Volume 2

TARARUA®
DISTRICT COUNCIL

LONG TERM PLAN 2021–2031

INFRASTRUCTURE STRATEGY

North Island
NEW ZEALAND

Untouched coastline, bush-cloaked ranges, sparkling fish-filled rivers...

Rugged ranges, remote coastline, bush-clad valleys – defined by hundreds of kilometres of river. The Tararua District stretches from Mount Bruce to north of Norsewood, and is bounded by the foothills of the majestic Ruahine and Tararua Ranges, and the shores of the Pacific on the East Coast. The physical presence of Tararua is awesome.

In the beginning...

The Kurahaupo canoe made landfall on the Mahia Peninsula; the three principal chiefs on board were Ruatea, Whatonga and Popoto. Rongomaiwahine of the Mahia Peninsula, one of the descendants of Popoto, married Kahungunu, a descendant of the Takitimu aristocracy. Their marriage was the beginning of the Ngāti Kahungunu of Hawke's Bay.

Whatonga established himself near Cape Kidnappers, and built himself a house, which he called 'Heretaunga'. Whatonga's son, Tara, who was born in Hawkes Bay, finally made his home in the Wellington area. His name is commemorated in many places from Napier through to Wellington. From Whatonga's second marriage was born Tautoki, who was the father of Tane-nui-a-Rangi, or Rangitāne as he is more commonly known.

Tara's descendants, the Ngai-Tara, and the Rangitāne people eventually peopled many parts of the Heretaunga, Central Hawke's Bay, Tararua, and Wairarapa areas. The pre-European history of the district tells of a vast primeval forest with clearings occupied by Māori.

European settlement within the district started in 1854 when the first sheep were driven up the coast from Wellington to establish coastal stations, but access to this area remained almost entirely by sea until well into last century.

There are some great communities waiting to be discovered in Tararua. Each has a unique identity, story to tell and experience to share. From the hardship tales of the Scandinavian settlers who felled the Seventy Mile Bush, to the pioneers who established farming on the district's rugged east coast at Herbertville and Akitio. These communities are one of the elements that make this district unique in New Zealand.

Around 95% of Tararua's 400,000 hectares is farmed and the district has a reputation for producing high quality stock. Sheep, beef, and dairy are the most significant types of farming, representing 90% of all holdings and accounting for 99% of total stock units. Forestry is a growing industry and there are now more than 13,000 hectares planted in pinus radiata.

Pastoral farming continues to be the major economic sector within Tararua.

Tararua is a unique, proud, and diverse district of rugged unspoiled landscape

TARARUA
DISTRICT COUNCIL

Infrastructure Strategy 2021-2051

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Executive Summary

The Infrastructure Strategy for Tararua District Council (TDC) 2021 – 2051 sets out Council's strategic direction for delivery of our key services and the infrastructure assets that support them, over the next 30 years.

Our Vision

Vibrant, connected communities where our people flourish

Our Mission

We strive to be an innovative, collaborative and connected Council that enables a range of opportunities for our people.

Our Infrastructure Objectives

- *To ensure a reliable supply of safe drinking water to our communities.*
- *To ensure efficient and reliable wastewater treatment that meets environmental outcomes.*
- *To ensure efficient stormwater network capacity that protects from flood events.*
- *To ensure public roads and footpaths are safe, reliable and resilient.*

Our Big Picture Issues

	Level of Uncertainty	Level of Impact
Affordability	Low	High
Infrastructure Age & Condition	Low	High
District growth	Medium	Medium
Climate Change & Natural Hazards	Medium	High
Legislative change	Medium	High

Our Key Principles

Lifecycle Management	Evidenced Based Decision Making Proactive Management
Demand Management	Investment in Resilient and Sustainable Infrastructure Manage within Existing Boundaries
Levels of Service Management	Aim to Delivery Existing Service Levels
Risk Management	Improve Asset Criticality Understanding

Our Priorities

- Improving asset information and infrastructure asset management maturity
- Delivering ongoing maintenance and renewals programmes to meet current service levels and with a view to preventing asset consumption
- Addressing key level of service deficiencies
- Addressing key network performance issues
- Improving service delivery resilience
- Minor network extensions to enable some growth in our larger townships

1 Introduction

The Infrastructure Strategy for Tararua District Council (TDC) 2021 – 2051 sets out Council's strategic direction for delivery of our key services and the infrastructure assets that support them, over the next 30 years.

Infrastructure plays an important part in our everyday lives, providing a platform for healthy, thriving communities and allowing our business community to deliver goods and services to customers. 'Infrastructure' refers to physical and organisational structures and facilities (e.g. treatment plants, water pipes, roads, footpaths etc).

Based on the strategic direction set out in this document Council will develop a schedule of intended capital works for the next 30 years. Council will prioritise these projects based on the needs of the community and funding available. The projects identified will be discussed in more detail in the respective Activity Management Plans.

1.1 Purpose of the Infrastructure Strategy

This infrastructure strategy has been prepared to meet the requirements of section 101B of the Local Government Act 2002 (LGA). Section 101B requires Councils to prepare an infrastructure strategy that identifies:

- Significant infrastructure issues facing Tararua District over the next 30 years
- The principal options for managing these issues and the implications of these options.

The Act also requires Council to consider and set out in this strategy how, in managing its infrastructure assets:

- It will respond to growth or decline in demand for services reliant on those assets;
- It will manage the renewal or replacement of existing assets over their lifetime;
- Planned increases or decreases in levels of service will be allowed for;
- Public health and environmental outcomes will be maintained or improved; and
- Natural hazard risks will be addressed in terms of infrastructure resilience and financial planning.

Developing this strategy assists Council to look at what is likely to be required over the next 30 years; balancing the ratepayer's ability to pay and future ratepayers having well maintained and functioning infrastructure.

1.2 Scope of the Infrastructure Strategy

1.2.1 Overview of Services

The scope of the Strategy is primarily defined by the Local Government Act. Section 101B of the LGA requires Council's infrastructure strategy to cover infrastructure assets used to provide services by or on behalf of Council in relation to the following activities:

- Water supply
- Sewage and the treatment and disposal of sewage (wastewater)
- Stormwater drainage
- Roads and footpaths

- Flood protection and control works
- Any other assets that the local authority, in its discretion, wishes to include in the strategy.

This Infrastructure Strategy includes TDC's infrastructure activities under the portfolio categories included in Table 1.

Table 1 Infrastructure Portfolios included in our Infrastructure Strategy

Portfolio	Activities	Key Infrastructure Assets
3 Waters	Water	• Treatment Plant and Facilities • Network (Pipes) • Other Reticulation Assets
	Wastewater	• Treatment Plant and Facilities • Network (Pipes) • Other Reticulation Assets
	Stormwater	• Network (Pipes) • Other Reticulation Assets
Transportation	Roads and footpaths	• 1,187km sealed roads • 772km unsealed roads • 525 bridges and large culverts • 1,842km drains and channels • 119km footpath

This strategy does not cover:

- State highways, as these are the responsibility of Waka Kotahi NZ Transport Agency
- Flood protection and control assets, as these are the responsibility of the Horizons Regional Council

In future TDC seeks to include a wider range of infrastructure portfolios to ensure more holistic planning for sustainable service delivery. This will include:

- Parks, reserves and recreation facilities;
- Solid Waste and landfill facilities; and
- Property and community buildings.

1.2.2 Infrastructure Strategy Structure

The layout of this document and the corresponding LGA sections are shown in Table 2.

Table 2 Infrastructure Strategy Structure

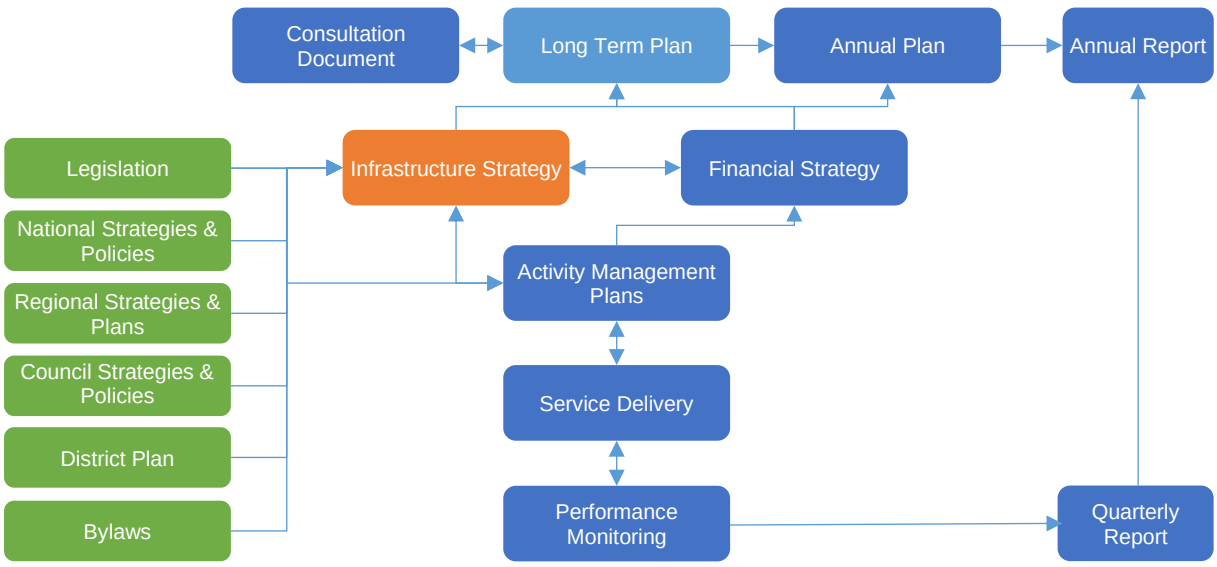
Section	Purpose	LGA 2002 (Section 101B)
Executive Summary	Provides a summary of the document.	
1. Introduction	Identifies the purpose, scope and structure of the strategy, as well as its relationship to other documents.	6
2. Strategic Context	Provides context through an overview of the district, and the Council.	2(a)

Section	Purpose	LGA 2002 (Section 101B)
	Identifies our objectives for infrastructure and how infrastructure contributes to our community's wellbeing.	
3. Our Infrastructure Management Approach	Summarises our key principles used to manage infrastructure in a way that maximises value for money. Outlines assumptions made as part of the strategic planning process and the uncertainty related to these.	3(a) to 3(e), 4(c), 4 (d)
4. Our Infrastructure	Provides a summary of the current state of our core infrastructure.	6
5. Key Infrastructure Challenges	Identifies the internal and external factors influencing the management of Council's infrastructure.	2(a)
5. Principal Options for Addressing Challenges	Summarises our significant decisions. Outlines the principal options for managing key risks and challenges identified for each activity.	2(b), 4(b)
7. Infrastructure Investment Forecasts	Summarises our most likely scenario and expected investment.	4(a)
7. Improvement Plan	Outlines the areas we will be focussing on for future improvement of the Infrastructure Strategy	

1.3 Relationship to Other Documents

This strategy provides a link between several important Council documents such as the District Plan, Financial Strategy, and Activity Management Plans. Figure 1 shows the relationship between the Infrastructure Strategy with other Council Plans and Policies interlinking with this document.

Figure 1 Relationship of Infrastructure Strategy to Other Council Plans



1.3.1 Planning Horizons

Our planning has several different time horizons as shown in Figure 2. Table 3 outlines the intent of key Council Plans and their level of accuracy.

Figure 2 Council Planning Horizons

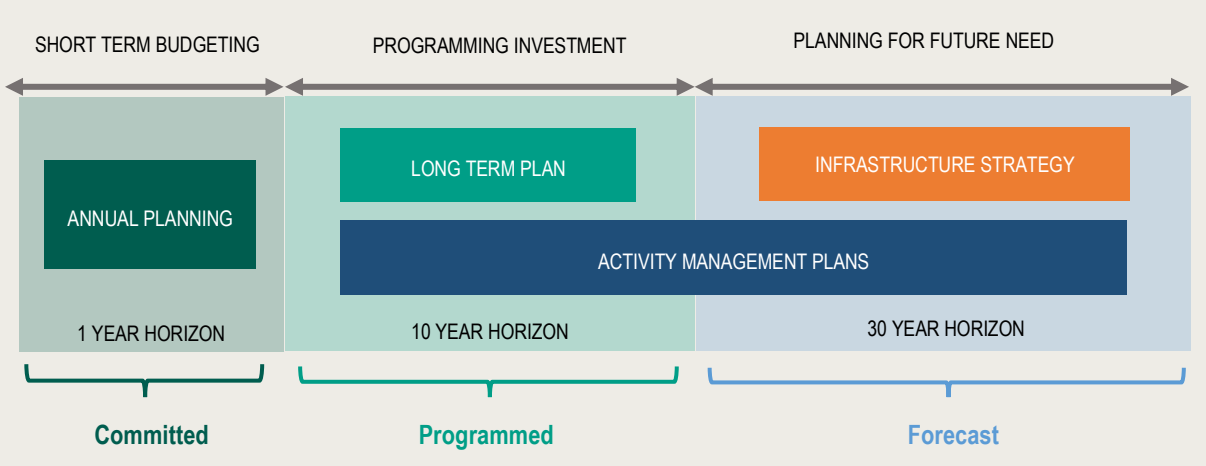


Table 3 Planning Intent and Accuracy

Planning Horizon	Council Plans	Intent	Level of Accuracy
30+ years	2021 – 2051 Infrastructure Strategy	**Forecasting Future Need** The Infrastructure Strategy guides policy decisions, goal setting and long-term capital investment. It helps establish the sustainable level of funding required to deliver service and accommodate future demand. We update our Infrastructure Strategy every 3 years.	Moderate to Lower (depending on assumptions and data accuracy)
10-30+ years	Activity Management Plans	**Programming Investment** The key documents underpinning the Infrastructure Strategy are the Transportation Activity Management Plan and 3-Waters Activity Management Plan. These plans combine management, financial, engineering and technical practices to ensure that the level of service required by customers is provided effectively and efficiently. This requires taking a whole-of-life approach to asset investment planning. Areas of specific focus for the updates included; ensuring relevant levels of service and service performance measures, assessing performance, identifying new key risks and significant issues. This work has led to the identification of the current and future asset requirements and the financial forecast for capital (renewals and new capital projects) and operational expenditure for each asset group. These documents should be referred to if tactical and/or operational detail related to this strategy and the respective assets is sought.	Moderate to High (depending on data accuracy)

Planning Horizon	Council Plans	Intent	Level of Accuracy
		Our Activity Management Planning is updated on an ongoing basis, but plans are formally adopted by Council every three years.	
10+ years	2021 – 2031 Long Term Plan	**Committing Budgets** These plans allow for consultation with the community around the services we provide. They are made publicly available once finalised. Areas of specific focus for the updates include; ensuring relevant levels of service and sustainable cost of service. The Plan outlines how our services are performing and investment in capital projects and operational required to provide our services over the next 10 years. We update our Long Term Plan every 3 years.	Moderate to High (depending on data and cost estimate accuracy)
1-3 years	Annual Plan	This detailed level planning prioritises the capital projects and operating budget for the next 1-3 years. Where possible capital project prioritisation is completed using a business case and optioneering process. This is particularly the case for Transportation, where investment planning must meet Waka Kotahi investment decision making requirements.	High (depending on cost estimate accuracy)

1.4 Improvement Plan

The development of this Infrastructure Strategy is based on the existing levels of service, the best available current information and the knowledge of Council staff. It provides our best estimate of expected changes over the term of the Strategy, at this point in time.

Opportunities for Improvement - throughout this document we have identified specific areas for improvement in the development of future versions of this Infrastructure Strategy. These are identified with this symbol.

Improvement initiatives are summarised in our Improvement Plan in Section 8.

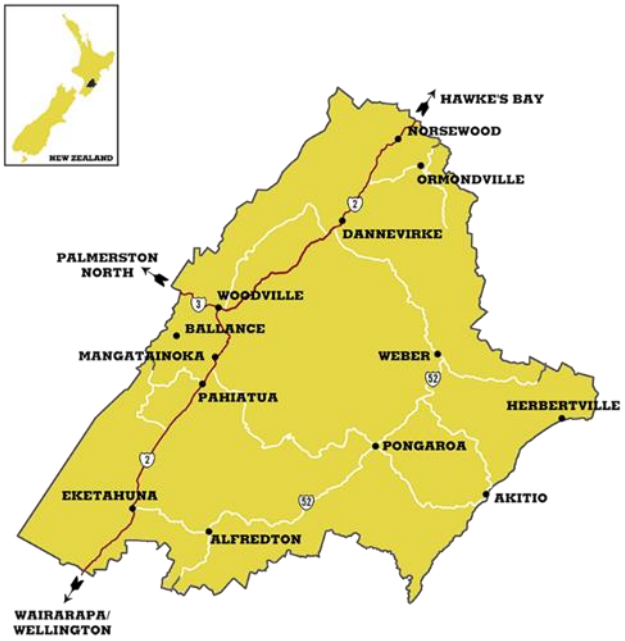
2 Strategic Context

2.1 District Overview

2.1.1 Geographic Context

The Tararua district is located within the Manawatu-Whanganui region, situated on the southeast coast of the North Island, bound to the west by the Ruahine and Tararua Ranges. It covers an area of 4,360km²

The four main towns of Dannevirke, Woodville, Pahiatua, and Eketahuna are service centres for the agricultural sector. In addition, they service other categories of economic activity, such as industry and tourism (mostly domestic from passing traffic).



2.1.2 Our Climate

We expect that our district will be affected by long-term climate change, as per predictions advised by central government agencies. While the long-term trend of rising temperatures and more frequent intense weather events is reasonably certain, the short to medium term impacts are less certain. The recent 2020 drought is an example of this, as are recent flooding events in Napier and Plimmerton. Severe weather events cause significant damage to infrastructure and service disruption, placing additional pressure on resources and funding.

2.1.3 Our People

Tararua District has a resident population of approximately 18,650.

Council has determined that the Most Likely Scenario in terms of population and household change is a medium growth scenario, based on forecasts prepared for the Long Term Plan. Based on the medium scenario, a plateau in growth would be seen with a population of 20,650 in 2038 (8,300 households), after which the population would begin to gradually decline. Growth is likely to be mostly centred around all main urban areas. The rural area is expected to have minor growth driven by lifestyle subdivision, offset by larger farm sizes and conversions to forestry.

Increasing population reflects people coming into the district seeking affordable housing and lifestyle options. The pandemic has strengthened this trend with increasing numbers of people returning to their provincial roots. An increase in overall demand is expected over the next 10-30 years.

Like many parts of New Zealand, our population is ageing. Our population over the age of 65 is expected to increase over the next 30 years. This means that an increasing proportion of our residents will be reliant on fixed incomes and will be less able to absorb increased costs of service.

More details on population changes that may impact demand for services is included in Appendix A.

2.1.4 Our Economy

The primary industry in Tararua is agriculture with over a third of the district's workers employed in this sector, and most businesses. Tararua has a wealth of resources, the greatest being the farmland that grows top quality stock, producing wool, meat, and dairy products of a particularly high standard.

A small number of larger industries include meat processing, dairy processing and steel fabrication, and smaller scale industries including clothing and confectionary.

Agriculture, retail trade, manufacturing, farm servicing, health and education services make up the bulk of employment. Cottage industries and home occupations are common. Tourism currently makes a small contribution to the district's economy.

More details on economic changes that may impact demand for services is included in Appendix A.

2.2 Tararua Strategic Context

Tararua District Council is the local territorial authority for the District. Several different borough councils established the assets of Council prior to the merger and establishment of Tararua District Council in 1989.

The delivery of services such as transportation, water supply, wastewater and stormwater is a core function of Council, with provision and management of associated infrastructure accounting for the largest portion of its annual operating and capital expenditure. These services and associated infrastructure provided by the Council protects public health by providing clean drinking water and treating and disposing of wastewater appropriately. It enables goods and people to move around the district, contributing to the economy and facilitating social interaction. It ensures that homes and businesses are protected from the effects of flooding, and it is at the heart of the recovery following a natural disaster.

2.2.1 Vision and Objectives

The district vision for the 2021–2031 Long Term Plan is:

Vibrant, connected communities where our land and waters are nurtured and our people flourish.

Mā te whenua, mā te waiora tātou e ora ai hei hapori ngangahau hei hapori honohono hoki.

Council's mission is:

In partnership with tangata whenua and our communities, we will innovate and collaborate to enable a range of opportunities for the Tararua District.

Mā te mahi tahi mātou o kaunihera ki ngā tangata whenua, ka auaha aheinga mō tātou katoa o te rohe o Tamaki-nuia-Rua.

Council have four overarching strategic objectives; Delivering Resilient Infrastructure, Prudent Financial Management, Growing Strong Communities, and Building a Vibrant Economy. Priorities for the Delivering Resilient Infrastructure objective, where they relate to core infrastructure covered by this document, are:

- To ensure a reliable supply of safe drinking water to our communities.
- To ensure efficient and reliable wastewater treatment that meets environmental outcomes.
- To ensure efficient stormwater network capacity that protects from flood events.
- To ensure public roads and footpaths are safe, reliable and resilient.

2.2.2 Community Wellbeing

This Long Term Plan has seen the reintroduction of the four wellbeing's. Whilst much of Council's focus and investment will remain on managing and delivering core infrastructure services effectively and efficiently, increased emphasis will be placed on the wellbeing outcomes resulting from the services Council provides. Council's Wellbeing Outcomes are shown below.

2.2.3 Strategic Alignment

The quality of life in the Tararua District is reliant on infrastructure. The impact of infrastructure failure and associated loss of service can significantly impact each of the four wellbeings. One of Council's largest challenges is investing in the resilience of its infrastructure while still maintaining affordability, to ensure community wellbeing is enhanced.

Table 4 summarises our core infrastructure related services, the associated assets, the respective strategic objectives, and the contribution to community wellbeing.

Table 4 Linking Infrastructure Services to Community Wellbeing

The service we provide	The infrastructure assets we have to provide the service	Delivering Resilient Infrastructure priorities	Our contribution to wellbeing
Water	Source, treatment plants, reservoirs, reticulation	To ensure a reliable supply of safe drinking water to our communities.	
Wastewater	Reticulation, treatment plants	To ensure efficient and reliable wastewater treatment that meets environmental outcomes.	
Stormwater	Open drains, underground pipes	To ensure efficient stormwater network capacity that protects from flood events	
Transportation	Roads, footpaths, bridges, drainage, signs, rails, markings	To ensure public roads and footpaths are safe, reliable and resilient.	

Key: ● = high contribution, ● = medium contribution, ● = low contribution
● = social wellbeing, ● = environmental wellbeing, ● = cultural wellbeing, ● = economic wellbeing

Strategic Direction – Over the next 1-3 years, Council will be reviewing its strategic planning and setting key strategic goals that will provide direction for future long term planning. Future versions of the Infrastructure Strategy will be driven by this revised strategic direction.

2.3 Regional Strategic Context

Tararua District Council is part of Horizons Region which extends over 22,200km^2 - from Ruapehu in the north and Horowhenua in the south, to Whanganui in the west and Tararua in the east. Horizons provide services for Tararua, Manawatu, Horowhenua, Rangitikei, Wanganui and Ruapehu districts, Palmerston North City, and part of the Waitomo, Taupo and Stratford districts. There are several regional initiatives which impact on 3 waters activities.

2.3.1 Water Supply Review

The past contamination of Havelock North's public water supply has highlighted several areas for improvement in the management of public water supplies throughout New Zealand. Horizons have partnered with district councils and drinking water assessors at MidCentral Health (Pattle Delamore Partners Ltd) to complete a review of water supplies in the Horizons Region to prioritise actions to reduce the risk of contamination.

2.3.2 The One Plan

The One Plan is the resource management planning document for the Horizons Region. The One Plan defines how the natural and physical resources of the Region, including fresh water, air, productive land and natural ecosystems, will be cared for and managed by the Regional Council in partnership with Territorial Authorities and the community. This document details the overall policies for managing the environment in the region. It includes policies that relate directly to stormwater,

waterways, and land use in general. In this respect the plan manages the effects that water runoff has on waterways and surrounding land. Horizons Regional Council hold considerable information on river flood levels and land subject to flooding. This data can be used in the flood maps contained in the Tararua District Council District Plan to control safe floor levels of new construction.

2.3.3 Collaboration projects

Horizons' freshwater work is vital to aquatic indigenous biodiversity, which is in a state of degradation. This degradation includes greatly reduced native fish populations, poor habitat (loss of riparian margins in most areas, and the introduction of exotic fish and pest plants), and many barriers between coastal wetlands, streams and headwaters. Horizons has several work programmes dedicated to sustainable land management, improving water quality, and protecting habitats, such as the Sustainable Land Use Initiative (SLUI). Horizons works collaboratively with iwi, community groups, councils, industry partners, and landowners and is an active founding member of the Manawatū River Leaders' Accord and the Lake Horowhenua Accord.

2.4 National Strategic Context

2.4.1 National Changes to 3Waters

In the past three years central and local government has focused on improving the delivery of 3 waters services to the community in a desire to improve freshwater, increase resilience to climate change and natural hazards, and enhance community wellbeing. However further investment into 3 waters infrastructure is needed to overcome persistent affordability issues faced by parts of the country.

Taumata Arowai is being established as the new water services regulator to enforce new drinking water regulatory frameworks and oversee the wastewater and stormwater networks.

The Government is intending on implementing a public multi-regional model for the delivery of water services. This provides the benefits of scales for communities and reflect neighbouring catchments and communities of interest. There is a preference that entities will be in shared ownership of local authorities. Design of the proposed new arrangements will be informed by discussion with the local government sector. This creates some uncertainty around future planning for this Infrastructure Strategy.

In the short term, the Government has provided post Covid-19 stimulus to maintain, improve water infrastructure and support a three-year programme of reform of local government water service delivery arrangements.

The funding currently secured is $5.02 million of water projects for Tararua District and focuses on renewals, resilience and planning for future growth, job creation, supporting local and keeping as much money flowing into our communities as we can. There is also a possibility of more government funding.

2.4.2 Transportation Focuses

Central Government is responsible for overseeing all Transportation Activities across New Zealand. The Land Transport Management Act 2003 (LTMA), Transport Outcomes Framework and the Government Policy Statement (GPS) on Land Transport Funding provide strategic direction. The LTMA states that Local Authorities across New Zealand have statutory obligations to maintain a Roading network within their respective districts and in support of the GPS. The One Network Road

Classification (ONRC) provides a consistent approach to classifying and measuring the desired outcomes.

2.4.3 Ministry of Transport – Transport Outcomes Framework

The Transport Outcomes Framework establishes the groundwork for a strategic approach to Transportation for New Zealand, by identifying what the Government is aiming to achieve through the transport system. It defines mode neutrality as a guiding principle for transport planning, investing and regulating.

The framework itself is designed to highlight the intention behind the transport system rather than specify how. In the transportation context, Waka Kotahi NZ Transport Agency (NZTA) use this framework along with the Government Policy Statement (GPS) on Land Transport which they use to guide Road Controlling Authorities towards a consistent strategic approach.

2.4.4 Government Policy Statement

The Government Policy Statement on Land Transport 2021 sets out the Government's strategic direction for the land transport system over the next 10 years and is updated every 3 years. NZTA uses the GPS to provide guidance on how the National Land Transport Fund (NLTF) is invested and how the Regional Land Transport Plans (RLTPs) and the National Land Transport Plan (NLTP) are assessed and activities prioritised. The strategic priorities laid out in the upcoming GPS are;

- Safety
- Better travel options
- Improving freight connections
- Climate change

3 Our Infrastructure Management Approach

Planning and delivering infrastructure is a balance between providing for growth in demand and the levels of service the community desires, and affordability for ratepayers. Most infrastructure assets have long lives that extent well beyond the 30 years of this strategy, and once in place, these assets incur operating, maintenance and renewal costs that communities are committed to fund for many years to come. Planning for future infrastructure needs to be considered with a long-term view in mind.

3.1 Management Principles

Investment in core infrastructure is, by far, the most significant of all Council's activities. The cost of developing, maintaining and renewing our assets needs to be affordable for current and future ratepayers. Our approach to ensuring that we manage existing infrastructure assets efficiently and effectively and invest in new infrastructure assets wisely will be based on the following management principals.

3.1.1 Lifecycle Management

Initial asset renewal/replacement strategies are largely age based; depending on when the existing asset was constructed and what its expected useful life is. This is especially relevant for underground water reticulation infrastructure, where minimal condition information exists due to the cost and complexity to collect.

Programmes will then be developed from this based on condition and performance. Deficiencies are identified by the monitoring of asset condition, reliability, capacity and efficiency during inspections and operational activity. Indicators of the key deficiencies which inform the renewals programmes include:

- Condition; i.e. the asset has or is about to fail
- Reliability; i.e. repeated asset failure
- Economics; i.e. annual cost of repairs and/or the annual operating cost exceeds (or is predicted to exceed) the annualised cost of its renewal
- Performance; i.e. the asset is no longer capable of delivering expected service levels
- Risk; i.e. the consequence and probability of failure justifies proactive action.

Efficiency benefits will also be assessed, i.e. combining asset renewal with other construction activities to reduce cost and disruption to customers (e.g. replacing reticulation infrastructure in conjunction with a road rehabilitation project).

Predictive pavement deterioration modelling is utilised for roads, enabling network level assessment and prioritisation. Similar tools are being assessed for reticulation infrastructure.

When renewing assets, Council will take the opportunity to achieve increased environmental standards, public health and provide greater asset resilience, where this can be achieved as an augmentation to the asset renewal programme.

Key Principles

Evidence Based Decision Making

In recent years Council has invested in improving the accuracy of data that drives infrastructure investment decision making. This provides Council with increased confidence that these assets can continue to deliver the agreed levels of service for the least lifecycle cost without increasing the risk of failure.

Whilst a substantial amount of work has been completed, there are still significant gaps in the asset data required to have a high degree of confidence. This is especially relevant to water reticulation assets. Improvements will continue to be made in this area.

Asset Information Improvements – Increased investment and effort is required to expedite improvements to data quality and confidence, enabling improved evidence based investment decision to be made. Focus in the immediate future will be towards improving asset inventory, criticality, condition and performance information.

Proactive Management

Whilst historic asset investment was largely reactive (i.e. waiting for customer complaints to arrive before intervening), Council is, over time, transitioning to a far more planned and proactive approach. This includes ongoing investment in preventive maintenance and a focus on root cause analysis; understanding and treating the cause of issues rather than just the symptoms.

Over time, we expect this will extend the expected useful lives of many assets and improve Council's ability to deliver agreed levels of service for the least whole-of-life cost without increasing the risk of failure.

3.1.2 Demand Management

Council's approach to managing demand has historically been relatively reactive and ad-hoc. This is largely due to the past nature of changes in demand, where population 'growth' has been negative or static. Budget contingencies have been developed to accommodate this, where service extension is required to meet expected service levels.

District Growth Strategy – With predicted growth now expected to have significant impacts on our infrastructure and expected levels of service, a District Growth Management Strategy is currently being developed. This will enable a holistic assessment of core infrastructure and identify key infrastructure deficiencies, supporting effective prioritisation of investment.

Until this has been completed, Council's focus is to invest in resilient and sustainable infrastructure, while managing with existing network boundaries.

Key Principles

Investment in Resilient and Sustainable Infrastructure

We know many of our asset networks are vulnerable to external impacts, especially related to environmental and legislative changes. We will target investment to increase the resilience and sustainability of our infrastructure, ensuring we have future proof but still fit-for-purpose assets that met both current and predicted demands.

Manage within Existing Boundaries

We need to ensure that our water, wastewater and stormwater networks remain affordable and sustainable for current and future generations. To ensure the continued affordability of our infrastructure networks, our approach to the growth pressure is:

- Improve capacity and performance modelling of our 3Waters networks to ensure that our assets are not placed under too much stress during peak periods or in years where our climatic conditions place constraints on our ability to meet demand for services
- To encourage utilisation of existing infrastructure where existing capacity allows.
- Allow connections inside our current boundaries as of right.
- Ensure existing networks meet legislative requirements.
- Not provide for new reticulation beyond the urban areas until the reticulation inside the boundaries has been upgraded and the District Plan has confirmed the new service areas, unless paid for by developers.

3.1.3 Level of Service Management

Increasing service levels typically increases the cost of operating and maintaining assets. Assumptions are that while the number of households in the Tararua District is expected to increase over the next 30 years, while levels of service will remain the same.

Key Principles

Aim to deliver existing service levels

On a network basis, Council has not identified any significant gaps between the levels of service people expect from core infrastructure and the levels of service Council is able to deliver, now and over the next thirty years. This does assume continued external funding for transportation, at least at the current levels, to continue for the long term. Where levels of service gaps exist currently, projects and changes in management techniques have been identified or are underway to address these, as detailed in the Activity Management Plans.

3.1.4 Risk Management

Risk Management continues to be an area of learning and growth for Council. We are focussed on developing a consistent organisational approach to risk management. The Draft Risk Management Framework was developed in November 2020 and is expected to be adopted in early 2021.

The Risk Management Framework follows the principles of AS/NZS ISO31000:2009 and uses a matrix with five step risk likelihood and severity scale that reflects the relatively simple asset base that exists in the Tararua District.

Key Principles

Asset criticality

Understanding our critical assets ensures that we can prioritise investment in the areas that matter most.

Asset Criticality Framework – Following on from the Risk Management Framework development, we will develop an asset criticality framework that can be consistently applied across all activities. A “criticality rating” will then be assigned to all assets.

Formal criticality rating system to be developed by end 2023 and criticality list to be reviewed and updated by end 2023.

3.2 Limitations and Assumptions

In developing this Infrastructure Strategy, there are a number of things that Council do not or cannot know. This has flow on effects on the identification of issues and options for dealing with issues and how Council can best respond.

Key assumptions and areas of uncertainty made as part of this planning process and their likely consequences or impact are included below.

Table 5 Key Assumptions in the Infrastructure Strategy

Type	Assumption	Impact	Risk Level	Uncertainty Level
Lifecycle	That asset replacement costs and useful lives are as stated in (or close to) the Asset Valuation. Valuation figures are based on good industry practice and are peer reviewed by an external expert in infrastructure asset valuation.	If assets deteriorate earlier or later than estimated, if will impact our funding levels and, potentially, depreciation reserves.	Low to Moderate	Moderate
	That the 69% Financial Assistance Rate (FAR) from Waka Kotahi NZ Transport Agency through the National Land Transport Fund will remain for the foreseeable future, for investment in transportation infrastructure.	Changes to rates or project eligibility criteria would have a large impact on the net cost of transport projects for the Council. This would be particularly significant as there is a large amount of forecast expenditure on transport over the 30-year period.	Low to Moderate	Moderate
	Health and Environment subsidies will not be available for wastewater and water network improvement projects on an ongoing basis. Council is not expecting any further government funding for water and wastewater in the LTP on top of the 3 waters reform funding already provided.	There is no risk to the LTP forecasts as any variation to this assumption will be financially positive to Council. Any further subsidies will reduce the rate requirements and debt levels.		
	That current assumptions of asset age are accurate and depreciation reserves will be adequate to fund required asset renewals. Improvements to asset management processes and planning will improve our ability to predict, prioritise and plan the asset investment required to intervene at the right time.	Poor asset information impedes decision quality for maintenance, renewals and future planning	Moderate	High

Type	Assumption	Impact	Risk Level	Uncertainty Level
	That current assumptions of asset condition are accurate and forecast budgets will be adequate to fund required asset renewals. Improvements to asset management processes and planning will improve our ability to predict, prioritise and plan the asset investment required to intervene at the right time.	Poor asset information impedes decision quality for maintenance, renewals and future planning	Moderate	High
Demand	That district growth aligns with current projections and that the District Growth Management Strategy, currently being developed, will identify key infrastructure deficiencies and enable prioritisation and delivery of infrastructure growth/improvement within forecast capital budgets.	If growth significantly increases for that projected, it is likely that increased funding will be required to fund associated infrastructure development.	Moderate	Moderate
	The transportation programme an funding arrangements adequately addresses the forestry harvesting impact on our road network.	Forestry harvests that grow significantly over the 10 years cause major damage to some arterial roads resulting in costly renewals and increasing operational costs.	Moderate	Moderate
	That forecast budgets will be sufficient to deliver expected service levels despite the supply chain impacts as a result of increased infrastructure investment in the region, or there is some level of flexibility with regards to project timeframes to ensure value for money.	Demand on regional suppliers could increase to a point where costs to complete work significantly increases or expected timeframes cannot be achieved.	Moderate	Moderate
Levels of Service	That the District will be affected by long-term climate change in parallel with predicted changes as advised by government agencies, but that there will not be any natural disasters resulting in widespread damage or remedial work to the Council's in00frastructure.	Natural disasters cannot be foreseen and can have a significant impact on infrastructure and financial requirements for remedial works. While the Council is insured for natural hazards, this would not fully cover the costs of a highly-damaging event.	Moderate	High
	That any resource consents due for renewal during the 10-year period will be renewed accordingly as budgeted. Resource consents issued for new / upgraded infrastructure will not contain	If there was a requirement for significantly higher standards associated with consent, this will likely result in the need for	High	High

Type	Assumption	Impact	Risk Level	Uncertainty Level
	significantly different conditions / standards to those anticipated in the project.	additional unplanned expenditure.		
	That Council will retain the current boundaries and will continue to provide water, wastewater and stormwater services.		Moderate	High

3.3 Improving our Infrastructure Management Approach

3.3.1 Reliability of Information

Council has developed this Infrastructure Strategy based on information with varying levels of reliability across the activities covered in this strategy. The reliability of data and information used as inputs into this Strategy varies.

Part of the Strategy is to improve decision-making by addressing gaps in asset data. While we have made improvements to our data quality and completeness for roads in recent years, Council is now targeting further collection, validation and analysis of the data for other activities. This will fill the gaps to inform the 2024 -2054 strategy, by providing primary evidence for infrastructure decisions.

We have rated the confidence of our data for each activity in our Infrastructure Summary, using the ratings included in Appendix B. More information on data reliability is available in the AMPs for the respective activities.

3.3.2 People and Organisation

We recognise that in order to make good infrastructure decisions we need the right people capacity and capability in place.

Roles & Responsibilities – Resourcing is one of the specific challenges we face, particularly to ensure that the current day-to-day activity focus is paired with the necessary long-term focus. A review of key roles and responsibilities for Infrastructure Management will be completed to ensure Council has the right levels of resourcing and capability.

3.3.3 Asset Management Maturity

Council wants to ensure the levels of service and cost of service is appropriate for our community. So it is important that these outputs are being delivered in an economic and sustainable manner. To do this requires a more in-depth understanding of the decisions, information and processes that we use for the lifecycle management of our assets.

We need to develop our Asset Management capabilities to appropriate levels of maturity which are fit for purpose to meet the current and future needs of its stakeholders.

Council has not formally adopted a target practice level for Asset Management, however, we seek to meet a 'Core' level of Asset Management practice that meets custodial responsibilities identified in the International Infrastructure Management Manual (IIMM) to carry out the following activities:

- Record and report on the state of all assets to the community;
- Meet current statutory reporting requirements;
- Ensure community safety; and
- Provide management information to guide decisions by Council on the impact of decisions.

Asset Management Maturity – We have not formally assessed the maturity of our infrastructure management practices to date. We will be completing a full asset management maturity assessment aligned with IIMM and ISO55000, the internal standard for Asset Management to ensure we are becoming more competent and effective in 'Core' level asset management as depicted below.

4 Our Infrastructure

This section provides a summary 'state of infrastructure' for the four activities covered by this plan.

4.1 Water Supply

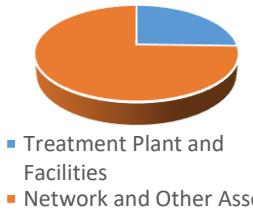
Service	The water supply activity involves the management, operation and maintenance of the district's water supply network. Council is responsible for providing safe, clean drinking water to domestic, commercial, and industrial customers connected to its water supply networks as a matter of public health.				
Aim	To ensure a reliable supply of safe drinking water to our communities.				
Goals	Water provided is safe to drink	Maintenance of the reticulation network is effective.	Issues relating to water supplies are responded to	Customers are satisfied with supplied water	Water demand is managed effectively

Seven schemes:

- Dannevirke
- Pahiatua
- Woodville
- Eketahuna
- Norsewood
- Akitio
- Pongaroa

Replacement value:

~$80M



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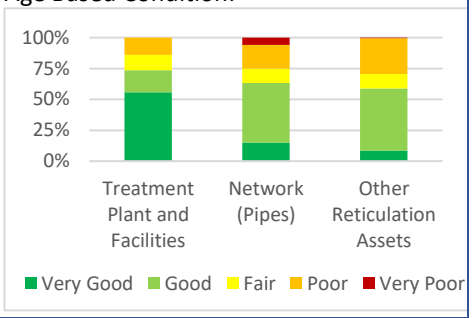
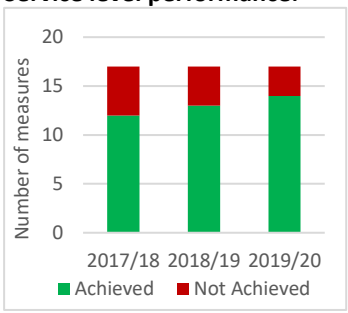
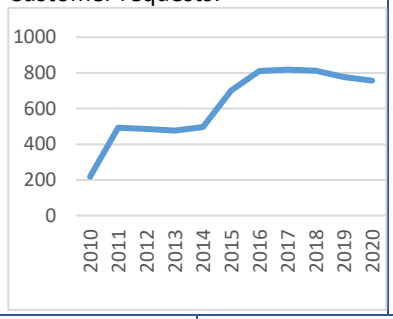


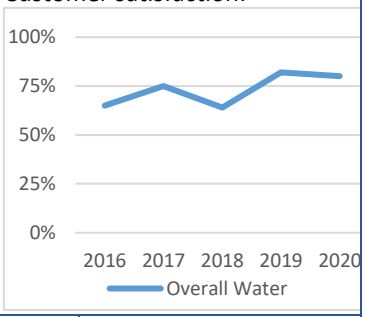
Service level performance:



Customer requests:



Customer satisfaction:



Data Confidence	**Inventory**	**Condition**	**Age**
Treatment Plant and Facilities	B – Reliable	B – Reliable	C – Uncertain
Network and Other Assets	B – Reliable	C – Uncertain	C – Uncertain

Asset Performance:

- Currently unable to meet the NZ Drinking Water Standards for all of our schemes.
- High unaccounted for water (UFW) has been reported. Minimum night flows in some locations are reported to be as high as 50% of daytime demand which is considered high.
- Water restrictions are being implemented due to increased water consumption and low source flows.

Recent achievements:

- Three treatment plants upgraded (Pahiatua, Pongaroa, and Akitio).
- Installation of backwashing system at Woodville Treatment Plant
- Impounded storage added at Dannevirke 140ML and Woodville 90ML
- Reservoir Storage added at Pahiatua 8ML to reduce periods of water restrictions
- Protocols for managing water restrictions developed to aid community engagement and lessen the impact of water restrictions
- >100 smart meters installed to trial new technology and gain a better understanding of water consumption
- Identified connections without backflow preventors

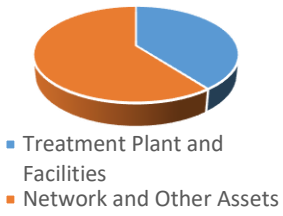
4.2 Wastewater

Service	The wastewater activity includes four wastewater schemes serving our urban communities. Council collects, treats and disposes treated wastewater from domestic, commercial and industrial premises.			
Aim	To ensure efficient and reliable wastewater treatment that meets agreed environmental outcomes.			
Goals	The wastewater system is adequate	Risks to public health and our natural environment are minimised	Issues relating to the wastewater system are responded to	Customers are satisfied with wastewater systems

Seven schemes:

- Dannevirke
- Pahiatua
- Woodville
- Eketahuna
- Norsewood
- Ormondville
- Pongaroa

Replacement value:
~$60M



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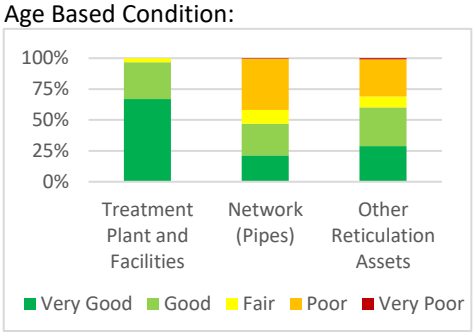
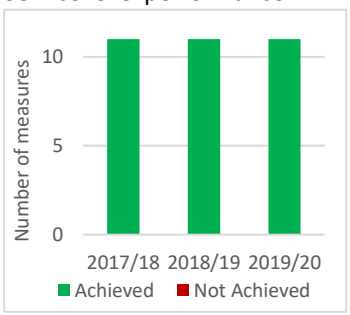


Service level performance:



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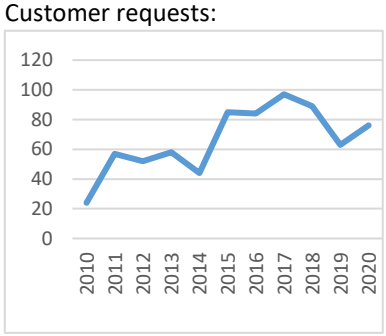
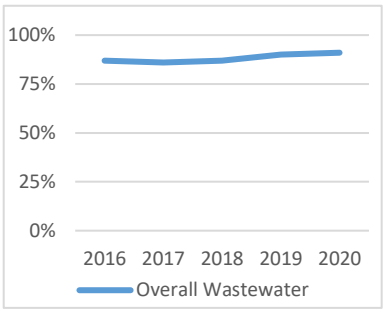


Customer satisfaction:



Data Confidence	**Inventory**	**Condition**	**Age**
Treatment Plant and Facilities	B – Reliable	B – Reliable	B – Reliable
Network and Other Assets	B – Reliable	B – Reliable	C – Uncertain

Asset Performance:

- The system does not have enough capacity to convey wastewater during wet weather, which is compounded by high rates of inflow and infiltration.
- Wastewater discharge consents have either lapsed or are due to expire by 2024. Discharges from the existing wastewater plants do not comply with modern standards.
- Wastewater is currently discharged to watercourses, which does not align with Maori cultural values.

Recent achievements:

- Membranes replaced at Dannevirke Wastewater Treatment Plant
- Pilot DAF Plant installed at Pahiatua Wastewater Treatment Plant
- 100% of accessible sewer network (78% of total network) has been CCTV inspected in the main towns
- Sewer main replacement in Pahiatua Main Street
- Good relationship maintained with Horizons Regional Council; no enforcement notices issued

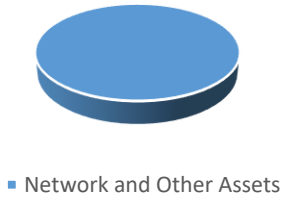
4.3 Stormwater

Service	Stormwater is the runoff of rainwater which requires management and disposal using various drainage systems. Council has stormwater reticulation with associated manholes and sumps, as well as open stormwater channels drains.			
Aim	To ensure efficient stormwater network capacity that protects built assets and people from flood events.			
Goals	The stormwater system is adequate	Risks to public health and our natural environment are minimised	Issues relating to the stormwater system are responded to	Customers are satisfied with stormwater systems

Four schemes:

- Dannevirke
- Pahiatua
- Woodville
- Eketahuna

Replacement value:
~$24M



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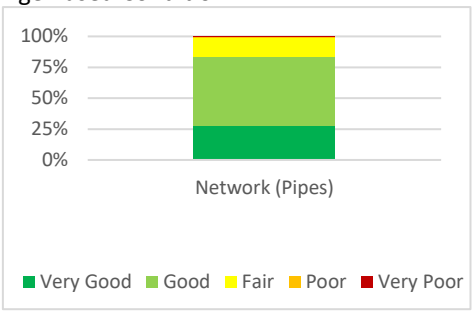
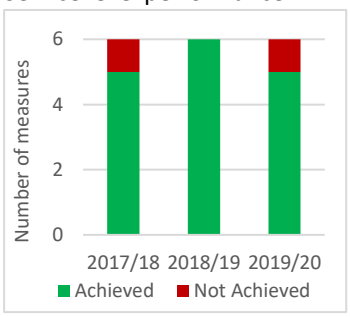
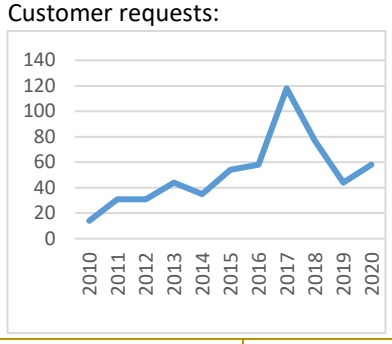


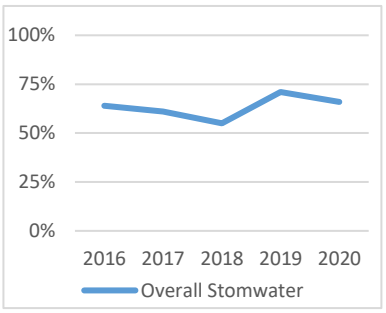
Service level performance:



Customer requests:



Customer satisfaction:



Data Confidence	**Inventory**	**Condition**	**Age**
Systems	B – Reliable	C – Uncertain	C – Uncertain

Asset Performance:

- Performance of the network is not formally measured and is based more on staff knowledge and customer requests.
- A stormwater model was developed although suggested that redesign of the current systems is required to enable delivery of current and forecast future customer expectations.

Recent achievements:

- Initial investigations into stormwater network modelling completed
- Pahiatua Town Centre stormwater improvements
- No habitable floors flooded in urban stormwater

4.4 Transportation

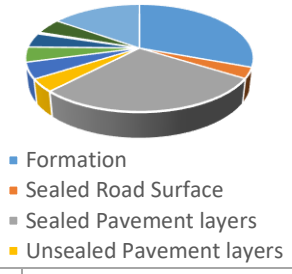
Service	Council provides a safe and efficient road and footpath network that enables the movement of people and products, both within and through the district.			
Aim	To provide a safe and efficient roading network that meets the needs of the district and is operated and enhanced in a sustainable manner at the lowest overall whole of life cost. To provide safe spaces for "non-vehicular" modes of transport to operate.			
Goals	Our roading network is safe	Our roads are maintained to an appropriate standard	Our transportation network is being maintained effectively	Our customers are responded to in a timely manner

Asset summary:

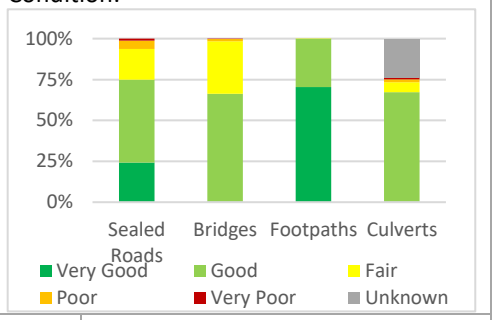
- 1,187km sealed roads
- 772km unsealed roads
- 525 bridges and large culverts
- 1,842km drains and channels
- 119km footpath

Replacement value:

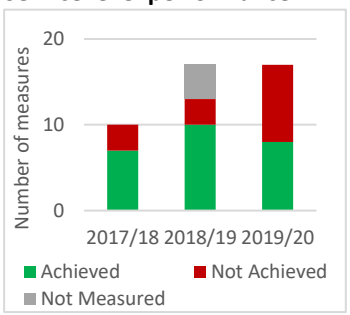
~$1B



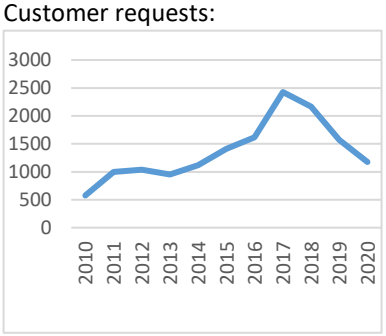
Condition:



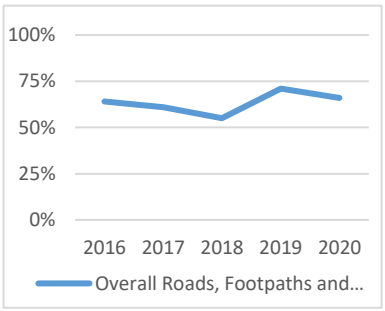
Service level performance:



Customer requests:



Customer satisfaction:



Data Confidence	**Inventory**	**Condition**	**Age**
Formation	B – Reliable	Not Applicable	Not Applicable
Sealed Pavement Surface	A – Highly Reliable	A – Highly Reliable	A – Highly Reliable
Sealed Pavement Structure	C – Uncertain	B – Reliable	C – Uncertain
Unsealed Pavement Structure	C – Uncertain	C – Uncertain	D – Very Uncertain
Drainage	A – Highly Reliable	A – Highly Reliable	C – Uncertain
Footpaths	B – Reliable	B – Reliable	C – Uncertain
Surface Water Channels	B – Reliable	B – Reliable	C – Uncertain
Signs	B – Reliable	B – Reliable	B – Reliable
Streetlights	B – Reliable	B – Reliable	B – Reliable
Retaining Walls	C – Uncertain	B – Reliable	D – Very Uncertain
Railings	B – Reliable	B – Reliable	C – Uncertain
Bridges and Major Culverts	A – Highly Reliable	A – Highly Reliable	B – Reliable

Asset Performance:

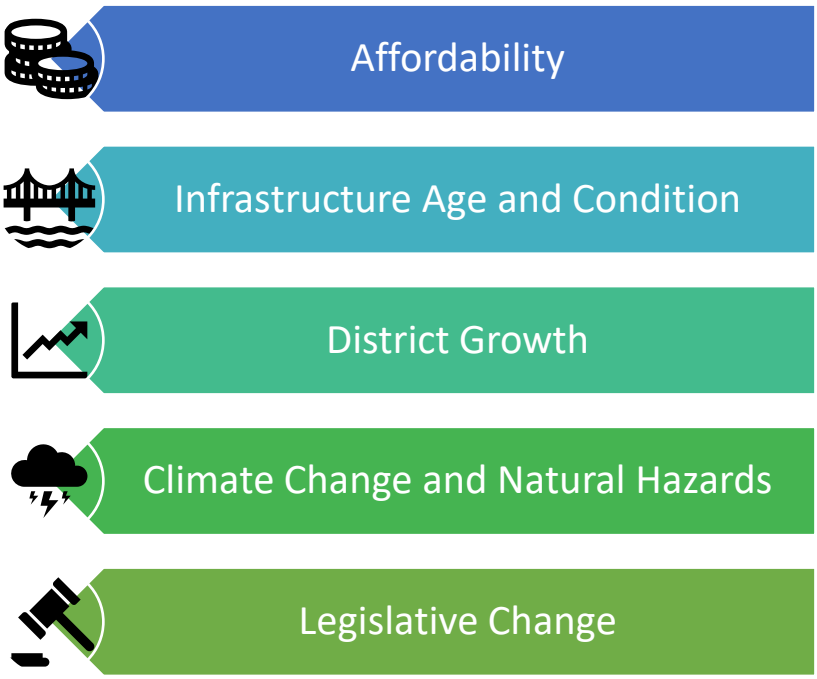
- Condition indicators show a steady performance of the pavement and surfacing assets – slightly poorer results than some of our peers but appropriate for our network.
- Bridges continue to require work to ensure the they are resilient enough for changing vehicle configurations but in general are performing well with poor condition rectified in a timely manner.
- A full drainage asset condition capture has been performed which has highlighted a number of very poor condition assets requiring intervention which forms part of the additional funds added to the next 3 year funding block request

Recent achievements:

- Initiation of Huarahi Tuhono – Weber to Wimbledon - Route 52 upgrade project
- Close to completion of the Pahiatua main street upgrade project
- Successful delivery of a robust Roading AMP to Waka Kotahi using the business case approach
- Full condition and attribute data capture of our Drainage assets

5 Our Key Infrastructure Challenges

There are numerous challenges that could impact the Tararua District's infrastructure, service delivery, and investment planning over the next 30 years. This in turn impacts on Council's ability to achieve its vision of **Vibrant, connected communities where our land and waters are nurtured and our people flourish**. The following section discusses the main challenges for our infrastructure and service delivery. These have been categorised into the following overarching themes:



Key challenges are detailed in the tables below, including the associated level of service impact, timing of this impact, level of uncertainty, and the infrastructure activity(s) impacted.

5.1 Affordability

Table 6 Affordability Challenges

Challenge	Description	Impact	LoS Change	Timing	Uncertainty	Activity
Funding Depreciation	Council funds depreciation of assets for asset renewal. Depreciation values are largely based on the estimated asset replacement cost and their expected useful life.	If asset replacement costs are underestimated, and/or if assets deteriorate faster than expected, renewal funding shortfall could occur. This would likely require loan funding being required to fund renewals, or the deferral of renewal projects resulting in increased asset failure, reactive operations and maintenance needs, and service disruption.	Potential Decrease	Long Term Next 30 years	Moderate	
Small and Aging Population	The Tararua district is geographically large but has a small and dispersed population. Our District includes a very large rural road network and multiple small towns each with their own water and/or wastewater schemes. Our population is also ageing over the next 30 years.	The low number of ratepayers relative to the number of schemes creates challenges in terms of delivering a safe and reliable service that meets regulatory requirements and is affordable to our ratepayers. We will have more residents with fixed incomes who may be less able to absorb the costs of increased service levels.	Probable Decrease	Medium Term Next 10 years	Moderate	
Access to Funding Subsidies	Subsidies and grant funding received from central government departments are crucial to Council delivering expected service levels. Due to our small local rate payer base relative to the size of our large road network, Council are reliant on National Land Transport Fund subsidies to fund the transportation activity. This is currently set at 69%.	A reduction in this funding would have significant financial impacts. This could result in increased rates and/or loan funding, on the feasibility and/or timing of works, and/or a reduction of service levels.	Probable Decrease	Medium Term Next 10 years	Moderate	

5.2 Infrastructure Age and Condition

Table 7 Infrastructure Age and Condition Challenges

Challenge	Description	Impact	LoS Change	Timing	Uncertainty	Activity
Asset Form / Design	The historic design of our core infrastructure networks has resulted in a form and/or capacity that has vulnerabilities and is unlikely to meet future demands.	This results in high operating and maintenance costs, as well as significant capital investment needs to bring the infrastructure in line with modern day standards. For roads, the inconsistency of road form and safety provisions leads safety issues and crashes.	Probable Decrease	Short Term (next 3 years)	Low	
	Large ageing bridge stock designed to lower capacity than current standards.	We are at risk of being unable to allow passage to the new high productivity vehicles.	Probable Decrease	Short Term (next 3 years)	Low	
	Tararua's road network has developed over time with inconsistent road form. Investment in safety improvements have been reactive and make-shift, stemming from customer requests, leading to further inconsistencies on the road network.	The inconsistency of road safety provisions results in an unintuitive road network for motorists, which can become confusing and lead to crashes.	Probable Decrease	Short Term (next 3 years)	Low	
	Our urban stormwater networks are very basic, with issues of underperformance due to unfit form, high volumes of water entering the townships from surrounding rural areas, historic combined systems, and identified weak points.	Results in flooding as well as potential public health and safety issues. Significant investment would be required to improve the infrastructure to level that meets our community's expectations, which is currently seen as not being affordable.	Probable Decrease	Short Term (next 3 years)	Low	
Asset Age Data	Many assets (especially reticulation) have very little age information so robust financial planning is difficult.	If assumptions are incorrect, there may be a shortfall in depreciation reserves resulting in increases to rates and/or loan funding, and reduced service levels.	Potential Decrease	Medium Term Next 10 years	High	

Challenge	Description	Impact	LoS Change	Timing	Uncertainty	Activity
						
Asset Condition & Performance Data	For some asset types there is currently limited robust condition and/or performance information, and so assumptions and age-based condition models are used to predict required investment needs.	If asset condition is poorer that assumed, increased investment may be required to ensure delivery of expected service levels, resulting in impacts on rates and/or loan funding.	Potential Decrease	Medium Term Next 10 years	High	
Condition of Critical Assets	Water Supply and wastewater infrastructure networks include critical assets that are in poor condition, are under performing, and/or are not understood well about either or both. Whilst our approach to identification and management of critical assets is still maturing, progress is needed to ensure the risk to service levels and affordability are appropriately managed.	As our assets age, they are more likely to fail which will result in service interruptions. These unplanned water outages will become increasingly unacceptable for our residents and businesses. There may also be increased operational costs with responding to the breakages as well as major leakages. Significant renewal investment will be required over the next 30 years to prevent impacts on service levels.	Potential Decrease	Medium Term Next 10 years	High	
	Full network inspection of 100% of culverts has determined a large number in very poor condition	Renewal investment will be required to ensure network resilience.	Potential Decrease	Medium Term Next 10 years	Low	

5.3 District Growth

Table 8 District Growth Challenges

Challenge	Description	Impact	LoS Impact	Timing	Uncertainty	Activity
Projected Population Growth	Following several decades of decline or minimal growth, Council has projected that the district population will increase by 6.9% over the 10 years. Households are forecast to increase by 7.9% over	Increased growth is expected to increase demand on our existing infrastructure networks, particularly in urban areas. This will put more strain on the historically designed systems and create demand for additional infrastructure	Potential Decrease	Medium Term Next 10 years	Moderate	

Challenge	Description	Impact	LoS Impact	Timing	Uncertainty	Activity
	the 10 years, with an additional 598 households expected. This is much higher than the assumptions made for 2018-28 Long Term Plan.	and/or improved service levels. Mitigating these impacts is likely to place considerable pressure on already constrained funds.				
Urban Development	Increasing urban (and fringe urban) development, including infill housing and new subdivisions, is expected because of population growth, requiring additional infrastructure capacity.	This can also result in pressure on Council to extend existing networks so that these developments can connect to town water supply and wastewater networks.	Potential Decrease	Medium Term Next 10 years	Moderate	
Rural Land Use Change	Increasing land use change is increasing demand on core infrastructure, especially rural roads. Heavy vehicle movements are planned to increase significantly because of forestry harvesting and the planned development of windfarms.	This will increase safety risk and deterioration of pavements, requiring increasing maintenance investment needs and advancing renewal timeframes.	Potential Decrease	Medium Term Next 10 years	Moderate	

5.4 Climate Change and Natural Hazards

Table 9 Climate Change and Natural Hazards Challenges

Challenge	Description	Impact	LoS Impact	Timing	Uncertainty	Activity
Earthquakes	Our District is located in a region with high earthquake risk. Our water supply and wastewater reticulation networks are vulnerable to damage from earthquakes. This may cause major disruption to the roading network due to loss of bridges or as a result of significant damage to roads.	These events can cause significant damage to infrastructure and disruption of service. The number and severity of these events in New Zealand would make insurance increasingly difficult to obtain at an affordable level.	Potential Decrease	Long Term Next 30 years	High	

Challenge	Description	Impact	LoS Impact	Timing	Uncertainty	Activity
Increased Heavy Rain Events	During wet weather events significant amounts of stormwater enters our stormwater system or infiltrates our wastewater systems, increasing the volume of water that needs to be treated and, in some cases, overloads of our networks. Due to the current form and performance of our stormwater networks, however, we are limited in our remedial options.	These events can cause significant damage to infrastructure and disruption of service. Without planned and targeted improvements, it is expected that this will become more of an issue as climate change increases the frequency or intensity of wet weather events.	Probable Decrease	Medium Term Next 10 years	Moderate	
	Council has numerous roads that are located on unstable land that is prone to landslides or land movement in wet conditions	This can result in damage to our road network affecting reliability and resilience of service.	Probable Decrease	Medium Term Next 10 years	Moderate	
Drought Conditions	Increases in long dry periods will put significant pressure on our already stretched summer water supplies.	This pressure is already causing restrictions to be enforced during the summer periods.	Probable Decrease	Short Term (next 3 years)	High	
Sea Level Rise	Sea level rise along our coastal environment presents a risk to infrastructure. In particular, Council owns one reticulated system that services a coastal settlement - Akitio.	It may be impacted with water inundation as it is located on low lying land.	Potential Decrease	Long Term Next 30 years	High	

5.5 Legislative Changes

Table 10 Legislative Changes Challenges

Challenge	Description	Impact	LoS Impact	Timing	Uncertainty	Activity
Water Reform	The Water Services Bill is anticipated to be introduced in the second half of 2021. At that time, Taumata Arowai will become Aotearoa's dedicated water services regulator to oversee and enforce a new drinking water regulatory framework, with an additional oversight role for wastewater and stormwater networks. This will put more focus on compliance with drinking water and environmental standards.	It is uncertain how, and to what extent, the proposed three waters reforms will take effect. However, it is expected that it will result in water and wastewater treatment plants requiring upgrades and increased operational, reporting and compliance costs.	Potential Increase	Short Term (next 3 years)	High	
Freshwater Management	Legislative changes are increasing required standards and compliance, especially with regard to impacts on freshwater. The National Policy Statement for Freshwater Management and Horizon's Regional Council One Plan are impacting consents for water take and wastewater discharge. Planned reform of the Resource Management Act is also likely to have impacts in terms of planning and consenting of core infrastructure activities, however this is currently unknown.	Conditions of resource consents may be altered significantly resulting in major investments to meet conditions. Council may have to consider alternative systems such as combining existing schemes through piping wastewater to another treatment plant. This could also impact operating costs of the schemes by potentially requiring treatment / filtration of discharges. The length of consent renewals could be reduced to 10 years or less. This would result in the need to budget for many more renewal processes. Changing regulations and compliance could also result in some forms of intensive farming becoming un-profitable in Tararua, and a general reduction in farming income. This could have a major impact on the district economy, and the ability to pay rates over time.	Potential Increase	Short Term (next 3 years)	High	

Challenge	Description	Impact	LoS Impact	Timing	Uncertainty	Activity
Drinking Water Standards	Some of our water supply schemes do not currently comply with the NZ Drinking Water Standards, particularly with the more recently introduced requirements.	Without significant investment we will continue to not comply with the NZ Drinking Water Standards and will not achieve our service level expectations.	Potential Increase	Short Term (next 3 years)	Low	
Government Policy Statement on Land Transport	The Government Policy Statement on Land Transport 2021 builds on the direction set in GPS 2018 and continues the Government's commitment to safety within the transport system. This is highlighted in the Transport Outcomes Framework. It sets out the Government's strategic direction for the land transport system over the next 10 years and is updated every 3 years.	Changes in government can result in significant changes to the priorities in the Government Policy Statement, this in turn impacts on Waka Kotahi's investment prioritisation and application processes. If our programme no longer aligns with the GPS, Waka Kotahi may limit subsidy funding.	Potential Decrease	Short Term (next 3 years)	Moderate	
One Network Framework	Waka Kotahi NZ Transport Agency and Local Government New Zealand have implemented the One Network Road Classification (ONRC) system so that road users will have consistent customer levels of service across the country. The One Network Framework project has now commenced to reflect role transport corridors play in the **movement** of people and goods across all land transport modes, as well as **place** through the social spaces they provide and their role in providing access to adjacent land.	Like other Road Controlling Authorities, we are still in the process of fully understanding the implications on our District. The proposed new road classification may result in lower customer levels of service in the future (for example, road roughness) for some of our extensive road network.	Potential Decrease	Short Term (next 3 years)	Moderate	
Freight Allowances	The Ministry of Transport is steadily increasing the amount of weight allowed to be carried by trucks on all networks. This includes initiatives such	Weight restriction changes have the potential to increase the deterioration rate on our bridge network and/or require additional investment for infrastructure improvements.	Potential Increase	Short Term (next 3 years)	Moderate	

Challenge	Description	Impact	LoS Impact	Timing	Uncertainty	Activity
	as 50 Max (50 tonnes); HPMV (62 tonnes) and 46 tonnes as of right.					
Road Safety	There is an increased focus on road safety nationally and the Government has recently released its proposal for the new road safety strategy, Road to Zero. The proposed Vision Zero is based on a world leading approach that says no death or serious injury while traveling on our roads is acceptable.	The focus areas that will have the greatest impact include investing in infrastructure improvements and speed management, vehicle safety, work related road safety, road user choices and system management.	Potential Increase	Short Term (next 3 years)	Moderate	

6 Our Approach to Addressing Challenges

With any planning around infrastructure there is a level of uncertainty with multiple options to deliver the service standards current and future generations will want and are willing to pay for. In order to develop options to address the challenges we have identified, we have utilised data analysis and management approaches detailed in our Activity Management Plans.

Options Identification and Investment Decision Making – With improvement of input data and risk management approaches, we will also be reviewing our options identification, analysis and prioritisation approach. This will ensure that decision making processes and criteria are consistent across all activities and will ensure all appropriate options are considered.

Our principal options in managing the challenges we face are summarised in the tables below. This includes the implications of the options and alignment to both asset type, our key challenges, and to our management principles. Icons have been used to simplify this alignment, these are described in the key below

Key

Asset Type	
Title	**Icon**
Water	
Wastewater	
Stormwater	
Roads and footpaths	

Key Challenge	
Title	**Icon**
Affordability	
Infrastructure Age and Condition	
District Growth	
Climate Change and Natural Hazards	
Legislative Change	

Key Principle	
Title	**Icon**
Evidence Based Decision Making	
Proactive Management	
Investment in Resilient and Sustainable Infrastructure	
Manage within Existing Boundaries	
Aim to deliver existing service levels	
Asset criticality	

Principal Options	Implications of Option	Linkage to…			Indicative Timeframe	Indicative Cost
		Asset Type	Key Challenge	Management Principle		
Ongoing asset maintenance and renewal	Enabling sustainable delivery of service levels for the least whole of life cost				Ongoing from Year 1	Average of $10M per year
Increased investment and focus on asset data improvements	Improvements to our asset understanding will enable more robust investment planning and decision making, ensuring an optimal long-term balance between service levels, cost of service and risk				Ongoing from Year 1	
Improvements to infrastructure asset management maturity	Improvements to our asset management practices and processes, combined with increased evidenced based decisions, will support robust funding applications to our funding partners (i.e. Waka Kotahi NZ Transport Agency), minimizing the risk of external funding/subsidy decreases.				Ongoing from Year 1	
Asset performance assessment, modelling and master planning	Understanding the performance of our infrastructure assets/networks and development master plans will support more robust and effective evidenced based decisions when planning our long term infrastructure needs, priorities and investment.				Ongoing from Year 1	
Wastewater Treatment Plant Upgrades	Upgrades required to meet resource consent requirements. Projects will be focused around improving treatment processes to improve discharge quality.				Ongoing from Year 1	Average of $1.65M per year
Resource Consent Renewals	Renewal of water take and wastewater discharge consents, required to ensure ongoing delivery of water and wastewater activities				Periodically from Year 1	Average of $180K per year

Principal Options	Implications of Option	Linkage to…			Indicative Timeframe	Indicative Cost
		Asset Type	Key Challenge	Management Principle		
Water Treatment Plant Upgrades	Upgrades required to meet NZ Drinking Water Standards requirements. Projects will be focused around improving treatment processes and monitoring.				Years 1-4	$1.17M
Route 52 Upgrade	Upgrade of Route 52 between Central Hawke's Bay and Weber (Years 0-2), Weber to Pongaroa (Years 4-6) and Weber to Dannevirke (Years 6-10) to addressing changing function and use, improving safety, resilience and reliability.				Ongoing from Year 1	Average of $3M per year
Inflow and infiltration minimisation	Development and implementation of strategy to address current inflow and infiltration issues.				Ongoing from Year 1	Average of $310K per year
Water backflow prevention improvements	Assessment and rectification of properties requiring water backflow prevention, addressing potential health risks and meeting our obligations as a water supplier.				Years 1-5	$250K
Water storage increase	Increase water storage capacity to 3-days at Akitio and Pongaroa				Years 1-4	$340K
Minor infrastructure network extensions	Minor extension of water, wastewater and/or stormwater networks where required to enable growth within existing service zones				Ongoing from Year 1	Average of $550K per year
Treatment plant telemetry improvements	Upgrade of our water and wastewater treatment telemetry to enable resource consent and NZ Drinking Water Standards requirements to be met.				Ongoing from Year 1	Average of $70K per year
Water supply and demand management improvements	Development and implementation of strategy to address current water supply and demand				Year 1, then ongoing	$150K, then staff time

Principal Options	Implications of Option	Linkage to…			Indicative Timeframe	Indicative Cost
		Asset Type	Key Challenge	Management Principle		
	management challenges, improving the resilience and reliability of the water service.					

7 Infrastructure Investment Forecasts

7.1 Most Likely Scenario

The provision of fit for purpose, affordable infrastructure is key to delivering on the Council's Vision. Many of the infrastructure renewal projects of Council are small, have relatively little impact on the delivery of agreed levels of service, and are therefore "business as usual" for Council. Our most likely scenario is to deliver to current day standards while remaining affordable for our community.

To achieve this scenario over the next 30 years we will focus on:

- Improving asset information and infrastructure asset management maturity
- Delivering ongoing maintenance and renewals programmes to meet current service levels and with a view to preventing asset consumption
- Addressing key level of service deficiencies, including:
  - Compliance with the New Zealand Drinking Water Standards
  - Compliance with wastewater discharge resource consents
  - Minor road safety improvements
- Addressing key network performance issues, including:
  - Inflow and infiltration
  - Addressing water backflow risks
- Improving service delivery resilience, including:
  - Upgrades to Route 52
  - Increasing water storage
- Minor network extensions to enable some growth in our larger townships through

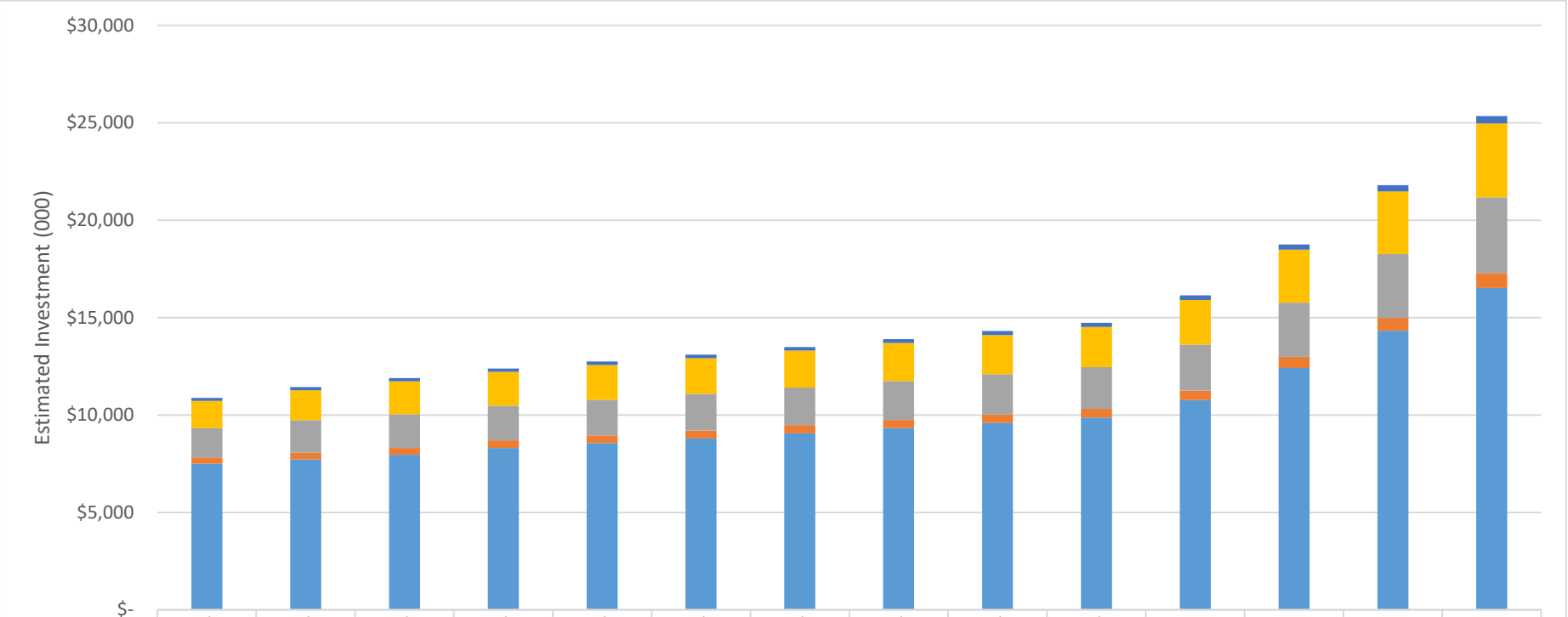
7.2 Financial Projections

The charts below show annual data for the first 10 years, then in five year blocks after that out to 30 years (2051). The five year blocks shown are the simple annual average of the costs over each period.

Council's operating expenditure on infrastructure assets is forecast to steadily rise over the 30-year period as a result of the operating impact of investments and inflation. Transportation makes up most of the expenditure, consistent with the historical expenditure pattern of this Council, however, expenditure on the three waters is increasing proportionally as Council renews the urban piped networks.

7.2.1 Operating and Maintenance Investment

Figure 3 shows that the Council's operating expenditure on infrastructure assets is forecast to steadily rise over the 30-year period as a result of the operating impact of investments and inflation. Transportation makes up most of the expenditure, consistent with the historical expenditure pattern of this Council.

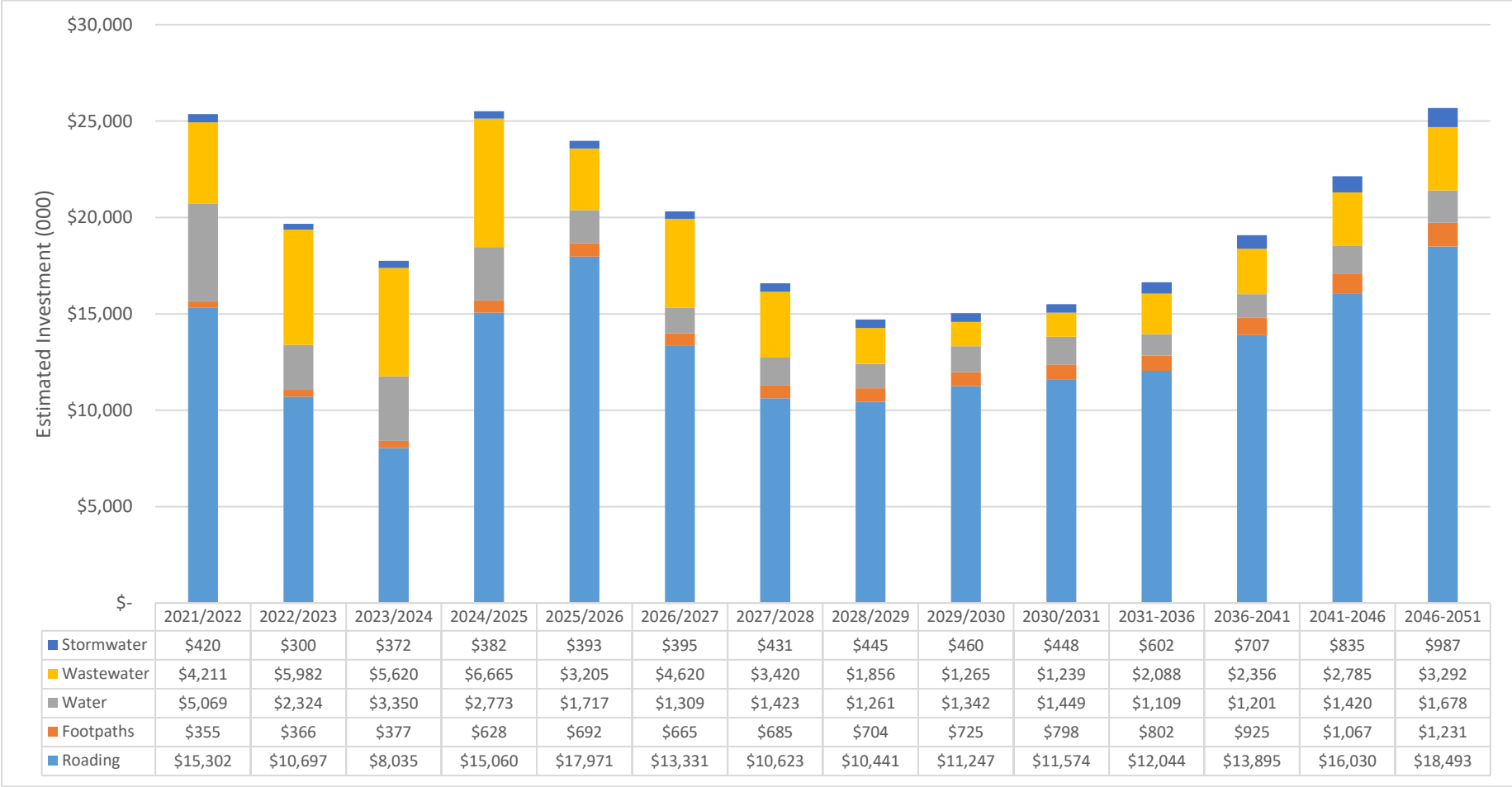


	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031	2031-2036	2036-2041	2041-2046	2046-2051
Stormwater	$148	$164	$168	$173	$178	$183	$189	$195	$202	$208	$230	$272	$321	$380
Wastewater	$1,397	$1,542	$1,690	$1,738	$1,786	$1,834	$1,890	$1,950	$2,013	$2,074	$2,296	$2,714	$3,207	$3,791
Water	$1,510	$1,669	$1,732	$1,782	$1,831	$1,880	$1,937	$1,999	$2,064	$2,127	$2,354	$2,782	$3,288	$3,886
Footpaths	$324	$340	$357	$382	$394	$405	$417	$429	$441	$454	$495	$571	$659	$760
Roading	$7,491	$7,723	$7,955	$8,313	$8,554	$8,802	$9,058	$9,321	$9,591	$9,869	$10,762	$12,415	$14,323	$16,524

Figure 3 Operating and Maintenance Investment Summary (service delivery and staff related expenses, excludes depreciation)

7.2.2 Capital Investment

Figure 4 provides a summary of Council's forecast capital investment. The bulk of this investment relates to road asset renewals, which are required to deliver current service levels.

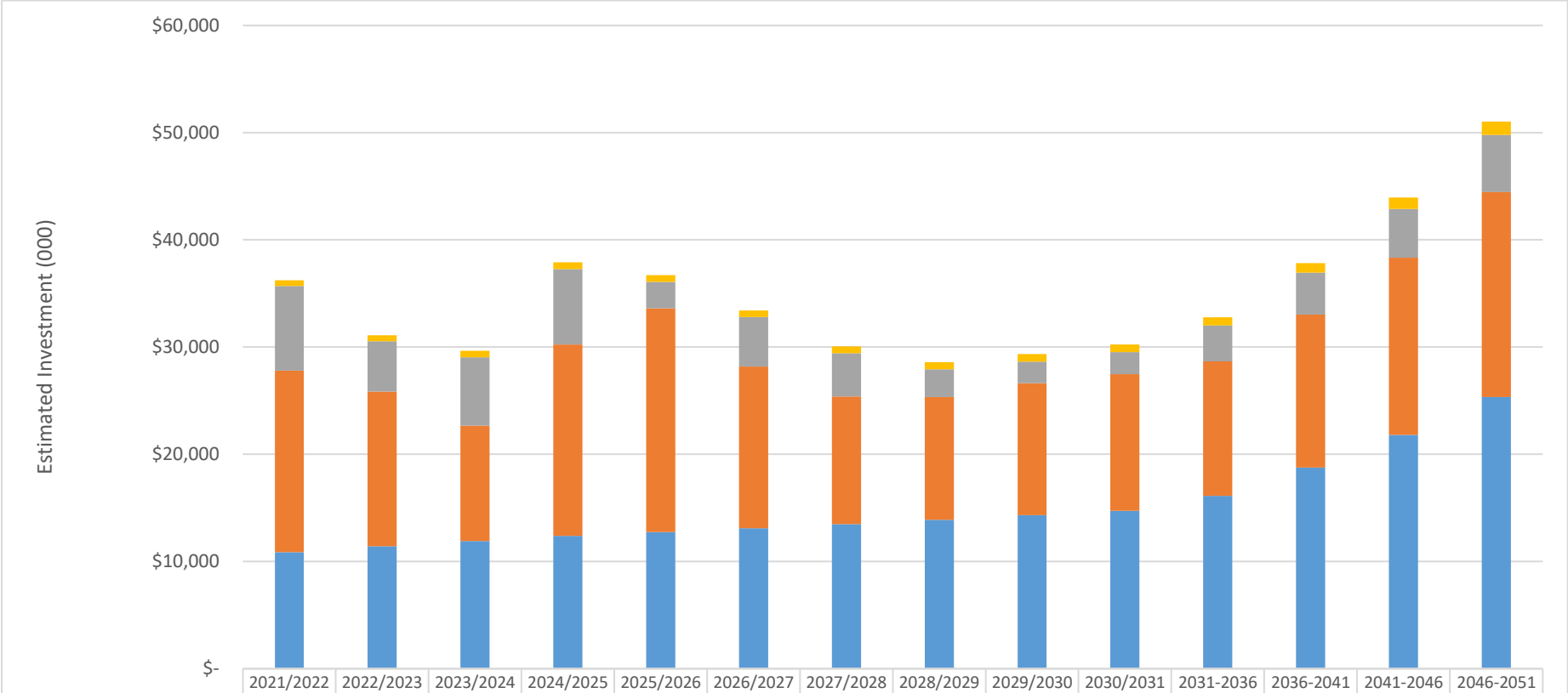


	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031	2031-2036	2036-2041	2041-2046	2046-2051
Stormwater	$420	$300	$372	$382	$393	$395	$431	$445	$460	$448	$602	$707	$835	$987
Wastewater	$4,211	$5,982	$5,620	$6,665	$3,205	$4,620	$3,420	$1,856	$1,265	$1,239	$2,088	$2,356	$2,785	$3,292
Water	$5,069	$2,324	$3,350	$2,773	$1,717	$1,309	$1,423	$1,261	$1,342	$1,449	$1,109	$1,201	$1,420	$1,678
Footpaths	$355	$366	$377	$628	$692	$665	$685	$704	$725	$798	$802	$925	$1,067	$1,231
Roading	$15,302	$10,697	$8,035	$15,060	$17,971	$13,331	$10,623	$10,441	$11,247	$11,574	$12,044	$13,895	$16,030	$18,493

Figure 4 Capital Investment Summary

7.2.3 Investment Summary

Figure 5 provides a summary of Council's forecast investment. On average, 86% of Council's investment is associated with operations, maintenance and renewal.



	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031	2031-2036	2036-2041	2041-2046	2046-2051
CAPEX - Growth	$520	$559	$605	$622	$640	$634	$655	$676	$699	$721	$762	$886	$1,047	$1,238
CAPEX - Level of Service	$7,915	$4,700	$6,371	$7,037	$2,461	$4,611	$4,030	$2,582	$2,013	$2,046	$3,354	$3,912	$4,563	$5,322
CAPEX - Renewal	$16,922	$14,410	$10,777	$17,849	$20,876	$15,075	$11,897	$11,448	$12,327	$12,741	$12,529	$14,287	$16,528	$19,122
OPEX	$10,870	$11,439	$11,903	$12,389	$12,743	$13,105	$13,491	$13,893	$14,311	$14,732	$16,136	$18,754	$21,799	$25,341

Figure 5 Investment Summary

8 Improvement Plan

The development of this Infrastructure Strategy is based on the existing levels of service, the best available current information and the knowledge of Council staff. It provides our best estimate of expected changes over the term of the Strategy at this point in time.

This Strategy is subject to periodic review and updating to improve the quality of our planning and accuracy of the financial projections. This process involves using improved knowledge of future trends and customer expectations, as well as enhanced asset management systems and data to optimise decision-making and activities, review outputs, develop strategies, introduce risk management and extend the planning horizon.

The purpose of the Improvement Plan is to:

- Identify and develop implementation of planning processes
- Identify and prioritise ways to cost-effectively improve the quality of the Infrastructure Strategy
- Identify indicative time-scales, priorities, and resources required to achieve planning objectives.

A summary of the improvement initiatives identified throughout this document are included in Table 11.

Table 11 Improvement Programme

No.	Improvement Area	Improvement Actions	Activity	Indicative Timeframe	Priority	Responsibility
1	Strategic Direction	Over the next 1-3 years, Council will be reviewing its strategic planning and setting key strategic goals that will provide direction for future long term planning. Future versions of the Infrastructure Strategy will be driven by this revised strategic direction.	All	2021 - 2024	High	
2	District Growth Strategy	With predicted growth now expected to have significant impacts on our infrastructure and expected levels of service, a District Growth Management Strategy is currently being developed. This will enable a holistic assessment of core infrastructure and identify key infrastructure deficiencies, supporting effective prioritisation of investment.	All	2021	High	
3	Asset Criticality Framework	Following on from the Risk Management Framework development, we will develop an asset criticality framework that can be consistently applied across all activities. A "criticality rating" will then be assigned to all assets. Formal criticality rating system to be developed by end 2023 and criticality list to be reviewed and updated by end 2023	All	2023	High	
4	Risk Identification	A full review of all infrastructure risks is to be completed after adoption of the Risk Management Framework. These risks will be compiled in a Risk Register, with mitigation initiatives identified and implemented for each risk	All	2023	High	
5	Infrastructure Assets Data	Part of the Strategy is to improve decision-making by addressing gaps in asset data. While we have made improvements to our data quality and completeness for roads in recent years, Council is now targeting further collection, validation and analysis of the data for other activities. This will fill the gaps to inform the 2024 -2054 strategy, by providing primary evidence for infrastructure decisions.	All	2021 - 2022	High	
6	Roles & Responsibilities	Resourcing is one of the specific challenges we face, particularly to ensure that the current day-to-day activity focus is paired with the necessary long-term focus. A review of key roles and responsibilities	All	2021 - 2022	High	

No.	Improvement Area	Improvement Actions	Activity	Indicative Timeframe	Priority	Responsibility
		for Infrastructure Management will be completed to ensure Council has the right levels of resourcing and capability				
7	Asset Management Maturity	We have not formally assessed the maturity of our infrastructure management practices to date. We will be completing a full asset management maturity assessment aligned with IIMM and ISO55000, the internal standard for Asset Management, to ensure we are becoming more competent and effective in 'Core' level asset management .	All	2021	High	
8	Options Identification and Investment Decision Making	– With improvement of input data and risk management approaches, we will also be reviewing our options identification, analysis and prioritisation approach. This will ensure that decision making processes and criteria are consistent across all activities and will ensure all appropriate options are considered.	All	2024	Medium	

Appendix A – Drivers for Change

Population Growth Trends

The Long Term Plan assumptions outline the growth projections for the District. The impact of these projections and other factors on future demand for the services provided by this activity, are discussed below.

Forecast of Future Population

The urban population is forecast to increase from 10,804 in 2018 to 12,183 in 2031. This is a substantial increase and a sharp change to the trend from 1966 to 2013. The latest Statistics NZ estimate for the District to June 2020 is consistent to the forecast track.

	Total Resident Population										
June Year	Woodville	Dannevirke	Pahiatua	Norsewood	Ormondville	Eketahuna	Pongaroa	Total Urban	District	Increase 5 years	% of District Urban
2013	1,440	5,240	2,480	110	70	444	90	9,874	17,450		57%
2018	1,600	5,670	2,760	110	70	504	90	10,804	18,450	1,000	59%
2021	**1,696**	**5,886**	**2,904**	**110**	**70**	**523**	**90**	**11,279**	**19,122**		59%
2023	1,760	6,030	3,000	110	70	536	90	11,596	19,593	1,143	59%
2028	1,859	6,253	3,149	110	70	556	90	12,088	20,302	709	60%
2031	**1,878**	**6,297**	**3,178**	**110**	**70**	**560**	**90**	**12,183**	**20,439**		60%
2033	1,891	6,325	3,197	110	70	562	90	12,246	20,531	228	60%
2038	1,907	6,362	3,221	110	70	565	90	12,326	20,646	115	60%
2043	1,902	6,350	3,213	110	70	564	90	12,300	20,609	- 37	60%
2048	1,882	6,303	3,182	110	70	560	90	12,198	20,461	- 148	60%
2053	1,849	6,230	3,133	110	70	554	90	12,035	20,226	- 235	60%

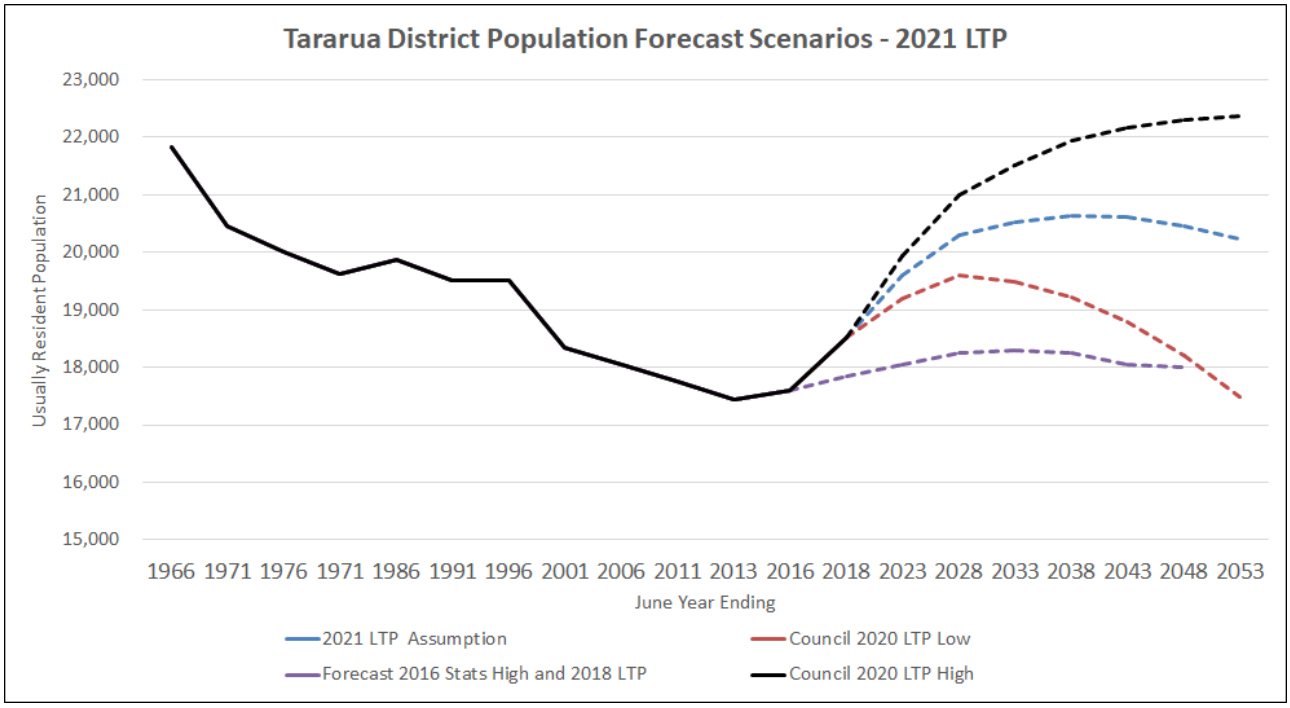
The population assumptions for the District and urban areas is for the current trend of moderate growth (around 0.8 – 1% a year) to continue through to 2028 before slowing. Council assumes that the urban areas will account for 70% of the increase in population, and 60% of new dwellings. This results in an overall 8% increase in urban population and household numbers in the 10 years to 2031.

Infometrics were engaged by the council in 2020 to conduct population forecasts. Projections were provided for three potential growth scenarios: low, medium and high. Forecasts were based on the 2018 census.

Infometrics predict a slowing rate of population growth over the next 20 years, as shown in the graph below. Based on the medium scenario, a plateau in growth would be seen with a population of 20,650 in 2038 (8,300 households), after which the population would begin to gradually decline. The high and low scenarios also predict similar trends, peaking in 2053, and 2028, respectively.

A small increase in the portion of the population living in urban dwellings is expected, with the proportion predicted to rise from 59% in 2018 to 60% by 2028, after which it is predicted to remain relatively unchanged for the subsequent 25 years.

Overall it is predicted that the population will not grow beyond the Districts population in 1960s when the key infrastructure was installed (expect in the high growth scenario).



	Total Dwellings - Private			*Note: Data not fully available yet*				Total Urban
	Woodville	**Dannevirke**	**Pahiatua**	**Eketahuna**	**Norsewood**	**Pongaroa**	**Akitio**	
2013	690	2,352	1,110	252	36	*54*		4,494
2018	729	2,361	1,149	267	*42*	*48*		4,596
2023	765	2,442	1,203	*274*	*44*	*50*		4,778
2028	804	2,530	1,262	*282*	*46*	*52*		4,976
2033	817	2,560	1,281	*285*	*46*	*52*		5,042
2038	819	2,564	1,284	*285*	*47*	*53*		5,052
2043	824	2,576	1,292	*286*	*47*	*53*		5,078
2048	824	2,574	1,291	*286*	*47*	*53*		5,074
2053	816	2,556	1,279	*284*	*46*	*52*		5,033

Council has determined that the Most Likely Scenario (MLS) in terms of population and household change is a medium growth scenario, based on forecasts prepared for the LTP. The MLS in the medium term (based on current trends) is for more growth in all main urban areas. The rural area is expected to have minor growth driven by lifestyle subdivision, offset by larger farm sizes and conversions to forestry.

Increasing population reflects people coming into the district seeking affordable housing and lifestyle options. The pandemic has strengthened this trend with increasing numbers of people returning to their provincial roots. An increase in overall demand is expected over the next 10-30 years.

Economic trends

The Tararua District is a rural district with the economy based largely on primary production. Agriculture is the predominant land use at 45.5% as of the 2018 census. Agriculture, forestry and fishing also make up almost 30% of jobs in the district, with the second largest employer being manufacturing at 16.7% based on the 2018 census.

The four main towns of Dannevirke, Woodville, Pahiatua and Eketahuna are service centres for the agricultural sector. Larger industries include meat and dairy processing.

The fluctuation in jobs filled in major sectors within the Tararua District between 2000 and 2018 is shown in Figure 6.

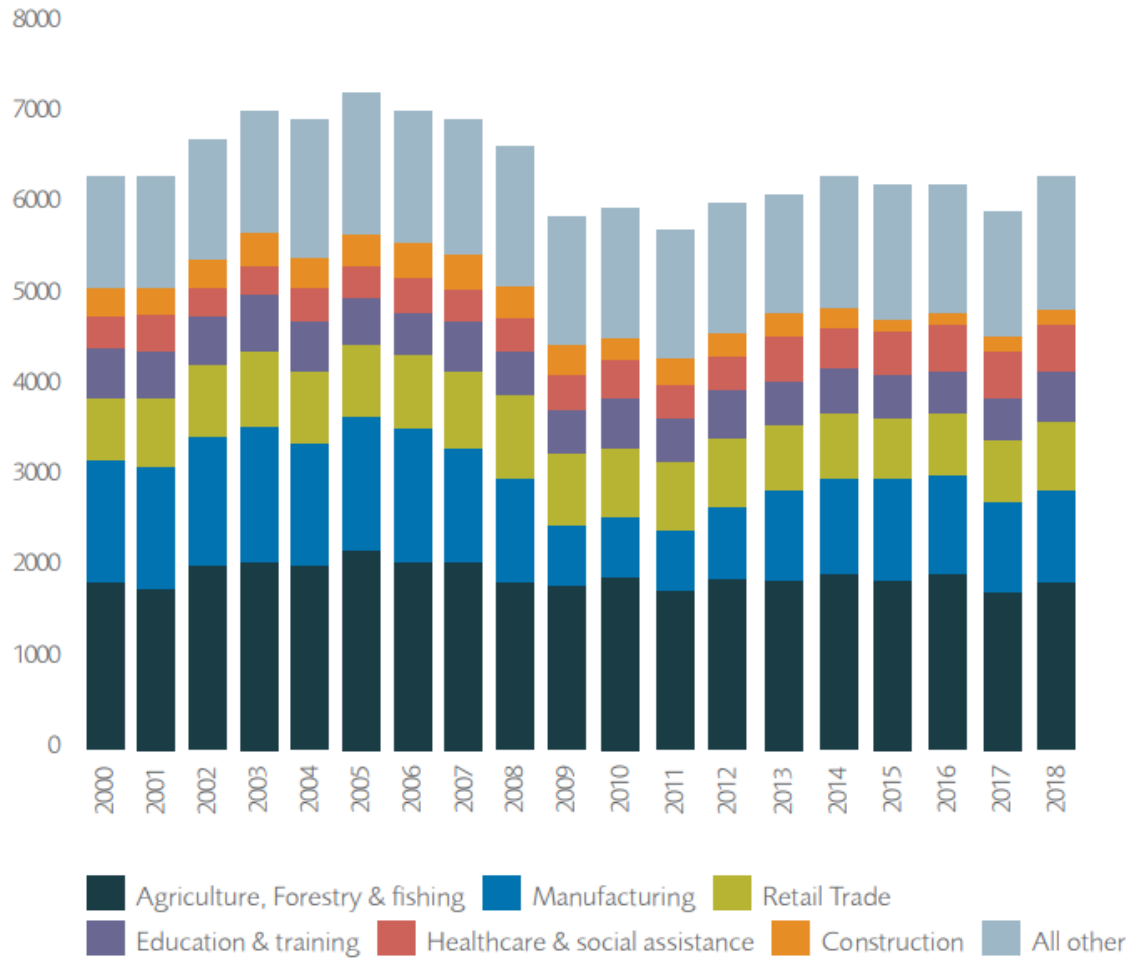


Figure 6 Tararua District Council Economic Development Plan, January 2020

The key economic trends likely to impact on the long-term provision of services are:

- Pandemic has seen people seek more space and family connections – Tararua has seen a boost in population and house prices as a result.
- Government investment in infrastructure, especially the new highway to Manawatu, is resulting in a surge in population and investment.
- A growing proportion of residents will be reliant on fixed and investment incomes. Affordability will become an increasingly important issue
- Higher levels of service offered by other Councils, and increasingly expected by new residents, is highlighting that Council facilities are old and out of date.
- Forestry conversions are reducing the rural population that are more remote.

Climate Change

NIWA was engaged by Horizons Regional Council in 2019 to report on climate change for the Manawatu-Whanganui Region. The effect of climate change is likely to mean more intense rainfall events as well as more severe droughts. This could:

- Impact upon the earning ability of customers employed in the rural sector ratepayer's and therefore their capability to afford the costs of infrastructure management.
- Increase the frequency and duration of periods of water restrictions.
- Increase the amount of inflow and infiltration entering into wastewater systems, increasing he frequency and volume of wet weather overflows.
- Increase flooding risks
- The increasing intensity of climate events could require more emergency work that cannot be funded out of normal budgetary provisions.

Where practical Council sizes new infrastructure to accommodate the predicted impacts of climate change, e.g. installation of larger stormwater pipes as part of renewals work.

The Council is already providing for many climate related risks within existing budgets such as investigation and strategy for infiltration of stormwater into sewerage during heavy rainfall, installation of larger roading culverts and extensions to the current stormwater systems.

Appendix B – Data Reliability Ratings

Water

Treatment Plant and Facilities

Sound records currently exist for asset inventory data. These will be further improved as part of the data migration to RAMM, alignment to the LINZ metadata standard, and 3Waters stimulus fund project to improve 3Waters asset inventory.

Age vs expected useful life is typically used as a proxy to determine asset condition. This is validated with visual condition assessments being completed every three years, and with informal day-to-day checks from staff.

Sound records exist for asset age information. There are a disproportionate number of assets recorded as being constructed in 1980. Whilst this is relatively immaterial, verification will be completed as part of the 3Waters asset inventory improvements project over the next twelve months.

Network and Other Assets

Sound records currently exist for asset inventory data. These will be further improved as part of the data migration to RAMM, alignment to the LINZ metadata standard, and 3Waters stimulus fund project to improve 3Waters asset inventory.

Age vs expected useful life is used as a proxy to determine asset condition and to estimate remaining useful life. This is validated using standard industry practice and expected life assumptions are reviewed independently as part of the asset valuation process. Through the 3Waters stimulus fund, we will be completing condition assessment of our underground water pipe assets. This will enable further verification of our life assumptions and enable more effective long term renewal investment planning.

Sound records exist for asset age information of pipe assets. Minimal age information exists for point assets such as hydrants and valves, however this is considered immaterial due to the low cost and risk associated with these assets.

Data Confidence	**Inventory**	**Condition**	**Age**
Treatment Plant and Facilities	B – Reliable	B – Reliable	C – Uncertain
Network and Other Assets	B – Reliable	C – Uncertain	C – Uncertain

Wastewater

Treatment Plant and Facilities

Sound records currently exist for asset inventory data, largely due to the quantum of relatively new assets. These will be further improved as part of the data migration to RAMM, alignment to the LINZ metadata standard, and 3Waters stimulus fund project to improve 3Waters asset inventory.

Age vs expected useful life is typically used as a proxy to determine asset condition. This is validated with visual condition assessments being completed every three years, and with informal day-to-day checks from staff.

Sound records exist for asset age information.

Network and Other Assets

Sound records currently exist for asset inventory data. These will be further improved as part of the data migration to RAMM, alignment to the LINZ metadata standard, and 3Waters stimulus fund project to improve 3Waters asset inventory.

Age vs expected useful life is used as a proxy to determine asset condition and to estimate remaining useful life. This is validated with visual asset inspections using Council's in-house CCTV unit.

Sound records exist for many asset age information of pipe assets, although data gaps do exist. The risk of this is considered immaterial, due to our ability to complete physical inspection of assets and estimate remaining useful life.

Data Confidence	**Inventory**	**Condition**	**Age**
Treatment Plant and Facilities	B – Reliable	B – Reliable	B – Reliable
Network and Other Assets	B – Reliable	B – Reliable	C – Uncertain

Stormwater

Systems

Sound records currently exist for asset inventory data, following increased focus in recent years. These will be further improved as part of the data migration to RAMM, alignment to the LINZ metadata standard, and 3Waters stimulus fund project to improve 3Waters asset inventory.

Asset condition is based on visual inspection by staff for above ground assets (e.g. open drains), and by using Council's in-house CCTV unit for underground pipe assets. This is not entirely complete, although isn't considered a material risk due to our ability to easily complete reactive inspections and the relatively low cost of intervention.

Some asset age data exists although there are significant gaps. The risk of this is considered immaterial, due to our ability to complete physical inspection of assets and estimate remaining useful life.

Data Confidence	**Inventory**	**Condition**	**Age**
Systems	B – Reliable	C – Uncertain	C – Uncertain

Rating	**Description**
A – Highly reliable	Data based on sound records, procedure, investigations and analysis, documented properly and recognized as the best method of assessment.
B – Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example the data

	are old, some documentation is missing, and reliance is placed on unconfirmed reports or some extrapolation.
C – Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data is available.
D – Very uncertain	Data based on unconfirmed verbal reports and/or cursory inspection and analysis.
E – Very unreliable	No data exists

Appendix C – Local Government Act 2002 Requirements

101B Infrastructure strategy

(1) A local authority must, as part of its long-term plan, prepare and adopt an infrastructure strategy for a period of at least 30 consecutive financial years.

(2) The purpose of the infrastructure strategy is to—

(a) identify significant infrastructure issues for the local authority over the period covered by the strategy; and

(b) identify the principal options for managing those issues and the implications of those options.

(3) The infrastructure strategy must outline how the local authority intends to manage its infrastructure assets, taking into account the need to—

(a) renew or replace existing assets; and

(b) respond to growth or decline in the demand for services reliant on those assets; and

(c) allow for planned increases or decreases in levels of service provided through those assets; and

(d) maintain or improve public health and environmental outcomes or mitigate adverse effects on them; and

(e) 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.

(4) The infrastructure strategy must outline the most likely scenario for the management of the local authority's infrastructure assets over the period of the strategy and, in that context, must—

(a) show indicative estimates of the projected capital and operating expenditure associated with the management of those assets—

(i) in each of the first 10 years covered by the strategy; and

(ii) in each subsequent period of 5 years covered by the strategy; and

(b) identify—

(i) the significant decisions about capital expenditure the local authority expects it will be required to make; and

(ii) when the local authority expects those decisions will be required; and

(iii) for each decision, the principal options the local authority expects to have to consider; and

(iv) the approximate scale or extent of the costs associated with each decision; and

(c) include the following assumptions on which the scenario is based:

(i) the assumptions of the local authority about the life cycle of significant infrastructure assets:

(ii) the assumptions of the local authority about growth or decline in the demand for relevant services:

(iii) the assumptions of the local authority about increases or decreases in relevant levels of service; and

(d) if assumptions referred to in paragraph (c) involve a high level of uncertainty,—

(i) identify the nature of that uncertainty; and

(ii) include an outline of the potential effects of that uncertainty.

~~(5) A local authority may meet the requirements of section 101A and this section by adopting a single financial and infrastructure strategy document as part of its long-term plan.~~

(6) In this section, infrastructure assets includes—

(a) existing or proposed assets to be used to provide services by or on behalf of the local authority in relation to the following groups of activities:

(i) water supply:

(ii) sewerage and the treatment and disposal of sewage:

(iii) stormwater drainage:

(iv) flood protection and control works:

(v) the provision of roads and footpaths; and

(b) any other assets that the local authority, in its discretion, wishes to include in the strategy.

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