.
9.	**Covid-19 Pandemic** It is assumed that New Zealand will avoid significant effects from any resurgence of the Covid-19 virus, and that no further lockdowns or major border restrictions will be necessary. The effects of the global Covid-19 pandemic will continue to be felt in the short-term (1-3 years) and the pandemic is likely to have as yet unknown longer term consequences. These effects include: • Economic impacts – on key sectors such as tourism and related services, on the rural sector due to labour shortages and processing disruptions. • Transport impacts – disruption of global supply chains with flow-on effect to local freight and distribution patterns. • Travel/work behaviour patterns – more people working from home and more flexible working arrangements; travel demand and customer desire are driving changes that could be embedded in the long term.	COVID-19 response measures require a lockdown of the District, Waikato region or more broadly. Community expectations about the pandemic being over will have been affirmed by pandemic-related restrictions no longer being in force. Those expectations may flow on to all other aspects of life returning to business-as-usual sooner than is realistically possible. It may also lead to criticism of the Council if progress on Council's work programme is not seen to be being made quickly enough.	High	A new COVID-19 variant may substantially reduce the functionality of some Council activities with consequential negative impacts on revenue. The Council's has operational resilience practices in place to ensure essential activities continue to function in the event of a lockdown, and non-essential services have the capacity to operate as fully as is safely possible. The Government continues to monitor for new variants arriving from overseas.

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
10.	**Treaty of Waitangi Settlements** *(To be reviewed up to June 2024)* Legislation currently before Parliament, scheduled to be passed in 2024, will implement three settlements with mana whenua in the District. The settlements are for Ngāti Hei, Ngāti Paoa and Ngāti Tara Tokanui and include returning some Council reserves to iwi and some reserves being co-managed with iwi.	There will be pressure on the Council's resources to implement the settlements.	Low	Council will need to respond effectively to new ways of working with iwi. There will be new demands on operating budgets to achieve this. The Council will monitor progress of the legislation through Parliament and continue to engage with mana whenua in the District about their aspirations.
11.	**Availability of Staff and Contractors** It is assumed that we will be able to retain and find skilled staff and contractors to undertake work that is required, to the agreed standards, deadlines and cost.	Due to labour market conditions, some staff vacancies will not be able to be filled in a timely manner. The demand for contractors will also be high and impact their availability.	Medium	Council will continue to take measures, including offering employment arrangements such as flexible work options, competitive remuneration, a range of benefits and relocation support, to both retain and attract skilled staff and contractors as required. Roles that can be performed remotely could potentially be more easily filled, though the number of workers who are willing to live remotely from their jobs is limited.
12.	**Significant Land Use Changes** In some areas of the district, there is insufficient land zoned to meet demand for housing and business activities. Spatial planning initiatives will identify areas where significant land use changes are needed. Changes to the District Plan will be needed to provide for future development indicated in spatial plans. The district plan will become fully operative by the end of 2024, making it easier for private plan changes to be progressed.	Rezoning of land cannot be progressed efficiently, due to appeals on changes to the District Plan. Continuing shortage of land for housing- and business activities impact negatively on economic growth and community well-being.	Medium	The Council will need to be proactive and initiate district plan changes to provide appropriately zoned land to enable new growth. It will also need to be ready to respond to any potential private district plan changes.
Climate Change				
13.	**Climate Change Risks and Impacts** The expected risks of climate change for Thames-Coromandel District are based on climate science and projections from the Intergovernmental Panel on Climate Change, National Institute of Water and Atmospheric Research (NIWA) and governmental advice from the Ministry for the Environment.	There is risk that negative effects associated with climate change occur at a faster rate and with more detrimental effects. If projections are not considered in Council planning, this could impact on	Moderate	The Council will continue to implement current climate change work in several areas, including the Shoreline Management Pathways project. A Climate Change Strategy will be developed during the first three years of the LTP to identify, integrate and co-ordinate further mitigation and adaptation measures required across Council and the community.

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
	Climate change will affect the District at least in line with predicted national changes such as higher temperatures, sea level rise, longer dry periods and more intense rainfall and storm events. Regional projections assume increases in the amount and frequency of rainfall could cause more river flooding in some areas, while longer periods without rainfall will cause drought. Predicted sea level rise and increased storm surges will affect low-lying areas and estuaries and could threaten Council and community infrastructure, affect aquifers by saline intrusion into existing water supply bores, and reduce the efficiency of land drainage in coastal and estuarine areas. This will worsen coastal erosion and flooding and may accelerate long term erosion.	asset management, community resilience and legal liabilities.		Included in the new Climate Change Strategy will be the development of a Climate Change Risk Assessment to inform planning of future mitigation and adaptation/resilience actions.
14.	**[NEW] Greenhouse Gas Emissions** Current policies (as set out in Aotearoa New Zealand's Emissions Reduction Plan) will be implemented and New Zealand's (and the Council's) emissions will reduce in line with emissions budgets.	Government policy may change or alter significantly and require the Council to adjust its operations accordingly. This is unlikely due to cross-party support for reducing emissions.	Low	The Council will include the development of an Emissions Reduction Plan for its own greenhouse gas emissions in its new Climate Change Strategy, and will continue current work to track its progress towards reduction targets, such as: • promoting electric vehicle use • upgrading streetlights to cut electricity use • partnering with Waikato Local Authority Shared Services energy management programme to monitor energy use at all sites, investigate opportunities for energy efficiency improvements and increase the use renewable energy • working with community groups to improve walking and cycling infrastructure; and • putting in place an affordable bus service in Thames.
15.	**[NEW] New Zealand Emissions Trading Scheme** The New Zealand Emissions Trading Scheme (NZ ETS) costs will rise in the medium to long term as a result of amendments to the Climate Change Response Act 2002, including changes in the NZ ETS settings.	Government policy may change or alter significantly and require the Council to adjust its operations accordingly. This is unlikely due to the	Low	No effect unless there is a major change to the ETS that affects Council's carbon accounting.

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
	The Council will continue its existing waste collection arrangements and maintain the existing network of Refuse Transfer Stations and community resource recovery centres. The Council's participation in the NZ ETS will remain limited to its waste management operations.	cross-party support for the Emissions Trading Scheme.		
16.	**[NEW] Natural Hazard/Emergencies** Land instability and the resulting slippage is a serious and widespread natural hazard for the District. Coastal erosion also puts many of our communities at risk, particularly if there is a serious weather event. There will be at least one serious weather event every year which will require a State of Emergency to be declared.	Increased rainfall volumes and intensities will cause land instability and more land slippages. Temporary sea water inundation of land, and permanent coastal erosion, will cause risks to life and property, economic and community wellbeing.	Medium	Potential effects include: loss of life; ill-health (physical and mental); partial or complete loss or damage to property; impacts on local businesses, the District's economy and delivery of services; damage or loss of Council and community assets and infrastructure; and insurance premiums increased or withdrawn. Mitigation measures include: increased Council investment in services and asset renewals and replacement in order to return services to pre-impact capacity; and increased resourcing of Council's recovery operations and future planning.
17.	**[NEW] Roading Recovery** *(To be reviewed up to June 2024)* The following milestones in the Recovery Plan will be implemented and achieved: • for state highways, the partnership with Waka Kotahi is formed and formalised, 50 priority sites to repair and or build resilience are identified, with work planned and funded by central government to proceed. • for local roads, all 114 identified repair sites have initial geotechnical assessments completed to assess ongoing risk. Detailed designs and consents are being progressed. A work programme is in place, and estimated budgets/funding confirmed, including the FAR contribution to funding from Waka Kotahi. Repairs to Tapu-Coroglen, Colville and Kennedy Bay Roads are 100% funded by the Crown from the Waka Kotahi RSR programme.	Further severe weather events may cause more damage to the already fragile roading network, hampering recovery in affected communities and requiring additional repair works. Funding for Waikato Regional Council and central government contributions to the Recovery Plan may be reduced following, respectively, completing of the long term planning process and the general election.	Medium	Achievement of some of the milestones for state highways is outside Council's control because it is dependent on central government work and funding. Council will continue to monitor and keep under review. The Council will continue to work with Waikato Regional Council and central government to confirm funding, and include substantial contingencies in budgets for repair of local roads.

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
Legislative Reform				
18.	**Resource Management Reform** *(To be reviewed up to June 2024)* The Natural and Built Environments Act 2023 and Spatial Planning Act 2023 have been repealed. The provisions of the Resource Management Act 1991 are the law again though the Government intends to replace it. It is assumed any replacement legislation will continue to require the Council to develop, implement and maintain strategic resource management plans, including spatial plans, and to exercise regulatory authorising, monitoring and compliance functions.	The Government has not announced what the planning framework and system in the replacement legislation will be, or when the new legislation will be enacted.	High	A watching brief will be kept on the changing legislative and resource management policy direction of the new Government.
19.	**Future for Local Government Review** (*To be reviewed up to June 2024)* It is unknown whether (or to what extent) central government will accept the final recommendations of the Review, released in June 2023. It is assumed that: • the existing role and functions of local government will remain unchanged during the 2024-2034 Long Term Plan timeframe; • the Council will not change its current governance model; and • there will be no significant change to the range or nature of services .	The changes to the role and function of local government recommended by the Future for Local Government Review will be implemented sooner than anticipated, and there will be significant changes to the role and functions of the Council, and the services it provides. Substantial costs would likely be required to implement the necessary restructuring or establishment costs. Changes in the purpose and role of local government may have substantial impacts on budgets and financial forecasts.	High	The Council will keep a watching brief on central government's intentions about acceptance and implementation of the Review's recommendations.
20.	**Water Services Reform Programme** *(To be reviewed up to June 2024)* Water services will continue to be managed by the Council in all ten years of the 2024-2034 Long-term Plan. [The Water Services Acts Repeal Act 2024 reversed the reforms made by the previous Government, but alternative legislation to change how councils will manage water services has not yet been announced].	Any new legislation will not provide for water services to continue to be managed by the Council for all ten years of the 2024-2034 Long Term Plan.	High	If new legislation removes management of water services from the Council's responsibility, the 2024-2034 Long-term Plan and other Council planning documents will need to be amended. A watching brief will be kept on the Government's policy direction.

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
Significant Assets				
21.	**Lifecycle of significant assets** The useful asset life reflects the best estimate available as at forecast date and is based on current asset information held. The useful life of each class of asset is outlined in the Statement of Accounting Policies for Prospective Financial Statements - Depreciation. Some assets may wear out and fail sooner, or later, than calculated.	Some assets may wear out and fail sooner, or later, than calculated. There may be inadequate replacement reserves.	Medium	There is no certainty that asset components will last their design lives exactly. However, replacement is budgeted at the expected end of useful life and earlier replacement will result in a loss on disposal of any residual value. Earlier replacement may result in the deferral of other discretionary capital projects in order to remain within self-imposed debt limits as set out in Council's Financial Strategy.
22.	**Resource consent standards/property designations** All projects in the Long Term Plan that are required to gain resource consent will do so in a timely manner, within the cost estimates provided. Any new property designations required for new wastewater, water, stormwater and solid waste systems, or for the significant upgrading of existing systems, will be able to be obtained prior to the time that has been scheduled for the actual construction of works in this plan.	Resource consents are appealed to the Environment Court resulting in significant delays. Stringent resource consent conditions and standards lead to high treatment standards being imposed with consequential high costs. Delays due to designations or consents not being obtained, or necessary land purchased, before the scheduled time of construction.	Medium	While recent reforms have expedited appeal processes, consenting processes can still be costly. Designation processes have been streamlined but can still costly. Risk can be minimised if the Council always commits to a clear and detailed future forward work programme for at least the next three to four years.
Financial Assumptions				
23.	**Capability to deliver projects** Capital expenditure projects will be delivered at the same rate or better than previous years (delivery for the 2023/24 financial year is forecast at 85% to 90%).	The delivery of capital expenditure projects could be delayed by one or all of the following: availability of materials and labour, the timing of contracts, reduced funding contributions/subsidies from central government and other agencies (such as Waka Kotahi) and the Council's project management capability. Infrastructure services may not be in place within timeframes required to maintain existing levels of service, or meet demand from peak visitor numbers or growth. Some projects may need to be staggered or delayed.	High	Delay in the delivery of capital expenditure projects may mean that: • infrastructure services may not be in place within timeframes required to maintain existing levels of service, or meet demand from peak visitor numbers or growth • work will be deferred to later years of the Long Term Plan and affected programmes of work will be rephased accordingly. The financial implication of such delays include lower borrowings and a reduction in the need for rates/debt, although it is expected that most of this would be undertaken/made-up in later years of the Long Term Plan.

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
		If delivery of the capital programme is delayed, then proposed outcomes will not be achieved in the timeframes originally intended.		Some government funding from Waka Kotahi depends on delivery within prescribed timeframes. Consequently, this work is being prioritised to be delivered on time. Establish processes to rationalise capital expenditure programme to ensure delivery teams are realistic about what can be delivered. Establish procurement strategies to provide efficiencies to deliver projects or programmes of work. Continue to bolster internal project management resources.
24.	**Third party funding – Waka Kotahi/NZTA subsidy** The NZTA funding assistance rate has been included at the rate of 51%. The Funding Assistance Rate has been set for a three year period from 2024/25. This will be reviewed in 2026 for the following three years.	There is a risk that the subsidy rates may change.	Low	A 1% movement in the funding assistance rate would result in total costs of $210,000.
25.	**Third party funding – Crown funding for roading resilience projects** The Coromandel Bypass and Tapu-Coroglen, Colville and Kennedy Bay Road projects will be 100% funded by the Crown from the Waka Kotahi Resilience Strategic Response (RSR) programme.	The Crown will not fund the programme. The Crown will partly fund the programme.	Medium	The projects would not proceed if the Crown did not fund the resilience programme. A lower level of Crown funding for the programme would result in delay in the delivery of these projects and the entire programme. Council will continue to actively engage with transport network users to retain their support, and work in partnership with Waka Kotahi on the implementation of the resilience programme.
26.	**Third party funding for Coastal Hazards projects** A third party funding (Crown and or other agency funding) assistance rate has been included at the rate of 60%. The funding assistance rate has been set for the 2024 LTP period. However, this will be reviewed in three years time as part of the next LTP.	The Crown will not fund the programme. The Crown will partly fund the programme.	High	The Coastal Hazards projects may not be able to proceed if third party funding is not secured for the works programme. A lower level of third party funding for the programme would result in delays in the delivery of these projects and or the scale/scope of the programme being revised. Council will continue to actively engage with third party funding agencies to secure funding for the proposed Coastal Hazards programme.

<table>
<tr><th>No.</th><th>Assumption</th><th>Risk</th><th>Level of uncertainty</th><th>Potential effects and mitigation measures</th></tr>
<tr><td></td><td></td><td></td><td></td><td>Council will continue to take an adaptive management approach with the Coastal Hazards programme as proposed in the adopted SMP.</td></tr>
<tr><td>27.</td><td>Interest rates on borrowing
Interest rates will increase beyond those budgeted for in the 10 year Long Term Plan. Interest on existing and new borrowing is forecast as follows:

<table><tr><th>Year ending</th><th>Average cost of funds</th></tr><tr><td>Jun-24</td><td>5.27%</td></tr><tr><td>Jun-25</td><td>5.18%</td></tr><tr><td>Jun-26</td><td>5.08%</td></tr><tr><td>Jun-27</td><td>5.07%</td></tr><tr><td>Jun-28</td><td>5.24%</td></tr><tr><td>Jun-29</td><td>5.39%</td></tr><tr><td>Jun-30</td><td>5.88%</td></tr><tr><td>Jun-31</td><td>6.13%</td></tr><tr><td>Jun -32</td><td>6.22%</td></tr><tr><td>Jun -33</td><td>6.29%</td></tr><tr><td>Jun-34</td><td>6.34%</td></tr></table>Source: PWC based on cost of funds modelling</td><td>Interest rates will increase beyond those budgeted for in the 10 year Long Term Plan</td><td>Medium</td><td>The cost per annum to the Council given a 1% increase in the interest rate is below:

$25M $250,000
$50M $500,000
$75M $750,000
$100M $1,000,000</td></tr>
<tr><td>28.</td><td>Refinancing term loans/external funding
Loan servicing is calculated on a table basis over 30 years for infrastructure, with early repayment if surplus reserves are available. Refinancing of external loans is assumed to be readily achieved. The Council will take advantage of external funding opportunities where applicable to augment revenue received from rates.</td><td>Significant changes in funding or funding sources may result in a revised capital work programme or changes in levels of service.</td><td>Low</td><td>The Council expects to maintain a significant lead-in time within which it can seek to lock in alternative funding sources. The Council is a guarantor and borrower from the Local Government Funding Agency (LGFA) therefore refinancing risk is low.</td></tr>
</table>

No.	Assumption	Risk	Level of uncertainty	Potential effects and mitigation measures
29.	**Vested assets** The level of vested assets from resource consents issued is assumed to be at levels over the past ten years during which there has been variable levels of growth, with the average likely to reflect growth into the Long Term Plan period. The value of vested assets may be greater than predicted thereby increasing depreciation expense.	The value of vested assets is greater than predicted thereby increasing depreciation expense.	Medium	Should the level of vested assets be higher than estimated, there will be an increased depreciation expense in the following years. The value of projected Vested Assets is regularly monitored and any material movements that will impact depreciation are built into forecasted deprecation projections.
30.	**Sources for funds for future replacement of significant assets** It is assumed that funding for the replacement of significant assets will be obtained from the appropriate sources as set out in the Council's Revenue and Financing Policy.	The main risk is that budgets for some capital replacements may not have been included and sources may not meet requirements.	Low	There is little or no risk that sources of funds for replacement of significant assets will not be achieved. Funding of all asset replacement during the life of the Long-term Plan has been disclosed.
31.	**Currency movements and related asset values** Some components of works in the Long-term Plan may be sourced from overseas. It is assumed that all input components (whether sourced in New Zealand or abroad) will be assessed in New Zealand dollars.	Currency exchange rates will significantly fluctuate	Low	Variations in pricing for large components will have limited impact on rates as these costs are debt-funded and repaid over the life of the assets.
32.	**Forestry** The value of log prices is anticipated to increase in the future. These prices are affected by demand, by the foreign exchange rate, and whether or not the trees have been irrigated.	Prices will continue to be low for the life of the Long erm Plan and the quality of irrigated trees will be reflected in a lower log price.	Medium	While this assumption has a medium level of uncertainty, it has very a low impact because returns from log sales are projected to be a minimal source of income.
33.	**Price level changes – rate of inflation** The Local Government Cost Index measures the cost drivers specific to local government (e.g. concrete, reinforcing steel, bitumen, roading chip, building materials, energy, wages etc.). This differs significantly from the inflation pressures that affect households and measured by the Consumer Price Index (CPI). BERL were commissioned to provide an independent report to local authorities with the forecast inflation on key cost drivers - BERL (Business & Economic Research Ltd) *Cost adjusters 2023 final update* report. The measure of inflation is forecast at 2.3% - 3.8% annually.	Price level changes will vary from those used.	Medium	Inflation is affected by external factors, most of which are outside the Council's control and influence. Actual individual indices will at times vary from what has been assumed in the Long-term Plan. The Council has relied on the Reserve Bank's use of monetary control to keep inflation within the range of 1% to 3%. The effect of any variation up or down will result in a higher or lower rates requirement. Based on projected total expenditure (operating and capital) of $100 million a plus/(minus) 1% movement in the forecast inflation rate would result in an approximate movement in total costs of plus/(minus) $1 million. This would then have a flow on effect into all of the remaining years of the Long-term Plan.

Table 7-3 Operating unit cumulative inflation predictors

Year ending	June 2025	June 2026	June 2027	June 2028	June 2029	June 2030	June 2031	June 2032	June 2033	June 2034
Percentage inflation increase	3.00%	5.30%	7.80%	10.30%	12.80%	15.20%	17.60%	20.00%	22.40%	24.80%

Table 7-4 Activity units cumulative inflation predictors

Year Ending	Roading	Community Activities	Waste	Transport	Planning and Regulation	Other	Grants	Capex	Payroll	Water
June 2025	3.10%	2.80%	3.10%	2.70%	2.50%	2.80%	2.80%	2.80%	2.30%	3.80%
June 2026	5.20%	4.90%	5.30%	4.90%	4.70%	5.00%	2.80%	5.00%	3.80%	6.50%
June 2027	7.60%	7.20%	7.90%	7.30%	7.00%	7.40%	2.80%	7.40%	5.10%	9.50%
June 2028	10.20%	9.60%	10.50%	9.80%	9.30%	9.80%	9.80%	9.90%	6.10%	12.50%
June 2029	12.70%	11.90%	13.20%	12.10%	11.50%	12.40%	9.80%	12.40%	7.00%	15.40%
June 2030	15.10%	14.20%	15.80%	14.50%	13.70%	14.80%	9.80%	14.80%	7.70%	18.20%
June 2031	17.50%	16.50%	18.40%	16.80%	15.90%	17.20%	16.90%	17.20%	8.50%	21.00%
June 2032	20.00%	18.80%	21.00%	19.20%	18.10%	19.60%	16.90%	19.60%	9.30%	23.70%
June 2033	22.40%	21.10%	23.60%	21.50%	20.30%	22.00%	16.90%	22.00%	10.20%	26.50%
June 2034	24.90%	23.30%	26.20%	23.90%	22.50%	24.40%	23.90%	24.40%	11.20%	29.20%

Table 7-5 Long term 11-30 Year Inflation predictors

Capital	Operational			
	Roading	Waste	Water	Other
2.1% p.a.	2.4% p.a.	2.53% p.a.	2.78% p.a.	2.31% p.a.

7.5 Infrastructure Delivery

The delivery of our infrastructure services is via out-sourced contracts for operations, maintenance, capital projects and renewals, coupled with in-house asset management, planning, contract management, and project management.

7.6 Key Infrastructure Strategy Objectives

The key Strategy objectives are summarised below and detailed in Table 7.3:

- Managing our assets based on quality information
- "Right sizing" our infrastructure assets
- Ensuring infrastructure Resilience/'Building back Better'
- Ensuring that we invest in new infrastructure only where demand is certain and long term
- Consideration of differing service levels
- Linkage to our Financial Strategies

The table below identifies and describes the key Strategy objectives and linkages to the significant issues:

Table 7.3: Infrastructure strategy objectives

Significant Issues	Infrastructure Strategy Objectives	Description
Peak demand Age and condition of assets Changing standards and service expectations District Growth - Enabling Thames and surrounds	Managing our assets based on quality information	Managing our assets for their full lifecycle requires integrated planning and reliable data. Decision-makers need good information about their current asset and future asset needs to manage maintenance, programme renewals and make sound decisions about when to invest in new infrastructure. We need good data about the condition of our assets to help us plan when we should maintain, renew, or replace assets in a manner consistent with best practice. Asset Management Plans have been prepared for the activities that have a high reliance on assets to deliver services. These plans have been prepared based on industry practice and have been peer reviewed. They have been used to forecast the expenditure needed to operate, maintain and renew assets
Affordability Peak demand District Growth - Enabling Thames and surrounds	"Right sizing" our infrastructure assets	Given the low level of growth projected across the District, we intend to plan for, and build, major asset renewals or new infrastructure with little redundant capacity built in. This approach is intended to provide assets that are 'right sized' for our needs and demands, without creating assets with excessive capacity built in. This approach needs to be supported by demand management to ensure that assets are not placed under undue stress during peak demand periods, which increases the risk of asset failure or impacts on service levels
Climate change and coastal hazards Age and condition of assets Changing standards and service expectations	Ensuring infrastructure resilience	The impacts of climate change, as well as the nature and type of topography of the District means that resilient infrastructure is vital to underpin the community and economy of the District. Developing resilient infrastructure and building back better will be a priority over the term of this Strategy. Resilient infrastructure will be achieved by combining a range of improved approaches from planning and design through construction to the ongoing

Significant Issues	Infrastructure Strategy Objectives	Description
		maintenance strategies. This combined with an adaptive approach will help ensure future resilient infrastructure in the District.
District Growth - Enabling Thames and surrounds	Ensuring that we invest in new infrastructure only where demand is certain and long-term	The approach taken for much of our infrastructure can be described as 'meeting average demand, with peaking capacity'. This approach contrasts with a 'peak capacity all year round' approach, which would be cost prohibitive for the District. We also use demand management and innovation to assist in managing peak demand, rather than investing in new or additional infrastructure. Given the uncertainty around future growth and demand for infrastructure and services, we intend to take a "just-in-time" approach to the delivery of additional infrastructure. This means that while we need to continue to plan and monitor the demand for new infrastructure, investment in new infrastructure will not commence until it is reasonably certain that the predicted demand will actually occur. Before investing in new infrastructure assets, we will need to carefully assess the expected benefits relative to the cost of building, maintaining, and operating the asset. We will also need to be clear about the potential impacts on future affordability over the lifetime of the asset and understand any potential risks or impacts if the expected benefits or broader objectives are not realised.
Affordability Climate change and coastal hazards Natural hazards	Consideration of differing service levels	Our resident population is expected to decline in some parts of the District. As our population ages, we will have more residents with fixed incomes who may not be able to absorb the cost of increased service levels. Increasing service levels can increase the cost of operating and maintaining our assets, so we need to assess the long-term costs and benefits before increasing service levels. It may also be difficult to reduce costs in future if our population declines and an increased number of households with lower fixed incomes leads to affordability issues. For the majority of Council's infrastructure and facilities, there are limited opportunities for reducing levels of service. Where options are available, they will be considered while taking into account legislative requirements and customer expectations
Affordability	Linkage to our Financial Strategies	This Strategy is closely linked with the Council's Financial Strategy. The Financial Strategy sets the direction for Council's finances over the next 10 years and describes how we intend to pay for the services and infrastructure we provide to our communities in a way which is affordable and sustainable now and in the future. Council's Financial Strategy signals that, in relation to infrastructure, our future approach will be to: 1. Future proof the District's infrastructure: • Have the capacity to fund improvements for potential increases in quality standards for key infrastructure. • Have the capacity to fund expansion of our current networks subject to affordability. • Rebuild and maintain Council's disaster reserve to address damage from recent events and have provision for future events. 2. Address the past under delivery in asset management: • Improve our levels of asset maintenance and renewals, especially for some of our community facilities and property assets. • Based on availability and affordability, commence asset management of between 20 and 35 Council-owned roads (depending on the outcome of investigations) that have not previously been maintained by Council (referred to in this strategy as the road maintenance extents programme).

Significant Issues	Infrastructure Strategy Objectives	Description
		Council is responsible for renewing assets to ensure best value from the asset for the benefit of ratepayers now and in the future. We do this by funding the depreciation on our assets to build up depreciation reserves which we use to fund asset renewals. This ensures that all generations that enjoy the benefits from these assets pay a share of the capital cost. New assets (ones that are not replacing an old asset) are loan funded. Funding new assets through debt ensures that future residents and ratepayers contribute a fair share towards the cost of the assets that they use. New assets can also attract external funding, but this is less common for ongoing operational and renewal requirements. We need to be careful that the creation of new assets or services does not overburden future ratepayers.

Our Infrastructure Strategy is also informed by and provides strategic direction to our asset management plans.

7.7 Significant Emerging Issues

Many of the elements that affect and influence long-term infrastructure management are dynamic. Management approaches and strategies need to be regularly reviewed, revised, and adapted based on this ever-changing environment.

The emerging issues that are likely to affect future infrastructure management strategies are detailed in the table below:

Table 7-6: Significant emerging issues

Significant Emerging Issue	Description	Key Issues	Future Decisions
3 Waters Reform	The ongoing 3Waters reform	The establishment of the water Regulator (Taumata Arowai) and the new Government direction regarding future 3Waters management will have an influence on future 3Waters management arrangements within the Council. At this time uncertainty remains about Government direction and the Water sector is awaiting guidance on this.	Responding to the new Government's 3Waters reform directives Timeframe:1-5 Years
Climate Change	Both the potential effects of climate change and national Climate Change and Zero Carbon policies and programmes	The District has many coastal settlements that are low lying and on the coastline. Council has developed a Shoreline Management Plan and is implementing an adaptive management approach to the specific infrastructure most at risk. Trends will be monitored and future infrastructure strategies revised to address emerging Climate Change trends.	Adaptive strategies and responses to emerging Climate change trends including: • Infrastructure protection or managed retreat • Stormwater and drainage upsizing • Future location and type of wastewater treatment facilities • Future location/relocation of critical assets

Significant Emerging Issue	Description	Key Issues	Future Decisions
		Climate change is likely to influence the assumptions that the most likely Strategy scenarios are based on i.e.: • lifecycle of assets • growth /decline in demand • increase or decrease in LOS	Timeframe :30 Year Horizon
Growth Trends	Demographic trends	Whilst growth trends are not highlighting large future growth, we recognise the dynamic and very large land development/housing demand nationally. Monitoring of growth and demand trends will be ongoing and infrastructure strategies revised accordingly	Infrastructure and housing growth strategies revised according to emerging trends and demand. Growth projects to be revised and updated every 3 years as part of the LTP / AMP process.
Affordability	Cost Increases and affordability	Recent cost increases of services and supplies are affecting the cost of delivering operations and maintenance activities and capital works. It is anticipated that this trend will continue at least over the short to medium term.	Review of funding strategies. Capital Works Programme prioritisation Procurement strategies developed that aim to optimise procurement of works, materials, and services ie via regional local government procurement initiatives

8 Infrastructure Issues, Management Options and Implications

The document linkage diagram below highlights where you are in the IS and how this section relates to the next sections in the IS. It highlights the linkages between significant infrastructure issues, management scenarios, options and proposed project outcomes and timeframes:

The following tables identify the significant issues by asset class, the related significant Council decision(s), options, and implications that we have considered to mitigate the issues. Our preferred option is highlighted/marked as ***(Preferred)***. The funding impacts and projects arising are detailed in Section 10.

8.1 Roads and Footpaths

Table 8-1: Roads and Footpaths issues, options and implications

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Resilience of the road network: ***[IS Key Issues: Climate Change , Coastal Hazards and Resilience, Natural Hazards]*** Some parts of our road network are prone to erosion, flooding or slips due to severe storm events and coastal erosion. Some of our communities, such as Pauanui, have restricted or single access by road and these roads can become blocked. Some of our coastal roads may be damaged or become inaccessible in the event of a tsunami. Our local road network is reliant on the resilience and operation of the state highway.	Decision to fund the establishment and maintenance of a resilient road network	Ongoing over 30 year horizon	**Option 1:** – Continue to minimise reactive renewals by taking a proactive planned approach to renewal of the network. An example of this is the provision of better stormwater drainage systems for our roads. Ongoing investment, maintenance, and renewal activities to ensure that the condition and integrity of the asset is maintained. This includes investment related to bridges. **Option 2:** –**(Preferred)** Increase expenditure to improve long term network resilience and ability to meet Levels of Service. Noted that this is dependent on Waka Kotahi funding approvals	Extreme weather events continue to cause considerable damage and disruption to our network. The repair and clean up needed to reinstate our infrastructure places considerable financial strain on our resources. Changes in the way that Waka Kotahi (NZ Transport Agency) currently funds disaster repairs may impact on our ability to fund the repair work associated with disaster events. There is a risk of communities being cut off in the event of single access roads being blocked or damaged; or residents may face long detours until damage to roads is repaired and access is restored. In the event of communities being inaccessible by road after a significant event, restoring other critical assets or services may be difficult and this may pose health and safety risks If Option 1 is followed there is an increased risk of catastrophic failure of parts of the roading networks that will impact all levels of service. .

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Condition and Age of critical Roading Assets , ***[IS issues:*** ***Aging infrastructure*** ***Affordalility*** ***Interdependency with other Activitiies & Agencies (Whaka Kotahi)]*** Three significant issues combine to impact on long term funding levels. The current condition of some asset types presents risk of asset failures or required levels of service may not be achievable. Specific areas of concern targeted in the Transportation Asset Management Plan are: • An ageing bridge stock with average asset condition results in compromised access and resilience issues. • The unsealed road network is not meeting the demands created by seasonal peak usage, challenging climate, topography and remoteness, which can result in a lower level of service and/or increased costs. Inefficient rural stormwater drainage is causing reduced pavement asset life, resulting in increased maintenance and renewals costs.	Decision to fund road network maintenance and renewals to ensure LOS are achieved over the 30 year horizon	Ongoing over 30 year horizon	**Option 1:** – Continue with the current level of investment, which provides for: • Proactive assessment of asset condition. • Prioritisation within renewal programmes and budgets to address the highest risk first. • Component level renewal where applicable. • Application for funding for these asset types from both TCDC & NZTA. • Performance monitoring of the Maintenance Contractor's activities. • Workshops with contractors to ensure that the desired outcomes for these assets and the requirements for maintenance or renewal works are clearly understood. • Analysis of treatment options, available materials, root cause and timing of treatments to identify optimal treatments. **Option 2: -** Slightly decrease current level of investment. This would result in underinvestment in assets and an increase in whole of life costs. This is not recommended. **Option 3: (Preferred) –** Increase the level of investment which is expected to reduce operating cost and provide better value. Historic investment constraints (Waka Kotahi and TCDC funding constraints) over a prolonged period has led to deteriorated infrastructure in some parts of the network. Investment at current levels will lead to an increasing risk of failure as evidenced by the events of the 2022/23 cyclones.	There is a risk of asset failure or of assets not achieving the desired levels of service. There is a risk of property access being cut off in the event of asset failure on a single access road; or residents may face long detours until access is restored. Reactive maintenance costs will increase if renewal needs are not being met. Increase in the level of investment which will both improve overall optimisation and also reduce some of the risks mentioned above.

8.2 Coastal and Hazard Management

Table 8-2: 8.2 Coastal and Hazard Management issues, options, and implications.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Affordability Significant cost increases are anticipated with the five significant projects over the next 10 years. This trend is expected to continue over the longer term. There will be the need to respond to climate change across Council activities (especially infrastructure and roading), this will further compound infrastructure affordability across the district.	Climate change will have an affordability impact on all Council's activities particularly flood protection and control works. Project priorities will need updating, and decisions made on who pays, when and how. This issue will likely require significant external funding and support.	10-year horizon, to reflect the need to prioritise funding options and business case development to support the implementation of significant projects within the 10-year timeframe. There will also be long-term funding and affordability challenges to enable projects set out in the SMP to be implemented.	**Option 1: (Preferred)** Funding approval through the 2024-2034 LTP. and implementation of the key coastal hazard management projects within the proposed timeframes. Council is also preparing a Business Case to central government to provide funding for significant projects. This funding will supplement and potentially fast track delivery. **Option 2:** Implement a constrained works programme if central government funding is not approved, perhaps over a longer period of time. Assess and report on risks associated with this option.	Coastal protection (flood and control) will not be implemented, and significant coastal hazard risks will remain for the communities identified. This will have significant flow on effects, especially for the Thames area where access to and from key locations (including State Highway), current and potential areas for development (or other community-wide activities) may be impacted.
Key interdependencies: Key interdependencies have been identified, including: • increased collaboration and working partnership with external agencies such as Waikato Regional Council, Waka Kotahi and other Crown funding departments • Increased collaboration with other TCDC departments such as Roading and	Council to commit to establish and resource meaningful engagement initiatives and collaborative relationships with the key external agencies, and also between Council departments. This is required to ensure desirable coastal and hazard management outcomes.	10-year horizon, matching the current 2024-2034 LTP process.	**Option 1: (Preferred**) Funding via the 2024 LTP of the adopted SMP and actions that have been prioritised within Council. As a result, it is expected that the interdependencies will be given the appropriate weight to consider for adoption, and to progress the significant projects. **Option 2:** There is also the option of business case funding that is currently being applied for and may provide the funds to supplement some of the costs related to all the interdependencies and/or significant projects.	The biggest implication is how the projects will be funded, and if the business case application to central government is successful. If not, the programme timeframes may need to be extended based on Council's ability to fund works. The ability to obtain WRC consent for significant projects will also be important to ensure projects can go ahead. Developing relationships with other agencies will require time and effort from TCDC staff.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Stormwater and Parks and Open spaces				
Climate change, coastal hazards, and resilience: The emerging climate change impacts and issues will increasingly impact communities in the district. The Shoreline Management Pathways work brought the coastal hazards together and assessed the risks to infrastructure and associate assets (erosion and inundation). The major climate changes are: • changes to extreme events – such as storm intensity, heavy rainfall, drought, wind extremes and thunderstorms rather than a change in average conditions locally • higher temperatures • rising sea levels – the IPCC forecasts just under a metre sea level rise by late this century	The SMP work has involved a robust process that has considered the hazards, the risks, and actions to help mitigate the (expected) impacts of climate change. The work has recently been prioritised into short term-urgent, medium, and long-term actions, and as a result the significant projects identified in the IS provides a decision-making framework to address the issues. The 2024-2034 LTP needs to confirm project priority, and funding.	It can be viewed as a 10-year with regards to the current LTP process and short-urgent actions, and over the longer term of the 30 year horizon and beyond, to reflect the changing nature of the climate change-related hazards.	**Option 1: (Preferred and adopted)** Fund and Implement the Council adopted SMP. The SMP process has been the principal method for managing climate change, coastal hazards, and resilience issues. Approval of funding via the 2024 LTP of the Coastal Adaptation Pathways prioritised significant works and project implementation. **Option 2:** Defer physical protection work due to potential affordability constraints and focus on increasing awareness of climate related hazards, to allow public to make informed decisions related to risks and hazards. Risks to the community will increase over time and more negative impacts from storm events may be experienced.	There will be coastal hazards risk to the areas and communities without the significant projects' completion. This will impact not only the communities but also (and not limited to) state highway access, public amenities use, business and commercial activity, recreation, and tourism. Using the projection hazard information, risk tolerance (acceptability) and thresholds were adopted to action the appropriate pathway and action if coastal hazards were to occur. This work enables community-driven outcomes that will provide for a more resilient Coromandel.
District growth: The Thames Spatial Plan has been adopted and provides a growth strategy for Thames and surrounds. Significant flood management and control works have been identified for Thames, the implementation of	It is important the effects of climate change-related hazards (especially coastal inundation) are factored into the growth planning in the District. This will enable development but also help 'avoid' development in high-	10-year horizon relating to the 2023-2034 LTP; and ongoing over the longer term of the 30 year IS horizon and beyond to reflect the changing nature of	**Option 1: (Preferred)** Adoption of the funding for the key interdependencies through the 2024-2034 LTP process **Option 2:** Potential for supplementary funding through application of the business case to central government	Without the necessary key interdependencies and implementation progress and the appropriate planning requirements to enable sustainable and resilient growth the climate change-related hazards and risks will increase e.g., growth and development in areas with high hazard risks.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
these will support the Thames Spatial Plan.	risk areas (see NZCPS 2010; policy 25). District growth implications will also need to align with subsequent planning changes considering coastal (and natural) hazards.	the climate change-related hazards.		Not obtaining external funding may affect the timeframes of works and in turn affect the ability to allow growth in areas of higher risk.
Changing standards and service expectations: The service expectations have been identified through the SMP. This will result in an increase in flood protection and control works. There are also increasing regulatory requirements that will be addressed during implementation of the SMP actions.	The SMP work has gone through a robust process that has considered the hazards, the risks, and actions to help mitigate the (expected) impacts of climate change. The work has recently been prioritised into short-urgent, medium, and long-term actions, and as a result the significant projects identified here are the decision-making framework for address the issues. The 2024-2034 LTP will be the significant decision-making priority and supported by the business case for funding to central government.	10-year horizon relating to the 2023-2034 LTP; and ongoing over the 100 plus year timeframe to reflect the changing nature of the climate change-related hazards.	**Option 1:** Meeting the signals and triggers identified in the coastal adaptation pathways which then determine the next appropriate action to be taken. This could include increases in levels of service or a shift from protection to managed retreat, for example. **Option 2:** Additionally, another option for managing would be like that for growth, with a) the adoption of the funding for the key interdependencies and significant projects through the 2024-2034 LTP process; **(Both options 1 and 2 are preferred)** **Option 3:** Obtaining potential supplementary funding through application of the business case to central government.	There will be implications around maladaptation in areas that indicate managed retreat (including infrastructure and service retreat), significant and unsustainable potential costs related to storm and flood damage, insurance retreat (prior to the meeting of triggers and implementation of actions), or unrealistic community expectations not being met, for example. Actions within the pathways may also be missed and have similar resulting implications, but also may pose significant health and safety consequences, or risk to life and property.

8.3 Solid Waste

Table 8-3: Solid Waste issues, options and implications

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
RTS Asset age and condition *[IS key issue: Age and condition of assets]*	Decision to invest in RTS condition investigations and renewals	Ongoing over 30 year horizon	**Option 1: (Preferred)** Increase the level of investment by: -Improving information on RTS asset records and information about asset condition. -Increasing the focus on asset management activities such as investigations, data gathering, systems integration, renewal candidate assessments, field verification and capital lead-in works. -Minimising reactive renewals by taking a proactive planned approach to renewal of the Solid Waste networks. This programme will require increased levels of funding over at least the 10 year horizon. **Option 2:** Defer increasing funding and retain current levels of investment.	Option 1 will help mitigate the risks of asset failure and potential H&S risks at the RTS that increase as assets age and deteriorate. There are currently deteriorated assets needing renewals and/or upgrade. The District experiences a large tourist influx during summer. This puts significant load on the solid waste infrastructure and the RTS in particular. Undertaking renewals and improvements is essential in order to meet peak demand requirements. Option 2 This will lead to a reduction in LOS, asset condition and potentially increase operational risks as well as risks to personnel at the RTSs.
RTS capacity peak demand and resilience [*IS key issue: Peak demand, Climate change, Natural hazards, Coastal hazards and resilience* , District Growth]	Decision to invest in RTS capacity to meet peak demand and build in resilience	Over the 10 year horizon	**Option 1:** Defer increasing funding and retain current levels of investment. This may lead to capacity constraints at the RTS and potentially increase operational risks as well as risks to personnel at the RTSs. There will be no redundancy to cope with natural hazard events. **Option 2: (Preferred)** Increase the level of investment to Improving RTS capacity and site layout to optimise RTS operations and ensure H&S of customers and operators.	The District experiences a large tourist influx during summer. This puts significant load on the solid waste infrastructure and the RTS in particular. Undertaking RTS assessments and improvements is essential in order to meet peak demand requirements. Implementing option 2 will build in redundancy at the RTS and the improvement works will help ensure RTS capacity in the event of a natural hazard event.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Increasing legislative requirements related to collections services and monitoring and reporting on waste *[IS key issue:* *Changing standards and service expectations]*	Decision to invest in collection services and infrastructure to meet legislative requirements	Ongoing over 30 year horizon	**Option 1:** Defer increasing funding and retain current levels of investment. This may lead to increased risk of legislative non-compliance. **Option 2: (Preferred)** Increase the level of investment in services , systems and procedures to meet legislative monitoring and reporting requirements. **Option 3:** Work with regulators to obtain approval of alternative approaches to meeting legislative requirements. This could be seeking of exemptions or time extensions.	Additional weighbridge infrastructure and monitoring and reporting systems are required to meet legislative requirements. Expansion of collection services has recently been implemented to meet legislative requirements.

8.4 Water Supply

Table 8-4: Water supply issues, options and implications

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Asset age and condition Some parts of our water supply network are ageing and will reach the end of their economic life over the next 30 years. In particular, some parts of the Thames South water supply network are nearing the end of their useful life and are in need of renewal. Many of our water supply networks are reliant on single supply pipes. Damage to, or failure of, these assets results in significant service disruption. It is important that we understand the	Decision to invest in asset condition investigations and evidence based renewals	Ongoing over 30 year horizon	**Option 1: (Preferred)** Slightly increase the level of investment by: -Improving asset records and information about asset condition. -Increasing the focus on asset management activities such as investigations, data gathering, systems integration, renewal candidate assessments, field verification and capital lead-in works. -Minimising reactive renewals by taking a proactive planned approach to renewal of the water supply networks. **Option 2:** Invest to undertake renewals to address the theoretical backlog of ageing assets over approximately three years. After considering the cost of this option and the	As our water supply assets age, service interruptions or total failure become more likely, which may affect levels of service and the resilience of our water supply networks. Those parts of our network which are ageing or in poor condition are more likely to leak, meaning that a percentage of all water that we source and/or treat is lost. The District experiences a large tourist influx during summer. We only have a limited number of water sources, and during dry summers these can become depleted. Hence it is imperative to minimise network losses.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
asset's condition and take a proactive approach to the maintenance and renewal of these types of critical assets.			associated risk reduction benefits, this option was not considered preferable.	
Infrastructure capacity and peak demand The District's water sources are limited, and the amount of water we can take from our current sources is limited by resource consent conditions. Hence, it is paramount that we manage water use proactively. Over the next 30 years, water demand may exceed capacity during peak demand periods for some of our water supply networks. For example, based on expected trends, peak demand is likely to exceed capacity for the Tairua water supply network within the next 30 years. The purpose of the current Drinking Water Standards Upgrade project is to future-proof the District's water treatment plants by optimising their production capacity. Over time, and as the District grows, we will also need to increase our ability to transmit and store water. Demand on the District's infrastructure is at its highest during the summer period. We also experience fluctuating peaks during popular events held during the non-summer holiday period. Providing capacity for peak demand is costly and would result	Decision to invest in water treatment upgrades to meet NZDWS and DWQAR Decision to investigate optimisation of water production to meet peak demand Decision to implement water demand management strategies	10 year horizon	**Option 1:***: Continue to investigate opportunities for new water sources. Studies are underway and link into water demand management strategies and metering. There are some WTPs that will address source improvement when the WTPs are upgraded e.g Hahei. **Option 2:*** – Continue to optimise water treatment plant production capacity. This is being addressed through the current Drinking Water Standards and Drinking Water Quality Assurance Rules Upgrade project. **Option 3:*** - Increase the capacity of our water supply networks to cater for seasonal peak demand by: • Prioritising demand management to reduce the impact of peak demand on our existing infrastructure assets • Ensuring that we invest in new infrastructure or increase the capacity of existing infrastructure only where demand is certain and long term. To ensure we effectively manage demand, Council has adopted a Water Demand Management Strategy. The Strategy provides a suite of demand management tools and techniques, including water metering that we can use to assist us to manage demand. Council's Water Supply Bylaw also helps with managing peak water demands by	If we are unable to effectively manage peak demand in our water supply networks, there will be pressure on the network, and this may impact on: • Our ability to maintain supply and reduced service levels (e.g. consistency and or quality) during peak demand periods. • The condition of the network, resulting in unplanned water interruptions and increased maintenance and renewals costs. Demand management requires cooperation from our residents and visitors to succeed. We need to educate and communicate well with our communities on this matter. Throughout the year Council releases various messages to the community about the importance of managing water use carefully. The message is ramped up over the summer period.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
in redundant capacity during non-peak periods. The challenge is how we plan for and provide infrastructure and how we manage the impact of peak demand on our assets and levels of service.			giving Council the power to impose water restrictions when necessary. ***For this issue, progressing all three options concurrently is considered to be the appropriate response**.	
 **Resource consent standards** Over the next 30 years the resource consents relating to our water supply will need to be renewed and the standards that we are required to meet are likely to change. For example, the amount of water that we are allowed to draw from a particular water source may change. The conditions for new resource consents may not be met based on the age, condition and/or design of existing infrastructure. In 2017 the government released a revised National Policy Statement on Freshwater Management (NPS-FM), which aims to improve freshwater quality over time. This is to be reviewed by the new Government and is anticipated to have an impact on the conditions that we are required to meet when water supply consents are renewed.	Decision to fund renewal of water supply resource consents and possible increased management requirements	Ongoing over 30 year horizon	**Option 1: (Preferred)** Undertake timely renewal of abstraction resource consents to ensure regulatory compliance of our water supply schemes. The cost of renewing each resource consent will vary depending on the amount of work required. Non-compliance with regulatory standards and requirements is not acceptable to Council. **Option 2:** Work with regulators to obtain approval of alternative approaches to meeting legislative requirements. This could be seeking of exemptions or time extensions.	Direction set out in the 2017 NPS-FM is likely to have an impact on resource consent conditions, but the extent of the impact is not yet clear. The new Government direction on this is also to be taken into consideration. The Waikato Regional Council will need to consider the new Government policy direction on the NPS-FM and this will determine to what extent and when water supply resource consent conditions will change. This will determine when and what level of expenditure is required. There is uncertainty about the impact that the resource management reforms, and any other legislative changes, will have on consent conditions over the next 30 years, and what impact this might have on our water supply and infrastructure assets.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Higher compliance standards Some of the Council's water supply schemes do not comply with the NZ Drinking Water Standards 2005 (Revised 2008) and Drinking Water Quality Assurance Rules (DWQAR).	Decision to invest in NZDWS and DWQAR upgrades	10 year horizon	**Option 1: (Preferred)** Our 2021 Infrastructure Strategy acknowledged that not all Council water supply schemes complied with Drinking Water Standards. Work to improve service levels has been undertaken over the last three years, and more is planned. Thus far, upgrades have been completed at Whitianga, Tairua, Coromandel, Pauanui, Wentworth Valley, Moana Point, Beverley Hills. The remaining treatment plants are programmed to be upgraded over the next three to four years to improve service levels, with the aim of fully meeting the Drinking Water Standards. **Option 2:** Timing of the work could be extended. This may increase the risk of non-compliance with NZ Drinking Water Standards and Drinking Water Quality Assurance Rules.	The Drinking Water Standards and the DWQARs were introduced by the Government to improve the quality of drinking water and reduce the risk to public health. If we do not undertake this programme of work, our communities will not benefit from improved drinking water quality or reduced public health risk and we would not comply with the NZ Drinking Water Standards and Drinking Water Quality Assurance Rules.

8.5 Stormwater

Table 8-5: Stormwater issues, options and implications

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Asset age and condition Some parts of our stormwater network are ageing. Most of the Thames network was installed in the 1920s and a significant proportion of this infrastructure is nearing the end of its useful life and needs renewing. The stormwater networks in Coromandel township and in some parts of Whitianga are also ageing and in need of renewal.	Decision to fund renewal of stormwater infrastructure to meet LOS	Ongoing over 30 year horizon	We continue to focus on improving our asset condition information and on asset management activities such as investigations, data gathering, systems integration, renewal candidate assessments, field verification and capital lead-in works. This assists us to plan for and prioritise which parts of our networks most need to be maintained and renewed. As our asset information improves, we will minimise reactive renewals by taking a proactive, planned approach to renewing our stormwater networks. **Option 1: (Preferred)** Undertake appropriate renewal of assets to address the theoretical backlog of ageing assets over approximately 20 years; timing dependent on funding availability and outcomes of condition investigations. **Option 2:** Undertake renewals to address the theoretical backlog of ageing assets over approximately three years. After considering the cost of this option and the associated risk reduction benefits, this option was not considered preferable.	As our stormwater assets age, they become more likely to fail which may affect the resilience of our stormwater networks. Ageing or poor condition stormwater assets may also result in: • Increased flooding in areas which are low lying and/or prone to flooding • Increased runoff of untreated stormwater into the natural environment. This may have a negative impact on the quality of our environment and on public health.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
System capacity Increasing frequency and intensity of rainfall events driving the need to increase stormwater network capacity. Reduction of pervious land areas due to new development results in increased run-off into the stormwater network.	Decision to review and plan network capacity upgrades due to land development impacts Decision to review the District Plan land development stormwater provisions	10 year horizon	**Option 1:*** Fund via the 2024 LTP, plan and implement stormwater network upgrades. **Option 2:*** Ensure that all new land developments contribute to any necessary network capacity upgrades as part of their land development programmes. **Option 3:*** Defer funding and projects, assess and report on risks. ***For this issue, progressing options 1 and 2 concurrently is considered to be the appropriate preferred response.**	Lack of a coordinated approach to managing stormwater runoff can result in surface flooding in developed areas. Ensure that the District Plan provisions related to land development address appropriate management for stormwater as part of the consenting process.
Increasing standards Our comprehensive stormwater discharge consent expires in 2031 and will need to be renewed. National standards, such as those set out in the National Policy Statement - Freshwater Management (NPS-FM) and the New Zealand Coastal Policy Statement are increasing, e.g. in relation to the impact that stormwater discharges have on water quality. Should compliance standards become more stringent, we may have difficulty meeting the conditions of any new resource consents required for our existing infrastructure. Note the new Government has signalled a review of the National Policy Statement - Freshwater Management.	Decision to invest in stormwater consent renewal in accordance with RMA requirements Decision to invest in stormwater upgrades in response to consenting outcomes.	10 year horizon	**Option 1: (Preferred)** Budget, plan, and undertake a programme of work, including renewals, to ensure that stormwater schemes meet resource consent conditions. The actual cost of renewals will vary depending on the amount of work required to meet standards, and the level of acceptable risk. **Option 2:** Approve a lower level of investment to maintaining current standards and potentially partially meet the increasing standards with the risk of increased non-compliance. **Option 3:** Work with regulators to obtain approval of alternative approaches to higher compliance standards. This could be seeking of exemptions or time extensions.	The 2017 NPS-FM is likely to have an impact on our comprehensive stormwater consent conditions, but the extent of that impact is not yet clear. New Government direction will also be taken into account. The Waikato Regional Council is undertaking work to consider how they will respond to the NPS-FM and is also undertaking a review of the Waikato Regional Plan and Regional Coastal Policy Statement. This work will determine to what extent and when resource consent conditions will change. This will impact on when and what level of expenditure is required. Some level of uncertainty exists around how much standards and consent conditions will change over next 30 years and what impact this might have on our stormwater infrastructure assets.

8.6 Wastewater

Table 8-6: Wastewater issues, options and implications

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Asset age and condition Some parts of our wastewater network are ageing. A significant number of pipe assets have an unknown construction date or were constructed prior to 1930. Most of this infrastructure is located in Thames. A significant portion of this infrastructure is now at the end of its useful life and needs renewal. A significant amount of wastewater infrastructure has been installed as part of residential developments. Development peaked in the 1980s and 1990s on the eastern seaboard of the district.	Decision to fund renewal of wastewater infrastructure to meet LOS	Ongoing over 30 year horizon	We continue to focus on improving our asset condition information and on asset management activities such as investigations, data gathering, systems integration, renewal candidate assessments, field verification and capital lead-in works. As our asset information improves, we will minimise reactive renewals by taking a proactive, planned approach to renewal of the wastewater networks. Improved asset information will assist us to plan for and prioritise which parts of our networks most need to be maintained and renewed. **Option 1: (Preferred)** Fund via the LTP and undertake appropriate renewal of assets to address the theoretical backlog over approximately 20 years. Continue to assess asset condition and use assessment outcomes to refine renewals programming. **Option 2:** Approve lower levels of funding and extend the renewal programme timeframes this will result in greater risk of asset failure and potential LOS issues.	As our wastewater assets age, they are more likely to experience service interruptions or to fail, which may affect levels of service and reduce the resilience of our wastewater supply networks. Those parts of our network which are ageing or in poor condition are more likely to have a negative impact on the quality of our environment and on public health.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Higher compliance standards Over the next 30 years, the resource consents relating to our wastewater networks will need to be renewed. The number of national standards, such as those set out in the NPS-FM and the New Zealand Coastal Policy Statement, and regional standards that we must meet are increasing. The conditions for new resource consents may not be met, due to the age, condition and/or design of existing infrastructure. Note the new Government has signalled a review of the National Policy Statement - Freshwater Management.	Decision to invest in renewal of wastewater resources consents based on RMA requirements Decision to invest in investigations to determine wastewater treatment upgrade options Decision to invest in wastewater treatment upgrades based on investigation outcomes	10 Year horizon 10 Year plus horizon	**Option 1: (Preferred)** Fund and undertake timely renewal of resource consents to ensure regulatory compliance of our wastewater schemes.. The cost of renewing each resource consent will vary depending on the amount of work required. **Option 2:** Work with regulators to obtain approval of alternative approaches to higher compliance standards. This could be seeking of exemptions or time extensions.	The 2017 NPS-FM is likely to have an impact on our wastewater resource consent conditions. However, the new Government policy direction also needs to be taken into consideration. Council will also be undertaking a review of the Waikato Regional Plan and Regional Coastal Policy Statement. This work will determine to what extent and when resource consent conditions will change and will determine when and what level of expenditure is required. Some level of uncertainty exists around how much standards and consent conditions will change over the next 30 years and what impact this might have on our wastewater infrastructure assets.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Infrastructure capacity and peak demand Demand on the District's infrastructure is at its highest during the summer period. We also experience peaks during popular events held during the non-summer holiday period. This presents some challenges for how we plan for and provide infrastructure and for how we manage the impact of peak demand on our assets and levels of service. Most of our wastewater supply networks have sufficient capacity to cater for peak demand. The Matarangi wastewater scheme is programmed to be upgraded over the next five years to accommodate growth and peak demand. Over the next 30 years, a number of other wastewater schemes, including Whitianga, are likely to require upgrades or optimisation to accommodate projected growth and demand.	Decision to invest in wastewater treatment upgrades to meet demand requirements (linked to higher compliance standards decision)	10 year horizon	Increasing the capacity of our wastewater networks to cater for peak demand would be costly and would result in redundant capacity during non-peak periods. Our approach will be to: • Prioritise demand management to reduce the impact of peak demand on our existing infrastructure. • Ensure that we invest in new infrastructure or increase the capacity of existing infrastructure only where demand is certain and long term. **Option 1:** Undertake timely renewal and upgrades of wastewater treatment plants and build new plants where growth and demand are certain. To cater for growth, we are planning to: • build a new wastewater plant at Matarangi, at an estimated cost of $22 million (2024-26). . • upgrade the Cooks Beach wastewater treatment plant at an estimated cost of $1.09 million, (2024) **Option 2:** Maintain current assets and levels of services. This option would not cater for growth and would not ensure that resource consent conditions are met.	If we are unable to effectively manage peak demand, it will place pressure on the network and this may: • Reduce service levels during peak demand periods. • Have a negative impact on the condition of the network, resulting in interruptions, increased maintenance and renewal costs, and increase the likelihood of asset failure. Wastewater assets which are in poor condition are more likely to have a negative impact on the quality of our environment and on the public health of residents and visitors to the District.

8.7 Issues affecting all infrastructure categories

Table 8-7: Overlapping issues, options and implications

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Climate change and coastal hazards Some of our existing infrastructure is in low-lying and/or coastal areas and will be prone to the effects of rising sea levels, coastal erosion, and inundation. Coastal inundation, storm surges and rising sea levels are expected to result in the degradation of the coast in parts of our District. Council needs to plan for and manage the effects of coastal hazards, such as erosion and inundation. There is ongoing improvement of information on coastal erosion risks for the peninsula as a whole and particularly for the west coast. Over the medium and long-term, as climate changes become more obvious, Council will need to consider the implications of climate change and coastal hazards when planning for residential, commercial and industrial properties, existing and new infrastructure. Where aquifers are at risk of being affected by salt-water intrusion, alternative water supply methods will need to be considered.	Decision to develop and adopt shoreline management plans. Decision to monitor and investigate climate change trends and potential impacts. Decision to develop and fund infrastructure upgrades in response to emerging trends.	10 year horizon	Informed, proactive and adaptive planning will help to minimise the direct and indirect effects of climate change. Council uses guidance and direction from the New Zealand Government to inform how we plan and prepare for the predicted impacts of climate change. We have developed a Coastal Management Strategy and are now developing a Shoreline Management Plan. This will allow us to undertake effective planning to support the adaptation of council assets, services, and our coastal communities to coastal hazards. The Shoreline Management Plan was adopted in 2022. The outcomes of this project will have implications for infrastructure and may drive funding requirements. The project will consider **options** as part of its development and recommend those that are likely to be integrated into an adaptive management framework. Our infrastructure planning will need to: a) Ensure that future assets are of sufficient standard and have adequate capacity to cater for predicted climate changes. • The capacity of assets will be impacted by both increased rainfall intensity and climate challenges like drought. While this will affect a range of assets classes, stormwater and water supply are the two most likely to be affected. b) Take the potential impacts of rising sea levels and coastal erosion into consideration when investing in infrastructure in low-lying coastal areas. • Guidance and direction on how to respond will come from the Shoreline Management Plan. The plan will use an adaptive pathways approach that will consider the life of assets, uncertainty, and appropriate triggers for initiating action.	If council does not take an informed, proactive, and adaptive approach to planning for and making decisions around the long-term impacts of climate change and coastal processes on infrastructure and communities, there could be significant cost implications for council, homeowners, and businesses in some parts of our District. In the short-term there is likely to be continued demand from landowners to protect against the impacts of climate change and rising sea levels. Protecting our coastline, infrastructure and property for the impacts of climate change and rising sea levels has cost implications that will be investigated as part of the Shoreline Management Plan. It should be noted that not all costs associated with the plan will sit with Council. The cost implications will also affect other agencies, including central government and private landowners.

Significant infrastructure issues	Significant decisions	Timeframe	Principal options for managing the issue	Implications of the option(s)
Resilience The resilience of our infrastructure is affected by a range of factors. The District is subject to a number of natural hazards which can have an impact on our infrastructure, including storm events, inundation, land slips, coastal erosion and tsunamis. Some of these are likely to be intensified by the predicted impacts of climate change and rising sea levels. The age and condition of our assets also affect the resilience of networks, with the likelihood of service interruption or asset failure increasing when asset condition is poor. The nature of our District's settlement patterns also affects the resilience of networked infrastructure. We have many small settlements, each with separate water supply, wastewater and stormwater networks. These small networks can be vulnerable to service interruptions and/or asset failure. For example, many of our water supply networks have single supply pipes from source to treatment plant and if the pipe is damaged, supply to all those on the network will be interrupted.	Continue to fund, plan, and implement resilient infrastructure projects	Ongoing over 30 year horizon	**Option 1:** When upgrading existing assets or building new assets we will proactively seek to identify cost effective and sustainable opportunities to future proof and improve the resilience of our infrastructure. We will minimise reactive renewals by taking a proactive planned approach to renewals. Regular maintenance, renewal and replacement of our assets are important to ensure that they continue to deliver services and provide the foundation for a prosperous economy and healthy, thriving communities across the District. We will continue to build resilient communities that are prepared for and able to manage during service interruptions. This approach is supported by our Civil Defence and Emergency Management group. Where appropriate, resilience planning may be influenced by the outcomes of the Shoreline Management Plan. **Option 2:** Upgrading or building new assets for the purpose of adding spare capacity to improve resilience would be expensive. We do not believe that this is a practical or affordable option in our District.	The resilience of our infrastructure affects the risk of communities being: • cut off in the event of roads being blocked • without key services, such as water supply, or requiring the removal and treatment of sewage • placed at risk due to flooding If our approach is not effective, it may result in: • Health and safety risks • Damage to our natural environment • Damage to public and private property • Little or no access for emergency services and maintenance services

9 Most Likely Scenario for Managing Infrastructure Assets

Our most likely scenario is to deliver to current day standards while remaining affordable. In order to achieve this scenario over the next 30 years we will focus on:

- Maintenance and renewals programmes based on quality information
- Priority safety improvements
- A small number of growth-related projects
- Investment to improve standards and meet regulatory requirements and consent conditions, where necessary
- Demand management
- Local network improvements

10 Significant Decisions about Capital Expenditure

The document linkage diagram below highlights where you are in the IS and how this section relates to other sections in the IS:

The table below shows the likely timing and estimated cost of significant capital projects or programmes of work, where capital expenditure is estimated to be over $1 million. The table provides a project description and project linkages to the significant infrastructure issues (detailed in Section 6), key decisions, options, project budgets and timeframes.

Table 10-1: Significant decisions about capital expenditure – core infrastructure

Key	Renewal	Funding for Renewals
	LOS	Funding to meet Level of Service
	ILOS	Funding to increase Level of Service
	AC	Funding for Additional Capacity or Growth

10.1 Roads and footpaths

Table 10-2: Significant roading and footpath decisions about capital expenditure – other infrastructure

		Significant Issue linkage	Key Decision	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project: Te Kouma Rd Intersection							
	Most likely Scenario	District Growth - Enabling Thames and surrounds	Decision to invest in road network improvements to meet growth demand requirements Decision process: 2024 LTP	This project will improve service levels and achieve economic development objectives by supporting the development of the aquaculture industry. Key project is Totara Valley Roading Primary driver: ILOS (90%)	**Option 1:** Retain current level of road network improvement investment with the risk of not meeting growth demand. **Option 2:** Defer investment and monitor growth demand trends; reprioritise at a later date.	2026/27-2027/28	$3.89 M

		Significant Issue linkage	Key Decision	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
					Option 3: (Preferred) Fund and implement proposed project		
Project: Major Drainage Control							
	Most likely Scenario	Climate change and coastal hazards Age and condition of assets	Decision to invest in renewal of roading drainage systems Decision process: 2024 LTP	Provision of better stormwater drainage systems for our roads to minimise reactive renewals. This is a proactive planned approach which is anticipated to reduce whole of life costs. Primary driver: Renewal (90%)	**Option 1: (Preferred)** Fund and implement proposed project. **Option 2:** Defer funding with the increased risk of road drainage issues	2024-34	$8.69 M 11-30 year investment estimate: $25.01M
Project: Storm Event Recovery							
	Most likely Scenario	Climate change and coastal hazards	Decision to invest in road network recovery following the impacts of 2023 storm events Decision process: 2024 LTP	Programme of work to repair the roading network damaged by the impacts of the 2023 storm events (Cyclone Hale, Cyclone Gabrielle, 21 July 2023 Storm Event). (Note: Recovery budget is also allocated in 2023/24) Primary driver: ILOS(100%)	**Option 1: (Preferred)** Fund and implement ongoing works project **Option 2:** Approved less funding with the increased risk longer term disruptions and loss of LOS.	2024/25-2025/26	$14.55M (Note there are a number of other projects with resilience drivers) resilience
Project: District Bridge Renewals							
	Most likely Scenario	Age and condition of assets Changing standards and service expectations	a) Decision to undertake renewal and upgrade of bridge and bridge components over the 10 year horizon. b) Decision to initially undertake future planning for the renewal and upgrade of bridges. Future decision to invest in and implement bridge upgrades. Decision Process: 2024 LTP and Future Council and LTP	Both short and long term renewal and upgrade of bridges to renew aging infrastructure and meet required standards. This includes: Bridge Component Replacement ($5.34M) and District Roading Bridge Renewal ($1.12M) Primary driver: Renewal (90%) Note: AC (10%)	**Option 1:** Retain current level of bridge design with the risk of not meeting design standards and the risk of bridge failure. **Option 2: (Preferred)** Fund and implement bridge renewals based on condition inspections and related works prioritisation. **Option 3:** Undertake investigations and then plan and implement bridge upgrades in the long-term horizon of the Strategy.	2024/25-2033/34 2035-38 and 2045-2049 (Timing will be refined in future Strategies)	$6.46M $8.7 M (Budget will be refined in future Strategies)
Project: Network Maintenance, Renewals and Improvements							
	Most likely Scenario	Age and condition of assets Changing standards and service expectations	Decision to invest in at least the current level of maintenance and renewals investment to maintain the network. Decision process: 2024 LTP	Maintenance, renewal and upgrade of roads and footpaths to renew aging infrastructure and meet required standards. The current trend of increasing costs means we are able to get less done with funding we have and are just managing to hold service levels. This programme includes : Area-wide pavement treatment ($26.46M), Unsealed road renewal	**Option 1:** Retain current level of renewals investment, this will likely see a reduction in LOS over time. **Option 2: (Preferred)** 20% increase in the level of renewals investment to maintain roads and	2024/25-2033/34	$76.31M (total renewals across a number of projects) 11-30 year investment

		Significant Issue linkage	Key Decision	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
				($13.55M), Maintenance chip seals($24.77M), Thin AC surfacing ($5.33M), Preventative Maintenance ($3.89M), Traffic services ($2.28M) Primary Driver: Renewal (90%)	footpaths to the required standards and LOS.		estimate- $521.1M
Project: 100% Crown Funded Resilience Projects							
	Most likely Scenario	These projects address a number of 'significant issues': Changing standards and service expectations District Growth - Enabling Thames and surrounds Natural Hazards and Climate Change	Decision to Implement Crown Funded projects that wil, improve roading resilience and improve safety. Decision process: 2024 LTP	The following projects have been identified for crown funded roading resilience improvement: • 100% Crown Funded Resilience - Coromandel Bypass ($37.23M) • 100% Crown Funded Resilience - Tapu-Coroglen Road ($27.47M) • 100% Crown Funded Resilience - Colville Road ($8.84M) • 100% Crown Funded Resilience - Kennedy Bay Road ($26.53M) Primary driver: ILOS (100%)	**Option 1:** Retain current situation with vulnerable roading infrastructure, connectivity, and safety risks. **Option 2: (Preferred)** Fund and implement the proposed project in the proposed timeframe. **Option 3:** Defer the projects and fund and implement the proposed project at a later time in the future.	2024/25-2033/34	$100.08M (see description for project cost breakdown)
Project: Totara Valley Road Service Extension							
	Most likely Scenario	Changing standards and service expectations District Growth - Enabling Thames and surrounds.	Decision to invest in the upgrade of the Totara Valley Road. Decision process: 2024 LTP	Totara Valley Road is a narrow road that remains partly unsealed and also has limited water services. The area has been identified for future development of up to 500 additional lots and road improvement and 3Waters servicing is proposed to be implemented in stages. Primary driver for Water, Wastewater and Stormwater: – ILOS (100%) Primary driver for Roading: ILOS (41%) Note: AC (32%), Renewal (27%)	**Option 1:** Retain current situation and servicing level of the Totara Valley- this has negative impacts on future land development in the area. **Option 2: (Preferred)** Fund and implement the proposed roading and 3Waters upgrade to facilitate future development of the area. **Option 3:** Defer the project and fund and implement the proposed project at a later time in the future. - this may have short-term negative impacts on land development in the area.	2024/25-2025/26	$11.21M (R) $1.84M (SW) $0.53M (WW) $0.78M (W) $10.85M
	Most likely Scenario						

10.2 Coastal and Hazard Management

Table 10-3: Significant Coastal and Hazard Management decisions about capital expenditure – other infrastructure

		Significant Issue Linkage	Key Decisions	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project: Moanataiari Coastal Protection (medium term)							
	Most likely Scenario	Climate change and Coastal hazards Natural hazards Changing standards and service expectations Key interdependencies Affordability	Decision to increase the level of service for coastal inundation protection and to buy time before managed retreat will occur. Decision process: community engagement and the 2024-2034 LTP	Projected increases in sea level rise will overtop the existing coastal inundation protection. This project will increase the height of the existing protection, with a new and agreed level of service. This will 'buy time' before the risk of inundation becomes too great (high residual risk). Primary driver: ILOS (100%)	**Option 1:** Defer funding and project timeframes with the risk of potential flooding, property damage and potential risks to life over time. **Option 2:** **(Preferred**) Fund and implement proposed project (including key interdependencies).	2030/31 – 2031/32	$2.86 M
Project: Tairua Coastal Protection							
	Most likely Scenario	Climate change and Coastal hazards Natural hazards Changing standards and service expectations Key interdependencies Affordability	Decision to increase the level of service for coastal inundation protection in two stages for protection over the long-term and as (when) sea levels rise. This will become a multi-year set of works. Decision process: community engagement and the 2024-2034 LTP	Projected increases in sea level rise will overtop the existing coastal inundation protection. This project will increase the height of the existing protection with a new agreed level of service, with some seawall (rock) in places to protect from coastal erosion. This will 'buy time' if sea level rises and the next phase in raising the protection is required. Primary driver: ILOS (100%)	**Option 1:** Defer funding and project timeframes with the risk of potential flooding and erosion, property damage and potential risks to life over time, and reduced access to parts of the community (including state highway) **Option 2:** **(Preferred)** Fund and implement proposed project (including key interdependencies).	2026/27-2027/28 (stage 1) Year 20-25 (stage 2)	$4.39 M stage 1 + $5M stage 2
Project: Tararu Coastal Protection							
	Most likely Scenario	Climate change and Coastal hazards Natural hazards Changing standards and service expectations Key interdependencies Affordability District Growth - Enabling Thames and surrounds	Decision to implement transitional coastal inundation protection to buy time before managed retreat will occur. Decision process: community engagement and the 2024-2034 LTP	Projected increases in sea level rise will overtop the existing coastal inundation protection. This project will increase the height of the existing protection with rock wall in places to protect against coastal erosion, and with a new and agreed level of service. This will 'buy time' before the risk of inundation becomes too great (high residual risk). Primary driver: ILOS (100%)	**Option 1:** Defer funding and project timeframes with the risk of potential flooding, property damage and potential risks to life over time. **Option 2:** **(Preferred)** Fund and implement proposed project (including key interdependencies).	2027/28-2028/29	$2.26M

		Significant Issue Linkage	Key Decisions	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project: Te Puru Coastal Protection							
	Proposed Scenario	Climate change and Coastal hazards Natural hazards Changing standards and service expectations Key interdependencies Affordability District Growth - Enabling Thames and surrounds	Decision to implement transitional coastal inundation protection to buy time before managed retreat will occur. Decision process: community engagement and the 2024-2034 LTP	Projected increases in sea level rise will overtop the existing coastal inundation protection. This project will increase the height of the existing protection with rock wall in places to protect against coastal erosion, and with a new and agreed level of service. This will 'buy time' before the risk of inundation becomes too great (high residual risk). Primary driver: ILOS (100%)	**Option 1:** Defer funding and project timeframes with the risk of potential flooding, property damage and potential risks to life over time. **Option 2: (Preferred)** Fund and implement proposed project (including key interdependencies).	20227/28-2029/30	$4.33M (Budget will be refined in future Strategies)
Project: Thames Coastal Protection & Renewals							
	Most likely Scenario	Climate change and Coastal hazards Natural hazards Changing standards and service expectations Key interdependencies Affordability District Growth - Enabling Thames and surrounds	Decision to implement coastal inundation protection in stages for protection over the long-term and as (when) sea levels rise. This will become a multi-year set of works. Decision process: community engagement and the 2024-2034 LTP	Projected increases in sea level rise will overtop the existing coastal inundation protection. This project will increase the height of the existing protection with rock wall in places to protect against coastal erosion, and with a new and agreed level of service. This will 'buy time' if sea level rises and the next phase in raising the protection is required. Primary driver: ILOS (100%)	**Option 1:** Defer funding and project timeframes with the risk of potential flooding, property damage and potential risks to life over time. **Option 2: (Preferred)** Fund and implement proposed project (including key interdependencies).	2027/28 – 2030/31 (stage 1) Year 25-30 (stage 2)	$78.16 M stage 1 + $60 M stage 2 (Budget will be refined in future Strategies)
Project: Whangamatā Coastal Protection							

		Significant Issue Linkage	Key Decisions	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
	Most likely Scenario	Climate change and Coastal hazards Natural hazards Changing standards and service expectations Key interdependencies	Decision to implement coastal inundation protection in stages for protection over the long-term and as (when) sea levels rise. This will become a multi-year set of works. Decision process: future engagement and LTP closer to the expected triggers (0.4m of sea level rise) in the coastal adaptation pathway (PU 137)	Projected increases in sea level rise will overtop the road and impact road access, private and public property, and recreational facilities. This project will implement coastal erosion and inundation protection, with a new agreed level of service. Primary driver: ILOS	**Option 1:** Defer funding and project timeframes, with the risk of potential flooding, property damage and potential risks to life over time. **Option 2: (Preferred)** Fund and implement proposed project (including key interdependencies).	Year 15-20	$41 M (Budget will be refined in future Strategies)
Project: Coastal Protection for Roading Resilience							
	Most likely Scenario	Climate change and Coastal hazards Natural hazards Changing standards and service expectations Key interdependencies	Council undertook the Shoreline Management Pathway (SMP) project, adopted in 2022, to help plan and prioritise for expected impacts of climate change, including sea level rise, increasing storm intensity, increased coastal erosion and coastal inundation. Decision process: future engagement and LTP closer to the expected triggers	Projected increases in sea level rise will overtop coastal roads and increase coastal erosion. This is anticipated to have a direct impact on road resilience, community access, tourism, and community wellbeing. The programme of work identified draws from the outputs of the Shoreline Management Pathways project which identifies areas of increasing risk and vulnerability. There is uncertainty relating to coastal hazard impact for specific locations but there is a high confidence that significant increase in expenditure is required to respond to this issue if we are to maintain the existing levels of service. Primary driver: ILOS	**Option 1: (Preferred)** Fund and implement proposed programme of work to maintain current LOS. **Option 2:** Defer funding and project timeframes with the risk of increased coastal erosion and flooding causing significant reduction in LOS and community resilience.	Year 10-30	$75M - $125M
Project: Long term coastal hazard and protection assets renewals							

		Significant Issue Linkage	Key Decisions	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
	Most likely Scenario	Climate change and Coastal hazards Natural hazards	Long term investment decision to invest in renewal of aging coastal protection assets Decision process: future engagement and LTP closer to the expected triggers	There is significant investment the coastal hazard and protection assets over the 30 year horizon. Most of this infrastructure renewal will take place beyond the 30 year horizon. Provision for existing aged asset renewal has been made in the 21-30 years. This will involve asset condition assessment, renewals planning and programming. It is likely that investment forecasts will also be amended as planning progresses in the future. Primary driver: Renewals	**Option 1: (Preferred)** Fund and implement long tern renewal planning and programming. **Option 2:** Defer funding and project timeframes, with the risk of aging asset failure that may cause reduction in LOS and community resilience. **Option 3:** Accept reduction in LOS over time and manage risk to community through other mechanisms.	Year 21-30	~$10M

10.3 Solid Waste

Table 10-4: Significant Solid Waste decisions about capital expenditure – other infrastructure

		Significant Issue linkage	Key Decision	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project: RTS Renewals							
	Most likely Scenario	Aging assets	Decision to invest in RTS renewals to address aging infrastructure. Decision process: 2024 LTP	Renewals work at various Refuse Transfer Stations (RTS) is required to replace buildings, water and power infrastructure, minor assets, and pavements. The renewals will help ensure we are providing the agreed level of service, and we meet our health and safety obligations. . Primary driver: Renewals (100%)	**Option 1:** Defer funding and timeframes and retain current level of road network improvement investment with the risk of not meeting growth demand. **Option 2:** Defer investment and monitor growth demand trends; reprioritise at a later date. **Option 3: (Preferred)** Fund and implement proposed project	2024/25-2033/34	$7.02 M
Project: New RTS at Whitianga							
	Most likely Scenario	Age and condition of assets Changing standards and service expectations District Growth	Decision to invest in a new RTS at Whitianga Decision process: 2024 LTP	The project will provide an RTS facility for current and future capacity. Build a new Refuse Transfer Station at Whitianga, to renew and replace assets and improve service levels and increase capacity to meet growth requirements. Redevelopment is planned for an existing site approximately 1km from the current refuse transfer station. It would include a new site for green waste, refuse and recycling. Primary driver: ILOS (100%)	**Option 1:** Defer funding and timeframes and retain current RTS site and not meet LOS requirements. **Option 2: (Preferred)** Fund and implement the proposed project to construct a new RTS for Whitianga	2024/25-2026/27	$9.40M
Project: RTS Improvements							
	Most likely Scenario	Changing standards and service expectations Climate change and Coastal hazards Natural hazards Peak Demand	Decision to invest in RTS improvements. Decision process: 2024 LTP	There are several drivers for improvements at the RTS including peak demand, legislation requirements, H&S. This investment will help ensure that the RTS across the district will have the capacity and resilience to meet current and future service and regulatory demands. Primary driver: ILOS (100%)	**Option 1:** Defer funding and timeframes and retain current RTS site and not meet LOS requirements. **Option 2: (Preferred)** Fund and implement the proposed improvement programme to meet current and future service and regulatory demands	2024/25-2026/27	$3.65M

10.4 Stormwater

Table 10-5: Significant Stormwater decisions about capital expenditure – other infrastructure

		Significant Issue linkage	Key Decision	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project: Pauanui Holland Stream Improvements							
	Most likely Scenario	Climate change and Coastal hazards Natural hazards Age and condition of assets	Decision to invest in stream improvements to meet current LOS requirements. Decision process: 2024 LTP	Properties along the Holland Stream in Pauanui have repeatedly experienced flood inundation over recent years. The Holland Stream stormwater project will improve the stream and infrastructure in the area to a standard that will meet the agreed level of service. Primary driver: Renewal (80%) Note: ILOS (20%)	**Option 1:** Defer funding and timeframes with the risk of surface flooding. **Option 2:** **(Preferred**) Fund and implement proposed project	2027 – 2031	$1.21 M (capex)
Project: District Stormwater Renewals							
	Most likely Scenario	Age and condition of assets Climate change and Coastal hazards	Decision to invest in renewal of aging stormwater infrastructure to meet LOS Decision process: 2024 LTP	Renewal of stormwater infrastructure to ensure level of service is maintained and to reduce the risk of unplanned maintenance or renewals. Primary driver: Renewal (80%) Note: ILOS (20%)	**Option 1:** Defer funding and timeframes with the risk of asset failure, increased reactive maintenance and potential reduction in LOS. **Option 2:** **(Preferred)** Fund and implement proposed renewals programme	2024/25-2033/34 2034/35-2053-54	$21.92 M (capex) 11-30 year investment estimate-$56.44M
Project: Whangamatā Stormwater Improvements							
	Most likely Scenario	Climate change and Coastal hazards Age and condition of assets District Growth - Enabling Thames and surrounds	Decision to invest in stormwater network upgrades to increase drainage capacity to meet growth , climate change and resilience requirements. Decision process: 2024 LTP	The primary stormwater management of Whangamatā was ground soakage. The growth of infill subdivisions and the construction of larger and second dwellings, has increased the impermeable surfaces that reduces the area available for soakage. This is an ongoing phased programme of work and improve the capacity of the existing infrastructure by upgrading and increasing the pipe network. The project is focused on four key areas: Williamson Ave, Lincoln Rd / Lindsay Rd, Barbara Ave and Achilles Ave. Primary driver: ILOS (100%)	**Option 1:** Defer funding and timeframes with the risk of surface flooding. **Option 2:** **(Preferred)** Continue to fund and implement phased stormwater improvements.	2024/25 to 2029/30	$9.17 M (capex)

		Significant Issue linkage	Key Decision	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project: Long Term District Stormwater Improvements							
	Proposed Scenario	Age and condition of assets Changing standards and service expectations Climate change and Coastal hazards	Decision to initially undertake future planning for the renewal and upgrade of the stormwater network. Future decision to invest in and implement stormwater upgrades. Decision Process: Future Council and LTP	This is a long-term horizon project to Monitor Climate Change trends and investigate / plan district wide stormwater and flood control infrastructure upgrades. Based on investigation, upgrade works will be funded and implemented in the long-term horizon of this Strategy. Primary driver: ILOS (70%) Note: Renewals (30%)	**Option 1:** Defer funding and timeframes and risk potential impacts of rising sea levels and intensity/frequency of storms. **Option 2: (Preferred)** Initially monitor Climate change trends and then plan, fund, and implement proposed projects	2036-2043 (Timing will be refined in future Strategies)	$122.7 M (Budget will be refined in future Strategies)
Project: District Stormwater Network Improvements							
	Proposed Scenario	Climate change and Coastal hazards Age and condition of assets District Growth -	Decision to invest in stormwater network upgrades to increase drainage capacity to meet growth, climate change and resilience requirements at priority locations across the district. Decision process: 2024 LTP	This is an ongoing phased programme of work to improve stormwater network capacity by upgrading and increasing the pipe network. The 2024 LTP priorities include: Austin Drive Stormwater Improvements- $1.37M - Cooks Beach Stormwater Improvements- $1.71M Matarangi Stormwater Improvements- $3.20M Whitianga Stormwater Network Improvements- $1.61M Drivers of above projects: Renewals (50%) ILOS (50%) Kopu Stormwater Improvements- $4.46M Drivers of above project: AC (50%) ILOS (50%)	**Option 1:** Defer funding and timeframes with the risk of surface flooding. **Option 2: (Preferred)** Fund and implement phased district stormwater improvements.	2024/25-2033/34	$12.38M
Project: Thames Albert Street Stormwater Improvements							
	Proposed Scenario	Climate change and Coastal hazards Age and condition of assets District Growth -	Decision to invest in stormwater network upgrades to increase drainage capacity to meet growth, climate change and resilience requirements in Albert Street Thames. Decision process: 2024 LTP	To improve stormwater network capacity in the Albert Street area by upgrading and increasing the pipe network to improve stormwater management and mitigate surface flooding. Primary driver: Renewal (60%) Note ILOS (40%)	**Option 1:** Defer funding and timeframes with the risk of surface flooding. **Option 2: (Preferred)** Fund and implement phased district stormwater improvements	2027/28-2031/32	$11.70M

10.5 Wastewater

Table 10-6: Significant Wastewater decisions about capital expenditure – other infrastructure

		Significant Issue Linkages	Key Decisions	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project Matarangi Wastewater Treatment Plant							
	Most likely Scenario	Climate change and Coastal hazards Age and condition of assets Changing standards and service expectations	Decision to invest in wastewater treatment upgrades to meet increasing LOS requirements due to climate change and treatment quality. Decision process: 2024 LTP	This project is ongoing and involves the upgrade of the Matarangi wastewater treatment plant. Given that the current site of the plant is relatively low lying, the upgrade will consider the impacts of climate change and the viability of the current location. There I also an element of catering for future growth (additional capacity) Primary driver: Renewal(50%) Note: ILOS (25%) AC (25%)	**Option 1:** Defer funding and timeframes and risk potential impacts of rising sea levels and coastal erosion. **Option 2: (Preferred)** Fund and continue to implement the project	2024/5-2030/31	$22.04 M (capex)
Project: Cooks Beach Treatment Plant Upgrade							
	Most likely Scenario	Age and condition of assets Changing standards and service expectations District Growth - Enabling Thames and surrounds	Decision to invest in wastewater treatment quality upgrades and capacity to meet future demand requirements. Decision process: 2024 LTP	This project will upgrade the existing wastewater treatment plant to increase the capacity of the plant to meet the future standards requirements and demand. Primary driver: Renewal (70%) Note: ILOS (20%) AC (10%)	**Option 1:** Defer funding and timeframes and retain current capacity of the wastewater treatment plant and risk not meeting growth and demand. **Option 2:** Defer investment, monitor growth demand trends, and reprioritise at a later date. **Option 3: (Preferred)** Fund and implement proposed project.	2024/25-	$1.09M (capex)
Project: District Renewals							
	Most likely Scenario	Age and condition of assets Climate change and Coastal hazards	Decision to invest in renewal of aging wastewater infrastructure to meet LOS Decision process: 2024 LTP	Renewal of wastewater infrastructure to ensure level of service is maintained and to reduce the risk of unplanned maintenance or renewals. Primary driver: Renewal (80%) Note: ILOS (20%)	**Option 1:** Defer funding and timeframes with the risk of asset failure, increase reactive maintenance and potential reduction in LOS. **Option 2: (Preferred)** Fund and implement proposed renewals programme.	2024/25-2033/34 2034/35-2053/54	$60.91M (capex) 11-30 year investment estimate-$184M

		Significant Issue Linkages	Key Decisions	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project: Long Term District Wastewater Treatment Improvements							
	Proposed Scenario	Age and condition of assets Changing standards and service expectations Climate change and Coastal hazards	Decision to initially undertake future planning for the upgrade of wastewater treatment plants to meet future standards and resource consent requirements. Future decision to invest in and implement treatment plant upgrades. Decision Process: Future Council and LTP	This is a long-term horizon project; it will initially monitor legislation changes and requirements regarding treated effluent standards. Then prioritise, plan, and implement upgrades of the existing wastewater treatment plants to meet future required environmental and resource consent standards. Primary driver: ILOS (70%) Note: Renewals (30%)	**Option 1**: Defer funding and timeframes and risk potential noncompliance with future resource consent and quality requirements - not desirable. **Option 2: (Preferred)** Initially monitor quality requirements and then prioritise, plan, fund and implement proposed projects	2034-54 (Timing will be refined in future Strategies)	$175 M (Budget will be refined in future Strategies)
Project: Long Term Thames Wastewater Treatment Improvements							
	Proposed Scenario	Changing standards and service expectations Growth Age and condition of assets	Decision to initially undertake future planning linked to the Thames Spatial Plan for the upgrade of the Thames wastewater treatment plant to meet future growth requirements, discharge quality standards and future resource consent requirements. Future decision to invest in and implement treatment plant upgrades. Decision Process: Future Council and LTP	This is a long-term horizon project linked to the Thames Spatial Plan and will cater for future growth and connectivity of Thames South. it will also respond to legislation changes and requirements regarding treated effluent standards. Primary driver: Growth (90%) Note: Renewals (10%)	**Option 1:** Defer funding and timeframes and risk capacity wastewater treatment constraints that negatively impact on the implementation of the Thames Spatial Plan. There may also be potential discharge noncompliance with future resource consent and quality requirements. **Option 2: (Preferred)** Initially monitor quality requirements and then prioritise, plan, fund and implement proposed projects	2039--2043 (Timing will be refined in future Strategies)	$73M
Project: Hahei Wastewater Expansion							
	Proposed Scenario	Changing standards and service expectations Growth and demand	Decision to fund and implement the upgrade of wastewater network to meet current and future demand requirements. Decision Process: 2024 LTP	To expand the Hahei wastewater network to provide adequate capacity for growth and to safeguard the environmental and public health. Primary driver: AC (100%)	**Option 1:** Defer funding and timeframes and risk potential network constraint issues and negative environmental impacts and potential noncompliance with resource consent and quality requirements.	2027/28-2033/34	$3.30M

		Significant Issue Linkages	Key Decisions	Description	Options	Preferred Option Timing	Preferred Option Estimated Cost
					Option 2: (Preferred) Plan, fund and implement proposed wastewater expansion project in Hahei		
Project: Whitianga - Wharekaho Extension (Wastewater and Water)							
	Proposed Scenario	Changing standards and service expectations	Decision to fund and implement the extension of the wastewater and water network to meet current and future demand requirements. Decision Process: 2024 LTP	To expand the Whitianga wastewater/water network to service the Wharekaho area to safeguard the environmental and public health. Primary driver: ILOS (100%)	**Option 1:** Defer funding and timeframes and risk negative environmental impacts and potential LOS issues. **Option 2: (Preferred)** Plan, fund and implement proposed wastewater network extension to Wharekaho.	Wastewater 2026/27-2029/30 Water 2026/27-2028/29	$3.16M $3.10M $6.26M (total)
Project: Whangamatā Hetherington Road Rising Main							
	Proposed Scenario	Changing standards and service expectations	Decision to fund and implement the renewal and upgrade of the wastewater rising main to meet current and future demand requirements. Decision Process: 2024 LTP	To upgrade the rising main to provide for current and future capacity requirements and safeguard the environment. Primary driver: Renewal (50%) ILOS (50%)	**Option 1:** Defer funding and timeframes and risk negative environmental impacts and potential LOS issues. **Option 2: (Preferred)** Plan, fund and implement proposed wastewater rising main upgrade.	2024/5-2029/30	$2.52M
Pollen Street Redevelopment - Infrastructure Upgrade - Wastewater							
	Proposed Scenario	Age and condition of assets	Decision to fund and implement the renewal and upgrade of the wastewater and water networks to meet current and future demand requirements. Decision Process: 2024 LTP	To upgrade the Pollen Street wastewater and water reticulation to provide for current and future capacity requirements and safeguard the environment. Primary driver: Renewal (100%)	**Option 1:** Defer funding and timeframes and risk asset failure and disruption and negative environmental impacts. **Option 2: (Preferred)** Plan, fund and implement proposed reticulation upgrades.	Wastewater 2027/28-2030/31 Water 2028/29-2030/31	$4.80M $2.76M $7.56M (total)

10.6 Water Supply

Table 10-7: Significant Water Supply decisions about capital expenditure – other infrastructure

		Significant Issue linkage	Key Decisions	Descriptions	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project Drinking Water Standards							
	Most likely Scenario	Age and condition of assets Three Waters Reform Changing standards and service expectations	Decision to upgrade water treatment plants to comply with Drinking Water Standards Decision process: 2024 LTP	This is a continuation of the Drinking Water Standards project which includes various upgrades to the existing Water Treatment Plants across the Thames Coromandel District upgrades have been completed at Whitianga, Tairua, Coromandel, Pauanui, Wentworth Valley, Moana Point, Beverley Hills. The remaining treatment plants are programmed to be upgraded over the next three to four years. Primary driver: ILOS (70%)	**Option 1:** Defer funding and timeframes with the risk of not complying with the NZ Drinking Water Standards -not desirable. **Option 2: (Preferred**) Continue to fund and implement proposed project	2024-2034	$5.95 M (capex)
Project: Universal Metering – District wide							
	Most likely Scenario	Affordability Three Waters Reform Changing standards and service expectations	Decision to fund and implement universal metering to manage supply demand. Decision process: 2024 LTP	This programme will provide for the installation of universal water meters to all the reticulation networks throughout the district. The project is proposed to be staged over a seven-year period (rephased in 2024 LTP due to changes in reform programme), based on water metering being progressively instigated throughout the district with the major areas being first to be metered. District Wide Primary driver: ILOS (100%) Whitianga Primary Drivers: Renewal (50%) ILOS (50%)	**Option 1:** Defer funding and timeframes with the risk of not meeting supply demand. **Option 2: (Preferred)** Fund and implement proposed project.	2027/28-2033/34 Whitianga 2027/28-2030/31	$13.74M $2.68M Long term 11+ year horizon estimate: $20M
Project: Thames South Water – Treatment Plant Puriri							
	Most likely Scenario	Age and condition of assets Three Waters Reform Changing standards and service expectations	Decision to invest in a new water source to meet future growth demand requirements. Decision process: 2024 LTP	We currently hold water take consents to draw from the Matatoki, Apakura and Omahu streams in the Thames Valley. In the long term there is insufficient flow from these water takes to supply the future Thames Valley demand, including the potential future developments in this area. The most practical and cost-effective solution to address this situation is considered to be drawing raw water from a new intake from the Puriri River and providing treatment through a new Water Treatment Plant at Puriri. The project funding allocation recognises primary driver for increasing service level and standards and elements of	**Option 1:** Defer funding and timeframes and retain current supply network with the risk of not meeting future demand. **Option 2:** Defer investment, monitor growth demand trends, and reprioritise at a later date. **Option 3: (Preferred)** Fund and implement proposed project	2024/25-27/28	$19.44 M (capex)

		Significant Issue linkage	Key Decisions	Descriptions	Options	Preferred Option Timing	Preferred Option Estimated Cost
				renewal and additional capacity for growth as per the note below. Primary drivers: ILOS (40%) AC (40%) Note: Renewal (20%)			
Project: Long Term Water System Improvements to meet Water standards							
	Proposed Scenario	Age and condition of assets Changing standards and service expectations	Decision to initially undertake future planning for the renewal and upgrade water treatment plants to meet future standards and resource consent requirements. Future decision to invest in and implement water treatment improvements. Decision Process: Future Council and LTP	This is a long term horizon project it will initially monitor legislation/standards changes. Then prioritise, plan, and implement upgrades of the existing water treatment plants and process control to meet future required standards. Primary driver: ILOS (70%) Note: Renewals (30%)	**Option 1:** Defer funding and timeframes and risk potential noncompliance with future drinking water quality standards and resource consent requirements. **Option 2: (Preferred)** Initially monitor quality requirements and then prioritise, plan, fund and implement proposed projects	2034/35-2053/54	$73.62M over the 11-30 year horizon
Project: Treated Water Reservoir Replacement/Improvement							
	Proposed Scenario	Changing standards and service expectations Age and condition of assets	Decision to fund and implement treated reservoir renewal and upgrade to meet standards and requirements,	To renew/replace treated water reservoirs to comply with drinking water safety requirements and meet LOS storage requirements for: Coromandel- $1.74M Matarangi- $1.96M Onemana- $1.32M Primary driver of above projects: Renewal (100%) Moewai Road- $3.05M Primary driver: Renewal (80%) Note: ILOS (20%) Whitianga- $1.91M Primary drivers: ILOS (50%) AC (50%) Pauanui-$1.64M Primary driver: ILOS (100%)	**Option 1:** Defer funding and timeframes and risk potential noncompliance with drinking water quality standards, fire flow requirements and water shortages. **Option 2: (Preferred)** Plan, fund and implement proposed projects to renew and upgrade treated water reservoirs.	2025/26-2033/34	$11.64M
Project: Thames WTP Clarifier Replacement							
	Proposed Scenario	Changing standards and service expectations	Decision to fund and implement treatment improvement at the Thames WTP to meet drinking water quality requirements	To replace the Thames WTP clarifier to meet drinking water quality requirements. Primary driver: ILOS (100%)	**Option 1:** Defer funding and timeframes and risk potential noncompliance with drinking water quality standards. **Option 2: (Preferred)** Plan, fund and implement proposed WTP clarifier replacement.	2024/25-2026/27	$1.95M

		Significant Issue linkage	Key Decisions	Descriptions	Options	Preferred Option Timing	Preferred Option Estimated Cost
Project: Water Renewals							
	Proposed Scenario	Age and condition of assets	Decision to fund and implement water network renewals	To renew water network assets at the end of their economic life. Primary driver: Renewal (80%) Note: ILOS (20%)	**Option 1:** Defer funding and timeframes and risk potential asset failure and disruption. **Option 2: (Preferred)** Plan, fund and implement proposed renewals programme	2024/25-2033/34 2034/35-2053/54	$32.33M Long term 11+ year horizon estimate: $111.59M
Project: Whitianga Watermain Upgrade - Moewai Road to Captain Wood Avenue							
	Proposed Scenario	Age and condition of assets	Decision to fund and implement water main renewals	To renew water main at the end of their economic life. Primary driver: Renewal (80%) Note: ILOS (20%)	**Option 1:** Defer funding and timeframes and risk potential asset failure and disruption. **Option 2: (Preferred)** Plan, fund and implement proposed renewals programme.	2025/26-2028/29	$2.99M

10.7 LTP Deliberation Amendments (To Be Confirmed after deliberations)

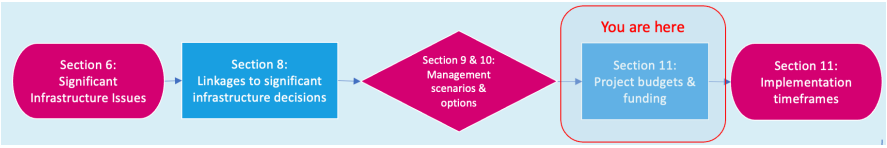
The following major projects have been included in the TCDC Infrastructure Strategy Capital forecast as a result of the Council LTP submissions and deliberations process:

Table 10-8 LTP Deliberation Amendments

Project	Amendment	Description	Timing	Budget ($ Million)
Wastewater				
Water Supply				
Roading				

11 Financial Estimates

The document linkage diagram below highlights where you are in the IS and how this section relates to the other sections in the IS:



11.1 Total 30 Year Expenditure Estimates

The infrastructure assets covered in this Strategy include local roads and footpaths, water supply, wastewater, stormwater and drainage, solid waste, and coastal and hazard management. Thames-Coromandel District Council currently owns assets, for the purpose of delivering these activities, estimated at over $700million.

The table below shows total expected capital and operational expenditure for each infrastructure asset group covered in this Strategy, over the 30-year period between 2024 and 2054.

All financial forecasts in this Strategy are inflated in accordance with the inflation tables in Section 7.4.

Table 11-1: Draft 30 year total expenditure estimates

Infrastructure Activity	Capital Expenditure ($ M)	Operational Expenditure ($ M)
Roads and Footpaths	921.1	1,196.2
Coastal and Hazard Management	235.2	383.9
Solid Waste	47.1	918.0
Water Supply	381.3	971.9
Wastewater	588.5	1,230.7
Stormwater	260.2	315.7
Total	2.4B	5B

(30 year forecasts are based on 2024 LTP Capex Model V3, with 11-30 year forecasts based on inflated year 10 programme budgets or rough order standalone projects estimates, that will be refined over time)

Over the next 30 years we expect that:

- Operational expenditure, including the costs of labour, depreciation, materials, and maintenance accounts for the majority of expenditure.
- Given modest estimates of growth in our usually resident population and our strategy of “right-sizing” our infrastructure assets, limited growth-related infrastructure has been planned. There is some potential growth-related infrastructure beyond year 10 which relates to an expansion of the wastewater treatment plant in Whitianga. At this stage the specific project budgets have not been identified, rather a provision has been made under the *Long term Wastewater Treatment Improvements* line item, these forecasts will be refined over time. There are also elements of level of services and renewals project that have growth components.

- Our expenditure on renewals, across all infrastructure categories is variable over the 30-year period. We know that we have ageing infrastructure, and this will be the focus of a prioritised programme of work. We also know that we need to improve our asset information to ensure that we plan and prioritise our renewals programme; this will continue to be a focus.
- Expenditure on levels of service improvements, in the first four years will focus on the continuation of a programme of further work to update our water supply schemes to meet the Drinking Water Quality Assurance Rules.
- Expenditure on levels of service improvements is also anticipated over the 11-30 year horizon to address climate change, resilience, regulatory and quality requirements.

Figure 11-1: Total 30 year Capital Infrastructure Forecast 2024-2054

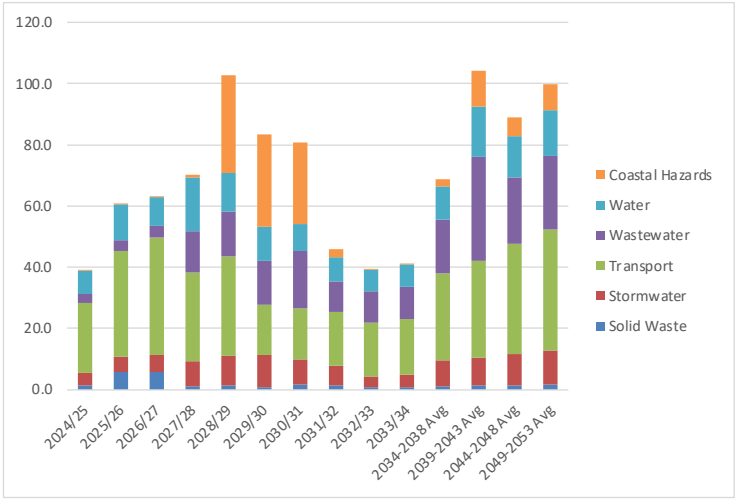
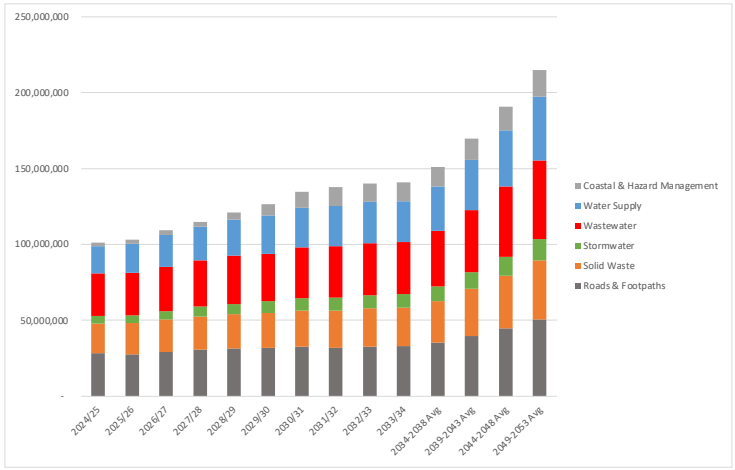


Figure 11-2: Total 30 year Infrastructure Operational Budget Forecast 2024-2054



11.2 Major Projects Timeline

The diagram below details the major projects' (of value >$1M) timelines. The dollar values shown are the estimated capital values of the projects.

Figure 11-3: Roads and Footpaths major projects timeline

(Budget source: 2024 LTP Capital Model Version 3 plus long term forecasts)

PROJECT DESCRIPTION	2024-2029	2030-2034	2034-2038	2039-2043	2044-2048	2049-2053
100% Crown Funded Resilience - Colville Road	2.4	6.45				
100% Crown Funded Resilience - Coromandel Bypass	37.23					
100% Crown Funded Resilience - Kennedy Bay Road	7.19	19.35				
100% Crown Funded Resilience - Tapu-Coroglen Road	27.48					
21 July 2023 Storm Event	5.95					
Area Wide Pavement Treatment	12.12	14.35				
Area Wide Pavement Treatment-Long term			16.13	17.89	19.85	22.03
Bridge Component Replacement	2.45	2.9				
District Roading Bridge Renewal	0.56	0.45				
District Roading Bridge Renewal-Long term					5.24	3.49
Drainage Renewals (Major Drainage)	4.01	4.68				
Drainage Renewals (Major Drainage)-Long term			46.29	51.36	56.99	63.23
February 23 Cyclone Gabrielle	7.67					
January 23 Storms/Cyclone Hale	0.93					
Maintenance Chipseal	11.29	13.49				
Maintenance Chipseal-Long term			15.16	16.82	18.66	20.7
Minor Safety	7.04	7.72				
minor safety-Long term			8.68	9.63	10.68	11.85
Network Improvements-Long Term			26.07	28.93	32.09	35.61
Network Renewals-Long Term			62.57	69.43	77.03	85.46
Preventative Maintenance	1.8	2.1				
Te Kouma Road Intersection Upgrade	3.51					
Thames Streetlight Renewals	0.65	1.21				

PROJECT DESCRIPTION	2024-2029	2030-2034	2034-2038	2039-2043	2044-2048	2049-2053
Thin AC Surfacing	2.46	2.87				
Totara Valley Road Upgrade - Roading	11.22					
Traffic Services	1.05	1.24				
Unsealed road basecourse renewal	2.51	2.93				
Unsealed Road Renewals-Long term			8.2	9.1	10.1	11.2
Unsealed Road Wearing Course Renewal	3.74	4.37				
Total ($M)	155.67	85.8	183.11	203.16	230.64	253.57

Note: Only major projects of value greater than $1M are included in this table
Note: See Section 11.3 for project funding details

Figure 11-4 Coastal and Hazard Management major projects timeline

(Budget source: 2024 LTP Capital Model Version 3 plus long term forecasts)

PROJECT DESCRIPTION	2024-2029	2030-2034	2034-2038	2039-2043	2044-2048	2049-2053
Long term Coastal Asset Renewals			0.52	0.58	5.21	5.79
Long term coastal protection for road resilience			10.43	15.64	26.07	36.5
Long term Whanagmata Coastal Protection				41.72		
Mercury Bay Coastal Protection Asset Renewals	0.34					
Mercury Bay Dune Protection Projects	0.08	0.07				
Moanataiari Coastal Protection Medium Term		2.87				
Tairua Coastal Protection	2.3	2.1		5.21		
Tararu Coastal Protection	2.26					
Te Puru Coastal Protection	2.24	2.1				
Thames Coastal Protection Asset Renewals	25.83	52.32				
Thames Coastal Protection Asset Renewals Stage 2						62.57
Total ($M)	33.05	59.46	10.95	63.15	31.29	104.86

Note: Only major projects of value greater than $1M are included in this table
Note: See Section 11.4 for project funding details

Figure 11-5 Solid Waste major projects timeline

(Budget source: 2024 LTP Capital Model Version 3 plus long term forecasts)

PROJECT DESCRIPTION	2024-2029	2030-2034	2034-2038	2039-2043	2044-2048	2049-2053
Long Term RTS Renewals			3.65	4.05	4.49	4.99
Long Term RTS Improvements			2.09	2.31	2.57	2.85
New Whitianga Refuse Transfer Station	9.4					
RTS Site Resilience & Adaptation Improvements	0.17	1.1				
RTS Road Renewals	0.92	0.29				
RTS Compactor Renewals	0.89	0.19				
Total ($M)	11.38	1.58	5.74	6.36	7.06	7.83

Note: Only major projects of value greater than $1M are included in this table
Note: See Section 11.5 for project funding details

Figure 11-6 3Waters- Water major projects timeline

(Budget source: 2024 LTP Capital Model Version 3 plus long term forecasts)

PROJECT DESCRIPTION	2024-2029	2030-2034	2034-2038	2039-2043	2044-2048	2049-2053
Coromandel Replace Treated Water Reservoir		1.74				
Drinking Water Standards	6.62		10.43	11.57	12.84	14.24
Matarangi Replace Treated Water Reservoir		1.97				
Moewai Road Water Reservoir Replacement	2.45	0.6				
Onemana Replace Treated Water Reservoir	1.07	0.26				
Pauanui Additional Treated Water Reservoir	1.07	0.58				
Pollen Street Redevelopment - Infrastructure Upgrade - Water Supply	1.08	1.68				
Thames South Water Improvements & Puriri Water Treatment plant	19.45					
Thames WTP Clarifier Replacement	1.96					
Totara Valley Rd services extension - Water	0.78					
Universal Metering District Wide	4.33	9.41	15.64	5.21		
Water Renewals	11.83	20.5	23.71	26.31	29.19	32.38
Water - Process Control Upgrades	0.45	0.81	5.21	5.79	6.42	7.12
Water Consent renewals	0.51	0.51	1.83	2.02	2.25	2.49
Whangamatā Water System Optimisation	0.91	0.38				
Whitianga Additional Treated Water Reservoir		1.91				
Whitianga Universal Water Metering - Unbundling	1.6	1.09				
Whitianga Water - Wharekaho Water Supply Extension	2.45	0.65				
Whitianga Watermain Upgrade - Moewai Road to Captain Wood Avenue	2.99					
Total ($M)	59.54	42.09	56.82	50.9	50.69	56.24

Note: Only major projects of value greater than $1M are included in this table
Note: See Section 11.6 for project funding details

Figure 11-7 Wastewater major projects timeline

(Budget source: 2024 LTP Capital Model Version 3 plus long term forecasts)

PROJECT DESCRIPTION	2024-2029	2030-2034	2034-2038	2039-2043	2044-2048	2049-2053
Additional Whitianga WWTP Screw Press	0.73					
Cooks Beach Wastewater Treatment Plant Upgrade	1.09					
Hahei Wastewater Expansion	0.38	2.92				
Long Term Thames And Thames South Treatment Upgrades(Thames Spatial Plan)				73.0		
Long Term Wastewater Treatment Improvements			41.72	46.28	51.35	36.5
Matarangi Wastewater Treatment Plant	10.84	11.21				
Pollen Street Redevelopment - Infrastructure Upgrade - Wastewater	1.61	3.19				
Thames Wastewater Treatment Plant Upgrade		0.2				
Totara Valley Rd Services Extension - Wastewater	0.54					
Wasterwater Renewals	17.44	43.48	39.11	43.39	48.14	53.41
Wastewater - Process Control Upgrades	0.45	0.82	5.21	5.79	6.42	7.12
Wastewater Consent Renewals	0.66	0.75	1.83	2.02	2.25	2.49
Whangamatā Hetherington Road Rising Main	2.09	0.44				
Whitianga Wastewater - Wharekaho Extension	2.33	0.83				
Total ($M)	38.16	63.83	87.86	170.49	108.16	99.53

Note: Only major projects of value greater than $1M are included in this table
Note: See Section 11.7 for project funding details

Figure 11-8 Stormwater major projects timeline

(Budget source: 2024 LTP Capital Model Version 3 plus long term forecasts)

PROJECT DESCRIPTION	2024-2029	2030-2034	2034-2038	2039-2043	2044-2048	2049-2053
Long Term Stormwater Improvements			26.07	28.93	32.09	35.61
Stormwater Renewals	9.08	12.84	11.99	13.31	14.76	16.38
Thames Albert St Area Stormwater Improvements	3.72	7.99				
Whangamatā Stormwater Improvements	8.03	1.15				
Kopu Stormwater Improvements	1.09	3.38				
Pollen Street Redevelopment - Infrastructure Upgrade - Stormwater	1.61	2.79				
Matarangi Stormwater Improvements	1.74	1.46				
Stormwater Treatment Devices - Consent	0.86	1.43				
Totara Valley Rd Services Extension - Stormwater	1.85					
Cooks Beach Stormwater Improvements	0.66	1.06				
Whitianga Stormwater Network Improvements	1.62					
Austin Drive Stormwater Improvements	1.38					
Pauanui Holland Stream Stormwater Improvements	0.78	0.44				
Total ($M)	32.79	32.56	38.07	42.23	46.86	51.99

Note: Only major projects of value greater than $1M are included in this table
Note: See Section 11.8 for project funding details

11.3 Roads and Footpaths Infrastructure Expenditure Forecasts

Our road transportation network represents significant investment over many years and is essential for enabling people and businesses to move around our local communities.

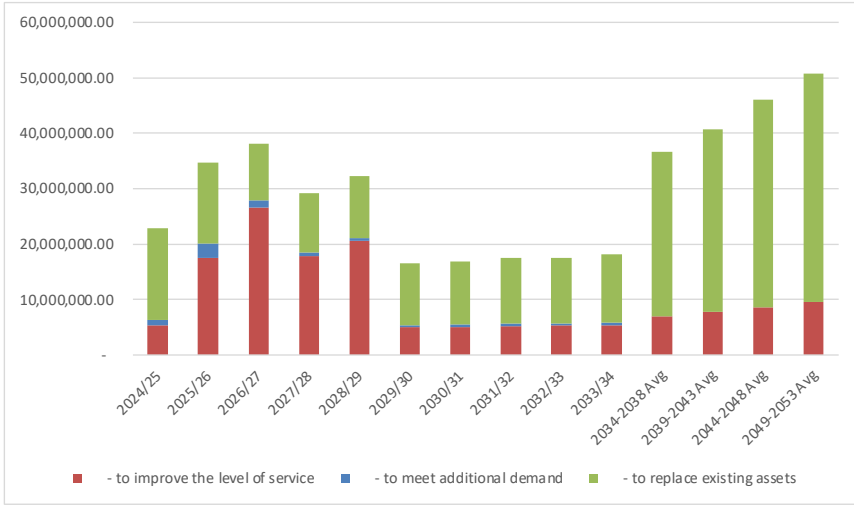
The activity accounts for almost half of Council's annual budget and our transport assets are valued at $974.6 million. Over the years we have made significant investment in the development and improvement of our transportation services and will continue to do so in years to come.

Council is not responsible for the management of the entire roading corridor in the District; state highways are managed by the NZ Transport Agency.

11.3.1 Roads and footpath 30 Year Capital Investment

The chart below provides an overview of the future roading investment forecasts:

Figure 11-9 Infrastructure Forecast 2024-2054 – Roads and Footpaths



Over the next 30 years we expect that:

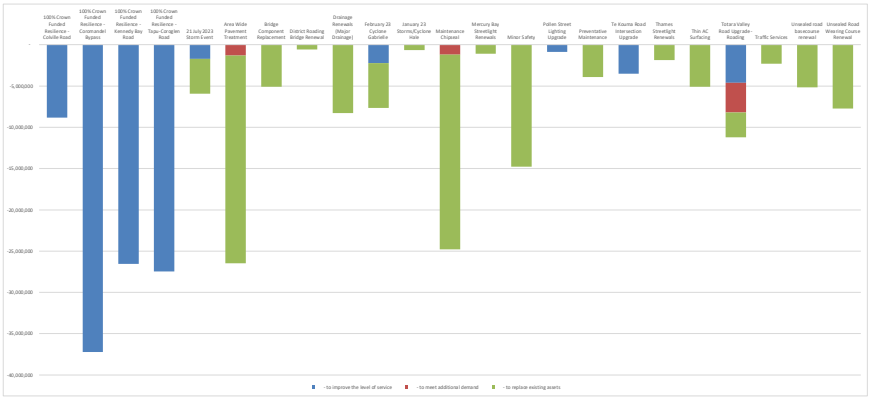
- There will need to be increasing expenditure on 'building back better' as part of the cyclone recovery, to help ensure infrastructure resilience. This poses an affordability challenge due to Waka Kotahi/NZTA Funding constraints and increasing rates burdens on the local community.
- Operational expenditure, including the costs of labour, depreciation, materials, and maintenance accounts for the majority of expenditure. These costs will increase over time.
- Growth related expenditure will be relatively modest and will largely relate to minor safety improvements to ensure that as our roads get busier, they remain safe.

- That there will be increasing expenditure on bridge renewals and upgrades over the longer term horizon
- There are a number of residential subdivisions where new roads, footpaths and associated infrastructure will be built by the developer and the assets will, on completion, be vested with Council. Council will then become responsible for the management, maintenance, and operational costs of these assets and this will have an impact on our expenditure.
- There may be the need to reduce or modify the extent of the network over the longer term in response to adaptive climate change and resilience planning.
- The SMP has identified coastal areas requiring coastal erosion protection. In some cases, this may require coastal roads to be armoured, strengthened or raised.

11.3.2 Roads and footpath project funding

There are various major 10 year project funding sources, and the chart below provides an overview of the roads and footpaths project funding for projects of value greater than $500k:
(Note that funding is shown as negative in the funding model and chart below).

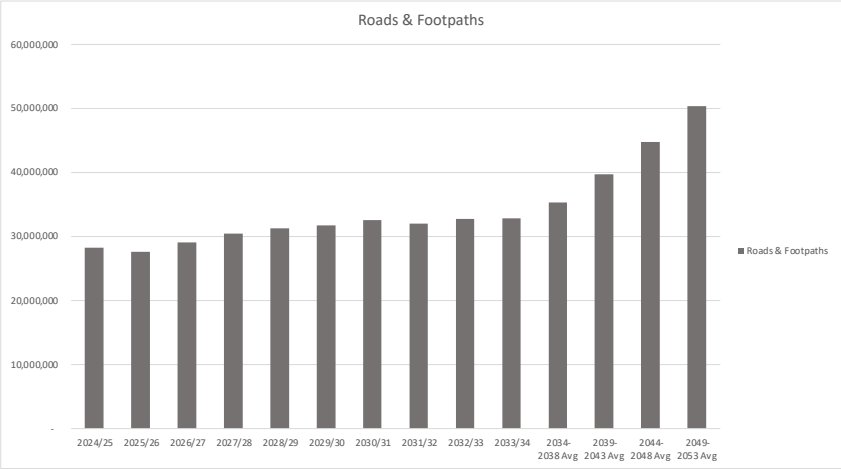
Figure 11-10 Roads and Footpath Project Funding



11.3.3 Roads and footpath 30 Year Operational Forecasts

The roads and footpaths operational budget 30 year forecasts are summarised in the chart below:

Figure 11-11 Roads and Footpaths Operational Expenditure Forecast 2024-2054



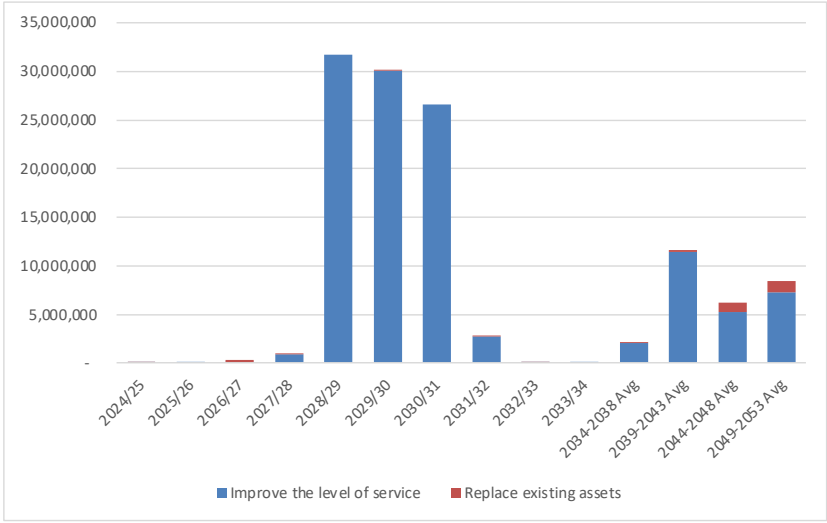
11.4 Coastal and Hazard Management Expenditure Forecast

Significant cost increases are anticipated with the five significant projects over the next 10 years. This trend is expected to continue over the longer term.

11.4.1 Coastal and Hazard Management 30 Year Capital Investment

The chart below provides an overview of the future Coastal Hazard Management investment forecasts:

Figure 11-12 Coastal and Hazard Management Capital Forecast 2024-2054



Over the next 30 years we expect that:

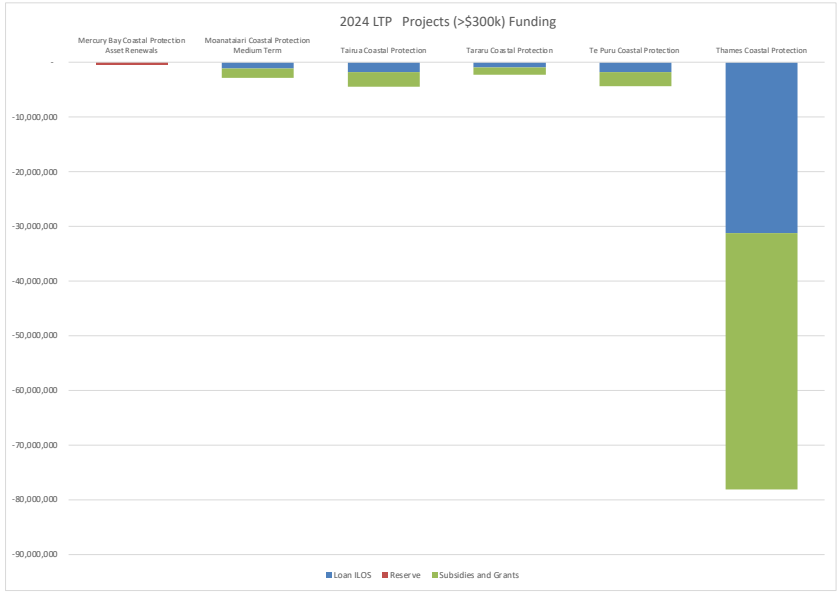
- There will be the need to invest in an adaptive manner in line with the SMP to respond to climate change across Council activities (especially infrastructure and roading), this will further compound infrastructure affordability across the district.
- Key coastal protection projects over the 10 year horizon and longer term, include:
    - Moanataiari coastal protection seawall renewal (medium term)
    - Tairua Coastal Protection
    - Tararu Coastal Protection

- Te Puru Coastal Protection
- Thames Coastal Protection

11.4.2 Coastal and Hazard Management project funding

There are various major 10 year project funding sources, and the chart below provides an overview of the coastal hazards project funding for projects of value greater than $300k. (Note that funding is shown as negative in the funding model and chart below)

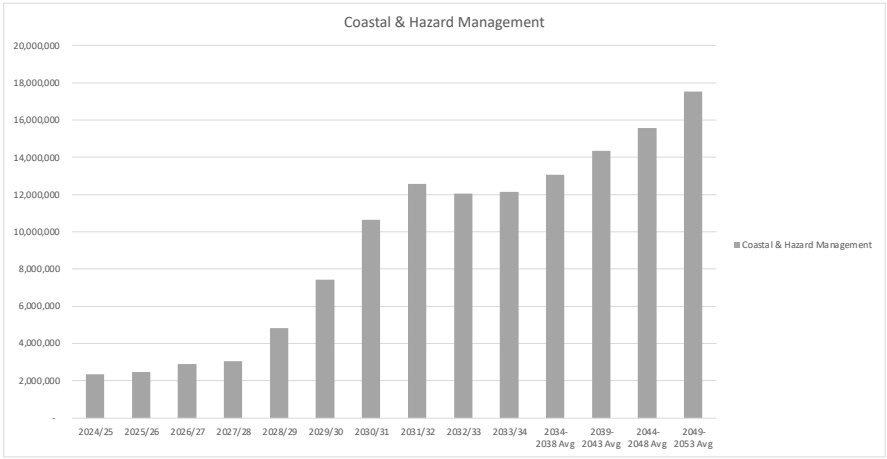
Figure 11-13 Coastal and Hazard Management Project Funding



11.4.3 Coastal and Hazard Management 30 Year Operational Forecasts

The Coastal and Hazards 30 year operational budget forecasts are summarised in the chart below:

Figure 11-14 Coastal and Hazards Operational Expenditure Forecast 2024-2054



The change in the level of operational expenditure is due to consequential costs related capital project interest, repayments, and depreciation.

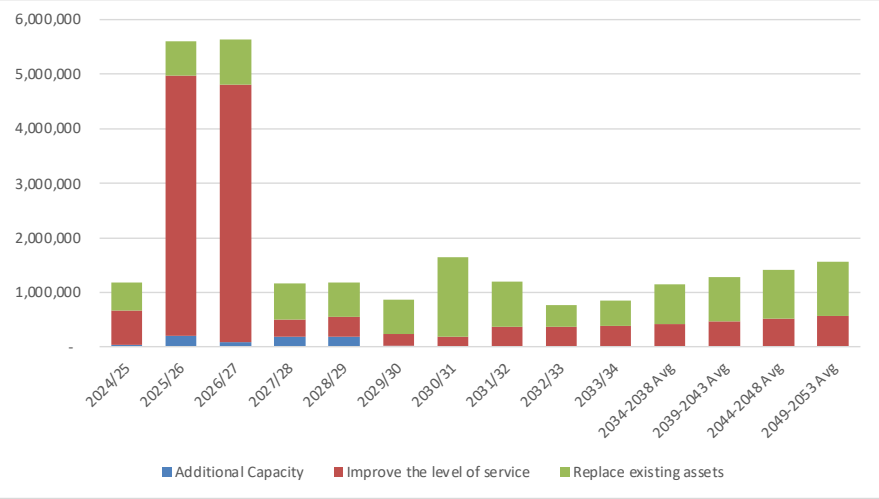
11.5 Solid Waste Infrastructure Expenditure

Thames-Coromandel District Council has solid waste assets valued at $5.1 million including seven refuse transfer stations and associated assets, weighbridges, transporter bins and cranes. Council provides litter collection in public areas, household kerbside refuse and recycling services including the transport of general waste to landfill outside the District, transfer stations where refuse and recycling can be disposed of, reused, or recycled and manages seven closed landfill sites within the District.

11.5.1 Solid Waste 30 Year Capital Investment

The chart below provides an overview of the future solid waste investment forecasts:

Figure 11-15: Solid Waste Capital Forecast 2024-2054



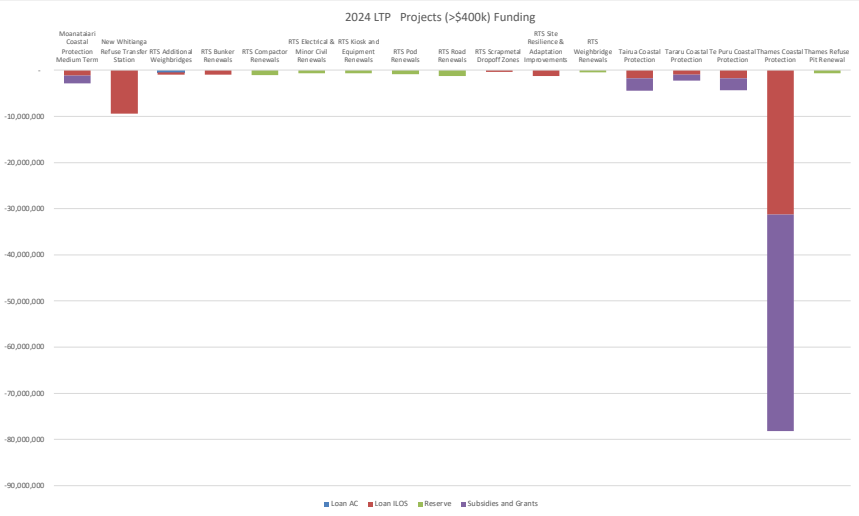
Over the next 30 years we expect that:

- There is planned RTS improvement work to meet operational, capacity and legislative requirements
- There is ongoing renewals expenditure that over the long term. This increases in future years due inflation related adjustments
- In 2025/26-26/27 there is also the replacement of the Whitianga Refuse Transfer Station.
- Ongoing closed landfill aftercare costs and site monitoring.
- In the 10 year horizon the expenditure is dominated by the development of the new Whitianga RTS that recently commenced.
- There is ongoing renewals investment
- There is provision for RTS improvements over the long term to address facility demand and improvements.

11.5.2 Solid Waste project funding

There are various project funding sources, and the chart below provides an overview of the solid waste project funding for projects of value greater than $400k. (Note that funding is shown as negative in the funding model and chart below):

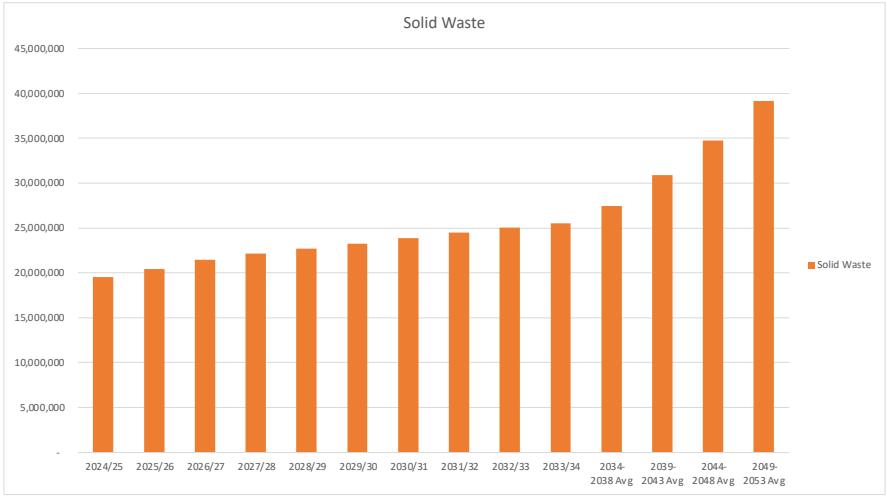
Figure 11-16 Solid Waste Project Funding



11.5.3 Solid Waste 30 Year Operational Forecasts

The solid waste 30 year operational budget forecasts are summarised in the chart below:

Figure 11-17 Solid Waste Operational Expenditure Forecast 2024-2054



Over the next 30 years we expect that:

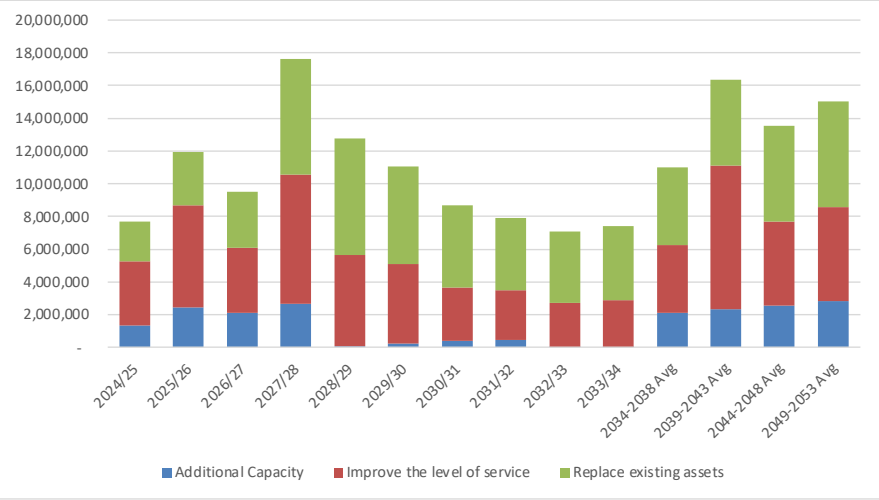
- Operational expenditure, including the costs of ETS levies, labour, depreciation, materials and maintenance accounts for the majority of expenditure.

11.6 Water Supply Infrastructure Expenditure

Thames-Coromandel District Council owns and operates nine treated water supply schemes and one rural scheme that supply water to domestic, commercial, and industrial properties in each of the areas. The water supply networks are managed directly by the Council with operations and maintenance activities contracted to a third party. Thames-Coromandel District Council's water supply assets are valued at over $116 million. Council's water supply networks include 8 major treatment plants, and 3 minor treatment plants that distribute water through 596 kilometres of network pipes, 48 reservoirs and 35 pumping stations.

11.6.1 Water Supply 30 Year Capital Investment

Figure 11-18 Water Supply Capital Forecast 2024-2054



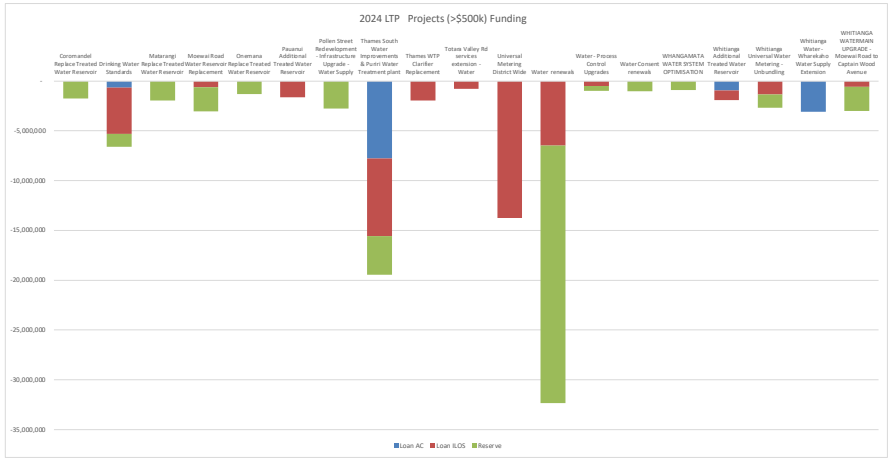
Over the next 30 years we expect that:

- Our expenditure on renewals is influenced by the need to replace infrastructure in our older settlements.
- Expenditure on levels of service improvements, in the first four years will focus on continuation of a programme of further work to update our water supply schemes to meet the Drinking Water Standards 2005 (revised 2008) and the DWQAR.
- Water meters installation is planned in response to improving water demand and water loss management.
- There is significant investment planned for Thames Valley
- Over the long term horizon budget provision has been allocated to cover the need for further water upgrades in response to future water quality/demand management requirements.
- The timing and extent of budget will be revised in future Strategies based on water demand trends, drinking water quality requirements and resource consent requirements.

11.6.2 Water Supply project funding

There are various major 10 year project funding sources, and the chart below provides an overview of the water supply project funding for projects of value greater than $500k. (Note that funding is shown as negative in the funding model and chart below):

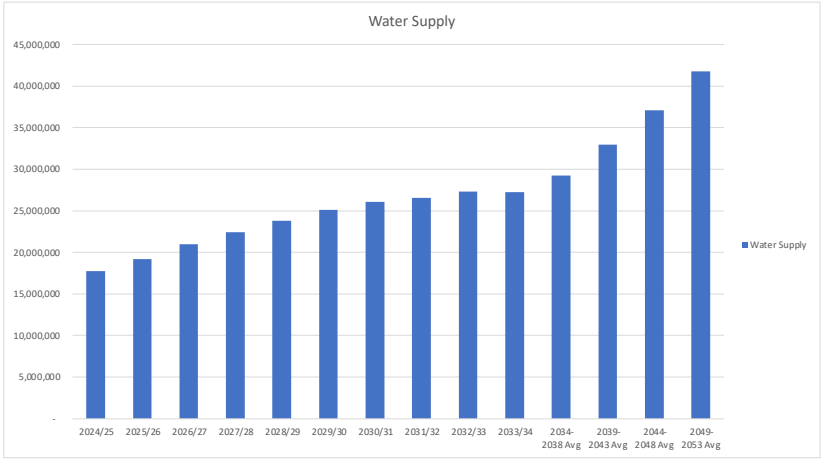
Figure 11-19 Water Supply Project Funding



11.6.3 Water Supply 30 Year Operational Forecasts

The water supply 30 year operational budget forecasts are summarised in the chart below:

Figure 11-20 Water Supply Operational Expenditure Forecast 2024-2054



Over the next 30 years we expect that:

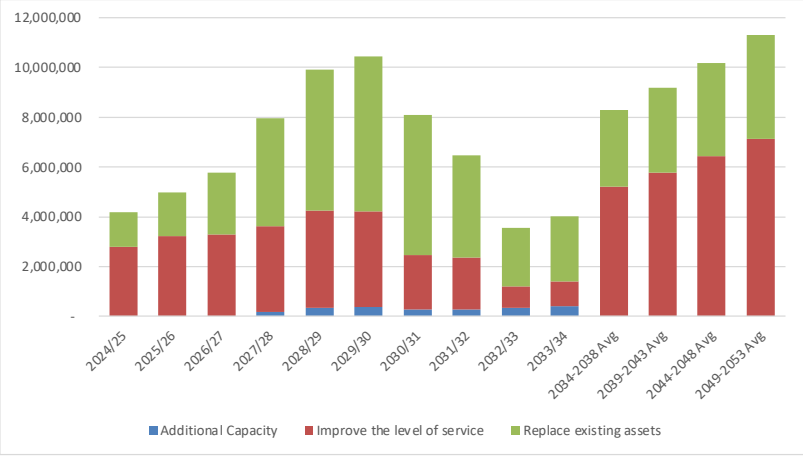
- Operational expenditure, including the costs of labour, depreciation, materials, and maintenance will account for the majority of expenditure.

11.7 Stormwater Infrastructure Expenditure

Thames-Coromandel District Council has stormwater assets valued at over $108 million including, 4 stormwater pump stations, 6 detention ponds, 5 soakage cell systems and 198 kilometres of network pipes. Council collects and disposes of stormwater throughout the District. Each area is supplied with their own networks to collect and dispose stormwater into the ocean. There is potential for additional investment being required to mitigate against the climate change. Particularly in relation to increased rainfall intensity and sea level rise. Consideration of future investment and level of service requirements will be part of the shoreline management plan project. However, at this stage this project is not at a point where it is able to influence our stormwater infrastructure requirements.

11.7.1 Stormwater 30 Year Capital Investment

Figure 11-21 Stormwater Capital Forecast 2024-2054



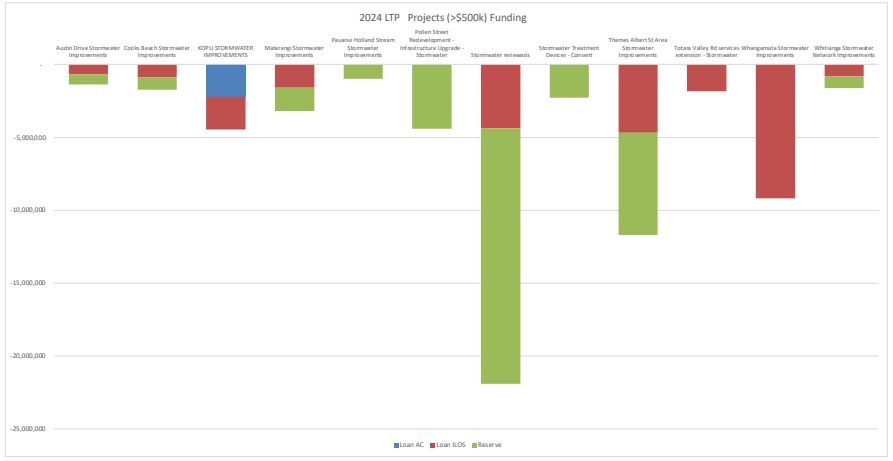
Over the next 30 years we expect that:

- Based on future growth estimates there will be little, or no new or growth-related stormwater infrastructure funded directly by Council.
- Pauanui Holland Street improvement has expenditure across the 10-year period.
- From 2024/25 to 2029/30 significant expenditure on Whangamatā stormwater improvements.
- We will continue to focus on improving our asset information. This will assist us to plan and prioritise which parts of our stormwater networks most need to be renewed. We have set aside a district renewals budget which will be used to fund prioritised renewals.
- Stormwater shows a combination of renewal and LOS investment over the ten year horizon. LOS investment increases over the long term horizon (2036-2046) where Stormwater Improvement budget has been allocated in order to make provision for emerging climate change, quality improvement and flood control requirements.
- The timing and extent of budget will be revised in future Strategies based on emerging climate change trends and stormwater quality requirements.

11.7.2 Stormwater project funding

There are various 10 year major project funding sources, and the chart below provides an overview of the stormwater project funding for projects of value greater than $500k. (Note that funding is shown as negative in the funding model and chart below):

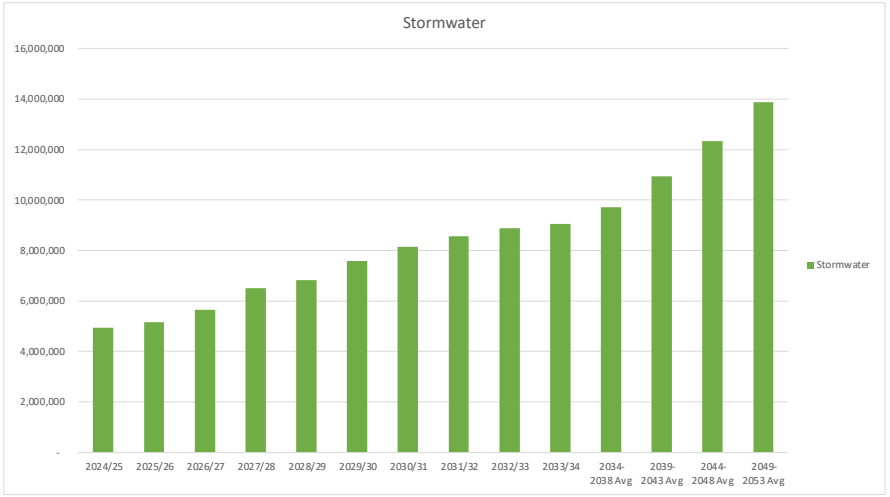
Figure 11-22 Stormwater Project Funding



11.7.3 Stormwater 30 Year Operational Forecasts

The Stormwater 30 year operational budget forecasts are summarised in the chart below:

Figure 11-23 Stormwater Operational Expenditure Forecast 2024-2054



Over the next 30 years we expect that:

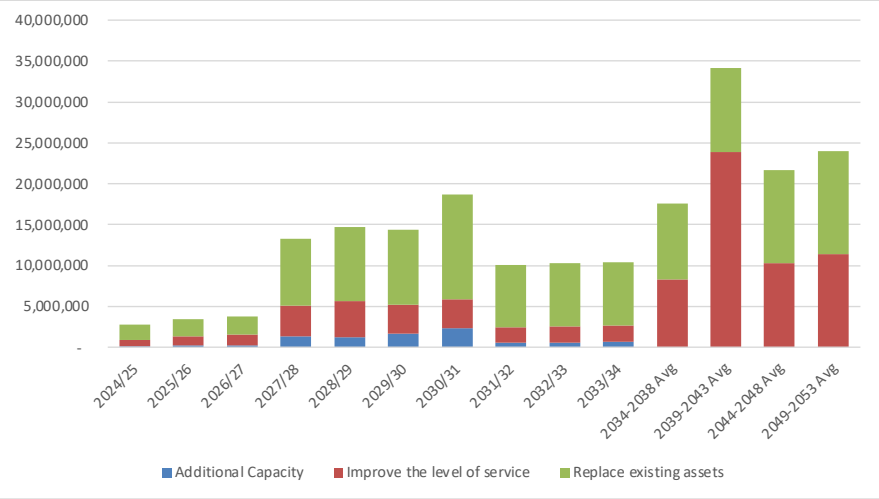
- Operational expenditure, including the costs of labour, depreciation, materials and maintenance accounts for the majority of expenditure.

11.8 Wastewater Infrastructure Expenditure

Council collects, treats, and disposes of wastewater at ten treatment plants. Each area supplied with a wastewater network has a treatment facility apart from Tairua where wastewater is pumped under the estuary to Pauanui's treatment plant. Thames-Coromandel District Council has wastewater assets valued over $161 million including ten treatment plants, 392 kilometres of network pipes and 131 wastewater pump stations.

11.8.1 Wastewater 30 Year Capital Investment

Figure 11-24 Wastewater Capital Forecast 2024-2054



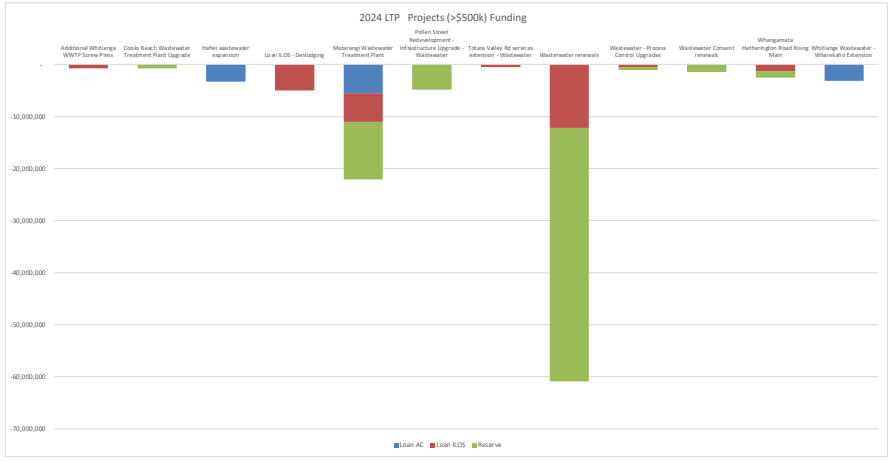
Over the next 30 years we expect that:

- Expenditure on renewals the first ten years will focus on an upgrade of the Matarangi wastewater treatment plant.
- There is expenditure on the Thames WWTP renewal and improvement
- In the long term 2039-2043 period we have budgeted for works associated with Matarangi, Coromandel and Thames wastewater treatment plants to reduce the potential impacts of climate change and rising sea levels. The actual climate change response will be guided by the Shoreline Management Plan Project
- We will continue to focus on improving our asset information. This will assist us to plan and prioritise which parts of our wastewater networks most need to be renewed. We have set aside a district renewals budget which will be used to fund prioritised renewals
- Wastewater has a number of treatment plant renewal/upgrades over the 10 year horizon
- LOS and renewal investment has been allocated in the long term horizon (2035-2053) in response to emerging climate change, treatment standards and resource consent requirements
- The timing and extent of budget will be revised in future Strategies based on emerging climate change trends and wastewater quality

11.8.2 Wastewater project funding

There are various 10 year major project funding sources, and the chart below provides an overview of the wastewater project funding for projects of value greater than $500k. (Note that funding is shown as negative in the funding model and chart below):

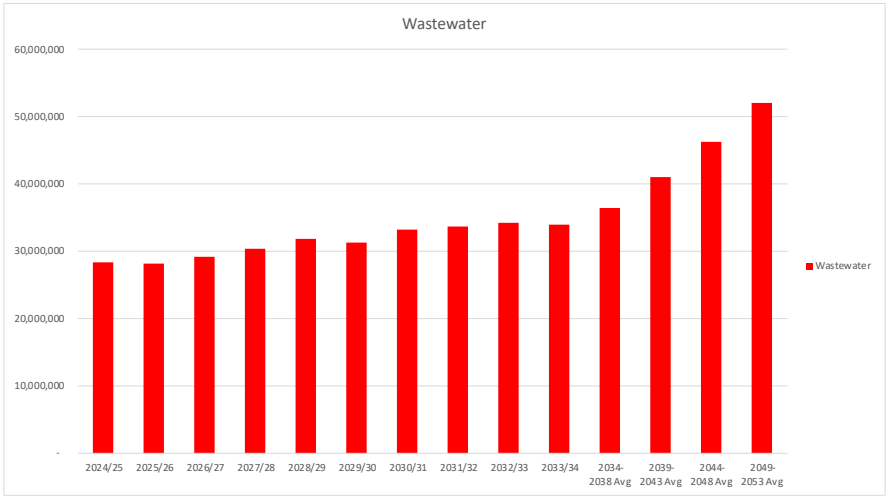
Figure 11-25 Wastewater Project Funding



11.8.3 Wastewater 30 Year Operational Forecasts

The Wastewater 30 year operational budget forecasts are summarised in the chart below:

Figure 11-26 Wastewater Operational Expenditure Forecast 2024-2054



Over the next 30 years we expect that:

- Operational expenditure, including the costs of labour, depreciation, materials, and maintenance accounts for the majority of expenditure

12 Strategy Improvement

Due to the dynamic infrastructure management environment a process of continuous improvement is important. This section details the key improvement tasks and will be prioritised and implemented over the next 3 years:

Improvement Item	Action
Legislation and Policy	Review legislation and Policy development (District and National) and update Strategy responses
Emerging issues	Monitor emerging issues and trends, develop Strategy responses
Long Term Horizon projects (2034-2054)	Review and update long term horizon projects
Audit NZ and Strategy Review recommendations	Review and action Audit NZ recommendations
Strategy format	Review strategy format and content against best practice guidelines and update accordingly
Data and systems	Linked to AM improvement items, ensure AM data systems provide long term Strategy information trends and analysis
IS timeframe	Future consideration of the IS timeframe extending beyond 30 years, to allow for long term impacts on infrastructure such climate change to be better understood.
IS extent	Future consideration of the asset classes to be included in the IS

Strategy improvement planning progress will be regularly reported on.

Table 12-1: Strategy Improvement Opportunities

Appendix 1: Data Confidence Grading Chart

Table 4.2.7.2: Data Confidence Grading System

	Description Grade
A Very High	**Highly Reliable < 2% uncertainty** Data based on sound records, procedure, investigations and analysis which is properly documented and recognised as the best method of assessment
B High	**Reliable ± 2-10% uncertainty** Data based on sound records, procedures, investigations, and analysis which is properly documented but has minor shortcomings' for example the data is old, some documentation is missing and reliance is placed on unconfirmed reports or some extrapolation.
C Medium	**Reasonably Reliable ± 10 – 25 % uncertainty** Data based on sound records, procedures, investigations, and analysis which is properly documented but has minor shortcomings' for example the data is old, some documentation is missing and reliance is placed on unconfirmed reports or significant extrapolation.
D Low	**Uncertain ± 25 –50% uncertainty** Data based on uncertain records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolation from a limited sample for which grade A or B data is available.
E Very Low	**Very Uncertain > 50% uncertainty** Data based on unconfirmed verbal reports and/or cursory inspection and analysis

Appendix 2: Key Terms

Asset life – A measure of the expected or anticipated life or an asset or the component of an asset.

Capital expenditure - Creates new assets or replaces existing deteriorated assets or components of assets to restore their remaining life and service potential. There are three kinds of capital expenditure:

- Renewals – defined as capital expenditure that increases the life of an existing asset with no increase in service level. It replaces existing deteriorated assets or components of assets to restore their remaining life and service potential
- Level of Service (LOS) – defined as capital expenditure that increases the service level delivered by the asset
- Growth or Additional Capacity – defined as capital expenditure that is required to provide additional capacity in whole or part under Council's Development Contributions Policy necessary to accommodate growth. It is the capitalised works that add new or enlarged existing assets to increase capacity to cater for further growth in demand.

Demand management – is defined as the management of demand for infrastructure assets in order to best match current and future resources to service requirements and ensure service delivery in a best value for money way. Demand management may be intended to limit or reduce demand for an asset, to increase or maintain demand, or to smooth the level of demand over a time period.

Level of service – level of service statements describes the amount or quality that council intends to deliver to customers**.** Our levels of service are set out in our Long-Term Plan.

Maintenance - Actions necessary to retain an asset as near as practicable to its original condition. Maintenance does not increase the service potential of the asset or keep it in its original condition, it slows down deterioration and delays when refurbishment or replacement is necessary.

Operating expenditure – Relates to the day to day running or operating costs and includes costs such as staff, materials, fuel, chemicals, electricity, gas, mowing lawns, trimming trees, planting.