



Te Rautaki Hanganga Infrastructure Strategy

How we will manage our infrastructure over the next
30 years



Contents

Overview of the Infrastructure Strategy	7
Navigating the Infrastructure Strategy	8
Section 1:	9
What guided development of the Infrastructure Strategy?	9
1.1 Purpose of the Infrastructure Strategy	9
1.2 Strategic direction – our priorities and community outcomes	9
1.3 What does Tairāwhiti look like now?	10
Our population has grown faster than we expected in 2018.....	11
Expectations have changed	11
Climate change leadership	11
1.4 Our partnerships	11
1.5 Māori responsiveness	12
1.6 The current state of our infrastructure	12
History	13
Where is our infrastructure?	13
The state of our infrastructure	15
What have we done since 2018?.....	15
How our assets are valued	18
1.7 Links to other documents	19
1.8 What will our infrastructure look like in 30 years?.....	19
Meeting expectations - public health and environmental outcomes	19
Building resilience and responding to climate change	20
Planning and investing for a medium growth scenario	20
Section 2:	21
2.1 Our 5 key challenges	21
2.2 Our significant infrastructure issues.....	22
Key Infrastructure issue 1	22
Te Taiao: meeting expectations	22
Wastewater	23
Stormwater	23
Solid waste management	23
Green Infrastructure	24
Key Infrastructure issue 2.....	27

Ngā Tikanga Āwhina Tāngata: delivering the services our community needs.....	27
Key infrastructure issue 3.....	29
Climate change will impact our infrastructure.....	29
Water supply	30
Urban stormwater.....	30
Wastewater	30
Roading	31
Land, Rivers and Coastal.....	31
Community Facilities	31
Key infrastructure issue 4.....	34
Building resilience: our infrastructure is vulnerable	34
Focus area: Critical assets	34
Water supply	35
Focus area: Flood Risk.....	35
Focus area: Roding.....	36
Key infrastructure issue 5.....	38
Growth: providing infrastructure that supports housing development	38
Greenfield development	39
Redevelopment of existing urban areas.....	39
Active Transport and access challenges	39
Development Capacity – Significant Capital Expenditure Decision – 2021	41
Key infrastructure issue 6.....	42
Supporting economic growth.....	42
Roading	43
Water security	43
Key Infrastructure issue 7.....	45
Affordability.....	45
Ageing infrastructure - keeping up with renewals is expensive.....	45
2.3 External Factors.....	48
Response to COVID-19	48
Three Waters reform programme	49
Changing legislation and national direction	50
2.3.4 Technological Advancements	51
Section 3: Significant Infrastructure Decisions.....	52

3.1. Key decisions made as part of developing the 2021-2031 Long Term Plan and 2021 Regional Land Transport Plan.....	52
3.2 Future significant infrastructure decisions.....	55
Section 4: Our Infrastructure Plan	57
4.1 Most likely scenario for managing our infrastructure	57
Responding to changing standards	57
Planning and forecasting beyond 2031	57
4.2 Overview of forecast expenditure	58
Capital expenditure	58
Paying for our infrastructure	60
Operating expenditure.....	61
4.3 Water supply infrastructure	62
Water treatment.....	63
Water storage	64
Water distribution.....	64
Waingake Transformation Programme.....	64
What do we plan to spend on our water supply assets?	64
Water Supply Climate Change Impact Statement	68
Water Supply - Significant Capital Expenditure Decision – 2021	68
Sustainable management of the Gisborne Water Supply	68
Water Supply – Future Significant Capital Expenditure Decision – 2030.....	69
Regional water security	69
4.4 Wastewater Infrastructure	69
Wastewater reticulation and pump stations	70
Wastewater treatment	70
What do we plan to spend on our wastewater assets?.....	71
Wastewater - Significant Capital Expenditure Decision – 2021	72
Improving our wastewater treatment and disposal	72
4.5 Urban Stormwater	73
Stormwater management	74
What do we plan to spend on our stormwater assets?.....	74
Stormwater Climate Change Impact Statement	76
Urban Stormwater – Future Significant Capital Expenditure Decision – 2024	77
Reducing the number of wastewater overflows.....	77
Urban Stormwater – Future Significant Capital Expenditure Decision – 2030	77

Meeting new standards for stormwater discharges	77
4.6 Land, Rivers and Coastal.....	77
What do we plan to spend on land drainage, flood protection, erosion management, and coastal management?	79
Rivers and Land Drainage – Future Significant Capital Expenditure Decision – 2033.....	81
Adapting/Responding to Climate Change	81
Land, Rivers and Coastal Climate Change Impact Statement	81
4.7 Roads and footpaths	81
Role of Waka Kotahi and the Regional Land Transport Plan	82
What do we plan to spend on our roads and footpaths?.....	83
Roading and Footpaths - Significant Capital Expenditure Decision – 2021	85
What to invest and over how long to improve suitability of roads for heavy vehicles	85
Roading and Footpaths Climate Change Impact Statement	86
4.8 Solid waste	86
What do we plan to spend on solid waste?	87
Solid Waste Climate Change Impact Statement	89
4.9 Community Facilities	90
Recreation and amenity	90
Cultural activities	90
What do we plan to spend on our community facilities?	91
Community Facilities Climate Change Impact Statement.....	93
4.10 How we will look after our infrastructure assets?	94
Delivering the Renewals Programme	94
Three waters	96
Land, rivers and coastal	96
Roading	96
Community Facilities	97
Other renewal peaks – beyond the life of the 2021 Infrastructure Strategy	97
Significant capital expenditure decision.....	97
Replacing aging infrastructure – Decision Needed: Every 3 years	97
Appendix 1:.....	99
Overview of our infrastructure knowledge.....	99
How do we assess the condition and performance of our infrastructure?	101
Roading and Footpaths	102
Land, Rivers and Coastal.....	102

Solid Waste	103
Community facilities.....	103
How good is our infrastructure information?.....	103
Levels of uncertainty and implications	104
Appendix 2.....	106
Assumptions about infrastructure management	106
Appendix 3.....	114
Assumptions about Levels of Service and Growth in Demand	114
Levels of Service	114
Growth.....	114
Water supply	115
Wastewater	116
Stormwater	117
Roading and Footpaths	118
Land, Rivers and Coastal.....	119
Solid Waste	119
Community Facilities – Recreation and Amenity	120
Community Facilities – Cultural Activities	121

Overview of the Infrastructure Strategy

This Infrastructure Strategy continues the journey we started in 2018. We are still focused on maintaining our existing infrastructure, building resilience, and delivering the services our communities and businesses expect. Nearly two thirds of forecast expenditure over the next 10 years is on renewing and replacing aging assets.

However, we do need to respond to changing expectations, higher population growth, and climate change. We also remain mindful of the ability of our ratepayers to fund our infrastructure and the impact of COVID-19 on the economy.

In this Strategy, we have committed to:

- Investing more in water demand initiatives from 2025 onwards, in response to climate change, growing population and increasing demand from users. This will enable an increased level of service.
- Installing UV disinfection at the wastewater treatment plant faster than planned and progressing land-based disposal of wastewater, so water quality and the mauri of Te Tūrangānui-a-Kiwa (Poverty Bay) is improved, and levels of service are increased.
- Speeding up delivery of the Waipaoa River Flood Control Climate Change Resilience project to provide greater protection to our community and more resilience against floods and climate change, which safeguards both economic development and wellbeing. This will increase the current level of service.
- Investing more in walking and cycling to support community wellbeing and climate change mitigation. This includes support for the Taruheru and Uawa walking and cycleways, and development of a Tairāwhiti Walking and Cycling Network.
- Protecting our water supply, restoring cultural values, and enhancing biodiversity by progressing the Waingake Transformation programme.
- Building an Olympic pool that is fit for purpose for our community both now and for the future - most of the project is funded through central government.
- Taking the time to properly plan and prepare for the future – we will focus on our resource management plan, infrastructure planning to support housing supply, and climate change risk-assessment, adaption, and mitigation planning over the next three years. This allows us to work with tangata whenua, stakeholders, and our communities to future-proof our infrastructure and support housing development and economic growth, whilst looking after Te Taiao (the environment).
- Taking a more proactive role in managing historic landfills and working with the Ministry for the Environment to progress a regional resource recovery service.

We have had to make some difficult choices about which projects we prioritise and fund to make sure we remain within our financial limits.

Navigating the Infrastructure Strategy

Section Wāhanga	Page	Content
Section 1 What guided development of the Infrastructure Strategy Wāhanga 1 He aha i arataki te whakawhanaketanga o te Rautaki Hanganga?	4	An overview of the current state of our infrastructure, progress and change since 2018, our partnerships, and where we expect to be in 30 years' time if we implement the strategy.
Section 2 Responding to the significant infrastructure issues Wāhanga 2 Ngā whakautu ki ngā kaupapa hanganga tino hiranga	21	Information on the seven significant infrastructure issues and our intended responses.
Section 3 Significant Infrastructure Decisions Wāhanga 3 Ngā whakatau hiranga o te hanganga	52	A summary of key capital expenditure decisions we have made, or expect to make, in the future.
Section 4 Our infrastructure plan Wāhanga 4 Tō Tātau Mahere Hanganga	57	Information on each asset group, what we intend to deliver, financial forecasts, and renewals.
Appendix 1 Infrastructure knowledge Āpitihanga 1 Tirohanga Whānui o tō tātau mōhiotanga o te hanganga	99	Technical information on the state of our assets.
Appendix 2 Assumptions about infrastructure management Āpitihanga 2 Ngā whakaaro mō te whakahaere hanganga	106	General assumptions relating to infrastructure management.
Appendix 3 Assumptions about levels of service and growth in demand Āpitihanga 3 Ngā whakaaro mō ngā Ratonga Kōeketanga me te Whakarahinga Whakatipu	114	What we have assumed about levels of service and growth for each asset group.

Wāhanga 1:

He aha i arataki te whakawhanaketanga o Te Rautaki Hanganga?

Section 1:

What guided development of the Infrastructure Strategy?

We prepare a new 30-year Infrastructure Strategy every three years to inform our LTP. Our Infrastructure Strategy covers:

- Water supply (including the Waingake restoration programme)
- Wastewater
- Urban stormwater
- Land, rivers and coastal (land drainage, flood control, and coastal protection works)
- Roads and footpaths
- Solid waste
- Community facilities (cultural activities, recreation and amenities)

1.1 Purpose of the Infrastructure Strategy

One of the primary purposes of local government is to promote the social, economic, environmental, and cultural well-being of communities in the present and for the future. Provision of local infrastructure is an important way we support community well-being and enable economic growth.

The strategy brings infrastructure management issues to the attention of Council and its communities. The 30-year focus makes clear the longer-term issues facing Tairāwhiti and the consequences of investment and service level decisions.

The Infrastructure Strategy identifies:

- The current state of our infrastructure.
- Significant infrastructure issues for Gisborne District Council over the next 30 years.
- Principal options for managing these issues and our preferred option.
- The implications of the options in terms of rates and debt.
- Our 30-year plan for maintaining and improving the levels of service for our infrastructure and investing in new infrastructure.

1.2 Strategic direction – our priorities and community outcomes

A significant proportion of our expenditure is on infrastructure, so investment in infrastructure has a significant influence on how we achieve our strategic priorities and community outcomes.

Our three strategic priorities for the 2021-2031 Long Term Plan (2021 LTP) are:

- Te Taiao. We will protect and enhance our environment and biodiversity.
- Te Hanganga. We will invest in existing and future core infrastructure needs, with a focus on adaptive, cost efficient and effective designs that enhance our sense of place and lifestyle.

- Ngā Tikanga Āwhina Tāngata. We will efficiently deliver quality services that enable our communities.

As part of developing Tairāwhiti 2050 (the spatial plan for our region), we identified eight desired outcomes for Tairāwhiti. The eight outcomes are interrelated and equally important. These have been adopted as the community outcomes for the 2021 LTP.

To help deliver the community outcomes, we need to manage and invest in our infrastructure assets wisely and prioritise improvements to activities and services.



1.3 What does Tairāwhiti look like now?

Tairāwhiti is on the brink of transformational change, new residents are buying and building homes and business is bringing new and expanded industry and offices.

Tairāwhiti has many cultural and natural assets. Our fertile soils and warm climate are the foundation for a strong agricultural and horticultural sector. Our rich bi-cultural and historical heritage and people provide a strong foundation for growth.

The Provincial Growth Fund (PGF) has provided the opportunity for capital investment in the region, including significant investment in our roading network. This investment is supported by, the updated Tairāwhiti Economic Action Plan 2019.

Areas of economic growth since the 2018 Infrastructure Strategy was adopted include:

- **Wood processing** – the Prime Wood Cluster Centre of Excellence is a catalyst for growth in the wood processing sector. In 2020, Trust Tairāwhiti released a new investment memorandum focused on wood-processing opportunities in the region. Wood processing capacity at WET Gisborne Ltd is being progressively increased with assistance from the PGF (loan of \$12.1m).
- **Expansion of tourism offerings** including Navigate Tairāwhiti, which encompasses the Tupapa historic interpretations, inner harbour upgrade, Te Taumata o Titirangi (Titirangi summit redevelopment), Titirangi maunga restoration and Puhī Kai Iti (Cook Landing site sculpture and landscaping); Maunga Hikurangi experiences; Gisborne Rail Bike Adventure; Tatapouri Bay campsite redevelopment; and Ngā Taonga o Hinerupe marae experiences.
- **Aerodrome Business Park** – development of the 18.5 hectare site was fast-tracked and completed in 2019. All sites have been sold and businesses started operating in 2020. Occupants include a helicopter operator, an earthworks business, two heavy machinery repair and maintenance firms, a fuel supplier, and a trucking venture.
- **Digital technology** – expansion of Matai Lab (a research and medical imaging centre); Straker Group opened its Gisborne office in 2018.

- **Primary production** – significant expansion in commercial winter vegetable production and high-value crops such as apples, kiwifruit and persimmon grown on the Poverty Bay Flats; investment in Leaderbrand operations to allow year-round production and increase processing capacity; Hauiti blueberries – new blueberry farm development near Tolaga Bay. A Food and Beverage innovation strategy for Tairāwhiti is under development, intended to maximise value from primary production in the region.

Our population has grown faster than we expected in 2018

Population growth in Tairāwhiti has occurred at a higher rate than forecast in the 2018-2028 LTP. This increased growth, combined with other challenges such as climate change and community expectations around how we protect Te Taiao, mean we need to carefully, consider how we provide long-term sustainable infrastructure.

More information on the growth challenges facing Tairāwhiti and our intended response is included in section 2.

Expectations have changed

Central Government's expectations of local government have changed since 2018. A suite of new and updated policy direction relating to resource management and infrastructure delivery has been released and this impacts the way we manage and plan some of our infrastructure. We expect more active monitoring of our performance and more information sharing with central government agencies.

More change is coming, but we still need to keep delivering infrastructure services and planning for the future. More information on how we are responding to the expectations of Government and the community can be found in section 2.

Climate change leadership

Since 2018, we have resolved to take a leadership position on climate change. This commitment is reflected in Tairāwhiti Rau Tipu Rau Ora – COVID-19 Response and recovery Plan. A national climate change emergency was also declared in 2020. We now need to take a more active role in planning and preparing our infrastructure for climate change and reducing greenhouse gas emissions associated with building and operating our infrastructure.

1.4 Our partnerships

We cannot provide all of Tairāwhiti's infrastructure and community needs. We continually look for opportunities to partner with others to provide services and infrastructure. Key partners involved in the delivery or planning of infrastructure include:

- Trust Tairāwhiti
- Sport Gisborne Tairāwhiti
- Community and philanthropic organisations
- Iwi and hapū
- Developers
- Kāinga Ora
- Waka Kotahi (New Zealand Transport Agency)
- Other Government agencies

We consider potential partnership opportunities when we are prioritising what infrastructure investment decisions to progress.

1.5 Māori responsiveness

Over half of our population is Māori. Tangata whenua have a long historical settlement and connection to Tairāwhiti and an equally long-term role in the future planning and decision-making for the region. Our approach to working with Māori is set out in the document: *Tairāwhiti Piritahi: Te Whakarite Whai-wāhitanga Māori ki ngā Whakataunga Kaunihera Fostering Māori Participation in Council Decision-Making*.

We are committed to working with iwi and hapū to deliver effective and well-designed infrastructure solutions that include mātauranga Māori and Te Ao Māori and reflect the Māori identity of Tairāwhiti. Examples include:

- Co-management arrangements with mana whenua over reserves that have important cultural values, such as Titirangi and Kopututea.
- We are undertaking restoration of Waingake (Pamoa forest) in partnership with the Maraetaha Incorporation, supported by Ngai Tāmanuhiri. This will stabilise and protect the Waingake water supply pipeline and restore and protect biodiversity and cultural values.
- Working with Ngāti Oneone on the inner harbour upgrade to incorporate cultural design elements and tell their stories, including tukutuku patterning and paving, representing coastal headlands and settlement and a new waharoa (gateway).
- The KIWA group, which provides expert cultural advice, stakeholder liaison and technical support to development of our wastewater management programme, and reports to the Wastewater Management Committee. A recent example of the value of the KIWA group was their assistance with engagement with iwi and hapū in relation to the wastewater overflow consent application.
- Working with Ngai Tawhiri to ensure meaningful hapū input into the Olympic Pool redevelopment and the ongoing operation of the facility.
- Working with mana whenua to identify opportunities to incorporate historical and cultural references within new infrastructure.
- Including monitoring of cultural elements, and making monitoring relevant to kaihoe waka, shellfish gathering, and other Māori resource-use practices.
- Engaging with tohunga and other tangata whenua representatives around wāhi tapu and other important cultural sites, including archaeological sites.
- Integrating mauri and other tangata whenua cultural values into the Integrated Catchment Management Plans (due for completion in 2025).

1.6 The current state of our infrastructure

Our infrastructure includes core assets that provide a structural foundation for the community. These include:

- Network pipelines and fittings on the pipelines
- Treatment plants, pump stations, water supply dams and reservoirs
- Roads, footpaths, streetlights, and street signs
- Library and theatres
- Playing fields and sports grounds
- Stopbanks and erosion protection structures
- Landfills and waste transfer stations

Good quality infrastructure planning relies on good quality asset knowledge. We need to understand how our assets perform, understand the lifecycle costs and the risks associated with failure. Uncertainty about data for an asset can impact on our financial sustainability.

This section provides an introduction to our infrastructure and how we have implemented the decisions made in the 2018 Infrastructure Strategy and 2018 LTP. More detailed information on the current state of our infrastructure and the challenges we need to address is contained in the following sections:

- **Section 2:** Responding to the significant infrastructure issues
- **Section 4:** Our infrastructure plan

History

Gisborne District Council was created on 1 November 1989 as part of a round of local government amalgamations. The region includes the former authorities of the East Cape Catchment Board, Gisborne City, Waiapu County, Waikohu County, Cook County, the East Cape and 10 other boards and authorities.

A considerable amount of infrastructure development occurred early in the 20th century and between 1950 and 1980, meaning some of our assets are ageing or don't meet modern standards and expectations. Over the next 30 years, we will need to proactively replace and/or upgrade many assets.

More information on the challenges we face, and our response is included in section 2.

Where is our infrastructure?

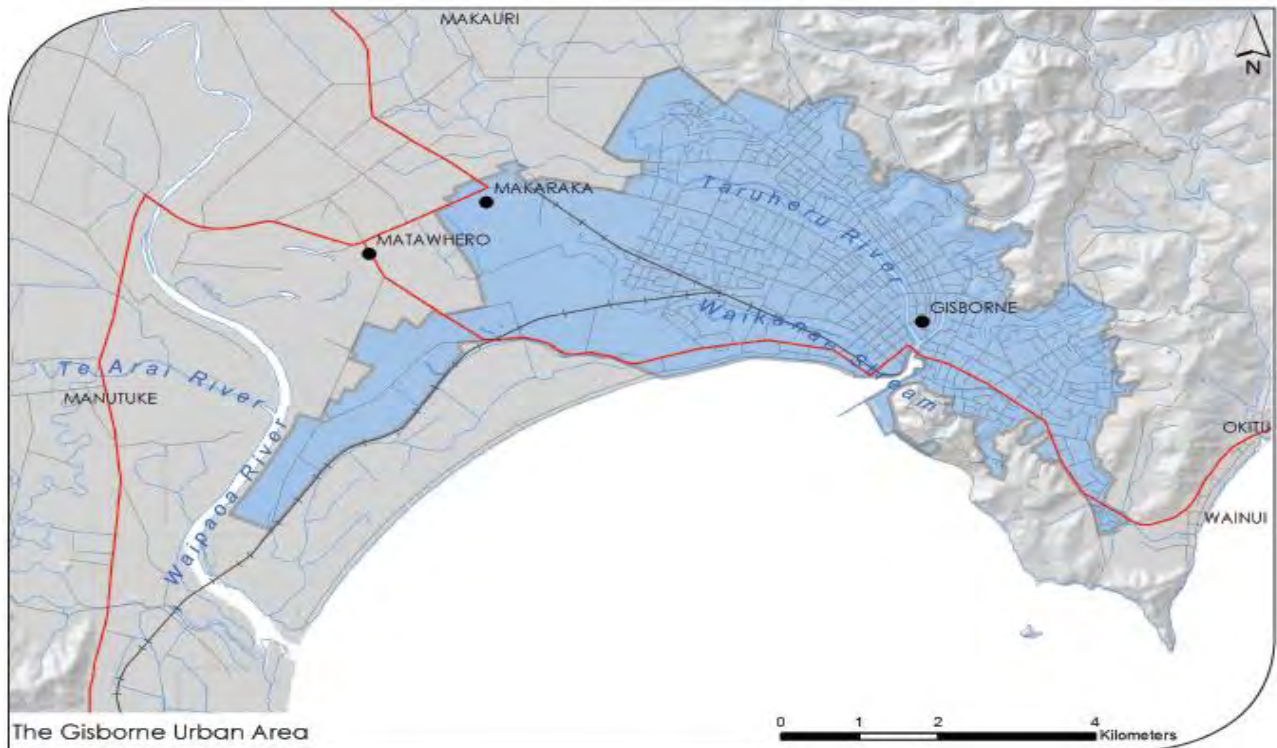
Our roading extends throughout the region (excluding the state highways) and is largely located in the rural areas. We have nearly 2,000 km of road in total. Public transport and cycleways are found in the urban area, but we provide and maintain footpaths in rural and coastal townships.

Stormwater and waste management services are provided to the townships as well as the Gisborne urban area. Kerbside collection occurs in the Gisborne urban area, Makorori, Wainui, Poverty Bay Flats, and Ruatoria.

Community facilities are located throughout the district. Cultural buildings (library, theatres) are centred in the urban area, but services are extended to the wider community using digital tools. Recreation and amenity facilities are found across the Gisborne urban area and townships.

Reticulated water and wastewater services are provided to the urban area of Gisborne – the reticulation boundary is set out in the Urban Development Strategy 2015, Tairāwhiti 2050 and Tairāwhiti Resource Management Plan and shown in **figure 1**.

Figure 1: Reticulated services boundary



Reticulation of additional communities has been discussed in the past but not progressed. For example, provision of reticulated water and wastewater to Wainui was considered in 2007 but not adopted. In the 2018 Infrastructure Strategy, we agreed to revisit the question of reticulation in 2028 to allow for:

- Further research of demand and supply
- Assessment of the impact of water metering (if adopted)
- Assessment of the impact of reducing inflow/infiltration on wastewater capacity

More information on the growth challenges facing Tairāwhiti and our intended response is included in section 2.

The state of our infrastructure

According to the best information we have, our water, wastewater and stormwater assets have been maintained and are in variable condition, depending on age. On a network basis, we have not identified any significant gaps between the levels of service existing users expect from core water supply, wastewater and stormwater infrastructure and the levels of service we are able to deliver. However, there is growing concern regarding the frequency of wastewater overflows and the disposal of treated wastewater to rivers and the ocean. There is also concern regarding the safety and security of the water supply available to communities not connected to the municipal supply.

Over recent years, there has been significant investment via the Provincial Growth Fund in our roading network to meet industry needs and support regional economic development. These works include:

- Upgrading unsealed roads, drainage, culvert renewals and bridge repairs, sealed road repairs and asphalt upgrades
- Rakaia Road upgrade
- 50MAX bridge strengthening
- Emergency repairs
- Upgrades to high-value production routes used to transport freight

However, investment has still fallen short of what is, needed to maintain the entirety of the roading network to expected levels of service.

We also face some challenges maintaining the level of service the community expects from our recreation and amenity facilities, particularly our sporting facilities. Government has recently made a substantial investment in the Olympic Pool complex, and a Tairāwhiti Sports Facilities business case has been, developed in partnership with Sports Gisborne Tairāwhiti and Trust Tairāwhiti to support further external investment in Tairāwhiti.

Appendix 1 contains some more detail on the current state of our asset knowledge.

What have we done since 2018?

As part of the 2018 LTP, we made some important decisions about how we would manage our infrastructure. Table 1 summarises these decisions and our progress. This table includes major projects identified in the 2018 LTP and significant decisions listed in the 2018 Infrastructure Strategy and reflected in the 2018 LTP.

A major project is a project with a significant capital investment or community impact.

Table 1: What we said we would do in the 2018 Infrastructure Strategy and 2018-2028 L T P

Project	Key Decisions in 2018 Infrastructure Strategy	10-year costs in the 2018 LTP (excludes inflation)	Progress
<p>Major Project: Drainwise</p> <p>A 10-30 year programme of works to improve the ageing wastewater network and increase the capacity of the stormwater network to reduce wastewater overflows.</p> <p>The programme also addresses flooding on private property, which is the main reason for wet weather sewage overflows.</p>	<p>Undertake additional jetting maintenance and surveillance to detect blockages in the wastewater network.</p> <p>Staged renewal of old wastewater pipes in the public network over 30 years.</p> <p>Emergency storage at pump stations was not prioritised.</p> <p>We will fully-fund upgrades and renewals to the Council-owned stormwater network, and we will contribute 40% of the estimated total cost of works to reduce flooding on private properties.</p> <p>Investment will be limited to properties that are the worst contributors.</p> <p>We will use a range of tools to encourage landowners to address flooding.</p>	<p>\$4m additional operational expenditure.</p> <p>Over \$15m capital expenditure on renewal of old wastewater pipes.</p> <p>\$6m capital expenditure on private properties.</p> <p>\$8.4m capital expenditure on the public stormwater network.</p>	<p>The Drainwise programme is progressing as planned. Work is prioritised by catchment.</p> <p>Additional capital expenditure has been requested in the 2021 LTP to increase emergency storage at pump stations and progress renewal of wastewater pipes faster than planned.</p> <p>See section 4.5.</p> <p>A consent application for wet and dry weather wastewater overflows was submitted in June 2020.</p>
<p>Major Project: Wastewater Management</p> <p>Our wastewater treatment plant was constructed in 2010. A condition of our resource consent requires us to implement further treatment, investigate options for alternative use and disposal, and to make every effort to meet cultural objectives to remove wastewater from the bay.</p>	<p>Phase One (clarification, solid removal and UV disinfection) will be implemented 2020-23.</p> <p>Phase two will be completed within 30 years and is not budgeted for in the 2018 LTP.</p>	<p>\$24m</p>	<p>In 2019, we agreed to bring forward Phase One to meet resource consent requirements and community expectations. Phase One is due for completion in 2022.</p> <p>We have more robust costing based on detailed design work, which has increased forecast expenditure to \$34.8m. Construction is due to start in March 2021.</p> <p>We intend to progress Phase 2 and will consult the community on how when this should occur as part of the 2021 LTP – see section 4.3 for more information.</p>
<p>Major Project: Waipaoa River Flood Control Climate Change Resilience project</p> <p>The project aims to increase the level of protection to a 1 in 100-year event (1% AEP), allowing for the effects of climate change out to 2090. This involves raising the stopbanks and increasing the width of the stopbanks to improve resilience against bank erosion.</p>	<p>Complete the flood control scheme by 2030.</p>	<p>\$16m over the next 10 years (plus another \$14m after 2028).</p>	<p>After the 2018 LTP was adopted, the design was amended to take into account updated information on climate change impacts. This increased the design height of some stopbanks to 2 metres (from 1 metre) and increased the cost of the project to \$33m.</p> <p>Work commenced in 2019.</p> <p>External funding from Government means this</p>

Project	Key Decisions in 2018 Infrastructure Strategy	10-year costs in the 2018 LTP (excludes inflation)	Progress
Timeframe: Completion by 2030.			project can be accelerated. We will consult the community on how fast we progress this project as part of the 2021 LTP. See section 4.6 for more information.
Major project: Olympic Pool Upgrade Our Olympic Pool complex was built in 1974 and is showing its age. Extensive consultation was undertaken with the community on their preferred upgrades.	The preferred option was a fully enclosed indoor 50m pool, a learn-to-swim pool and spa zone, a new administration centre and changing rooms. The indoor component of the redevelopment is scheduled for years 1-3.	\$28.5m – delivery dependent on securing external funds. Our contribution is \$5.65m.	The Olympic Pool Complex Redevelopment has now secured external funding. Construction commenced in 2020 and is due for completion in 2023. The overall budget is \$46.1m. Our contribution is still \$5.65m.
Major project: Walking and Cycling Improving our cycle links and creating safe cycling routes are key priorities in developing our cycle network.	Complete the Wainui to CBD active transport link. No other major walking or cycling projects unless external funding is provided.	\$7.3m Taruheru walkway/cycleway – dependent on securing 100% external funding. \$1m minor improvements.	The Wainui cycleway extension was completed at the end of 2018. This work was fully funded by Waka Kotahi and central government. Construction on the new shared path extension from Kaiti School to the inner harbour will be completed in 2021. Early engagement on the 2021 LTP supported plans to extend the Taruheru river walkway/cycleway if external funding is available.
Major Project: Tairāwhiti Navigations Five projects delivered with tangata whenua and partner organisations to showcase our region's unique culture and heritage and support the sesetercentennial commemorations in October 2019.	We agreed to deliver or support the following projects: Tupapa - Historical Interpretations, Inner Harbour revitalisation, Puhi Kai Iti - Cook Landing Site, Titirangi maunga Restoration, and Te Taumata o Titirangi - Titirangi Summit redevelopment.	\$3.9m plus external funding sought	The Inner harbour redevelopment, Tupapa and Puhi Kai Iti projects were completed in 2019. Substantial progress has been made on Titirangi maunga restoration and summit redevelopment. These are long-term projects we are progressing in partnership with Ngāti Oneone.
Water supply safety Implementing the Water Safety Plans developed in 2017.	Install 9,000 point of supply manifolds with check valves at residential connections to address backflow risk.	\$3.9m over seven years	We have installed over 3,000 backflow preventers. We plan to continue this programme.
	Install UV treatment to address protozoa risk in the Gisborne city water supply: <ul style="list-style-type: none"> • Waipaoa 2018/19 • Waingake 2022/23 	\$1.2m	UV treatment and water softening installed at the Waipaoa plant in 2019. As part of the 2021 LTP, we propose to defer instalment of a UV system at the Waingake Plant until 2031.

Project	Key Decisions in 2018 Infrastructure Strategy	10-year costs in the 2018 LTP (excludes inflation)	Progress
Maintaining a resilient road network	An affordable renewals focus was approved for the roading network.	The renewals budget was increased to \$11.8m.	Increased budget was spent on renewals as planned, supplemented by investment via the PGF. Funding road maintenance remains a challenge. This is discussed further in section 4.10.
	Key resilience projects on rural roads including East Cape Road Bluff slopes stabilisation were included in years 1-3 of LTP.	\$2.5m but with NZTA subsidy.	A business case was required to access external funding. \$10m of Provincial Growth Fund investment was recently approved for repairs to East Cape Road.

How our assets are valued

In the Infrastructure Strategy we refer to:

- Replacement value – how much it would cost to replace an asset ‘as new’ in today’s dollars. This is, typically used for buildings and land.
- Depreciated Replacement Value – how much it would cost to replace an asset if a deduction is made for wear and tear, and removal of any obsolete features or surplus capacity. This is used for assets like wastewater pipes and furniture.

The depreciated replacement value is less than or equal to the replacement value.

The value of the seven asset groups is shown in Table 2.

Table 2: Core infrastructure replacement costs at 30 June 2020

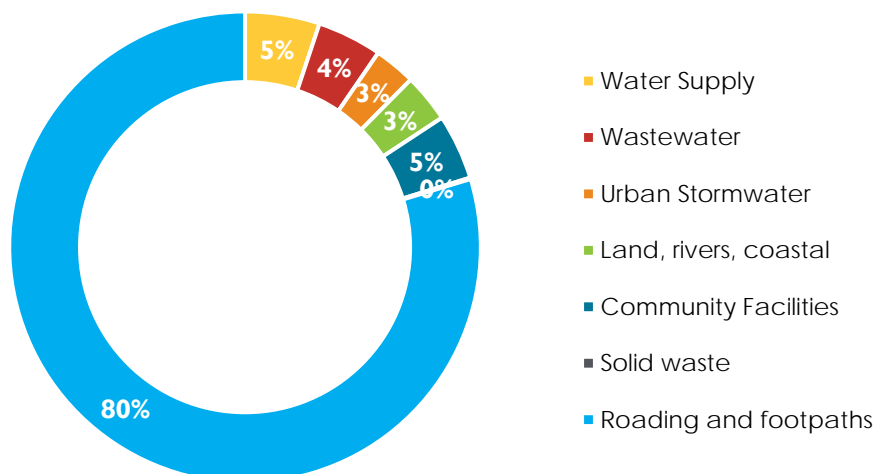
Asset	Replacement cost (\$m)	Depreciated replacement value (\$m)
Water Supply	\$213m	\$106m
Wastewater	\$172m	\$92m
Urban Stormwater	\$96m	\$59m
Land, rivers and coastal	\$63m	\$69m
Roading and footpaths	\$1,900m	\$1,650m
Community Facilities Many assets are valued at market value because they are buildings	\$93m	\$93m
Solid waste	-	\$2m
Total	\$2,537	\$2,071m

Roading assets have the highest value –80% (or nearly \$1.7b) of the total asset value. Over half the value of roading assets value is land, which is valued at \$900m.

The four water activities (water, wastewater, stormwater, rivers, and land drainage and flood control) comprise about 15% of the total asset value.

Figure 2: How the value of our assets is shared

How the value of our assets is shared



1.7 Links to other documents

The strategy should be read alongside the Council's Financial Strategy, which provides context and guidelines against which to consider Council's proposed expenditure. Detail about how Council intends to fund its activities can be found in the Revenue and Finance Policy. Another useful source of information is the Activity Summaries in the LTP.

1.8 What will our infrastructure look like in 30 years?

This section summarises the most likely infrastructure scenario over the next 30 years if we successfully implement our intended responses to the significant issues set out in section 2, the capital expenditure decisions outlined in section 3 and manage our infrastructure as set out in section 4.

The key assumptions that underpin this scenario and our decision-making are set out in Appendices 2 and 3. These are referred to as significant forecasting assumptions and include assumptions about the life cycle of our significant infrastructure assets, climate change, growth and changes in levels of service.

Meeting expectations - public health and environmental outcomes

The impact our infrastructure has on environmental and cultural values has been minimised through existing renewals programmes and increased budgets to provide higher levels of treatment and protection.

Our water treatment plants continue to meet drinking water standards and are updated as required to meet any changes to these. Water use is sustainably managed so that restrictions on water use only occur in exceptional circumstances. A third water source has been identified and the capital works completed to allow abstraction and use.

Completion of the Drainwise programme and ongoing renewals of the stormwater network has removed most inflow and infiltration from our wastewater networks. Our aim is that wastewater overflows are not required, or only occur in very severe or unforeseen events.

The majority of treated wastewater is disposed to land (probably using wetlands) and made available for reuse by commercial users.

We have reduced the amount of waste going to landfill and a regional resource recovery centre is established and well-used by the community.

Building resilience and responding to climate change

We have a good understanding of our infrastructure assets most at risk due to climate change and are progressively implementing our Climate Change Adaption Plan – the Waipaoa River Flood Control Climate Change Resilience project is complete and other actions have been prioritised according to risk, community views and affordability. It is likely that this includes relocating or removing some assets.

We've also reduced emissions from our infrastructure by implementing our Climate Change Mitigation Plan and invested in region-wide active and shared transport networks to reduce reliance on single passenger vehicle trips.

Water security has been improved as a result of implementing several projects and initiatives, some of these have been in partnership with stakeholders and mana whenua. Highlights include:

- Waingake restoration means the catchment surrounding the main water pipeline is established native forest, and less vulnerable to erosion and landslips.
- Water demand management has reduced household consumption during peak times.
- Identification and development of a third water source.
- The Managed Aquifer Recharge project is operational and providing water to users.
- Recycled water is being used for irrigation and reducing the pressure on our rivers and groundwater.
- Provision of more secure drinking water supplies to several townships.

Central government investment has improved route security on key road corridors and upgraded parts of the road network to increase safety.

We are managing the backlog of deferred maintenance and renewals on the roading network, but due to affordability constraints we have prioritised expenditure to ensure we remain financially resilient. Resources have been targeted to building and maintaining resilience within the network. We have also developed and implemented actions to maintain safe access across the network at the lowest cost. If additional investment is not made during the life of the Infrastructure Strategy, we expect that some low-volume sealed roads will revert to unsealed, and more of the network may be subject to a recommendation to use four-wheel drive vehicles.

The community has a good understanding of the infrastructure assets which are most at risk from natural hazards and supports our approach to managing these risks. Managing risk includes a range of approaches from relocating or removing assets, to engineering works to provide protection.

Planning and investing for a medium growth scenario

We expect the population to grow to about 56,000 by 2051. We will enlarge and extend our infrastructure to respond to growth in localised areas in the short, medium and longer term. Specific decisions on where and how to increase existing capacity and add to the network will occur in 2024 following decisions on where and what type of new development is most appropriate under the updated Tairāwhiti Resource Management Plan.

We have implemented the Community Facilities Strategy in partnership with Trust Tairāwhiti and Sport Gisborne Tairāwhiti. This approach has attracted external investment and we have either completed or are making substantial progress on developing a new field sports hub, an indoor sporting and recreation hub, improved river sports facilities and a regional sports facility.

Wāhanga 2:

Ngā whakautu ki ngā kaupapa hanganga tino hiranga

Section 2:

Responding to the significant infrastructure issues

We have identified seven significant infrastructure issues, which are shown in figure 3 alongside our priorities for the 2021 LTP.

Figure 3: How the significant infrastructure issues align with our strategic priorities for the 2021-2031 LTP



The significant infrastructure issues for Council and the principal options we intend to focus on to address these challenges are discussed in this section.

The key external factors that may impact infrastructure investment opportunities and timing are discussed in the External Factors section.

2.1 Ngā Mātātaki Matua e Rima Our 5 key challenges

Tairāwhiti 2050, the regional spatial plan for Tairāwhiti adopted in 2020, identifies five key challenges for Tairāwhiti. How we manage and provide infrastructure can help address these challenges. We have summarised these responses in Table 3.

Table 3: Summary of key challenges, significant infrastructure issues and our response

Tairāwhiti 2050 key challenges	Significant infrastructure issues	Our strategic priorities	Our response
Challenge 1 - Community resilience and sustainability	<ul style="list-style-type: none"> Climate change Building resilience 	Te Hanganga	<ul style="list-style-type: none"> Good asset management Climate change planning Waipaoa River Flood Control Climate Change Resilience project Roading projects – climate change and resilience focus Walking and cycling projects and planning Water demand management
Challenge 2- Community prosperity	<ul style="list-style-type: none"> Affordability Supporting economic development 	Ngā Tikanga Āwhina Tāngata	<ul style="list-style-type: none"> Water demand management Supporting freight transport Olympic Pool complex redevelopment
Challenge 3 - Meeting the needs and aspirations of Māori	<ul style="list-style-type: none"> Supporting economic development Te Taiao: meeting expectations 	Ngā Tikanga Āwhina Tāngata	<ul style="list-style-type: none"> Water demand management Waingake restoration WWTP upgrades Mortuary waste project Drainwise Solid waste projects
Challenge 4 - Protecting what we value	<ul style="list-style-type: none"> Te Taiao: meeting expectations 	Te Taiao	<ul style="list-style-type: none"> Waingake restoration WWTP upgrades Drainwise Solid waste projects
Challenge 5 - Creating connected and safe communities	<ul style="list-style-type: none"> Growth: Supporting housing development Delivering the services our community needs 	Te Hanganga	<ul style="list-style-type: none"> Growth planning Water supply to townships Roading projects – safety and access focus Walking and cycling projects and planning

2.2 Our significant infrastructure issues

Key Infrastructure issue 1

Te Taiao: meeting expectations

Infrastructure activities have the potential to have an adverse effect on environmental and cultural values. Mana whenua, community and central government have clearly stated expectations regarding improved management of wastewater and stormwater discharges, solid waste, and freshwater allocation. In many cases there are new or tougher regulatory requirements. This means we may have to increase the current levels of service for some of our infrastructure activities.

We hold many resource consents that allow us to carry out current and future activities. Most consents need to be replaced before they expire to ensure ongoing compliance with the relevant regulatory requirements (particularly the freshwater provisions of the Tairāwhiti Resource Management Plan). We expect new consents will have more stringent requirements to reflect Government, mana whenua and community expectations.

Estimated costs associated with replacing resource consents have been included in the forecast expenditure where this is possible. In the case of solid waste management, stormwater, water supply and wastewater discharge consents we expect additional work will be needed to ensure we comply with new environmental standards.

Wastewater

The Gisborne wastewater treatment plant (WWTP) resource consent requires us to install wastewater disinfection, whilst also investigating alternative wastewater management systems that reduce or remove the wastewater discharged into the ocean.

Construction on upgrades to the WWTP to install a clarifier and UV disinfection are scheduled to start in 2021 (Stage 2). This will improve the quality of wastewater discharged via the outfall and increase the current level of service. Work is also progressing on alternate use and disposal of wastewater (AUD) and removal of mortuary wastewater from the WWTP (Stage 3). This is another project which will increase the current levels of service.

Stormwater

In heavy rain events, stormwater from private properties enters and overloads our wastewater network, which is then subject to overflows. These wastewater overflows have negative social and environmental impacts. A resource consent application for these overflows has been submitted (in accordance with the requirements of the Tairāwhiti Resource Management Plan).

Solid waste management

Waste minimisation

We committed to three region wide waste minimisation targets in 2018¹:

- 20% reduction in the total waste sent to Class1 landfills by 2024
- 40% decrease in organic waste by 2024 (kerbside collections)
- 20% increase in recycling by 2024

Our progress toward meeting the targets has been variable.

The total volume of waste collected and sent to landfill has decreased by 9% since 2018, but the average amount collected per resident is still higher than our target of 285 kg/annum. Commercial volumes have decreased significantly – nearly 20% less waste was collected since 2018.

The amount the community recycles has not increased since 2018 – this is partially due to restrictions on plastics that can be recycled and reduced recycling capacity during the COVID-19 lockdown period.

Landfill management

The majority of waste from Tairāwhiti is processed at the Gisborne Resource Recovery Transfer Station and transferred to a Class 1 landfill in Tirohia (near Paeroa, in the Waikato). There are resilience questions about transportation of waste to another district for long term disposal.

There is only one council-owned landfill disposal facility in Tairāwhiti - the Waiapu landfill in Ruatoria. This services East Coast communities. The Waiapu landfill consents expire in 2025 and its future

¹ Gisborne District Council Waste Management and Minimisation Plan 2018-2024

operation is uncertain. A Waiapu Advisory Group has been formed and consultation underway to determine the best solution for the community.

Paokahu landfill closed in 2002. We manage the site, which is located on whenua Māori owned by Paokahu Trust. The trustees have been concerned for many years about the impact of the closed landfill on the environment and mauri of the surrounding waterways. We hold resource consents to manage the ongoing effects arising from the landfill on the environment. These expire in 2032.

There are eight other closed landfills sites around the region that were constructed before the Resource Management Act 1991 was in place and appropriate management standards were developed. Some of these closed landfills are vulnerable to erosion from rivers and the sea, which can uncover rubbish and result in contamination of the environment. The risk of erosion is increased due to climate change.

Green Infrastructure

The way we provide infrastructure can contribute to the protection and enhancement of our environment and biodiversity. For example, through use of Green infrastructure². Green infrastructure can have many forms, such as:

- A widened and replanted stream bank that helps to manage floodwater.
- A permeable paved path that reduces the amount of stormwater entering the piped system.
- A row of street trees or a whole urban forest.
- A green roof or vertical wall.
- A rain garden.

Table 4: How we will manage our infrastructure to meet expectations – the most likely scenario and future considerations

Response	LTP Capital expenditure	Impact	2031 onwards
General Review the Engineering Code of Practice (CoP) to incorporate new regulatory requirements, updated climate change implications, Te ao Māori, and promote use of green infrastructure and low impact design principles.	\$0.1m	Infrastructure is designed and constructed according to best practice and in a way that contributes to community outcomes. The review of the CoP can align with and feed into the TRMP review project. Mainly operational expenditure, but may be increased financial cost to council and developers associated with complying with updated Code of Practice.	
Regenerate natural defences and treatment systems (for example, dunes and wetlands).			

² Green Infrastructure is a natural or semi-natural area, feature or process, including engineered systems that mimic natural processes and:

- provide for aspects of ecosystem health or resilience, such as maintaining or improving the quality of water, air or soil, and habitats to promote biodiversity; and
- provide services to people and communities, such as stormwater or flood management or climate change adaptation.

Response	LTP Capital expenditure	Impact	2031 onwards
		restoration and management.	
Stormwater Drainwise - an ongoing programme of stormwater upgrades on public and private land Develop and implement Integrated Catchment Management Plans (ICMP).	\$9.7m	Continued implementation of the Drainwise programme will reduce inflow and infiltration of stormwater into the wastewater network. This will reduce wastewater overflows due to wet weather. \$4.3m capital expenditure is forecast for work on private property and \$5.4m will be spent upgrading the stormwater network in priority catchments. The first ICMPs will be completed by 2025. This will provide us with a better understanding of the impact of stormwater on water quality and we can start to prioritise and implement actions to improve water quality. There will implications for both capital and operating expenses. An initial budget of \$0.2m has been provided to progress improvements in the 2021 LTP.	A wide range of stormwater treatment options could be identified through the ICMP, such as the replacement of piped infrastructure with swales and the installation of stormwater detention and treatment areas. A wide range of costs are possible, depending on the options identified. There may be future implications for both capital and operating expenses.
Wastewater Upgrade treatment of Gisborne City wastewater – solid removal and UV disinfection. Design (and subsequently implement) land-based disposal for Gisborne city wastewater – including wetland treatment. Removal of mortuary waste.	\$35m	Improved coastal water quality and restoration of mauri over time. Consent conditions met. Higher standard of treatment means reduced risk of health impacts. \$31.3m is included in the 2021 LTP to complete the treatment upgrade. Removal of mortuary waste from the WWTP is a precursor for progressing alternative use of treated wastewater. \$0.2m is forecast to progress this mahi.	Implement land-based disposal for Gisborne wastewater. The cost is likely to be \$10-\$20m. We expect to receive some external funding to support this innovative project.

Response	LTP Capital expenditure	Impact	2031 onwards
Progress land-based disposal of wastewater at Te Karaka WWTP.		Land-based disposal of wastewater is consistent with the cultural values of mana whenua. We intend to start the detailed design work for land-based disposal of Gisborne wastewater in year 9. \$2.6m has been budgeted for this preliminary work. About \$1m has been allocated to progress land-based disposal at Te Karaka.	
Solid waste Resource recovery network- Investigate and develop a region-wide resource recovery/social enterprise Closed landfill risk assessment and remediation project Paokahu closed landfill management Waiapu landfill – future management	\$1.3m Funding is available from the Ministry for the Environment (MfE) for exploring resource recovery options.	An overall reduction in waste sent to landfill will have increased benefits to the environment. Reduced costs of waste disposal to land by increasing the diversion of waste to recycling. Also contributing to local economic development, and providing much needed employment and training opportunities for youth and those that are currently unemployed. No capital expenditure is currently budgeted to develop a region-wide resource recovery centre. Funding may be available from MfE via the Waste Minimisation Fund to support this response. Community engagement on the future of the Waiapu landfill will ensure the best option is selected. Money (\$0.5m) has been budgeted to provide for future works needed to deliver the chosen option. The closed landfill management work has a \$0.6m budget. This project will address potential risks from erosion and leachates. This is particularly important for landfills near waterways in an effort to minimise the risk of an issue such as Fox River. The Paokahu Landfill, which is acknowledged as having an environmental impact on the Awapuni lagoon waterways, will be a focus to minimise impacts and support tangata whenua aspirations for restoring the area for future generations. \$0.2m capital expenditure has been forecast.	There may be additional requirements arising from decisions made on the future of the Waiapu landfill, and once the Paokahu landfill consents expire in 2032.

Response	LTP Capital expenditure	Impact	2031 onwards
Water supply Waingake transformation programme	\$17.9m	Restoration of land that has cultural value and contributes to resilience of the water supply network (Waingake). Supports mana whenua in the exercise of their kaitiaki responsibilities and also creates training and job opportunities for rangatahi.	
Total investment	\$64m	Our infrastructure is delivered in a way that protects and enhances our environment and biodiversity.	

Key Infrastructure issue 2

Ngā Tikanga Āwhina Tāngata: delivering the services our community needs

Water supply

The majority of water used in areas outside the municipal supply is sourced from roof collection. The water quality of water sourced from roofs and stored by households is often poor due to biological contamination from wind-born organic matter and birds.

We know that there will be new and more stringent requirements for safe drinking water. Compliance with safe drinking water isn't a significant issue for the municipal water treatment and the city water supply, but there may be implications for community facilities that have water tanks or other sources of drinking water that do not come from the treated supply. We also expect that there will be requests from smaller townships for support to provide more secure drinking water.

Community facilities

Some of our community facilities are ageing and no longer fit for purpose. Many older community buildings require investment to address hazards such as asbestos or seismic risk, and to ensure they are fit-for-purpose for changing community needs. This is a particular issue for sports and recreation facilities.

Safer Roads

Narrow roads, limited alternatives and driver behaviours increase personal risk and contribute to unacceptable levels of death and serious injuries on our transport network. While our transport system has relatively low levels of total deaths and serious injuries (DSI) compared to other regions, it performs poorly in terms of DSI per capita.

Table 5: How we will manage our infrastructure to deliver the right services to our communities – the most likely scenario and future considerations

Response	LTP Capital expenditure (\$m)	Impact	2031 onwards
Sports and recreation facilities Implement the 30-year Communities Facilities Strategy via a two-phase programme, and in partnership with Trust Tairāwhiti and Sport Gisborne Tairāwhiti. A Tairāwhiti Sports Facilities Business Case has been developed with input from the Tairāwhiti Sports Collective. This will be used to support requests for external funding.	\$3.9m	<p>This phased approach will address short-term functional projects (\$0.4m has been budgeted for sportsground upgrades and renewals) and a long-term aspirational project (phase 2). Seed funding of \$3.5m has been budgeted to help attract external investment.</p> <p>The network of sporting facilities is enhanced over time to meet community expectations and improve public indoor sports court facility availability. Investment supported by stakeholders and central Government.</p> <p>Progressive development programme over 10-15 years.</p>	Whether to support the long-term aspirational project (phase 2) will be a future capital expenditure decision.
Major upgrade to the Olympic Pool Complex	\$44.5m	<p>Upgrades largely funded by central government.</p> <p>Significantly improved functionality resulting in an improved recreation experience and improved water safety.</p> <p>Community participation rates are likely to rise.</p>	
Road safety interventions <ul style="list-style-type: none"> • High-risk intersections • High-risk rural roads • School safety improvements • Street light upgrade to LED • Road safety interventions for walking and cycling 	\$4.3m	<p>Low cost/low-risk safety improvement projects will continue across the district. Works are targeted to high-risk locations.</p>	Additional improvements to the network to improve walking and cycling safety and promote a modal shift in the transport system (less reliance on cars).

Response	LTP Capital expenditure (\$m)	Impact	2031 onwards
Water supply Water supply upgrades to reduce the risk of contamination – backflow prevention. Improving water supply for Ruatoria and Muriwai.	\$6.1m	The planned backflow prevention project has a budget of \$2.8m. It will reduce the risk of contamination of the Gisborne municipal water supply and meet water safety requirements. Government funding is being used to improve drinking water supply options for households in Muriwai and Ruatoria.	Additional uv treatment at Waingake water treatment plant pushed out to 2031. Compliance with drinking water standards can be met in the interim, but greater use of Waipaoa water treatment plant may be required, which has higher operational costs.
Total investment	\$59m	We deliver quality services that help keep our communities healthy and safe.	

Key infrastructure issue 3

Climate change will impact our infrastructure

Climate change will impact how we plan and manage all our infrastructure activities. Regional hazard assessments indicate that over the next century Tairāwhiti can expect sea levels to rise, more droughts, more intense storms, less rainfall and increased wind. Some infrastructure will need upgrading to cope with more extreme weather events, and require repairs or replacement following more intense storms and further investment may be required in stopbanks to protect communities and productive land. This will have ongoing cost implications for both capital and operational expenditure and in some situations, the viability of infrastructure may be threatened.

How we design, build and operate our infrastructure can support climate change mitigation and adaptation. For example, some construction methods have a larger carbon footprint than others and where we locate new infrastructure can affect how vulnerable it is to climate change impacts. One of our priorities is to invest in infrastructure that is able to adapt to change.

The first national climate change risk assessment³ will inform development of a national adaptation plan, which will be released by August 2022. Nationally, the risk to infrastructure is relatively high, particularly the risk relating to water supply, buildings, landfills, and wastewater and stormwater systems. The risk to potable water supply is the top-rated risk (in terms of urgency to act). We expect that the national adaptation plan will focus on the highest rated risks, and we will need to demonstrate how we are managing risks to our infrastructure.

³ Released in August 2020

Water supply

Climate change is expected to result in higher temperatures and more hot days. Rainfall patterns will also change – we expect it to become drier in spring and summer and wetter in autumn and winter. This means there will be increased demand for water in the hotter months to irrigate land and for domestic use, but less water available in waterways.

Te Arai River and the wider Waipaoa catchment are already under considerable water allocation pressure. The lack of secure and stable water supplies for our rural settlements and industry on the Poverty Bay Flats constrains economic development and community health. Climate change and further development will increase the demand for freshwater and place more pressure on our waterways.

The existing authorisation to take water from Te Arai River for the municipal water supply expires in 2026. This authorisation was granted prior to the Resource Management Act. A new consent for the Te Arai water take is likely to be subject to more stringent regulatory measures. Managing the impact of these requirements on our ability to operate the water supply service requires careful planning.

Investment in our water supply infrastructure has been forecast based on the assumption that improved demand management will become increasingly important from 2026 to address climate change, resilience, residential growth and to meet expectations regarding freshwater management.

We intend to continue with the approach outlined in the 2018 Infrastructure Strategy:

- Use of education campaigns and water restrictions – ongoing
- Use of Waipaoa Treatment plant for base supply – implemented, increased operational cost of about \$100,000 a year
- Increasing flows to the city (a decision for the 2021 LTP see section 4.3.)
- Reinstate and/or upgrade the Sang Dam (a decision for the 2021 LTP see section 4.3)
- Introduction of residential water metering (a decision for the 2021 LTP see section 4.3)
- Additional water source (a future project)

Urban stormwater

Climate change is likely to reduce the level of service (that is the effectiveness) of stormwater and drainage infrastructure due to the possibility of increased intensity storms and because raising sea levels will raise ground water levels and decrease hydraulic gradients. In the future, the frequency of storm events and damage to the network could potentially increase with climate change. Sea water may also flow up pipes and leak onto parks and roads.

Wastewater

We expect that climate change will lead to more intense and prolonged droughts. This can reduce the flow of wastewater through the network and increase the concentration of ammonia and other contaminants. This could mean:

- More blocked pipes
- Corrosion and leaks
- Less effective treatment of wastewater
- Safety issues for maintenance staff

Changes to rainfall may also lead to more wastewater overflows if more stormwater enters the wastewater system in heavy rainfall events.

Roading

Coastal roads will also become more vulnerable as the rising sea level drives shoreline retreats and increases the risk of coastal flooding. We also expect more land erosion and slips due to changing rainfall patterns; this is likely to have greater impacts on rural roads, with poor geology.

Hotter temperatures (25°C and over) are likely to make roads 'melt' more often and increase maintenance costs. This occurs when the bitumen below the chipseal melts and rises to the road surface.

Land, Rivers and Coastal

Climate change will increase the risk posed by coastal hazards, which include erosion, inundation and flooding. This will impact infrastructure, buildings and the natural environment.

Climate change may reduce the levels of service currently provided by our river and drainage schemes. We may need to undertake maintenance and renewals more often, upgrade assets or build new protection structures. The demand for protection and adaptation work, whether hard or soft protection or managed retreat, is expected to increase. Funding these actions is a growing issue for Tairāwhiti and nationally.

We made changes to the Waipaoa River Flood Control Scheme upgrade in 2019 to better address climate change impacts. This included increasing the design height of the stopbank to 2 metres in some places (the earlier design height was up to 1 metre) and other improvements to address geotechnical issues, seepage and improve flood-gate design. These changes increased the cost of the project compared to the 2018 LTP and 2018 Infrastructure Strategy projections.

Community Facilities

We are responsible for a wide range of community facilities. Significant climate change issues for these assets include:

- Current coastal erosion becoming worse and new erosion sites developing, which could damage community facilities such as playgrounds, walkways carparks, and sports fields.
- Storm surge, coastal flooding and higher groundwater levels making reserves and facilities unsafe for use due to boggy ground or surface ponding.
- Saltwater intrusion leading to turf and vegetation decline.
- Buildings may become unsuitable for use over time.

We expect we will need more shade and shelters in outdoor community spaces as temperatures increase. We also expect changes to the type and distribution of pest species and diseases. This will put additional pressure on our green spaces and street trees, which are already affected by weeds and pests.

Table 6: How we will manage our infrastructure to respond to climate change – the most likely scenario and future considerations

Response	LTP Capital Expenditure (\$m)	Impact	2013 onwards
<p>Climate change regional risk assessment and adaptation planning</p> <p>In years 1-3, our focus will be on research and planning, actions taken will include:</p> <ul style="list-style-type: none"> • A Climate Change Risk Assessment for the region. • Development of a regional adaptation plan for climate change. <p>Across years 4-10, the focus will be on adaptation plan implementation, including:</p> <ul style="list-style-type: none"> • Participating in national climate change programmes. • Incorporating Climate Change impacts into infrastructure planning and design. • Progressing climate change adaptation projects. 	Operational expenditure in the first instance.	<p>More robust climate change planning will help us identify where and what infrastructure is most vulnerable to cumulative climate change impacts and enable investment to be targeted to highest risk infrastructure. This will reduce the risk of maladaptation to climate change and increase the resilience of infrastructure. Robust planning ensures investment decisions are evidence based and future proofed as far as possible. Investment in research and development of a policy response to climate change also supports collaboration with mana whanau and significant stakeholders and development of an integrated climate response for our rohe.</p> <p>We expect that capital investment in a regional adaptation response to climate change will be an important consideration for the 2024 LTP and Infrastructure Strategy. Participating in national programmes will ensure we are able to compare nationally the extent and value of local government owned infrastructure exposed to sea level rise.</p>	<p>Future capital expenditure could include upgrading, relocating, or removing some infrastructure. New climate change adaptation projects implemented on a priority basis as funding becomes available. Some new projects may occur earlier than 2031.</p>
<p>Climate change mitigation planning</p> <p>Over the next three years our focus will be on developing a regional and/or organisational climate change mitigation plan.</p> <p>In years 4-10, we will focus on implementation of mitigation plan actions such as:</p> <ul style="list-style-type: none"> • Urban form and transport planning supports alternatives to car-use (cycling and walkway projects are identified under Issue 5). • Incorporating climate change mitigation into infrastructure planning and design. 	Operational expenditure in the first instance	<p>Urban form and transport planning supports reductions in private vehicle travel and average trip length, which in turn reduces carbon emissions. Development of a climate change mitigation plan, and associated guidance, will enable asset managers to consider the carbon footprint of activities such as construction and reduce emissions associated with infrastructure construction and operation.</p>	<p>Future capital expenditure could include projects that support decarbonising Council operations.</p>
<p>Land, rivers, coastal</p> <ul style="list-style-type: none"> • Upgrade the Waipaoa flood control scheme to 	\$33.6m	The Waipaoa flood protection scheme protects over \$1 billion of assets. The	Potential upgrades to other protection schemes to take into account impacts of

Response	LTP Capital Expenditure (\$m)	Impact	2013 onwards
<p>take into account the impacts of climate change on performance.</p> <ul style="list-style-type: none"> Regenerate natural defences and treatment systems (for example, dunes and wetlands). 		<p>upgrades will provide increased flood protection to the Poverty Bay Flats that takes into account the impacts of climate change. We have allocated additional expenditure compared to the 2018 LT P in order to complete construction by 2030.</p> <p>Natural defences protect people and places and also contribute to other values (such as biodiversity, amenity and cultural values). Looking after these natural assets will enhance ability to adapt to climate change impacts.</p>	<p>climate change. Upgrading other flood and/or erosion protection schemes will provide greater protection to assets but may also have negative impacts on environmental or cultural values.</p>
<p>Community facilities</p> <p>Relocate assets from coastal margins and rationalise coastal accessways.</p>	Primarily operational costs	Proactive relocation of coastal assets such as picnic tables, playgrounds, and public toilets to more appropriate long-term locations provides certainty for the community and limits the need for emergency works or damage to assets.	
<p>Water supply</p> <p>Water demand management</p> <p>Implement a suite of actions to manage increased demand on Gisborne City water supply sources. Over the next 10 years the focus will be on:</p> <ul style="list-style-type: none"> Ongoing education and awareness raising. Use of water restrictions if necessary. Reinstating the Sang Dam storage capacity. Introduction of domestic water metering and potentially charging to reduce peak water use. <p>In the longer term we intend to investigate and develop an alternative water source.</p> <p>We will also reduce Council's own business demands on water.</p>	\$4.5m	<p>Planning for increased pressure on Gisborne City water supply sources, including as a result of climate change, means we are able to manage water supply so that supply continues to meet demand except in exceptional circumstances.</p> <p>Metering water use, with the option of charging on the basis of consumption, will change behaviour and reduce demand. We have budgeted \$2.5m to progress this initiative.</p> <p>Reinstating the Sang Dam increases resilience to cope with dry weather events and decreases the likelihood of water restrictions, which have economic impacts. It also reduces reliance on river water sources during low flows. The forecast cost is \$2m.</p> <p>A regional water security programme may be an action that arises from the regional risk assessment and associated planning.</p>	<p>Developing a new water source and associated storage may have significant environmental, social and cultural impacts but will also provide security of supply and meet future demand.</p> <p>In the future, a more comprehensive approach to water security that addresses townships and rural land uses has the potential for significant regional benefits.</p>
Total investment	\$38m	We invest in existing and future infrastructure needs, with a focus on adapting to climate change and mitigating the impact that our activities have on carbon emissions.	

More detailed information on the climate change adaptation and mitigation actions we plan to undertake for each asset group can be found in section 4.

Key infrastructure issue 4

Building resilience: our infrastructure is vulnerable

Resilience is the ability to cope with and recover from adverse events, for example, if a road slip takes out a critical water main to a township. We can make our assets more resilient by having in place a programme of proactive renewals and maintenance works, which means assets, are in good condition. Building resilience also means we are more able to adapt to the impacts of climate change.

Resilience is not just about hard infrastructure, but also social resilience, staff retention, resourcing, and succession planning to ensure Council has the skills and resources to respond to an event. This is a significant issue for Council as it is difficult to attract and retain skilled staff to ensure business continuity of core infrastructure.

Council is planning for improvements to infrastructure resilience in the event of natural hazards and during times of maintenance or repair to ensure business continuity for Council and its residents and businesses. The road network is vulnerable to closure during adverse events and a lack of alternative routes results in economic and social disruption. Similarly, Gisborne has limited water storage, and if impacted by an event, this could have significant consequences.

Our options for managing infrastructure resilience revolve around the level of risk that the community is willing to accept. High-risk options, such as doing nothing, do not represent good asset management practice. Although 'doing nothing' would not increase our costs in the short term it will result in a decline in the condition of our assets and the level of service provided and would increase the risk of failure of, or damage to, our assets. Doing nothing will almost certainly result in increasing costs, possibly significantly, in the longer term.

Improving the resilience of all our assets is a lower risk approach as it will limit the impact of shock and stresses when adverse events do hit, but this can be expensive in the short-term due to upfront costs.

Focus area: Critical assets

The failure or under-performance of critical infrastructure (such as a wastewater treatment plant) is more likely to have a significant financial, environment, cultural and social costs than failure of a small pipe. However, the likelihood of critical assets failing is usually low provided they are maintained.

In Tairāwhiti, our critical assets are:

- Arterial roads, primary collectors, inter-regional routes and access roads to critical community infrastructure (such as water treatment plants).
- Stormwater: large-diameter pipelines and major pump stations.
- Wastewater: wastewater treatment plants, major pump stations, and large-diameter pipelines.
- Water supply: Mangapoike dams, water treatment plants, major water pumping stations, water reservoirs, Waingake bulk water main and large-diameter pipelines.
- Waipaoa and Te Karaka stopbanks.

We are moving from an age-based renewal strategy to one based on condition and risk (asset criticality and probability of failure).

Our renewals programme prioritises high risk assets. We plan to renew critical assets with a short remaining useful life over the next 10 years and undertake condition assessments on critical assets with a longer estimated remaining life (for example, the Waingake water supply pipeline). Renewal

programmes can be brought forward (or pushed out) depending on the result of the condition assessments.

More information on the condition of our infrastructure can be found in section 1.6 and Appendix 1.

Water supply

Most of the time, municipal water is readily available, and capacity is adequate to service our current and immediately foreseeable demands. However, we do experience issues during summertime droughts, when the amount of water available does not match peak demand.

The storage capacity of the Mangapoike water supply dams has been reduced by 5% due to slumping. There are no other major water storage arrangements in the region.

The current lack of storage reduces resilience to cope with dry weather events and increases the likelihood of water restrictions. It creates greater reliance on river water sources, for which there are competing uses and values. Regulatory changes, climate change and population growth will make it harder to meet demand from current core water supply sources.

Resilience could also be increased by renewing the trunk main network across the city.

Providing a second pipeline from Waingake water treatment plant to the city is not a feasible method to increase resilience due to the significant cost implications and high likelihood that the pipeline would be subject to the same natural hazards as the current pipeline.

Focus area: Flood Risk

Flooding is the most frequently experienced natural hazard in the region and the likelihood of a major flood occurring in any year is high. The other natural hazards occur less frequently but have the potential to cause significant adverse effects and pose a risk to people and property.

A comprehensive review of how we manage flood risk has been undertaken since 2018. This included assessment of:

- Council's critical flood protection infrastructure, concrete floodwalls, bridges and the Tauwhatanui detention dam.
- Waipaoa River Flood Control Scheme and climate change impacts.

The review of protection infrastructure found that:

- The Tauwhatanui Dam had reduced flood detention capacity of about 50% due to silt deposition.
- The overall condition of floodwalls in Ormond township is good. Upgrades are planned to raise and widen these stopbanks to take into account climate change impacts.
- The overall condition of Tikitiki floodwall is very good. Minor improvements were recommended to strengthen the floodwall.

The capacity of the Tauwhatanui Detention Dam was reinstated and parts of the revetment on the Taruheru and Turanganui Rivers replaced in the 2020/21 financial year.

As mentioned under issue 2 climate change, we made changes to the Waipaoa River Flood Control Scheme upgrade in 2019 to address climate change impacts.

We also have development controls in the Tairāwhiti Resource Management Plan to direct where development can happen, in turn determining where infrastructure is required. We will be undertaking a major update of these development controls, which will consider flooding and other natural hazards.

Focus area: Roading

A lack of system redundancy and susceptibility of the network to damage due to unstable terrain and the impacts of natural hazards (and climate change) increases the risk of losing community connectivity and impacting the economy.

Table 7: How we will build resilience – the most likely scenario and future considerations

Response	LTP Capital Expenditure	Impact	2031 Onwards
Land, rivers and coastal Flood risk improvement and climate change adaptation plans: <ul style="list-style-type: none"> • Patutahi township • Ormond township 	\$3.6m (excludes Waipaoa stopbank upgrades)	Scheduled maintenance of protection scheme will ensure that the current Level of service and risk management is maintained. The planned upgrades (flood risk improvement plans) will provide increased flood protection to communities that takes into account the impacts of climate change.	Consider whether further upgrades to other protection schemes are needed to take into account impacts of climate change. Upgrading other protection schemes will provide greater protection to assets, but may also have negative impacts on social, environmental or cultural values. This is especially true in the coastal environment and areas of cultural significance.
Review level of service for Te Karaka for control scheme			
Maintain other protection infrastructure: <ul style="list-style-type: none"> • Taruheru River Improvement Scheme • Te Araroa Flood Control Scheme • River erosion control schemes • Wainui Beach coastal protection 			
Also see Waipaoa River Flood Control Climate Change Resilience project (included under Issue 3).			
Risk-based planning Second generation Tairāwhiti Resource Management Plan – natural hazard provisions.	Operational expenditure in the first instance.	Knowing which infrastructure is most important allows us to manage risk well. A structured condition assessment process will validate and refine assumptions about condition and useful lives. By identifying our critical infrastructure and its condition, we can invest in renewals where it is needed most and at the right level. This avoids over investing in renewing assets that have little consequence of failure. Events that may impact the ability of for each of the critical assets are identified and planned for to limit their high impact on the community.	
Asset Management - critical asset condition assessments.			
Business continuity planning (back-up plans in the event of failure or compromise).			
Resilience included in reviews of risk management frameworks.			

Response	LTP Capital Expenditure	Impact	2031 Onwards
Asset Management practices Renewals strategy and programme.	Operational expenditure in the first instance.	Capital cost associated with renewals programme, discussed in section 4.10.	
Continued improvements to Asset Management practices to reduce the risk of asset failure.		Asset renewal and maintenance forecasts are based on the current information about the condition and the expected remaining useful life of infrastructure assets. The accuracy of asset data has a direct impact on the accuracy of renewals and maintenance forecasts and uncertainties around these costings.	
Commissioning research on natural hazards and climate change.			
Asset managers actively participate in CDEM Lifelines planning and activities.			
Roading response Local roads Route Security project.	\$28m	Completing the high priority resilience projects that form the Route Security project and other improvements included in the road resilience and climate change adaptation programme is expected to significantly decrease emergency maintenance costs and the amount of road cautions and closures.	
Road resilience and climate change adaptation programme.			
Waiapu resilience and climate change adaptation project.			
East cape route security project.			

Response	LTP Capital Expenditure	Impact	2031 Onwards
Water supply Identify an alternative water storage for Gisborne.	Future capital expenditure decision	Potential to maintain water supply to Gisborne during a disaster or event. Also means we are better placed to adapt to the impacts of climate change on water supply. See Issue 3 Climate change.	Developing a new water source and associated storage may have significant environmental, social and cultural impacts but will also provide security of supply and meet future demand.
Funding emergency works Emergency roading repair fund. Prudent management of debt means we have capacity to borrow money for emergency works. A range of insurance cover for assets.	Operational expenditure	Insurance is used where this is deemed to be the most cost-effective approach to provide financial resilience. Some assets cannot be insured, such as roads. Operational budget of about \$2m is set aside for emergency roading works. However, this is not always sufficient.	
Total investment	\$32m	Our response to resilience will help us to manage a level of service if an event should happen and enable critical infrastructure to be identified and a response known to minimise impacts on the community and access throughout the district. It also contributes to our climate change adaptation response.	

Key infrastructure issue 5

Growth: providing infrastructure that supports housing development

The National Policy Statement for Urban Development 2020 requires us to provide sufficient capacity in our infrastructure networks to meet the diverse demands of our communities over the short, medium and long-term.

Gisborne city has experienced population growth since 2018 and the population is set to increase by over 6,000 in the next 30 years⁴. There is a shortage of about 400 houses⁵ at the moment, and that is predicted to increase at current building rates. We also know that the houses that are being built are not meeting the needs of all parts of the community. Demand for smaller and more affordable dwellings is expected to increase⁶.

Increased population will mean higher peak stormwater and wastewater flows and contaminants to manage and increased demand for drinking water. We also need to make sure that people can get around the city and to schools, work and other destinations safely and in a way that supports our commitment to climate change mitigation.

There is a risk that infrastructure planning focuses on greenfield development because it involves new infrastructure. It is important that infrastructure capacity is provided to accommodate the projected increased housing density and housing preferences are monitored to ensure that any changes inform future planning.

⁴ Thomas Consulting Medium Growth Forecast.

⁵ Tairāwhiti Rau Tipu Rau Ora – COVID-19 Pandemic Response and Recovery Plan 2020

⁶ Environmental Scan 2020

Greenfield development

The reticulated services boundary established in 2013 means the location of new greenfield urban development is known. This means there is a high level of certainty about the location of new infrastructure to service greenfield growth. However, development cannot proceed until network infrastructure is provided.

Development goes in cycles and demand can vary according to a range of factors, many of which are out of Council's control. One factor we can control is the timing of new infrastructure. Having 'shovel-ready' land, where land is zoned, and network infrastructure is available can be a strong incentive for new development. This requires us to put infrastructure in place in advance of development, which comes at a cost.

While that cost is ultimately recovered at a later date (via rates or development contributions), there is a risk that we provide the infrastructure too early and face increased holding costs, or too late and discourage new development. Matching the capacity of new infrastructure with the likely activities that will occur in greenfield areas, particularly for new industrial development, can also be challenging. Oversizing infrastructure is inefficient, while undersizing means the city could miss development opportunities.

Redevelopment of existing urban areas

Tairāwhiti 2050 signals the community desire for more brownfield development; however, the capacity of network infrastructure (particularly wastewater) is already constraining the ability to provide more housing in some residential areas. This limits the ability to provide for affordable housing in close proximity to existing amenities and services and may also limit the development of business land.

The assumption is that over the next three-years, most new houses will be infill or brownfield developments in the existing urban area and the balance rural-lifestyle development. Significant development at Tarheru and other greenfield sites cannot proceed until new infrastructure is in place.

Active Transport and access challenges

Ongoing challenges of access and competing modes of transport make it difficult to provide sustainable and inclusive transport options.

We have made good progress with off-road walking and cycling facilities, including completion of the Wainui Stage 2 link in 2019 and generally have good footpath coverage. However, we need to consider how we treat and prioritise space for pedestrians and cyclists at pinch points, intersections and crossings within existing transport corridors, particularly as existing urban areas are intensified. Street design, way finding and planning need to allow for the space and safety needs of cyclists and pedestrians.

Table 8: How we will manage our infrastructure to support housing development – the most likely scenario and future considerations

Response	LTP Capital expenditure (\$m)	Impact	2024 onwards
Growth planning <ul style="list-style-type: none"> Have a clear strategic framework that directs where growth will occur and align infrastructure planning with this direction. Support redevelopment/upzoning by provision of infrastructure and corresponding changes to the TRMP (such as structure planning). 	Operational expenditure required.	Current RMA planning for growth is largely limited to the Taruheru Block. Proceeding with infrastructure projects in this area will provide additional development ready land; however, this will not be sufficient to meet medium-long term demand or the current demand for community housing.	A strong focus on growth planning in the first 1-2 years of the LTP (aligned with the TRMP review) will inform infrastructure decisions needed in the next LTP, such as actions needed to increase current infrastructure capacity and where/whether the reticulated network should be extended.
Taruheru growth projects – see table 9 .	\$18m	<p>Updated cost estimates indicate that the cost of providing development infrastructure at Taruheru may be significantly more than forecast for the 2018 LTP.</p> <p>This changes to the growth projects allow for increased construction costs, additional emergency storage in wastewater designs and new roading projects included for years 9 and 10.</p>	
Other urban growth projects	\$5.6m	Increased capacity in the urban wastewater and stormwater network to provide for growth.	
Water supply Increasing water supply flow to Gisborne City.	\$1.8m	<p>Increasing water supply flows will reduce the times when demand exceeds supply.</p> <p>Capital investment is needed at treatment plants to increase the volumes of treated water, plus an additional booster pump to increase flows into the city.</p> <p>This option best ensures the potential to service residential growth and any additional industry or new reticulated areas.</p>	Whether and when to provide municipal water supply to additional communities, and implications for the current system, will be considered as part of the growth planning project.

Response	LTP Capital expenditure (\$m)	Impact	2024 onwards
Access projects – improving walking & cycling options <ul style="list-style-type: none"> Childers Road widening Minor improvements Taruheru River Walking and Cycleway Uawa Walking and Cycleway Developing a Tairāwhiti Walking and Cycling Network Plan 	\$12m	<p>Two new walking and cycleways will be created – Taruheru (total budget of \$7.4m) and Uawa (total budget of \$0.8m – this is operational expenditure).</p> <p>In addition, around \$0.5m a year (\$4.6m in total) is budgeted for minor improvements to the network to improve current walking and cycling routes. \$0.4m is included in the 2021 LTP to start Childers Road widening.</p> <p>About \$0.9m operational expenditure is budgeted to undertake development of a Tairāwhiti Walking and Cycling Network Plan. This will include detailed design plans and route prioritisation.</p> <p>These projects reduce reliance on the car as a means of transport. This reduces congestion and carbon emissions and offers increased mobility for people who are unable or unwilling to drive a car.</p> <p>Significant contribution to city liveability scores.</p> <p>Health benefits associated with increased use of active transport.</p>	Majority of Childers Road project expenditure (\$2.6m) is in year 11.
Total investment	\$37m	Growth planning over the next three years will inform decision-making and budget for the 2024 LTP. In the meantime, we will progress infrastructure development at Taruheru Block, improvements to the existing active transport network and increase water supply flows to the city.	

Development Capacity – Significant Capital Expenditure Decision – 2021

Providing infrastructure at Taruheru to support development of land for housing

The Taruheru Block is our largest area of undeveloped residential land. We use a structure plan and rules in the Tairāwhiti Resource Management Plan to help to coordinate infrastructure across multiple properties.

We plan to provide the infrastructure projects in Table 9 to support development of the block. These will be funded using development contributions and the national land transport fund (for roading projects).

Two roading projects have been completed and are not listed – Ruth Street capacity upgrade and the road link between Potae Avenue and Nelson Street. Some water and wastewater projects were not undertaken as quickly as forecast in the 2018 LTP because no large-scale development was planned or occurring. Due to the current demand for housing and corresponding increase in house prices, we expect this situation will change in the near future.

In some instances, the costs have increased significantly compared to the 2018 LTP as we now have a better idea of the extent of work needed. For example, additional storage has been incorporated at pump stations to reduce the risk of wastewater overflows and new roading projects have been added to address anticipated access and efficiency issues at key intersections, as a result of additional traffic movements. In part, these roading projects are now affordable due to the availability of national land transport programme funding.

Table 9: Capital Projects to support Taruheru Block Development

Projects		2021 LTP timeframes	2021 LTP costs
Roading & footpaths	Taruheru – improvements to surrounding area	Years 6-9	\$1,668,150
	New bridge – Nelson Road to Main Road (Makaraka)	Years 7-8	\$2,892,500
	New road link – Nelson to Main Road (Makaraka)	Years 7-8	\$1,619,800
	Cameron Road and other Taruheru Block links	Years 5-10	\$888,370
Wastewater	Campion Road pump station and rising main	Years 5-7	\$3,964,025
	Moss Road pump station and rising main	Years 6-7	\$1,420,430
	Cameron Road pump station and rising main	Years 7-8	\$1,372,774
Water	Staged programme of improvements including ring-maining around the block (year 5) and contribution to water reticulation network	Years 5-10	\$1,897,678
Stormwater	Stormwater infrastructure to be confirmed through structure plan	Years 2-3	\$1,087,443
Reserves	Taruheru Reserve improvements	Years 3-6	\$374,202
Reserves	Land purchases – Taruheru Block	Year 2	\$446,409
Total			About \$18m

Key infrastructure issue 6

Supporting economic growth

Our economy is, heavily structured around primary industry, which is sensitive to external factors such as the capability of the roading network, flooding and droughts and the availability of water resource.

Ongoing investment in core infrastructure (such as transport, water and wastewater) will be required to support economic growth and development, for example a significant increase in high-value tourism, domestic wood processing at Matawhero, honey processing or medicinal cannabis production.

Example: About 250 hectares of land zoned industrial at Matawhero is vacant or used for cropping. Trust Tairāwhiti is promoting investment in wood processing in the region and has identified Matawhero as a potential location for additional wood processing facilities.

Development of this land may place additional demands on our roading and three waters infrastructure and raise expectations with regard to flood management.

Conversely, land use change associated with development can impact our infrastructure and reduce the levels of service our residents and ratepayers expect.

Investment included in the 2021 LTP supports roading, active transport, township upgrades and water security. Other projects were considered but not funded in the 2021 LTP due to affordability

constraints. These are additional infrastructure projects to support CBD revitalisation, additional investment in community facilities to support development of an authentic East Coast road journey and expanding Tairāwhiti Navigations. Additional projects (such as CBD revitalisation) may be progressed, in consultation with the community, if external funding becomes available.

Roading

Parts of the transport system are not meeting expected levels of service, which limits opportunities for improved economic and community connectivity. For example, 70 of the region's 101 bridges on roads used by forestry are not High Productivity Motor Vehicle (HPMV) capable. Strengthening these bridges is costly. It is also not affordable to maintain sealed roads on some parts of the network.

Forestry is the largest industry in Tairāwhiti and still growing. Projected volumes of forestry harvest in Tairāwhiti are still increasing, which will increase the number of heavy vehicle movements on the local road network.

A 2019 review of regional log availability (Forme Forest Industry Consultants, 2019) estimates that the total harvest will average about 3.50 – 3.90 million cubic metres per year between 2019 and 2028, providing infrastructure meets demands and there is a competitive market. Volumes are not expected to decrease until 2039-2043.

We face challenges around managing the impacts of forestry and logging, including the impact of heavy vehicles on local, often unsealed roads and conflict between vulnerable road users and heavy vehicles when freight routes pass through town centres.

Water security

The availability and quality of water constrains our economic development. This is a particular issue for whenua Māori. Across the Turanga (Poverty Bay) flats, most water resources are over or fully allocated with little capacity for additional irrigation available. Demand for water for crop irrigation on the Poverty Bay Flats remains strong and is expected to increase. With climate change and increased demand, more frequent water restrictions are likely, which has implications for social well-being, industry and economy.

Table 10: How we will manage our infrastructure to support economic growth – the most likely scenario and future considerations

Response	LTP Capital expenditure (\$m)	Impact
<p>Develop a water security and resilience programme that considers:</p> <ul style="list-style-type: none"> • Current and projected water availability and demand • Current and proposed water storage and water supply work • Managed aquifer recharge • Use of recycled water (treated wastewater) • Freshwater planning and Te Mana o Te Wai • Impacts of climate change • Three waters reform (where relevant). 	Operational expenditure	Water security and resilience is fundamental to the economic future and productivity of the Poverty Bay Flats and beyond. The water security and resilience programme will consider the range of interconnected opportunities such as MAR and use of recycled water, changes to freshwater limits and allocation frameworks, water storage, development of whenua Maori, and land use change to high-water crops. Climate change implications will also be a key consideration.
<p>Investigating and implementing options to improve the availability of water for Irrigation and commercial use:</p> <ul style="list-style-type: none"> • Develop a tool kit resource to help businesses plan to invest in water-capture-and-reuse, or water-capture and-on-sell processes for non-potable purposes. • Use of treated wastewater for irrigation. 	Operational expenditure	Developing a commercial use for wastewater treated to a high standard will alleviate pressure on current freshwater resources and provide a driver to reduce (or remove) wastewater discharges via the ocean outfall. This is consistent with the clearly stated views of mana whenua. Receipt of external funding will enable this project to be accelerated.
Targeted investment in transport upgrades to support industry, particularly freight movement – such as 50max bridge and culvert upgrades.	\$7.1m	<p>Upgrading bridges to cater for heavier loads will reduce costs for the forestry industry and other sectors that rely on heavy vehicles to transport goods (such as agriculture and horticulture).</p> <p>The planned capital investment is 100% funded by central government via the PGF and National Land Transport Fund (NLTF), which limits impacts on ratepayers.</p> <p>Ongoing maintenance costs are funded by ratepayers and the NLTF. Forestry pays a higher differential than other users to account for the additional wear and tear caused by logging trucks using the roading network. This differential was increased in the 2021 Revenue and Financing Policy review.</p>
Assess potential land use change and impacts on infrastructure as part of the review of the Tairāwhiti Resource Management Plan.	Operational expenditure	Ensure that the future impacts of zoning changes are considered and incorporated in asset management planning, as well as funding mechanisms to support upgrades to existing infrastructure.
Total investment		\$7m

Key Infrastructure issue 7

Affordability

The infrastructure we own represents significant historic investment and a significant investment in the future. Providing infrastructure is our biggest area of activity. The majority of our funding is spent on planned infrastructure projects and programmes in order to meet agreed levels of service.

Our infrastructure is ageing, and we need to make significant investment in three waters (drinking water, wastewater and stormwater), land transport and other infrastructure during the next 30 years to manage the effects of climate change and other challenges and meet the expectations and needs of our communities.

Older assets may also no longer be fit for purpose - they may no longer meet the needs of users, provide for adaptation to climate change, be legislatively compliant or they may contain technology that is no longer supported. These older assets may not be easy to adapt to the changing future needs of the community – additional capacity and increased resilience cannot be simply added to most assets.

The upgrade or addition of new assets to improve resilience or to support growth in the region and other service level demands, will add further to our costs. Deferring or reducing expenditure on assets now, will increase our cost burden in the future and increase the risk of asset failure and shortening the life of the asset.

As Gisborne city grows and ages, there is an increasing amount of infrastructure to renew. The current generation must pay for the renewal of all previously established infrastructure. Future generations will pay for the renewal of all previously established infrastructure and any new infrastructure yet to be established.

The way we develop new infrastructure to support the growth of the city will affect the amount of renewals we face in the future. For example, brownfield redevelopment and making use of existing infrastructure by changing planning rules can be more efficient than new greenfield infrastructure and expanding existing networks.

The proportion of the population aged over 65 is projected to increase more rapidly than other age groups. This has an impact on affordability, as those on fixed incomes (such as retirees) are generally more impacted by rates increases. Although employment levels are increasing in Tairāwhiti, salaries remain lower than other regions and house prices have risen significantly, which impacts the ability of some residents to pay rates.

Ageing infrastructure - keeping up with renewals is expensive

Some of the region's assets will reach the end of their forecast life during the term of this strategy. As an asset nears the end of its life, there is an increased chance of asset failure resulting in reduced levels of service. Costs tend to escalate towards the end of an asset's life, as repairs and maintenance activity increases to keep the asset in service.

Renewal or replacement of ageing assets is an issue for most asset groups; however, the renewals with the most significant financial impact during the term of this strategy are roading assets.

Despite increased expenditure on roading in the 2018 LTP and additional investment from central government via the PGF, investment has still fallen short of what is needed to maintain the entirety of the roading network to expected levels of service. About 80% of the proposed capital expenditure for roading and footpaths relates to maintaining the existing road network – primarily road renewals and pavement maintenance. However, if optimal asset amendment was adopted,

the estimated roading maintenance and renewal requirements would be about \$160 million more than has been included in the 2021-2031 LTP forecast (across capital and operational expenditure). This is not affordable for Council or Waka Kotahi.

More information on our approach to renewals is contained in section 4.10.

The key affordability pressures we face are:

- Roothing network – renewing assets and supporting economic growth.
- Upgrading ageing sports and recreation facilities.
- Urban infrastructure to support residential growth.
- Investment in the resilience of our asset groups and services, so that the region is better able to withstand and recover from major shocks and stresses and adapt to climate change.
- Upgrades to three waters infrastructure to meet current commitments, changing expectations and new requirements.

Table 11: How we will manage our infrastructure within our financial limits – the most likely scenario

Response	Impact
Financial Strategy <ul style="list-style-type: none"> Increasing the debt limit to 130% of revenue. Identify alternative funding sources available. The timing and scope of projects have been optimised. 	<p>Increasing the current debt limit allows us to respond to expectations from central government and our communities by investing in renewals and upgrades to key infrastructure (such as wastewater), whilst keeping our liabilities at a financially prudent level.</p> <p>A broad spread of funding sources outside of rates and loans will enable us to maintain current levels of service delivery without unacceptable impacts on ratepayers.</p> <p>Optimising the timing of projects allows us to balance cost pressures, limit the rates increase, and maintain a healthy balance sheet.</p>
Service delivery <ul style="list-style-type: none"> Review levels of service and community feedback to identify whether Council is over-delivering in any areas. Explore different forms of service delivery. 	<p>Changing service delivery, which could include a change in levels of service, can reduce operational costs and the capital costs associated with renewing infrastructure.</p> <p>Community consultation will be required before a decision to change any existing levels of service is made. This will ensure that potential impacts on residents and businesses are understood and taken into account.</p>
Partnerships <ul style="list-style-type: none"> Build stronger relationships with Waka Kotahi, Kāinga Ora and other agencies. 	<p>Enables Waka Kotahi to understand the importance of the subsidy for the delivery of services and Council can better understand the allocation of subsidy process and signal potential impacts early on.</p> <p>Advocate to government for funding support for infrastructure to service growth and alternative funding sources.</p> <p>Ensure efficient delivery and joint funding opportunities.</p>
Asset management <ul style="list-style-type: none"> Continue to improve asset management planning Limit extension of infrastructure unless we are confident future generations can afford renewals 	<p>Asset renewal and maintenance forecasts are based on the current information about the condition and the expected remaining useful life of infrastructure assets. The accuracy of asset data has a direct impact on the accuracy of renewals and maintenance forecasts and uncertainties around these costings.</p> <p>Significant work remains to capture information about some asset classes. Information on the condition of our asset base will improve over the life of the LTP, which will make our asset renewal and maintenance forecasts more robust.</p>
Roading <ul style="list-style-type: none"> Renewal budgets of \$12.5m to \$16.2m per year (on average \$14.0m per year). Roothing network is maintained to similar levels to 2018-2028 LTP, including the cost of inflation to overall costs. Reprioritise investment so more is spent on road drainage and less on pavement renewals. 	<p>The strategy for years 1-3 is to slow overall pavement deterioration and target resources at building and maintaining resilience within the network. Actions will be implemented to maintain safe access across the network at the lowest cost. Assets that are starting to deteriorate will have intervention strategies to increase pavement life expectancy and reduce whole of life costs. Ongoing monitoring of the network will be important to ensure intervention (repairs and renewal) occurs before assets fail, otherwise we will incur higher costs in the future.</p> <p>This approach reflects the significant PGF investment in the unsealed network and will improve overall road condition and increase the benefit return on investment over the long-term.</p> <p>In the long-term, the overall network condition will decrease in performance and there will be an increase in severity of pavement defects. In targeted sections, it will be increasingly viable to revert sealed section to un-sealed as the maintenance and renewal costs become increasingly unaffordable.</p>
Three Waters Renewals budget reflects good asset management renewal practices (risk-based approach).	<p>Sufficient budget is available to undertake the recommended renewals for Three Waters assets. Renewals are prioritised using a risk-based approach and we will increase our use of condition assessments. This will maintain the agreed level of service and provides some resilience.</p>

Council's response to affordability will help it to deliver infrastructure and appropriate levels of service in a way that maximises alternative funding sources to deliver value to ratepayers. It will help Council to understand community priorities in the planning and funding of its infrastructure.

2.3 External Factors

There are external factors that will impact how we deliver infrastructure in the future. Although these factors are generally beyond our control, it is important we monitor and respond to changes to ensure our infrastructure plans take advantage of new opportunities and remain fit for purpose.

The external factors are:

- Climate change – see discussion under key infrastructure issue 3
- COVID-19
- Three waters reform
- Other changes to legislation and national direction
- Macro-economic and global political factors that may affect input prices, migration and the availability of resources

Response to COVID-19

Economic forecasts suggest that the Tairāwhiti economy will be relatively resilient to medium-long term impacts of COVID-19. However, in the short-term, there will be impacts on central and local government income (and ability to invest in infrastructure) and some ratepayers may find it harder to pay their rates.

Waka Kotahi has identified that maintaining safe and reliable transport connections to Eastland Port and to Hawke's Bay and Bay of Plenty will be critical to supporting the region's economic recovery.

Rau Tipu Rau Ora sets out the plan and actions to support Tairāwhiti as we recover from the effects of COVID-19. It draws on the community outcomes and aspirations articulated in Tairāwhiti 2050 and the economic aspirations and priorities in the Tairāwhiti Economic Action Plan, but also identifies some new priorities.

Key initiatives of direct relevance to the Infrastructure Strategy are:

- New and affordable homes - develop a housing taskforce and programme to build 400 new and affordable homes in our region in conjunction with Kāinga Ora, local iwi, building suppliers and developers. This may have implications for infrastructure (particularly wastewater). In the first instance, we expect operational cost implications as staff time, will be needed to support and facilitate this programme and undertake the growth planning required to inform the TRMP review and infrastructure planning.
- Tourism focus – whilst Council is not listed as a partner, the actions seeking to grow tourism along the East Coast may have future implications in terms of expectations regarding the services provided such as play-spaces, public conveniences, signage, streetscape/amenity, summer camping facilities and roading. This could have future operational and capital expenditure implications. We have included the following capital projects in the 2021 LTP: township upgrades (\$7m) and Tokomaru Wharf toilet (\$0.2m). Any new projects will require community consultation, and if there are financial implications these will be considered during future Annual Plan or LTP processes.
- Nature-based employment projects in partnership with iwi, conservation organisations and local agri-business. Our showcase piece is the revegetation project at Waingake, planned to

protect the city's water pipeline, but also creating jobs and stimulating the local economy. The capital investment planned for the 2021 LTP is just under \$18m.

- Water security – development of a regional water storage scheme and investment in three waters services for townships.

Government provided funding to two of our infrastructure projects via the COVID-19 Response and Recovery Fund:

- Olympic Pool Complex.
- Waipaoa River Flood Control Climate Change Resilience project.

Another \$11m has been provided through the Three Waters post-COVID-19 stimulus package. This funding will be spent on the following projects:

- \$7.5m towards the Wastewater Treatment Plant Upgrade.
- \$250k for developing the options for the water amalgamation and governance structures.
- \$3.3m option for implementation of water supply at Ruatoria physical works and Muriwai top-up supply.

Three Waters reform programme

We are in the initial stages of the Three Waters reform programme. In July 2020, a standalone Crown entity Taumata Arowai was created to regulate drinking water and provide oversight and advice on wastewater and stormwater management. Taumata Arowai will not become fully operational until enactment of the Water Services Bill.

The initial focus of the Water Services Bill is on drinking water. Wastewater and stormwater functions will not come into effect until 2023. The Bill proposes to remove the reasonableness provisions in the Health Act, which means affordability will no longer be a reason for not undertaking work required to meet the Drinking Water Standards. A range of comprehensive regulatory tools is also being considered.

Water safety plans will need to transition into the new regime within the first year. Assuming the Bill is passed into law, our plans will need to be reviewed and updated by 30 June 2022.

Along with every other eligible council in New Zealand, we have signed up to the first stage of the Three Waters Reform programme that Government is progressing at pace. We signed a Memorandum of Understanding and a Delivery Plan has been approved by the Department of Internal Affairs. The first half of the stage one funding (\$5.5 million plus GST) has been received.

Given the current uncertainty, we have planned based on the status quo for the 2021 LTP and Infrastructure Strategy. We expect this will change for the 2024 LTP and Infrastructure Strategy.

An emerging issue is the extent to which our smaller rural and coastal communities are willing or able to pay for the increased costs associated with receiving an increased level of service, for example if we provide an augmented drinking water top-up service.

Changing legislation and national direction

Legislative changes, National Policy Statements, National Environmental Standards, and changes to the rules in the Tairāwhiti Resource Management Plan may require significant changes to the way we plan, manage and fund our infrastructure. Proposals are currently being developed or considered by Government that may directly impact:

- Water supply
- Wastewater
- Stormwater
- Waste management

We are keeping a watching brief on legislative, policy and regulator change that impact on our core assets to ensure we understand and can plan for changes that impact on the way we deliver our infrastructure.

Council's response to legislation change will enable it to understand timing implications for change and prioritise its responses. It will enable Council to understand the potential impacts on asset and financial modelling and prioritise funding. It will ensure that Council identifies the critical components of its infrastructure networks and prioritises renewals. It will also enable Council to have strong relationships with key government departments and industry groups to ensure that it has the opportunity to communicate potential impacts on the district and identify alternative options to help inform legislative and policy direction.

Table 12: Summary of our response to legislative changes

Response	Impact
Plan and budget on the basis of increased costs to meet legislative change. Routinely review service delivery models.	<p>Early financial modelling of potential cost scenarios will better enable Council to understand the potential impacts on rates and if necessary, identify alternative funding sources to manage these costs.</p> <p>Ensures renewals planning and budgets factor in increased compliance costs.</p> <p>Enables early engagement with the community around costs and potential impacts on levels of service.</p>
Manage relationships with key industry partners and government departments.	<p>This will help Council to ensure up to date information is used to inform early planning.</p> <p>Relationships will better enable Council to ensure it is able to communicate potential impacts on the district and its ratepayers early on and help inform the development of legislation and policy as it relates to smaller rural councils.</p>

2.3.4 Technological Advancements

Technology can have a large impact on the type and timing of infrastructure required. It can also be used, to help deliver services differently and alter what infrastructure is required.

Managing infrastructure systems in a smarter way could reduce the need to construct new assets in the face of increasing demand. Also, technology can increase the effective capacity of our infrastructure, reduce maintenance and operating costs and improve reliability and safety.

New technology may increase the demand for certain infrastructure, redefine how we use infrastructure, or even lead to an entirely new infrastructure system. This would need to be supported by an accessible and sustainable charging infrastructure system.

Council's planning for technological change is driven through:

- New technologies being incorporated into relevant Activity Management Plans as part of their 3-yearly review.

Wāhanga 3: Ngā whakataua hiranga o te hanganga

Section 3: Significant Infrastructure Decisions

We are only required to identify significant decisions about capital expenditure. However, we have taken a wider approach and listed decisions that may be significant for other reasons, such as the level of public interest or impacts on individuals or communities.

Section 1 describes our progress implementing the significant decisions we made as part of the 2018 LTP process.

We have also thought about future decisions we will need to make about the management of our infrastructure. We have identified a greater number of decisions in the short term than the long term because we become less confident the further we look into the future.

Information about the principal options and the scale of the capital costs is summarised. Refer to sections 2 and 4 for more information. The Regional Land Transport Plan (RLTP) contains more detail on the roading and footpath projects.

NLTF = National Land Transport Fund

PGF = Provincial Growth Fund

3.1. Key decisions made as part of developing the 2021-2031 Long Term Plan and 2021 Regional Land Transport Plan

Table 13: Decisions made as part of developing the 2021 Long Term Plan and 2021 Regional Land Transport Plan

Key Decision	Comment	Capital cost for 2021 LTP (10-year costs unless specified)	Significant Capital Investment Decision?
Roading and footpaths			
What to invest and over how long to improve suitability of roads for heavy vehicles.	This was addressed via the business cases prepared to access external funding. The majority of work is complete and was externally funded by the PGF and NLTF. Some 50max bridge and culvert upgrades are outstanding and will be funded by GDC and the NLTF.	\$7.1m Funded by GDC/NLTF	Yes
Road safety projects	Projects that contribute toward achieving Road to Zero including school safety projects, speed management implementation, and intersection improvements). LED street light upgrades.	\$9.2m Funded by GDC/NLTF	No, reflects central government priority

Key Decision	Comment	Capital cost for 2021 LTP (10-year costs unless specified)	Significant Capital Investment Decision?
Resilience and climate change adaptation projects	Route security projects Priority projects identified by Business Case.	\$3.7m funded by NLTF	No, but high public interest
	Waiapu resilience and climate change adaptation	\$6.9m funded by GDC/NLTF	No, but high public interest
	Resilience and climate change adaptation improvements	\$7.3m funded by GDC/NLTF	No, but high public interest
	East Cape route security project	\$10m funded by NLTF	No, but high public interest
Approach to renewals for the roading network	We have adopted a renewals budget that is similar to the 2018 LTP; however, investment is reprioritised so more is spent on road drainage and less on pavement renewals.	\$160m Funded by GDC/NLTF \$140m of this is specifically on roading renewals.	Yes
Access projects – improving walking & cycling options	Childers Road widening	\$3.0m (in years 10 and 11) Funded by GDC/NLTF	High public interest
	Minor improvements	\$4.6m Funded by GDC/NLTF	
	Taruheru Cycleway project	\$7.4m Funded by GDC/NLTF	
	Uawa Cycleway project	\$0.8m Funded by GDC/NLTF	
	Tairāwhiti Walking and Cycling Network Plan	\$0.9m Funded by GDC/NLTF	
Wastewater			
What Te Karaka wastewater treatment and disposal option to progress.	A constructed wastewater wetland on land around the existing oxidation pond will be progressed from 2023.	\$1.0m* Funded by GDC	No
When to progress Stage 3 of the Gisborne WWTP upgrade	Progress a land-based disposal system (wetland) from 2028 onwards. Planned completion date is 2034.	\$2.6m Additional expenditure of \$20-30m required after 2031* Funded by GDC/external grants	Yes
Mortuary Drain Waste Field	Capital works to remove mortuary waste from the main wastewater stream will be progressed in 2022.	\$0.2m Funded by GDC	Not significant expenditure but of high significance to mana whenua.

*Forecast budgets and will be refined and consulted on as part of future LTP processes, along with implications for operating expenses and rates

Key Decision	Comment	Capital cost for 2021 LTP (10-year costs unless specified)	Significant Capital Investment Decision?
Water supply			
Whether to reinstate the Sang Dam to its original storage capacity/ increased capacity.	Reinstate original dam capacity in 2025-2027.	\$2.0m Funded by GDC	Yes
Whether to progress water metering and charging	Progress residential water metering from 2028. <i>A decision on charging will be made in future LTP.</i>	\$2.5m Funded by GDC	Yes
Other options to manage demand	Increase flows to the city by installing a new booster station.	\$1.8m Funded by GDC	Yes
When to install UV treatment at Waingake water treatment plant	UV treatment will be installed in year 11. Drinking water standards will be maintained in the interim – higher use of Waipaoa water may be required.	\$1.3m (in year 11) Funded by GDC	
Waingake Restoration project	Progressive programme of reversion of land in the water supply catchment to native forest, using managed reversion.	\$17.9m Funded by GDC/external grants	Yes
Stormwater			
Implementation of Integrated stormwater catchment plans.	Small budget to undertake capital works to improve water quality.	\$0.2m Funded by GDC	No, but water quality is of high importance to the community and mana whenua
Land, Rivers and Coastal			
Construction timeframe for the Waipaoa River Flood Control Scheme climate change resilience upgrades	Complete construction by 2030. This means that debt will increase during the 2021 LTP but remain within financial limits. This approach limits costs due to inflation.	\$33.6m Funded by GDC/COVID-19 recovery stimulus grant	Yes
Solid waste			
Historic landfill remediation	Budget to undertake remediation and protection works	\$0.6m Funded by GDC	No, but high interest to mana whenua and the community
Waiapu landfill	Landfill consents expire in 2025 – budget allowed to implement chosen option.	\$0.5m Funded by GDC	No, but high interest to mana whenua and the community. Consultation on the future of the facility is ongoing.
Paokahu closed landfill	Works to improve landfill management	\$0.1m Funded by GDC	No, but high significance to mana whenua
Housing development			
Growth projects at Taruheru Block	Infrastructure projects that support residential development of the Taruheru Block.	\$18m Funded by GDC/NLTF	Yes

3.2 Future significant infrastructure decisions

Table 14: Significant infrastructure decisions we expect to make in the future

Key Decision	Indicative Timeframe	Principal Options	Scale of capital costs	Significant Capital Investment Decision?
Council's involvement in the Managed Aquifer Recharge (MAR) Project	2024 LTP	Various options ranging from Council having a regulatory role, to Council designing, building, operating and regulating a MAR scheme.	\$1m to tens of \$m.	Yes
Development of the charging policy for metered water, in order to encourage a reduction in demand.	2024 LTP	Whether to charge; charge by volume; charge high users above allocated volume; and many other variations.	Operational cost of developing options for Council and community to consider	No
Further actions to reduce wastewater overflows	2024 LTP	Various options for consideration, which will be guided by outcome of the current resource consent process.	\$1m to tens of \$m.	Yes
Additional development infrastructure needed to support residential growth	2024 LTP	Various options for consideration: Increase existing capacity (interceptor upgrades, larger pipe, new or upgraded pump stations); extend the current network; timing and funding of growth-related projects.	Tens of \$m.	Yes
Review of Water and Sanitary Services. Services to be provided to support rural communities access safe and affordable water. Water and wastewater services to be provided to Wainui and Makaraka.	Year 7 (2027/2028)	Public water sources and reticulation schemes – various options for reticulation; education and information support; financial or management support for private systems. Options will be informed by the outcomes of the Three Waters reform programme.	Generally, tens of \$ thousands but with reticulation options costing up to tens of \$m for some communities.	Yes
Further actions to reduce the environmental impact of stormwater discharges	Year 11-21 (2031/2032)	Various treatment options possible.	\$1m to tens of \$m.	Yes

Key Decision	Indicative Timeframe	Principal Options	Scale of capital costs	Significant Capital Investment Decision?
Whether to progress capital upgrades to meet demand at peak times (increase water flows into the city /additional storage).	Years 8-22 (2028-2043)	Do nothing; water treatment plant and reticulation upgrades; additional reservoir.	\$10- 15m	Yes
Whether to progress an additional water source for the municipal water supply (with the potential for this also to be used for irrigation).	Years 21-25 (2042-2046)	Do nothing/delay; new dam; potential to combine with irrigation scheme.	Tens of \$m	Yes.
Whether to pursue additional capital works to protect communities from coastal hazards, particularly coastal flooding and tsunami.	Years 13-27 (2034-2048)	Do nothing; coastal flooding and tsunami barriers; evacuation structures.	Tens of \$m	Yes

Wāhanga 4: Tō Tātau Mahere Hanganga

Section 4: Our Infrastructure Plan

This section provides an overview of Council's infrastructure assets and how, we intend to manage them over the next 30 years.

4.1 Most likely scenario for managing our infrastructure

This strategy provides an overview of the most likely scenario for the management of our infrastructure. This scenario has been developed by:

- Including the funded capital and operating budget forecasts from the 2021-2031 LTP.
- Identifying projects through development of the LTP that are unable to fit within the financial provisions set by the Financial Strategy. These projects are assumed, to be required in the future and this is reflected in the Infrastructure Strategy.
- Using the significant forecasting assumptions contained in Appendix 2 of this strategy.
- Using the assumptions for levels of service, demand and renewals outlined in Appendix 3 of this strategy.
- The preferred options for the significant capital decisions summarised in section 3 of this strategy are included in the LTP budget (where applicable).
- The estimates are consistent with the most likely scenarios identified for each significant infrastructure issue.

The plans and forecasts for the first three years have the most detail and confidence as the greatest amount of planning has taken place. The investments identified in years four to ten are an outline and have a reasonable degree of confidence.

Responding to changing standards

Recent experience and future forecasts indicate that costs associated with complying with required standards are sizeable and significantly more than inflation. This is particularly the case in relation to:

- Renewal of resource consents and compliance with TRMP and national resource management direction
- Drinking water standards
- Three waters reform

There are both capital and operating impacts from increasing compliance. The budget forecasts in the LTP and timing and scale of significant decisions in this Strategy have been, built on current legislation and known changes to standards that are expected. There has been no allowance for standards, that will change where there is currently no indication about the implications of the new standards.

Planning and forecasting beyond 2031

The forecasts beyond 2031 (year 10) are indicative estimates and will be developed further as more information is obtained. There is a high likelihood that these estimates will change over time to reflect:

- Changes in assumed growth rates

- Changes to standards and compliance requirements
- New technologies and options for provision of infrastructure
- New models for the funding and delivery of infrastructure (these may include the Council not funding and/or owning infrastructure)
- Greater certainty about the nature and timing of the projects that are required
- Affordability and ability of Council and contractors to deliver the programme

We will consider the appropriate approach to funding and managing infrastructure as part of developing future LTP.

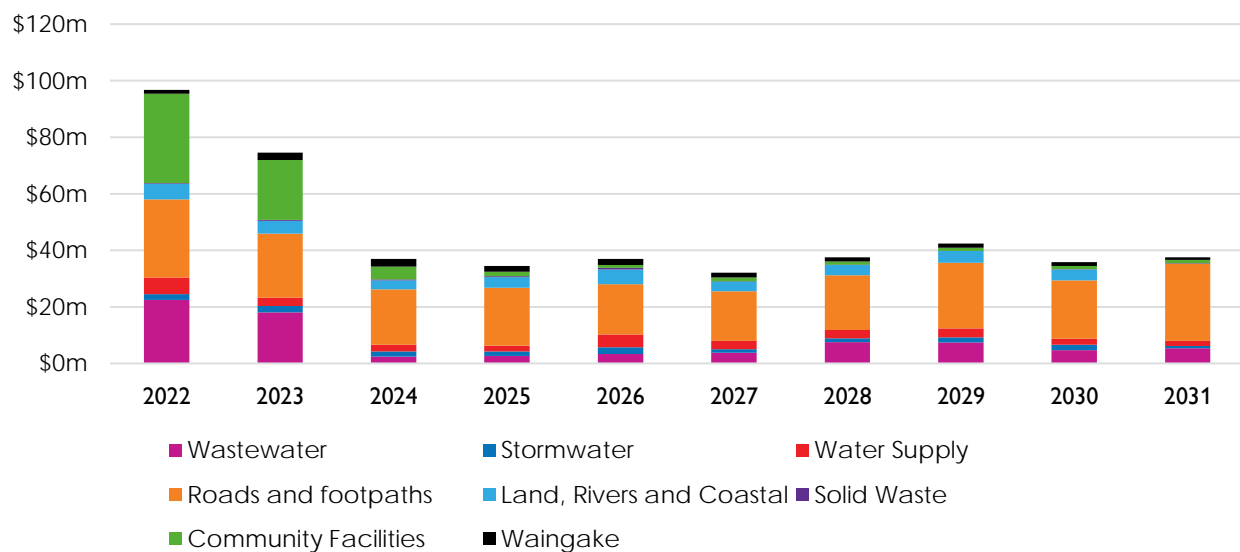
4.2 Overview of forecast expenditure

Capital expenditure

Capital expenditure is what we spend on upgrading, renewing, or building new assets. The estimated requirement for capital investment over the next 30 years has been prepared and is shown in figures 4 and 5. How this investment affects current levels of service is shown in figure 5.

Figure 4: The capital expenditure we have forecast for each asset group for the next 10 years.

What we plan to spend on our infrastructure over the next 10 years (inflated)



The forecast expenditure is higher than historical expenditure, especially in the first two years. The most significant driver of this additional expenditure is the investment needed to redevelop the Olympic Pool complex and complete the Gisborne wastewater, treatment plant upgrade. The majority of the Olympic Pool project and some of the wastewater upgrade project, is being funded through COVID-19 recovery funding. Both these projects increase the levels of service we provide to the community.

Figure 5: The capital expenditure we have forecast for each asset group for from 2032 (year 11) onwards. We expect these will change in future LTP as we develop more detail on future capital projects and how much they will cost.

What we plan to spend on our infrastructure in years 11-30 (inflated)

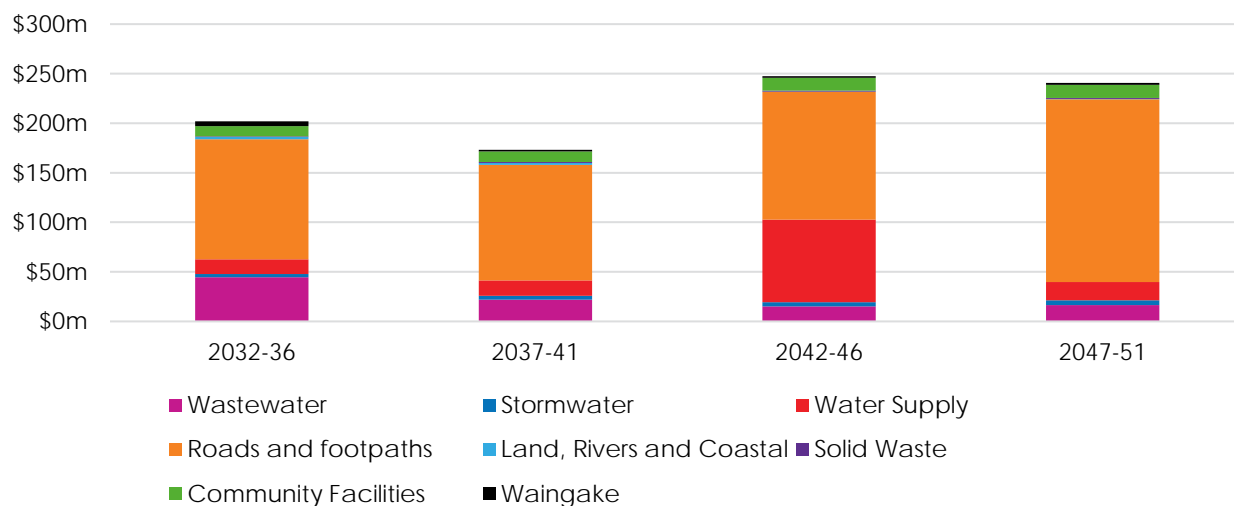
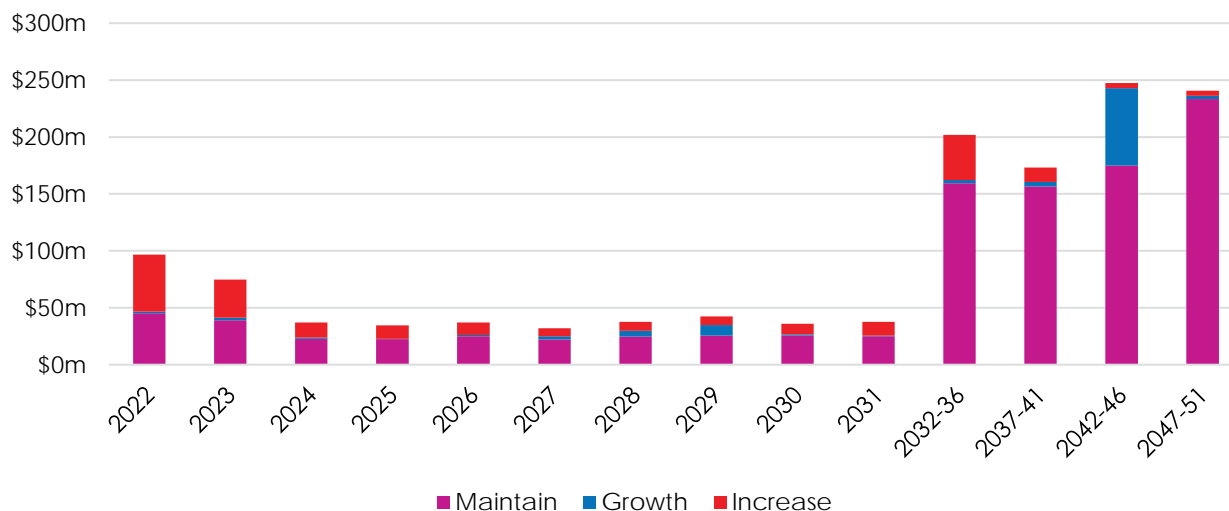


Figure 6: Amount of capital expenditure forecast to be spent on maintaining or increasing the current level of service, or extending current services to new users (growth)

How what we plan to spend affects levels of service



Expenditure on three waters is higher than forecast in the 2018 LTP. This is because we have increased our renewals budget by about 12.5% to ensure we maintain the current level of service and address the developing backlog of renewals, which primarily relate to water and wastewater pipes.

As in previous years, a considerable investment is needed every year to maintain the existing roading network. We also plan to undertake further upgrades to bridges so they can be used by heavy vehicles. This work is funded by the national land transport fund.

In the 2032-2036 period there will be significant capital investment required. This is due to stage 3 of the Gisborne wastewater treatment plant upgrade, which will include land-based disposal and increase current levels of service.

The significant spike in 2042-2046 reflects the planned investment in planning, implementing and securing a third water supply source. This is to respond to growth in demand and the impacts of climate change. The timing and costs are subject to change following further investigation, assessment of options and consultation with mana whenua and the community. We will consult the community on how to fund the cost associated with such a significant project. It is likely costs will be spread over more than one financial year. We anticipate this consultation will be undertaken as part of developing the 2030 LTP, or earlier if the right information is available.

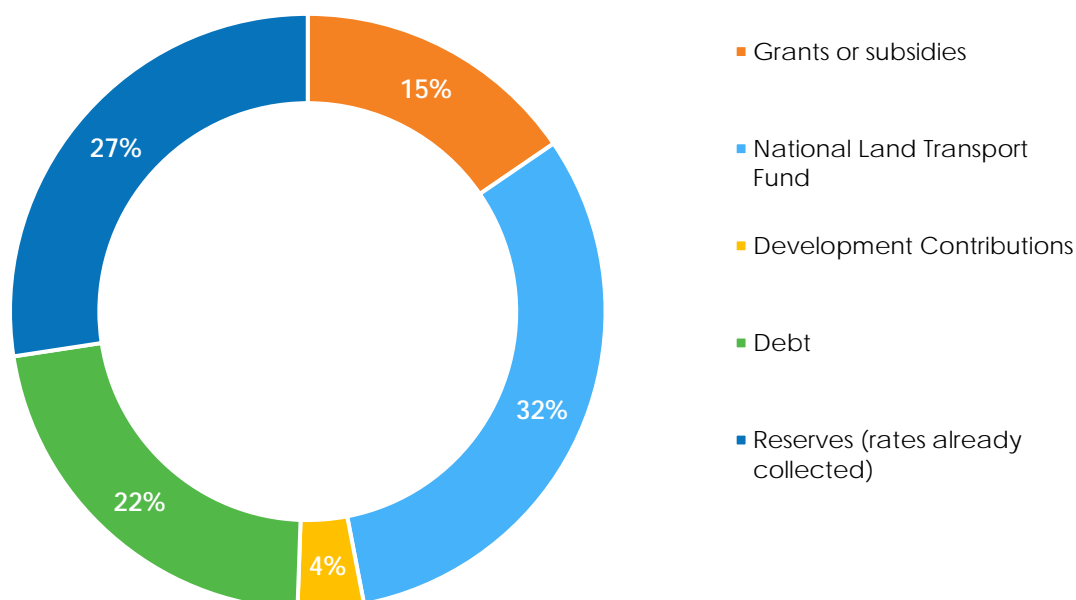
Where there is an increase in expenditure to provide for growth in years 2027-2030, there is also an increase in growth related revenue (through Development Contributions from developers and new ratepayers). This helps pay for growth and creates some additional capacity for borrowing.

Paying for our infrastructure

Our Financial Strategy has been updated during development of the 2021-2031 LTP. The Financial Strategy has a 10-year horizon. It helps Council and the community understand the long-term financial impacts and sustainability of our budget and plans, and the impact on debt and rates.

We intend to fund our capital expenditure using a mix of debt, depreciation reserves, grants and subsidies, development contributions, the National Land Transport Fund (roading projects only) and revenue from harvesting plantation forest (Pamoa).

Figure 7: 2021-2031 LTP - sources of funding for capital expenditure on infrastructure.



Our current debt limit is 100% of revenue. Over the next three years, we will increase our maximum net-debt to revenue limit to 130%. This increase allows us to increase investment in core infrastructure which is needed to ensure we maintain our assets and meet community and Government expectations.

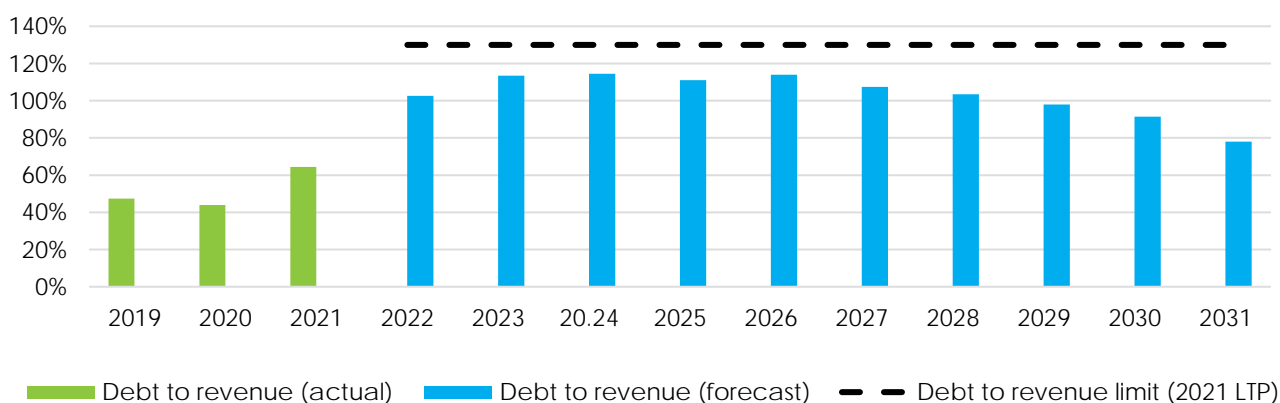
Debt is forecast to peak in 2026 (year 5 of the 2021 LTP) at \$143m. Infrastructure Strategy drivers for the higher level of debt are the Waipaoa River Flood Control Climate Change Resilience project and the Waingake Restoration project.

The estimated capital expenditure has been used to assess the potential effect on the Council's net-debt to revenue ratio and the financial strategy debt limit. This has been prepared using the following assumptions:

- Capital and operating expenditure in Years 1-10 is as included in the LTP.
- Net-debt is set at a limit of 130% (as in the LTP budget).
- Rates increases as in the LTP (up to 6.5% per year in Years 1-3 and up to 5% for seven years for existing ratepayers).

Figure 8: 2021-2031 LTP - forecast debt as a percentage of forecast revenue.

Debt as a percentage of revenue - actual and forecast



Beyond the next ten years, the financial estimates indicate that there will be increased demands for capital expenditure. This is driven by:

- Significant expenditure to provide for growth, particularly securing an additional water source.
- Significant expenditure to renew and upgrade ageing assets that are reaching the end of their useful life and meet more stringent standards.
- Allocation made for projects and programmes that have not been included in the 2021-31 LTP but are likely to be required in the future – these include installation of UV treatment at Waingake water treatment plant and progressing land disposal of wastewater from Gisborne WWTP.

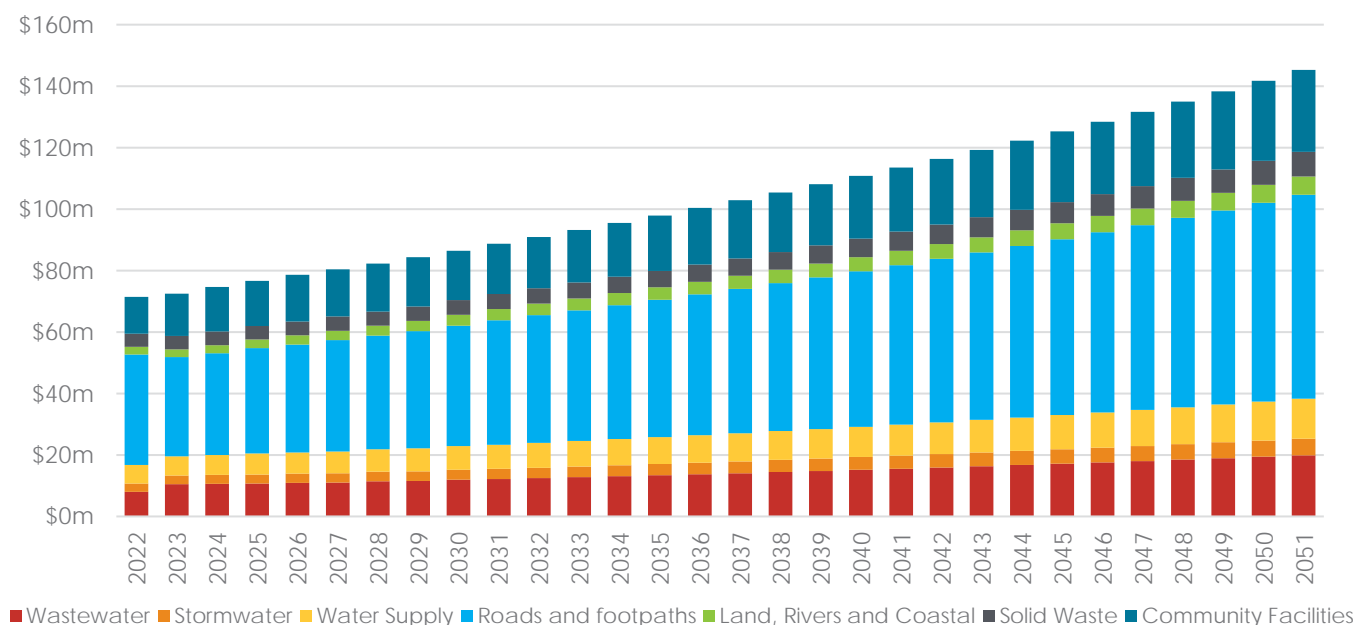
Operating expenditure

Operating expenditure is what we spend to keep our infrastructure activities and services running. This includes costs we have direct control over, such as staff costs, professional services and maintenance works, and other costs we cannot control, such as interest, overhead charges and depreciation. The estimated requirement for operating expenditure over the next 30 years has been prepared and is shown in figure 9.

The forecasts for the first ten years are from the 2021-2031 LTP and longer-term estimates have been based on applying inflation and estimated growth factors.

Figure 9: Annual projected operational expenditure for all infrastructure activities (inflated)

Expected infrastructure operating costs (inflated)



Overall, the forecast expenditure is similar to historical expenditure, but there is some variation across the asset groups. This is discussed under each asset group.

4.3 Water supply infrastructure

We are responsible for the treatment, storage, distribution and management of the city's water supply.

The Waingake and Waipaoa water treatment plants source water from Te Arai River, the Mangapoike Dams, and Waipaoa River and treat it to provide a high standard of drinking water. The treated water is pumped to reservoirs from where it is distributed through a network to meet the needs of residential and commercial/industrial properties in Gisborne City, Makaraka and Manutuke.

We also take water from shallow bores and use this to top-up the water supply for communities in Te Karaka and Whatatutu, which mainly use rainwater.

Our water supply system is made up of four treatment plants, six reservoirs and over 280km of associated pipe network. Overall water supply assets are either, in good condition or renewal is planned. The Waingake raw water pipeline was refurbished in 2019, and there is an ongoing renewal programme for other pipes nearing the end of their useful life – most of these are asbestos cement and cast-iron pipes. Slumping of part of the Sang Dam wall means it is only filled to 50% of its capacity. This reduces the combined capacity of the Mangapoike dams by about 5%.

Waingake (Pamoa Forest) is a strategic asset that allows us to provide greater security to the water supply by ensuring land use around the main water supply line is appropriate. The decision to replant up to 70% of the current plantation forest in indigenous vegetation post-harvest has co-benefits for biodiversity, cultural and amenity values.

Table 15: Overview of water assets

Water supply	Source	Treatment Plants	Length of reticulation	Service	Population served
Gisborne city and Manutuke	Mangapoike dams, Te Arai River, Waipaoa River	Waingake Waipaoa	274.5 km	Municipal supply	31,700
Te Karaka	Shallow bores	Te Karaka	6.1 km	Top-up to rainwater	500
Whatatutu	Shallow bores	Whatatutu	2.7 km	Top-up to rainwater	280
Depreciated replacement cost (30 June 2020)			\$106m		

Water treatment

The Waingake water supply was originally installed in the early 1900s. A significant expansion of the network occurred between the 1950s and 1980s and the Waingake water treatment plant was upgraded in the early 1990s after the damage caused by Cyclone Bola in 1988. This is still the main water treatment plant.

The Waingake treatment plant uses water from the Mangapoike Dams (Clapcott, Williams and Sang) and Te Arai River. Water from Te Arai provides about 34% of the City's total annual water demand. It is the single water source during the low demand season, but during the high to peak demand season most water is taken from the Mangapoike Dams.

The Waipaoa water treatment plant was constructed in the early 1990s as a secondary water supply. In 2018, we begun to use Waipaoa water as a base supply in late spring/early summer, in order to conserve dam water and avoid river takes from Te Arai during low flows. It currently provides less than 1% of the annual demand but there is likely to be growing reliance on the Waipaoa source. This will increase operational costs as more pumping is required and Waipaoa River water requires more treatment than water sourced from the Waingake catchment. An increase in operational costs of about \$100,000 a year is expected.

An application to replace the current consent to take water from the Waipaoa River (which expires in July 2021) was submitted in May 2021. As the amount of water we can take from the river was reviewed and reduced in 2016 to meet the requirements of the Tairāwhiti Resource Management Plan we are not anticipating any significant change to the amount of water we can take from the river.

The combined sustainable peak treatment capability of the two water treatment plants is about 25 million litres per day. During summer, peak demand has been over 30 million litres per day and on days of peak demand a large portion of the demand for water is met from reservoir storage. Water Demand Management Plans have been in place since 2016. Our intended approach to water demand management is discussed in section 2.2 in relation to climate change.

The existing authorisation for the Te Arai water take expires in 2026 and the consenting process will consider what amount of water allowed can be abstracted and still retain important river values. Te Arai is of cultural significance to Rongowhakaata and is subject to a Statutory Acknowledgement. The gifting of the name –Te Arai te Uru relates to the arrival of the Takitimu waka. When Takitimu landed in Turanganui a Kiwa the sacred tipua (spiritual guardian) Te Arai Te Uru was released into the waters of the Te Arai River where it remains to this day.

Water storage

The city has six reservoirs, providing a total of 38,300 m³ million litres storage. Water storage equivalent to peak demand per day is required for emergency purposes. However, as the city grows and demand increases, additional reservoir storage may be required for emergency purposes and water supply during peak periods. We will undertake consultation with mana whenua and the community before making decisions. We anticipate this will occur as part of developing the 2030 LTP, or earlier if the right information is available.

Water distribution

Treated water is pumped from the Waingake treatment plant to the reservoirs and users through about 275km of pipe network. As expected in any urban centre, the network is made up of various pipe materials of different ages, which results in some water loss through leakages. The leakage in Gisborne is estimated to be about 14.5% of water that is treated, which is similar or better than most New Zealand water supplies.

Waingake Transformation Programme

Waingake was purchased in 1989 to provide long-term security to the Mangapoike dams and Waingake water supply pipeline. The area has about 1,100 ha of commercial pine forest and 500 ha of native vegetation.

In 2018, we decided to transition about 70% of the pine forest into native vegetation through planting and natural reversion. This will further safeguard the water supply pipeline and water supply catchment whilst also providing cultural, biodiversity and amenity benefits.

Waingake is within the ancestral lands of Ngai Tāmanuhiri, and we are progressing the project in partnership with Maraetaha Incorporated (supported by Ngai Tāmanuhiri).

What do we plan to spend on our water supply assets?

Capital expenditure

We have estimated the capital needs for our water supply infrastructure and Waingake restoration project over the next 30 years. This is shown in figures 10, 11 and 13. The first 10 year's forecast capital expenditure is included in the 2021-31 LTP.

Over the next 10 years, 76% (or \$23.4m) of capital expenditure on water supply infrastructure relates to maintaining and renewing existing assets. We will reinstate the Sang Dam in years four and five of the LTP and progress pipeline renewals over the life of the LTP and beyond. Investment to support residential growth is forecast to commence in 2026.

Just under \$3.3m funding from Tranche 1 of the Government's Three Waters Reform Programme has been allocated to provide a top up water supply for Muriwai and develop a bulk water supply point for Ruatoria. These projects will increase the current level of service and will be completed in year one of the LTP.

Investment in our water supply infrastructure has been forecast based on the assumption that improved demand management will become increasingly important from 2026 to address climate change, resilience, residential growth and meet expectations regarding freshwater management. A stronger focus on demand management begins in 2026 with the introduction of residential water metering and works to improve water flows to the city.

Figure 10: Projected capital expenditure for the next 10 years – water supply (inflated)

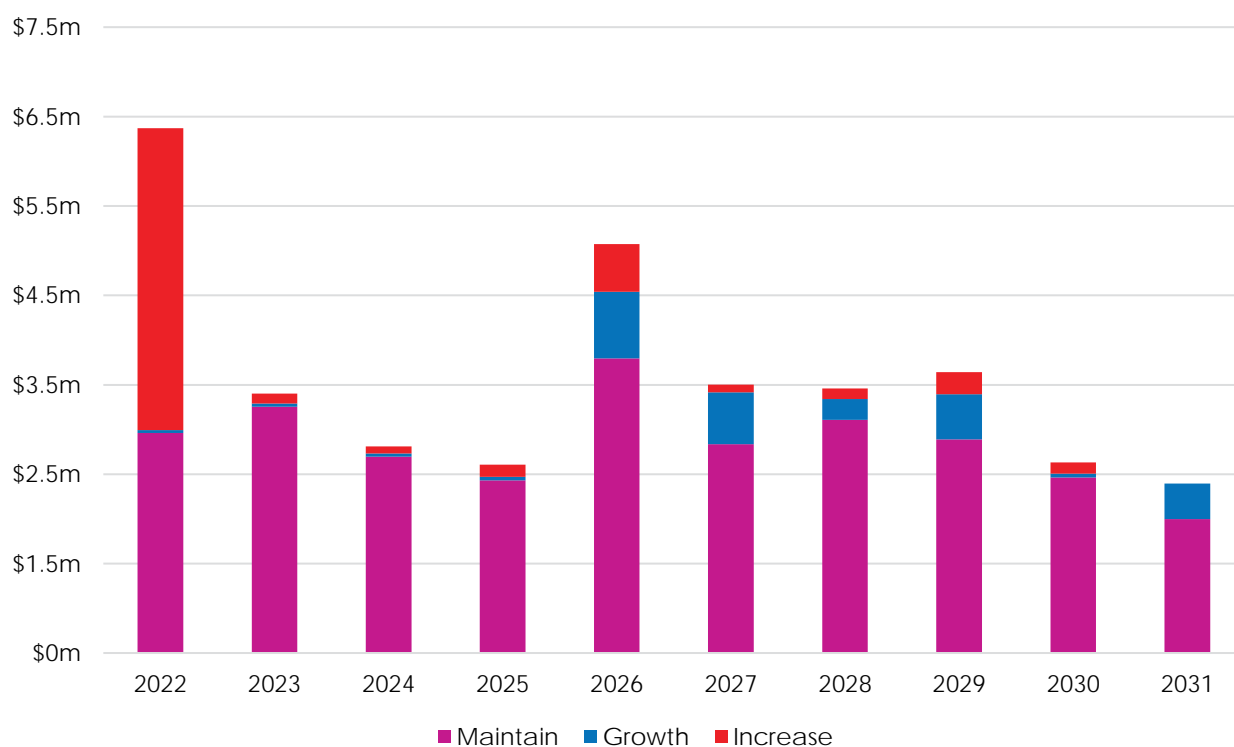
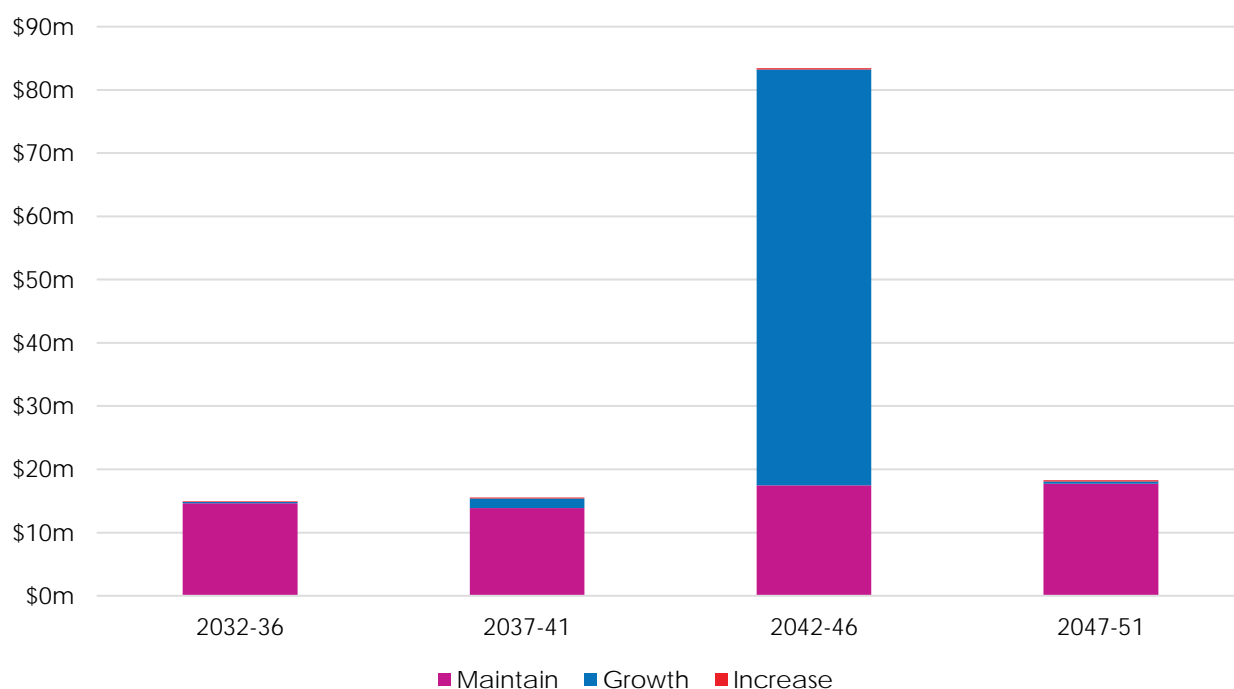


Figure 11: Projected capital expenditure for years 11-30 – water supply (inflated)

Water Supply Capital Forecast (Inflated)

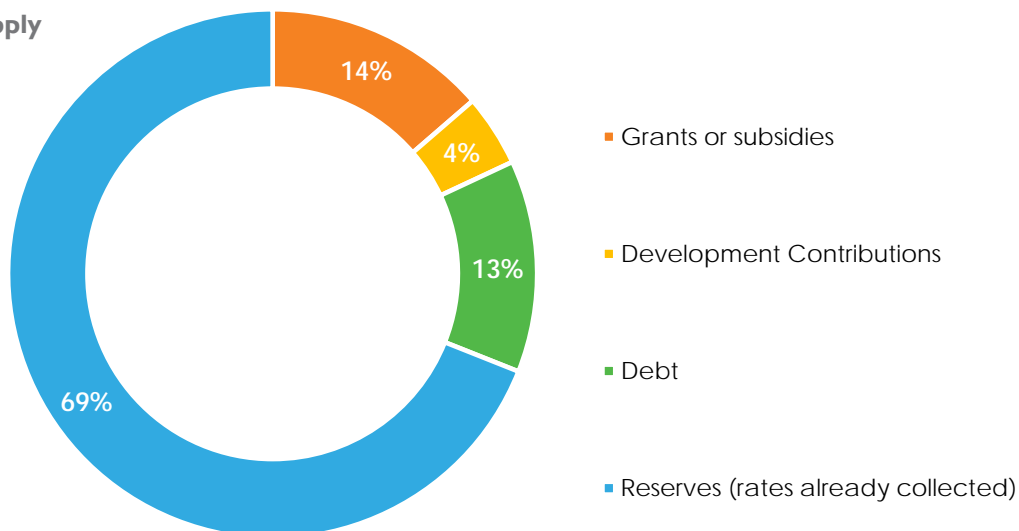


Over the next 30 years, about 43% of forecast expenditure is on growth and 53% on maintaining existing levels of service. Significant expenditure on growth is forecast for 2042-2046. This is when we expect to progress an alternative water supply and/or storage options.

About \$1m is forecast for 2032 to install UV treatment at Waingake water treatment plant. Until this occurs, we will ensure water quality standards are met by supplementing the supply using water from Waipaoa Treatment plant, which does have UV treatment.

Figure 12: Water supply – funding sources for forecast capital expenditure

Water Supply



Investment in Waingake is to increase levels of service and assumes external funding of about a third through grants.

Figure 13: Projected capital expenditure – Waingake Restoration (inflated)

Waingake Capital Forecast (Inflated)

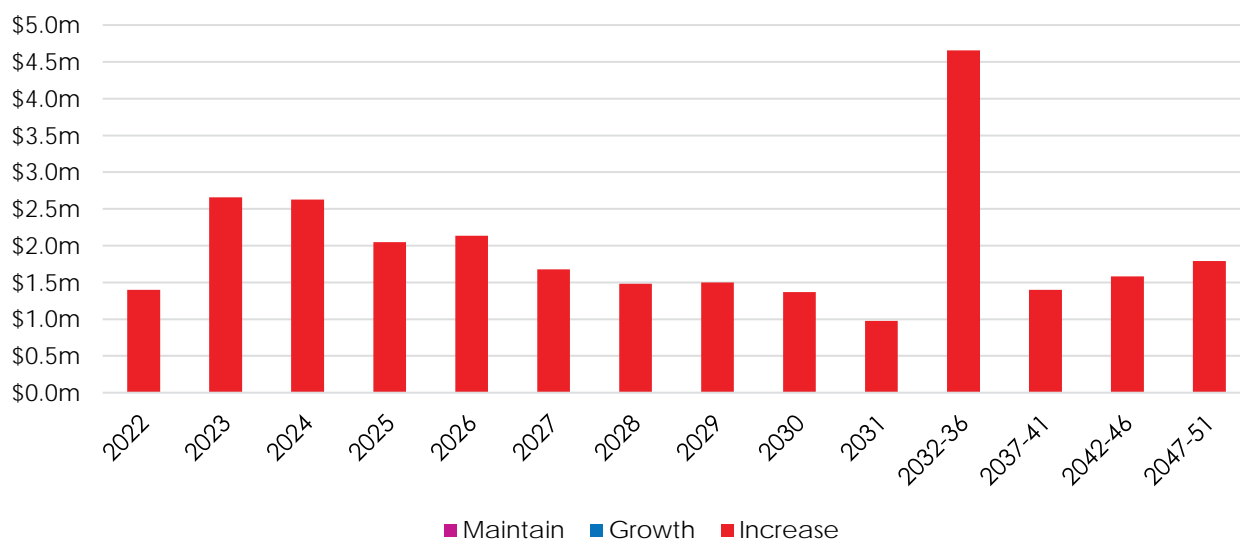
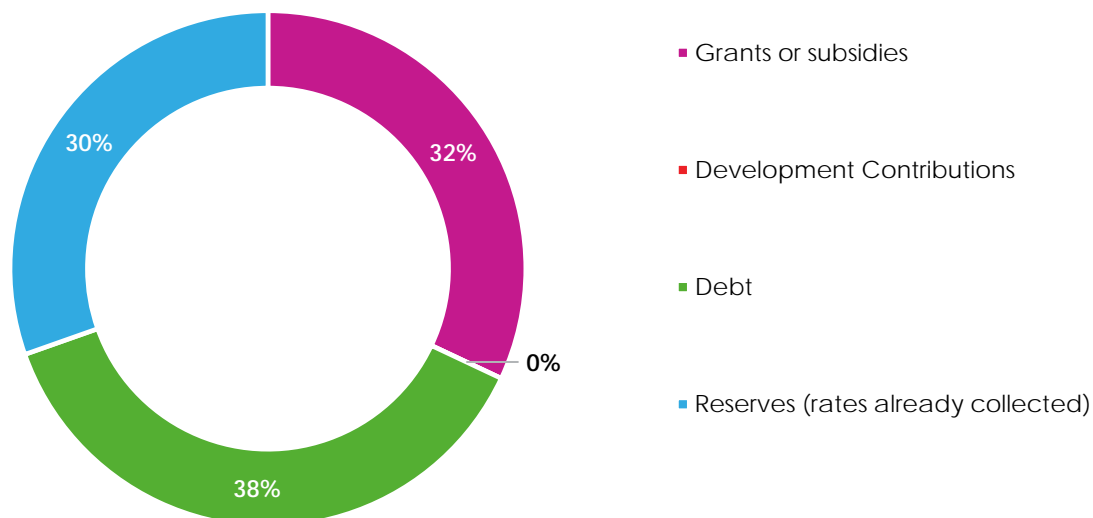


Figure 14: Waingake Restoration - funding sources for forecast capital expenditure

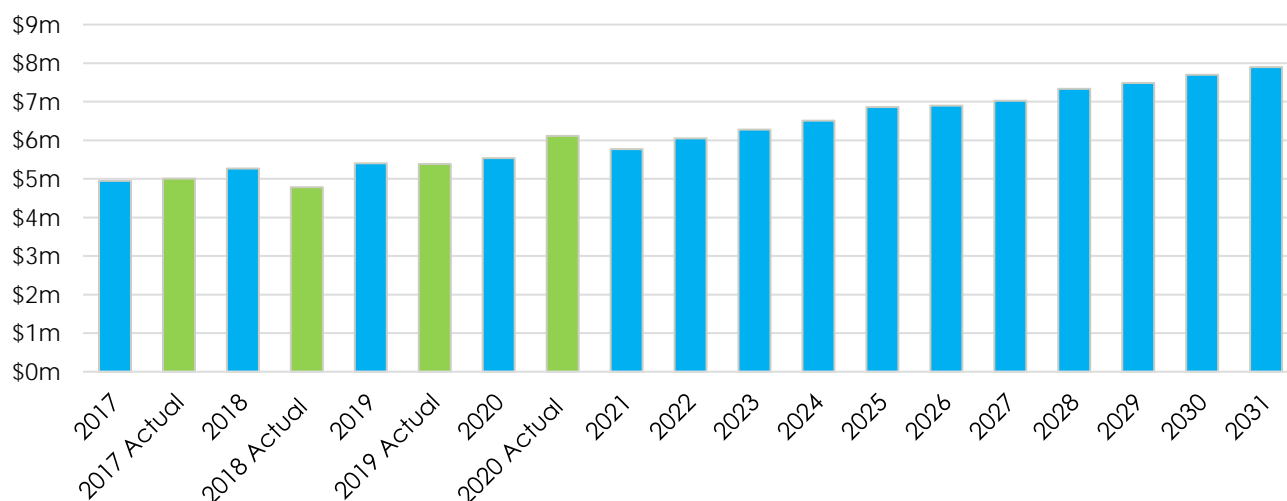
How we will fund the Waingake restoration



Operational expenditure

The next 10 year's forecast operational expenditure has been included in the 2021-31 LTP.

Figure 15: Water supply - forecast operational expenditure compared to actual expenditure for the last four years



Operational expenditure is forecast to increase from 2022 onwards. This allows for increased costs associated with compliance with new standards, critical asset condition assessments, and resourcing necessary for projects such as the Waingake (Te Arai) River water take resource consent application, water demand planning and management of residential water meters.

Water Supply Climate Change Impact Statement

Many of the water supply projects will support climate change adaptation. Examples of capital and operational projects that will improve our resilience to natural hazards and climate change impacts are:

- Progressing cross-council adaptation and resilience planning for drinking water assets/ service provision
- Reviewing Water Safety Plans, Water Demand Strategy, Plans and operational procedures.
- Remedial work at Sang Dam
- Implementing demand management through water metering of all connections and investigating use of 'user pays'-based water charging to help reduce water demand
- Continuing our replacement and renewals programme to increase resilience.

There are no projects that specifically support climate change mitigation; however, every construction activity that takes place and the day-to-day operation of our infrastructure will contribute to greenhouse gas emissions. We will endeavour to reduce the whole-of-life emissions associated with our water supply infrastructure.

Water Supply - Significant Capital Expenditure Decision – 2021

Sustainable management of the Gisborne Water Supply

As part of any water take consent the Council needs to demonstrate that it is a responsible manager of the limited water resource. We have a range of initiatives and tools to help manage the increase in demand for water as the city grows. However, by 2026 the need for a further significant demand management intervention is forecast. This assumes a new consent for extraction from the Te Arai River is granted, and maximum extraction volumes maybe decreased during times of low river flows

The decision made in the 2021 LTP is to allocate funding for:

- Increased use of the Waipaoa River as a water source during periods of higher river flow (operational costs only).
- Extension of water meters to include all residential properties within Gisborne (volumetric charging to be considered in 2024 LTP).
 - Development of a charging policy for metered water, in order to encourage a reduction in demand (operational expenditure).
 - Increasing flows by adding a new pump station and water main to supply the eastern side of the city.
 - Reinstatement of the Sang Dam to its original storage capacity.
- Continuation of education initiatives for smart water use (operational expenditure).

Key Projects in 2021 LTP

Project	Type	Y1-3	Y4-10
Water Demand Management – Universal Meters	Increase		\$2.5m
Sang Dam remediation	Maintain		\$2.0m
Increasing flows	Increase		\$1.8m

Water Supply – Future Significant Capital Expenditure Decision – 2030

Regional water security

As discussed above, we have agreed on a range of initiatives and tools to help manage the increase in demand for water as the city grows. However, we are not confident that existing water sources can meet long-term future demand and additional measures will be needed.

The nature of this intervention is yet to be determined and we will undertake consultation with mana whanau and the community before making decisions.

Key options for future decision-making include:

- Level of service to be provided to support rural communities so they can access safe and affordable water
- Investigation and development of alternative water sources and storage
- Use of recycled water (alternative use and disposal of wastewater)
- Use of rainwater for domestic and industrial irrigation and outdoor uses
- Installation of additional reservoirs

Other options may be identified as a result of further work and consultation.

Indicative costs of potential projects

Project	Type	Y1-3	Y4-10	Y11-20	Y21-30
Alternative water sources	Growth				\$10m-\$100m
Recycled water	Increase		\$0.25m pa	\$1-\$10m	
Rain water	Increase		\$0.25m pa		
Additional reservoirs	Growth				\$10m-\$100m
Township supplies	Increase			\$10-\$100m	

4.4 Wastewater Infrastructure

We are responsible for the collection, transfer, treatment and disposal of wastewater and trade waste in the Gisborne urban area. Wastewater and trade waste are discharged from properties into a network of gravity and pressure pipelines, which take the wastewater to the treatment plant at Banks Street.

At the treatment plant, wastewater is treated before being discharged into Turanganui a Kiwa Poverty Bay.

We also provide a separate wastewater network for Te Karaka, serving about 500 people.

Wastewater is treated in oxidation ponds and discharged into the Waipaoa River.

We also provide sites to dispose of septage from septic tank cleanouts at Te Araroa, Tikitiki, Ruatoria (Waiaapu) and Te Puia. Work is underway to provide a new septage disposal site near Tolaga Bay to replace the Tikitiki and Te Puia and sites.

Table 16: Overview of wastewater assets

Asset group	Purpose	Quantity
Treatment Plants	The treatment plants convert wastewater into disposable effluent and solids.	2
Pump stations	Pump stations are installed at low points in the network so wastewater from these areas can be lifted to a higher point and continue its journey to the treatment plant under gravity.	45
Pipes – laterals and mains	Once wastewater leaves a property it travels in pipes to interceptors.	326 km
Manholes	Service opening which allows access for inspection, cleaning or maintenance of the public wastewater network.	2,973
Depreciated replacement cost (30 June 2020)		\$92m

The city's wastewater system consists of a single wastewater treatment plant, 40 pump stations and over 300km of connecting pipework. The system services over 15,500 households and businesses.

Wastewater reticulation and pump stations

Wastewater is removed from commercial, industrial and residential properties via various pumping station and pipe networks to the wastewater treatment plant. The network is made up of various pipe materials and ages, which results in some water infiltration. We have a far more significant issue with stormwater infiltration from private stormwater drainage systems. The Drainwise programme is addressing this issue.

We have started an upgrade programme to achieve appropriate storage for all wastewater pump stations, which will provide improved environmental performance in the event of power or pump failure.

Wastewater treatment

The treatment plant is a biological trickling filter plant that can receive and treat up to 33,000m³ of wastewater per day.

Te Runanganui a kiwi (Poverty Bay) is the receiving environment for final treated effluent. The quality of the discharge will be improved when capital improvements to remove solids (clarification) and treat wastewater with UV disinfection are complete in 2023.

A key challenge is finding a way to dispose of the treated wastewater that doesn't involve a discharge into the sea or freshwater. In partnership with mana whenua, we are actively exploring wetland treatment options for Gisborne and Te Karaka, and whether some of the treated wastewater can be recycled and used by industry or for irrigation instead of drinking water.

What do we plan to spend on our wastewater assets?

Capital expenditure

We have estimated the capital needs for our wastewater infrastructure over the next 30 years. The first 10 year's forecast capital expenditure is included in the 2021-31 LTP.

Just over forty percent of the proposed capital expenditure in the LTP relates to upgrading the Gisborne wastewater treatment plant (WWTP) to meet resource consent requirements and community expectations. Construction commenced early in 2021 and is expected to be complete in 2022.

Maintaining and renewing wastewater pipelines and other assets accounts for most other capital expenditure on wastewater in the LTP (40% or \$31.1m).

Investment to support residential growth is forecast to commence in 2027. Expenditure is primarily funded by development contributions (DCs) and relates to Taruheru Block, Wainui Road pipeline and an additional pump station to serve Aerodrome Road. A small proportion of the wastewater treatment plant upgrade project (8%) is attributed to growth, but this is not funded by DCs.

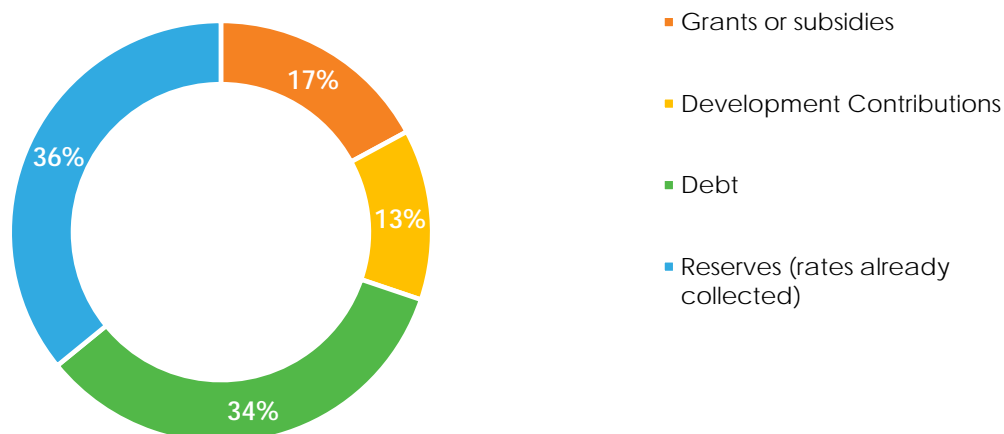
Over the next 30-years, about 42% of forecast expenditure is on increasing levels of service and 50% on maintaining existing levels of service. Additional capital works on the WWTP are forecast to begin in 2030 and continue for several years. These works relate to designing and constructing a land-based disposal system (wetland) for Gisborne's wastewater and increasing emergency storage at pump stations. Both projects will increase the level of service.

Figure 16: Projected capital expenditure – wastewater (inflated)

Wastewater Capital Forecast (Inflated)



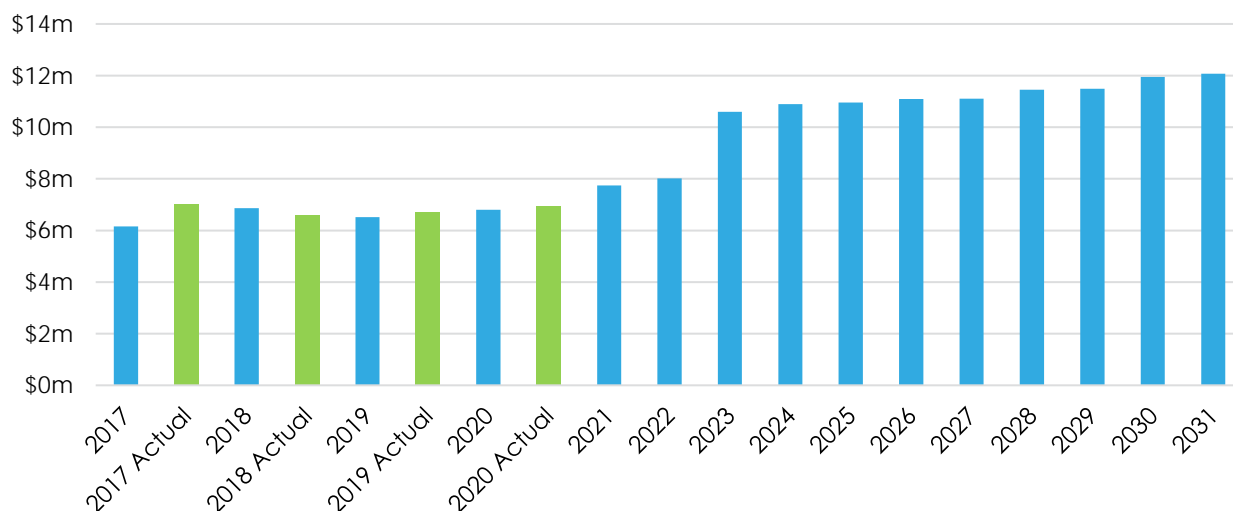
How we will fund the wastewater capital programme over the next 10 years



Operational expenditure

The next 10 year's forecast operational expenditure has been included in the 2021-31 LTP.

Figure 17: Wastewater - forecast operational expenditure compared to actual expenditure for the last three years



Operational expenditure is forecast to increase from 2023 onwards. This allows for increased costs associated with operating the upgraded Gisborne WWTP, increased compliance costs, critical asset condition assessments, and resourcing necessary for projects such as supporting upgrades of private laterals.

Wastewater Climate Change Impact Statement

Wastewater projects that will support climate change adaptation and resilience include:

- WWTP upgrade, including land-based disposal using wetlands
- Condition assessments and network performance studies.
- New pump stations will be designed with additional storage to take into account the potential for more intense rainfall events.
- Investigations into alternative ways to use and dispose of treated wastewater.

There are no projects specifically focused on climate change mitigation; however, the WWTP upgrade will use new technology and design methods to decrease the carbon footprint of the plant. The current plant is one of our most significant consumers of electricity. Other projects will also contribute to emissions; however, these can be reduced through sustainable procurement, design and taking a whole-of-life approach to asset management.

Wastewater - Significant Capital Expenditure Decision – 2021

Improving our wastewater treatment and disposal

The current consents for the operation of the Gisborne wastewater treatment plan require upgrades to treatment. Since adopting the 2018 LTP, we have decided to implement upgrades to the Gisborne WWTP more quickly to meet community expectations. We are still considering options for disposing of some or all of the wastewater using a land-based system.

As part of this LTP, we decided to:

- Complete Phase Two upgrades to Gisborne WWTP (clarification, solid removal and UV disinfection) by 2023.

- Investigate and develop land-based disposal systems for wastewater from Gisborne and Te Karaka (such as use of wetlands).
- Construct a new septage tanker emptying facility.
- Construct a mortuary waste drainfield.

Key projects

Project	Type	Y1-3	Y4-10	Y11-20
Gisborne WWTP upgrades - clarification, solid removal and UV disinfection	Increase	\$31.3m		
Septage tanker facility	Maintain	\$1.0m		
Mortuary Waste Drain Field	Increase	\$0.05m		
Gisborne WWTP upgrades – Stage 3: Wetland disposal	Increase		\$2.6m	\$20-30m*
Te Karaka Wastewater improvements and land disposal	Increase		\$1.0m	

**Forecast budgets and will be refined and consulted on as part of future LTP processes, along with implications for operating expenses and rates*

4.5 Urban Stormwater

We are responsible for the collection, transfer and treatment of stormwater in Gisborne, Makaraka, Wainui/Okitu and 12 rural townships.

Rainwater that flows from roofs, footpaths and roads is called stormwater and is directed to the ground or the stormwater system.

The stormwater system consists of pipes, channels, treatment devices and open watercourses, which release water into the city's streams, rivers, Te Runganui a Kiwa (Poverty Bay) and the ocean.

Nearly 95% of our stormwater assets are in the Gisborne city area, which is divided into 28 catchments. The remainder are in townships.

Table 17: Overview of urban stormwater assets

Asset group	Description	Quantity
Network	Pipes, manholes and connections	170 km
Other assets	Culverts, outlets and inlets, erosion protection structures, rain garden	60
Depreciated replacement cost (30 June 2020)		\$59m

Our stormwater network services a variety of land uses including:

- Residential land uses (such as private homes and driveways)
- Industrial and commercial land uses (for example, wholesale and retail outlets, depots, manufacturing sites, warehouses, workshops)
- Roads and car parks
- Community facilities (such as parks and sports areas, Gisborne Hospital, schools, and tertiary educational institutions)
- Runoff from undeveloped catchments

Stormwater management

The piped system is, designed to cater for a 10-year storm event, or a 10% probability of this sized rain event occurring each year.

The 'secondary' stormwater system comes into action during heavy rain events. It consists of stormwater flow paths through reserves, private properties and alongside roads. It is, designed to cater for a 100-year storm event, or a 1% probability of this sized rain event occurring each year.

Industrial and trade sites that discharge stormwater to our network must have a Stormwater Management Plan that sets out how they will operate accordance with best practice

We have limited condition data for our stormwater network. We plan to research and improve key historical asset data to support effective and reliable renewal planning and budgeting. Condition assessments may reveal the need for a renewal profile that is faster than that predicted by age.

What do we plan to spend on our stormwater assets?

Capital expenditure

We have estimated the capital needs for our stormwater infrastructure over the next 30 years. The first 10 year's forecast capital expenditure is included in the 2021-31 LTP.

J Half the proposed capital expenditure in the LTP (50%) relates to maintaining and renewing existing assets.

Most of the proposed capital expenditure to increase the current level of service in years 1 to 7 relates to upgrades the stomwater network in urban catchments to address flooding issues identified by stormwater catchment modelling (planned expenditure of about \$5.4m). We also plan to to pipe some open drains in Tolaga Bay to (planned expenditure of about \$0.3m).

We will also continue with implementation of the Drainwise project on private property (planned expenditure of \$4.3m), which is prioritised on a catchment basis.

A stronger focus on water quality improvements is signalled from 2024 onwards, with the staged roll out of capital projects to treat stormwater.

Investment to support residential growth is forecast to commence in 2023. Expenditure on growth is primarily funded by development contributions and relates to the Taruheru Block. We also intend to fund future upgrades to accommodate growth by development contributions.

Figure 18: Projected capital expenditure – stormwater (inflated)

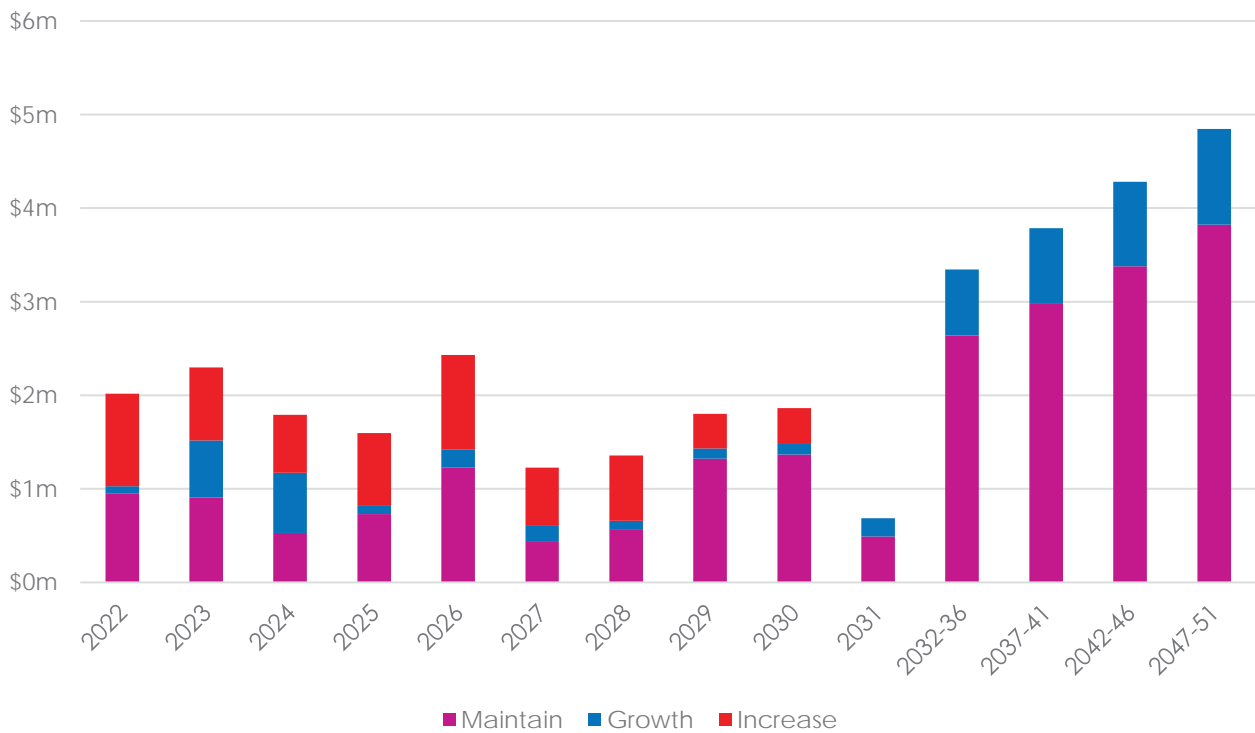
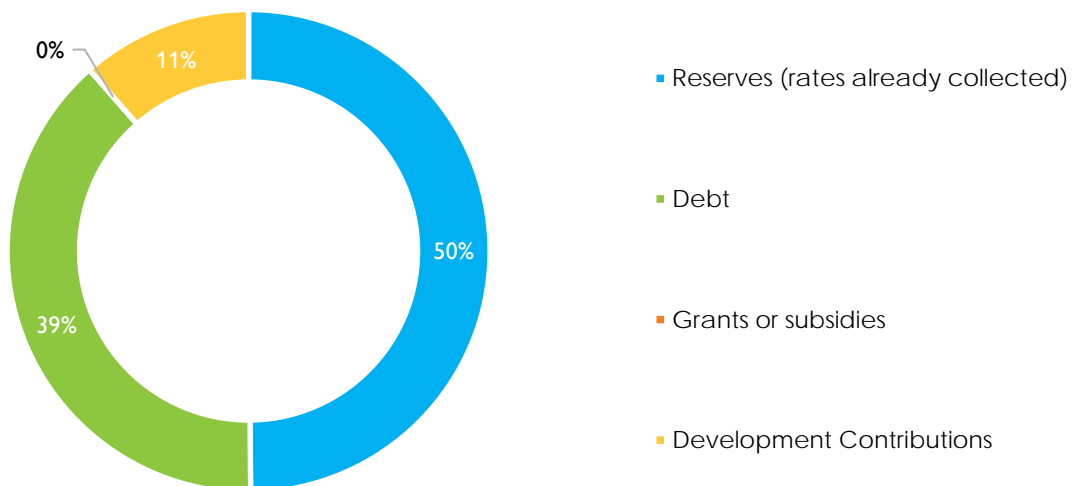


Figure 19: Stormwater – funding sources for forecast capital expenditure

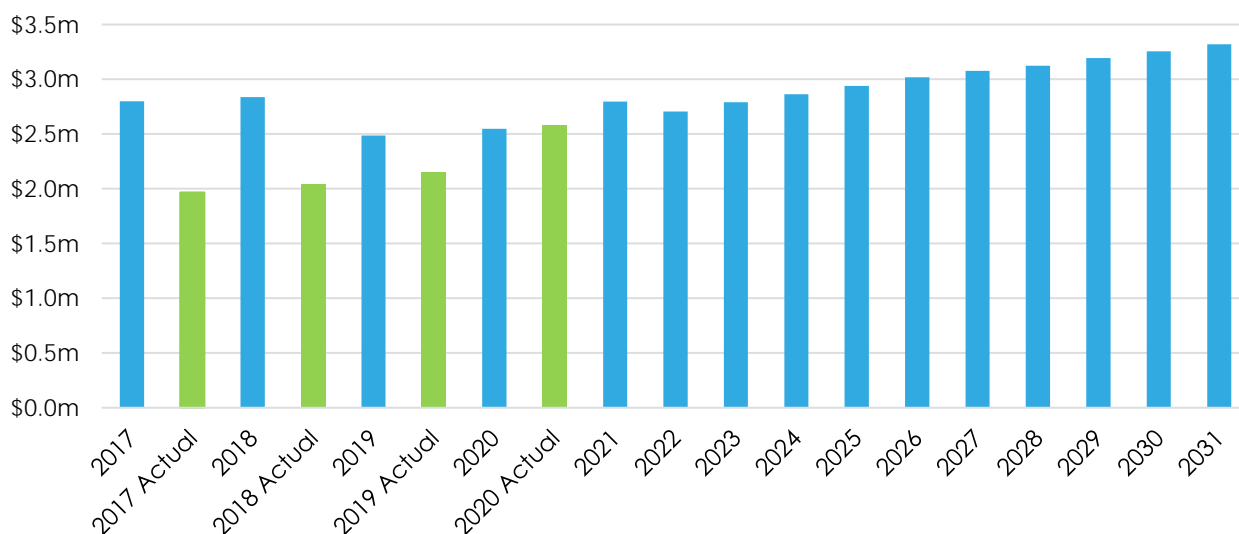
How we will fund the capital programme over the next 10 years



Operational expenditure

The next 10 year's forecast operational expenditure has been included in the 2021-31 LTP.

Figure 20: Stormwater - forecast operational expenditure compared to actual expenditure for the last three years



Actual expenditure was low in the first two years of the 2018 LTP compared to budget due to:

- Weather – some stormwater costs are weather dependent
- Time taken to recruit staff
- Reprioritisation of operational expenditure across the three waters activities

Operational expenditure has steadily increased over the first three years of the 2018-28 LTP, so that is now close to forecast expenditure. This is largely due to full staffing and a renewed focus on the stormwater network, which has meant we can take a more proactive approach to resolving stormwater issues. Costs are forecast to remain static for the 2021 LTP.

A relatively minor increase is forecast to provide for the development and ongoing maintenance of Integrated Catchment Management Plans.

Stormwater Climate Change Impact Statement

The Drainwise programme is an important tool to mitigate the impacts of changing rainfall patterns on stormwater volumes. This programme will reduce stormwater entering the wastewater network and create additional capacity and resilience in the wastewater and stormwater networks.

Other projects that support adaptation include:

- Integrated Catchment Management Plans, which will be completed by 2025 and will address climate change
- Pipe renewals and upgrades will continue to account for climate change projections

We will endeavour to make emission reductions in capital projects and day-to-day operations across this activity.

Urban Stormwater – Future Significant Capital Expenditure Decision – 2024

Reducing the number of wastewater overflows

We have committed to ten years of continuous improvement in relation to wastewater that enters awa (river) and the moana (ocean). We intend to reduce the frequency of wastewater overflows to waterways to a maximum of two in every four years, and also reduce the volume and duration of any overflows. We are currently obtaining resource consents (as per the TRMP requirements) for wastewater overflows.

We are continuing to roll-out the Drainwise programme, but further investment in our infrastructure may be needed to meet new consent requirements and the expectations of the community. We don't know yet what the required interventions (if any) will be.

Key options for future decisions include:

- Installing additional wastewater/stormwater storage
- Installing additional stormwater treatment
- Continuing the Drainwise programme
- Extending the Drainwise programme. For example:
 - Upgrading more pumpstations
 - Taking more financial responsibility for fixing private stormwater issues impacting the wastewater network

Urban Stormwater – Future Significant Capital Expenditure Decision – 2030

Meeting new standards for stormwater discharges

We need to develop Integrated Catchment Management Plans for our stormwater discharges by 1 July 2025 to meet the requirements of the Tairāwhiti Resource Management Plan. We have forecast for some expenditure during the 2021 LTP, but specific capital or operational improvements have not been identified yet.

We may need to treat some stormwater discharges in order to improve degraded water bodies such as the Taruheru River and Waikanae Stream, which could require additional expenditure beyond what is forecast in the 2021 LTP. Potential projects and priorities for action will be considered during development of the 2030 LTP.

4.6 Land, Rivers and Coastal

We minimise and prevent damage to land, buildings, and infrastructure caused by floods and erosion.

We do this by maintaining two flood control schemes, one river improvement scheme, and several river erosion control schemes.

We also maintain a network of open drains across private farmland to provide land drainage for parts of the Poverty Bay flats.

Council maintains the existing foredune protection infrastructure in the defined area along Wainui beach in alignment with the Wainui Beach Management Strategy.

This infrastructure grouping relates to four Council activities: flood control, river control, coastal assets and land drainage.

Table 18: Overview of land, river and coastal assets

Scheme	Asset	Quantity
Waipaoa River Flood Control Scheme	Stopbanks	64.4km
	Pipes	2,263m
	Floodgates	1
Te Karaka Flood Control Scheme	Stopbanks	4.3km
	Pipes	589m
Taruheru River Improvement Scheme	Stopbanks	1.6km
	Pipes	170m
Te Araroa Flood Control Scheme	Stopbanks	0.5km
River erosion control schemes	Stopbanks	5.1km
	Pipes	724m
Coastal Protection	Erosion protection structures at Wainui Beach	2.1km
Depreciated replacement cost (30 June 2020)		\$69m

Context

The Waipaoa Flood Control Scheme was built in the 1950s and enabled horticultural development of the Turanga/ Poverty Bay Flats, an area which prone to major flooding. It now protects over \$1bn of property.

The scheme was designed to protect the flats from flooding in a 200-year annual return interval (ARI) storm (0.5% chance each year), but is now estimated to provide protection in a 100 year ARI storm (1% chance each year). As the climate changes, this level of protection will decrease. We are in year 3 of a 10-year project to upgrade the stopbanks to take into account the predicted impacts of climate change on flood levels. When complete, the scheme will continue to provide protection in a 100-year ARI storm out to 2090.

The Te Karaka Scheme primarily protects the township. In 2002, the stopbanks were raised to achieve protection up to the level of a 200-year ARI storm. However, climate change will decrease this level of protection. We will be assessing the level of protection provided to Te Karaka over years 1 to 3 of the LTP.

The Turanganui/Taruheru River Scheme is mainly erosion protection structures in the Taruheru and Turanganui Rivers. We will be replacing some of these structures over the next 10 years as part of our renewals programme.

Coastal Protection Assets

Most of our coastal assets are at Wainui Beach. There are also some minor assets at the eastern end of Waikanae Beach.

The Wainui Beach Protection scheme includes a sloping rock revetment, rock filled gabion baskets, steel groynes and a wooden groyne. There is no defined level of protection for the scheme.

What do we plan to spend on land drainage, flood protection, erosion management, and coastal management?

Capital expenditure

We have estimated the capital needs for our protection assets over the next 30 years. The first 10 year's forecast capital expenditure is included in the 2021-31 LTP.

Just over 10% of the proposed capital expenditure in the LTP (12% or \$4.6m) relates to maintaining and renewing existing assets.

The majority of forecast capital expenditure is for the Waipaoa River Flood Control Climate Change Resilience project. This project will increase the current level of service and is forecast to be completed in 2030.

The forecast spike in expenditure to increase levels of service in 2026 is a result of upgrading assets associated with the Whaakahu Stream near Patutahi.

Beyond 2030, the majority of forecast capital expenditure is on maintaining levels of service.

Figure 21: Projected capital expenditure – land, rivers and coastal (inflated)

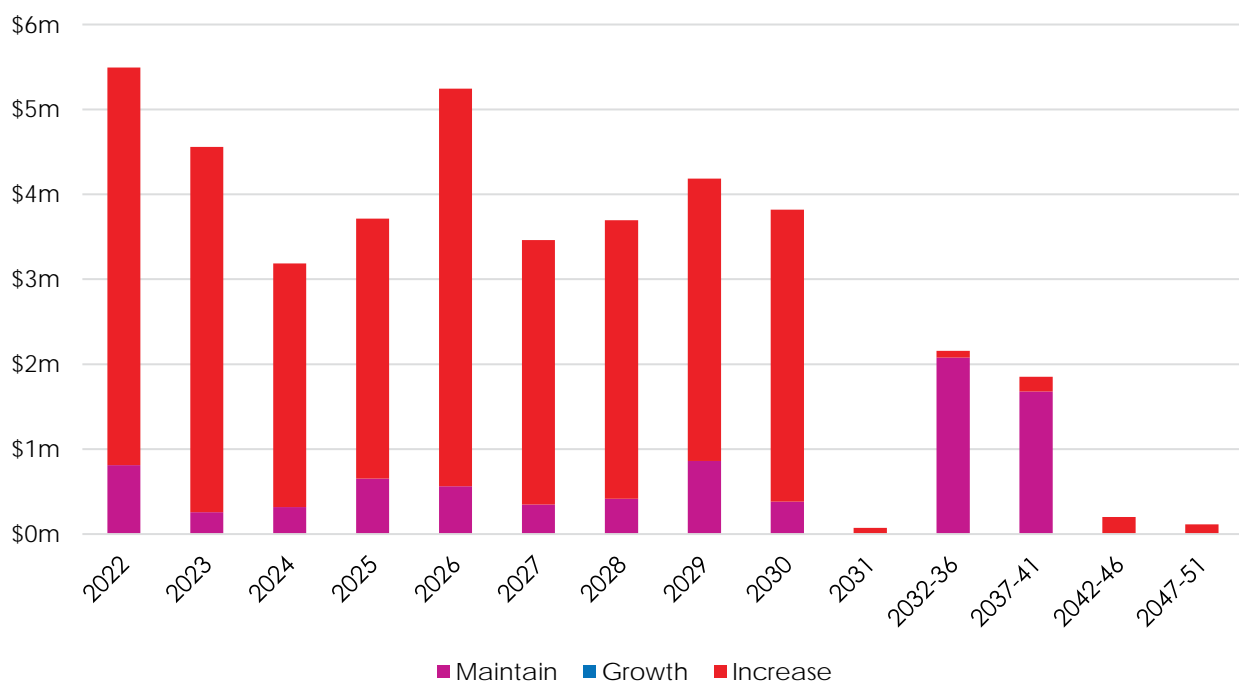
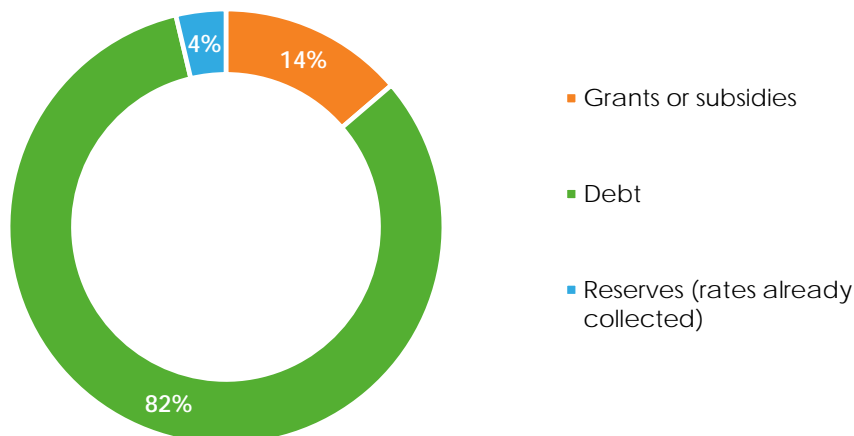


Figure 22: Land, rivers and coastal – funding sources for forecast capital expenditure

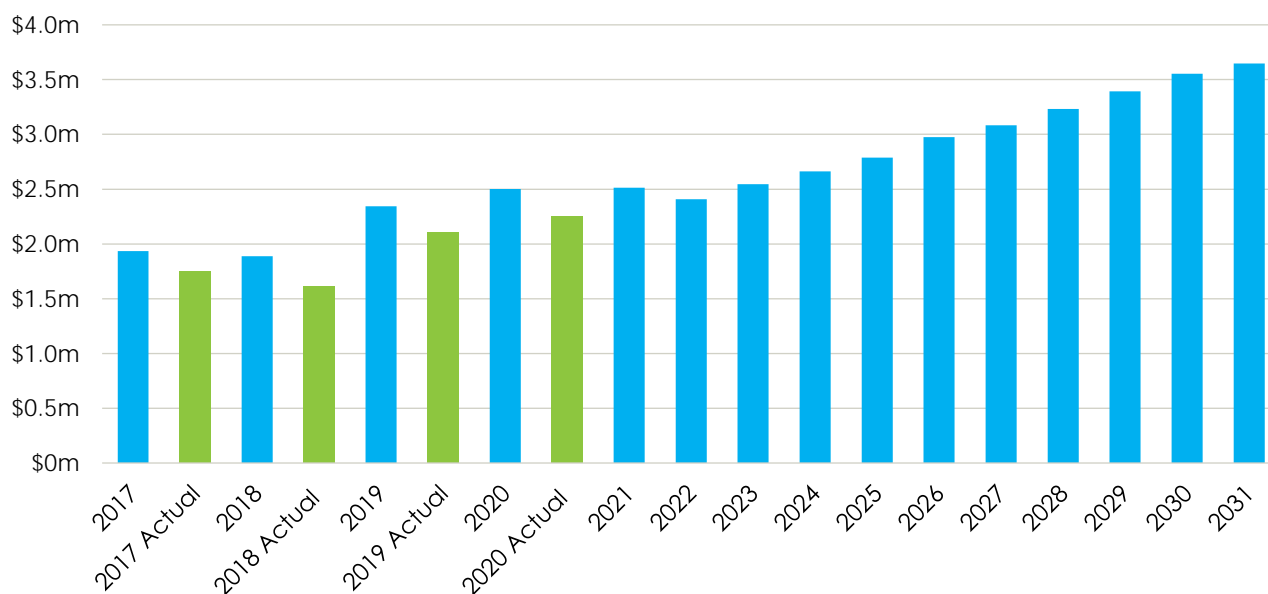
How we will fund the capital programme over the next 10 years



Operational expenditure

The next 10 year's forecast operational expenditure has been included in the 2021-31 LTP.

Figure 23: Land, rivers and coastal - forecast operational expenditure compared to actual expenditure for the last three years



No major changes have been made to the forecast operational budgets compared to the 2018 LTP. These budgets may need adjusting in the future once the impact of outsourcing operational maintenance activities is known.

Rivers and Land Drainage – Future Significant Capital Expenditure Decision – 2033

Adapting/Responding to Climate Change

Climate change will decrease the level of service provided by existing flood protection and erosion control schemes due to the impact of more frequent storm events, changes in rainfall altering river flows and sea-level rise.

We have already decided to upgrade the Waipaoa Flood Control Scheme so that the stopbanks will continue to provide protection for 1 in 100 year flood events.

Some options for future consideration include:

- Do nothing
- How to implement the refreshed Wainui Beach Erosion Management Strategy – noting that in the long term this could include managed retreat of properties.
- Whether changes to other protection schemes are needed to take into account the impact of climate change. For example: hard protection structures; enhanced natural defences and other soft protection measures; reducing the level of protection provided to some areas or structures
- Whether new flood protection or erosion management schemes are appropriate
- Whether to investigate use of coastal flooding and/or tsunami barriers
- Whether to install tsunami evacuation structures.

Options and costs will be more fully developed as we undertake our regional climate change risk assessment and develop regional Climate Change Adaptation and Mitigation Plans.

Land, Rivers and Coastal Climate Change Impact Statement

The long-term decisions associated with climate change adaptation are described above.

In the short term, we will support climate change adaptation through the following projects:

- The Waipaoa River Flood Control Climate Change Resilience project will take into account climate change projections until 2090.
- Implementing Wainui Beach Erosion Management Strategy and other coastal hazards management.
- Revetment renewals.
- Pump station renewals.

The routine operations of this activity do not contribute significantly to greenhouse gas emissions; however, we will endeavour to reduce the footprint during construction and subsequently the whole-of-life of our assets in this area.

4.7 Roads and footpaths

We provide and manage a safe and efficient transport network for Gisborne and the wider region which integrates walking, cycling, buses, private vehicles and freight.

We also manage on-street parking and Council-owned carparks.

Our services include operation and maintenance of the existing network and planning for future development. We work with the community to raise awareness of travel options and influence safe travel behaviour.

The local road network is extensive and largely located in the rural areas, where it connects sparsely populated and relatively isolated communities, and key regional producers, such as

forestry, with market destinations. The road network currently struggles to meet the competing demands of different users such as pedestrians, cyclists, cars, buses and trucks.

Over recent years there has been significant investment via the Provincial Growth Fund to meet industry needs and support regional economic development. These works include, the Rakiatane Road upgrade and bridge strengthening works. However, investment has still fallen short of what is needed to maintain the roading network to the expected levels of service.

Over the next few years the focus will be on:

- Local road route security improvements- five route corridors have been identified
- Transport improvements to assist increased mode choice (particularly active transport) and improve safety
- Building resilience in the roading network – including bridge and culvert improvements, improving drainage and planning for climate change adaptation
- 50max bridge strengthening to support freight movement.

Over the longer term, further investment is likely to be needed in road maintenance and renewals to maintain expected levels of service. Further information on renewals is contained in section 4.10.

Table 19: Overview of our roading and footpath assets

Asset type	Description	Quantity
Land and formation		3,192ha
Pavement	Sealed roads	877km
	Unsealed roads	1015km
	Footpaths	236km
	Carparks	3.8ha
Structures	Bridges and large culverts	397
	Retaining walls and seawalls	321
	Minor structures	128
Road drainage	Stormwater channel and drainage	9,275 drains 3,182 sumps
Traffic control devices	Railings	40km
	Streetlights	3,447
	Traffic facilities	2 signals, 9,223 signs
Other	Wharves	3
Depreciated Replacement value (30 June 2020)		\$1.65 billion

Role of Waka Kotahi and the Regional Land Transport Plan

We partner with Government through Waka Kotahi (NZ Transport Agency) to deliver our land transport functions. Waka Kotahi is responsible for the state highways that run through the region and invests in our transport infrastructure and services using the National Land Transport Fund.

The Regional Land Transport Plan (RLTP) provides a strategic link between transport activities at a national level and those at the regional level.

Our regional transport committee prepares a new RLTP every six years. The information in the asset management plan informs development of the RLTP, which lists the activities we want included in the National land Transport Programme, and to be considered for national funding. Only projects that are consistent with the outcomes Government wishes to achieve will receive national funding.

Many of the activities we undertake are part-funded from the National Land Transport Programme. We currently receive funding of 68% for eligible projects and activities, which means every dollar we spend generates another three dollars expenditure. This is referred to as the Financial Assistance Rate or FAR.

What do we plan to spend on our roads and footpaths?

Capital expenditure

We have estimated the capital needs for our roads and footpaths over the next 30 years. The first 10 year's forecast capital expenditure is included in the 2021-31 LTP and RLTP.

About 76% of the proposed capital expenditure in the LTP relates to maintaining the existing road network – primarily road renewals and pavement maintenance. Due to affordability constraints, we have maintained renewal budgets at a similar level to the 2018 LTP (plus inflation). Our strategy in the short-term is use of risk-based asset management, with an increased focus on drainage, and resilience and climate change adaptation works.

Road improvements will continue in the short-term, largely due to the implementation of externally funded projects to improve resilience and safety.

New investment primarily relates to active transport (cycling and walking).

Increased investment to support residential growth is forecast to commence in 2026. Expenditure is primarily funded by development contributions and relates to the Taruheru Block.

Figure 24: Projected capital expenditure over the next 10 years – roading and footpaths (inflated)



Over the life of the Infrastructure Strategy, we expect the focus to move toward maintaining levels of service. Nearly all forecast expenditure after 2031 is on renewing existing assets.

Figure 25: Projected capital expenditure in years 11-30 – roading and footpaths (inflated)

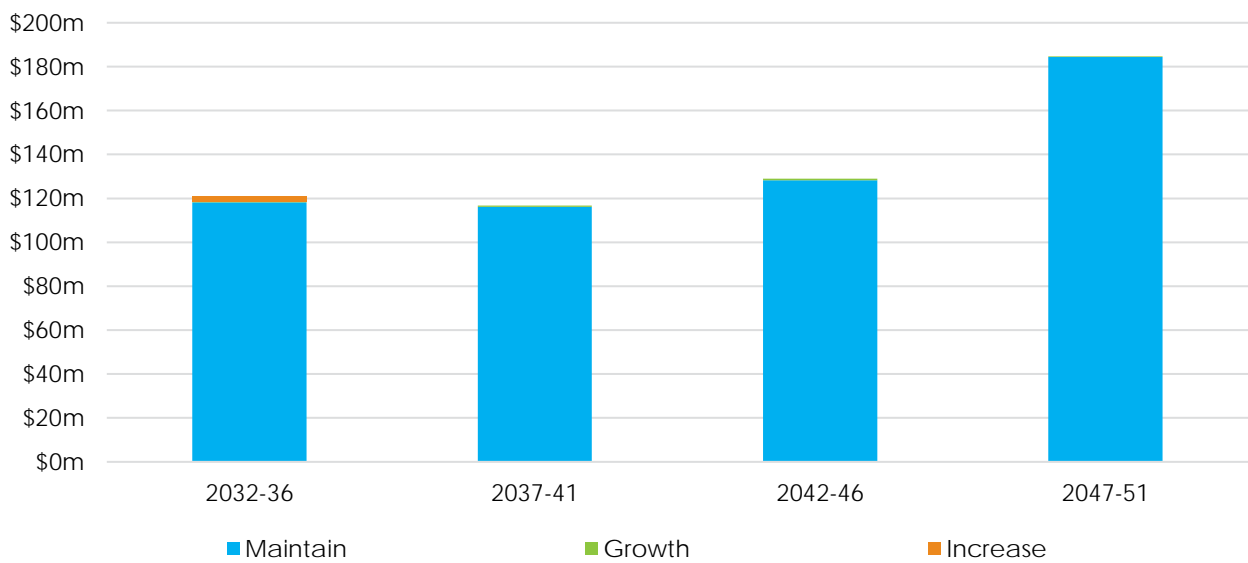


Figure 26: Roading and footpaths – funding sources for forecast capital expenditure

How we will fund the capital programme over the next 10 years

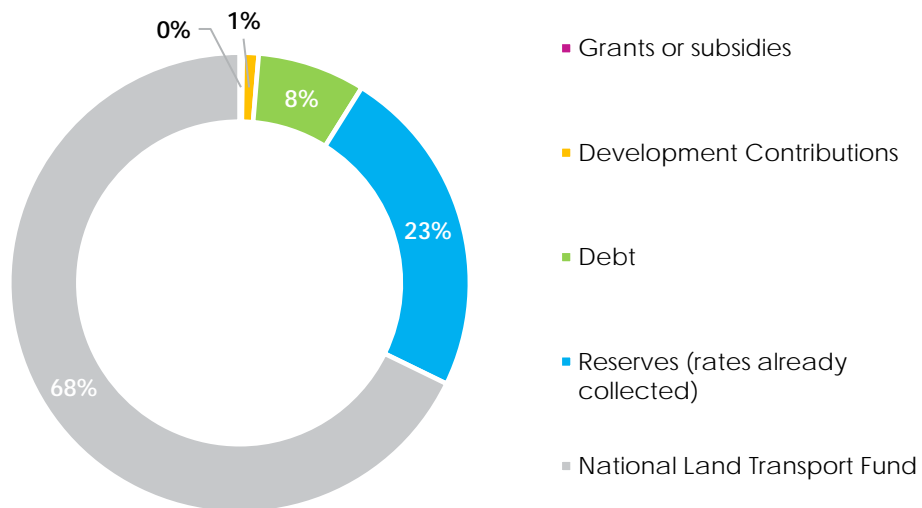
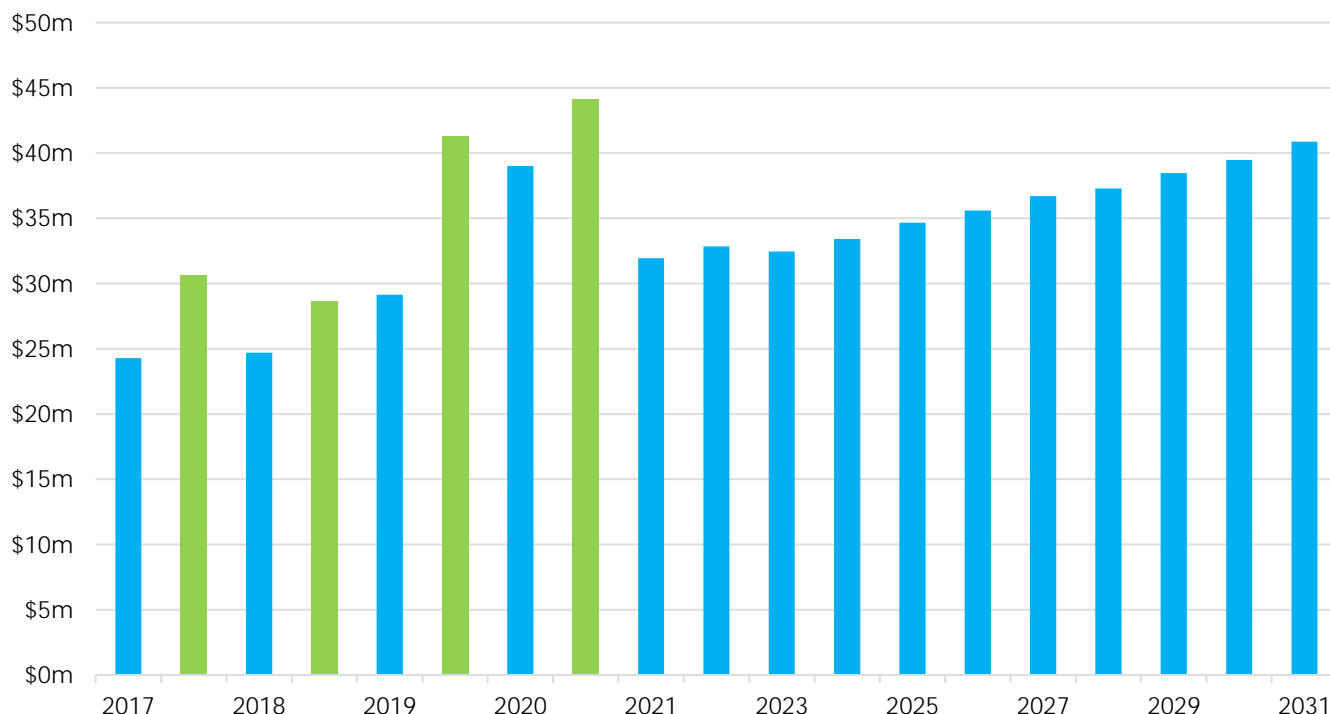


Figure 27: Roothing and footpaths - forecast operational expenditure compared to actual expenditure for the last three years

Operational expenditure

The next 10 year's forecast operational expenditure has been included in the 2021-31 LTP.



Actual expenditure over the past three years has been higher than forecast due to emergency works needed to repair damage to the roading network caused by weather events. Expenditure in year 1 of the 2021 LTP (2022) is higher due to completion of works to reinstate the roading network after three heavy rainfall events in June and July 2020.

Otherwise, the forecast operational budget remains relatively static over the 10 years.

Roothing and Footpaths - Significant Capital Expenditure Decision – 2021

What to invest and over how long to improve suitability of roads for heavy vehicles

The local road network was not designed to carry 50 tonne trucks⁷ also referred to as "50MAX". The primary industry requiring 50MAX in Tairāwhiti is the forestry industry, which transports logs from forestry sites to Eastland Port. A long-term and sustained increase in forestry traffic is expected for 40 years and beyond.

The full cost of upgrading all parts of the local road network to enable 50MAX capability is estimated to be \$70-\$80m, which includes passing opportunities and resilience activities as well as bridge upgrades. This is not affordable.

A business case was completed in March 2020 that considered the benefits of upgrading bridges in the local road network that lack heavy vehicle capacity.

The preferred option is to upgrade 48 bridges to 50MAX. Works have been prioritised based on how likely it is that structures will be used by heavy vehicles in the short, medium and long term.

⁷ The standard truck weight is between 44 and 46 tonnes.

The recommendation made in the business case is to allocate funding to:

- Upgrade 21 bridges to 50max in the short-term
- Upgrade 17 bridges to 50max in the medium term
- Upgrade 10 bridges to 50max in the long-term

In the past, investment has been provided by the National Land Transport Fund and Provincial Growth Fund to fund these upgrades, and some of the short-term works have already been completed. The NLTF and Council will fund the work planned over the next 10 years.

Key Projects in 2021 LTP

Project	Type	Y1-3	Y4-10
Upgrade bridges to 50MAX	Increase	2.0m	\$5.1m

Roading and Footpaths Climate Change Impact Statement

Transport activities will contribute to both mitigation and adaptation. Examples of projects that support adaptation include:

- Local road route security projects will address network resilience
- Maintenance and renewals of roads and footpaths with focus on improved drainage
- Bridge strengthening projects will increase the resilience of the roading network

Projects that will support mitigation include:

- Continuing to facilitate public transport
- LED transition is due for completion in first 2 years which will reduce emissions
- Taruheru River Cycleway - this project is likely to influence a mode shift from vehicles to active transport
- The Tairāwhiti Walking and Cycling Network Plan will have similar impact once projects are implemented

As with other activities, construction projects and day to day operations will contribute to greenhouse gas emissions. In particular, streetlights contribute a significant proportion of our emissions through electricity use. Transition to LED bulbs will help to make this activity more sustainable.

Considering climate change impact in design and procurement will reduce emissions from other aspects of roading (such as low carbon materials) is something that this activity is taking into account.

4.8 Solid waste

We provide waste and recycling collection from more than 18,500 residential premises each year. This service is operated by Waste Management Limited, which also operates and manages the Gisborne Resource Recovery Transfer Station and kerbside waste collection in Gisborne, Makorori, Wainui, and Poverty Bay Flats. Ruatoria kerbside collection is completed by an independent contractor.

We manage nine transfer stations across the region, the Waiapu Landfill, and education programmes to encourage waste minimisation.

We also manage closed landfills.

Table 20: Overview of solid waste assets

Asset type	Description	Quantity or area
Landfills	Waiapu (open)	0.4ha
	Paokahu (closed)	20ha
Transfer Stations	Hard surfaces	3.4ha
	Fencing and gates	4.6km
Street bins	Various types	358
Depreciated Replacement value (30 June 2020)		\$2m

Landfill facilities

The Gisborne Resource Recovery Transfer Station (RRTS) receives waste from the Matawai, Te Karaka, Whatatutu and Tologa Bay refuse transfer stations as well as the Gisborne kerbside waste collection. All waste from the RRTS is transferred to a Class 1 landfill in Tirohia (near Paeroa, in the Waikato region).

There is only one Class 1 landfill disposal facility in the Gisborne District. The Waiapu landfill receives waste from the rural transfer stations at Tokomaru Bay, Te Puia Springs, Ruatoria, Tikitiki, and Te Araroa as well as Council's Ruatoria kerbside waste collection. The landfill consents expire in 2025 and the future operation of Waiapu Landfill is uncertain. A Waiapu Advisory Group has been formed, and consultation underway to determine the best solution for the community. If the landfill is closed, waste will be transferred to the Waikato or other facility, as already occurs for the majority of the region's waste.

Closed landfills

Paokahu landfill was the region's largest until its closure in 2002. We manage the site, which is located on whenua Māori owned by Paokahu Trust. We have been working with the Trust to improve our management of this site. We hold resource consents to manage the ongoing effects arising from the landfill on the environment. These expire in 2032.

There are eight other closed landfills, around the region that were constructed before appropriate management standards were developed. We plan to undertake an assessment of the risk associated with these landfills and implement remediation actions if needed.

What do we plan to spend on solid waste?

Capital expenditure

We have estimated the capital needs for our solid waste management activities over the next 30 years. The first 10 year's forecast capital expenditure is included in the 2021-31 LTP.

All the proposed capital expenditure relates to maintaining and renewing assets, including \$0.5m to provide for future works needed to deliver the chosen option for future management of the Waiapu landfill. If the landfill is closed capping and remediation works are likely to be required, and if the landfill is kept open, work will be needed to maintain existing assets.

Over \$0.5m has been budgeted to address risks caused by historic landfills. We also plan to spend more on managing the Paokahu closed landfill.

Greater investment may be required in future LTP to implement:

- Additional recommendations from risk assessments of historic landfills.
- Decisions made on the future management of Waiapu landfill, when new consents for site maintenance (including ongoing operation if the landfill is to remain open) and aftercare are sought in 2025.

Figure 28: Projected capital expenditure – solid waste (inflated)



Figure 29: Solid waste – funding sources for forecast capital expenditure

Operational expenditure

The next 10 year's forecast operational expenditure has been included in the 2021-31 LTP.

How we will fund the capital programme over the next 10 years

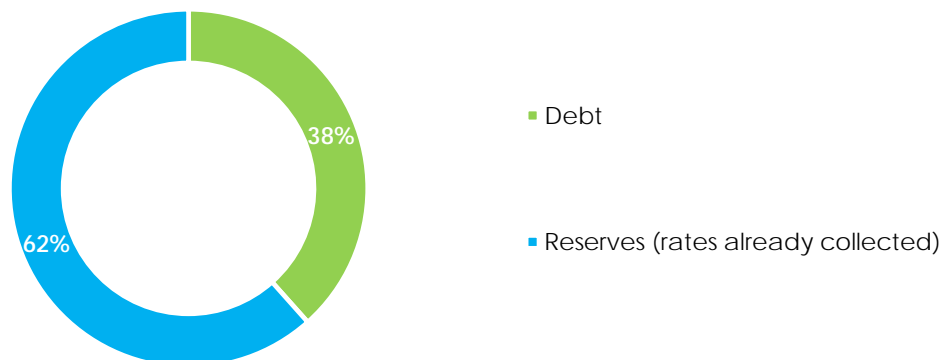
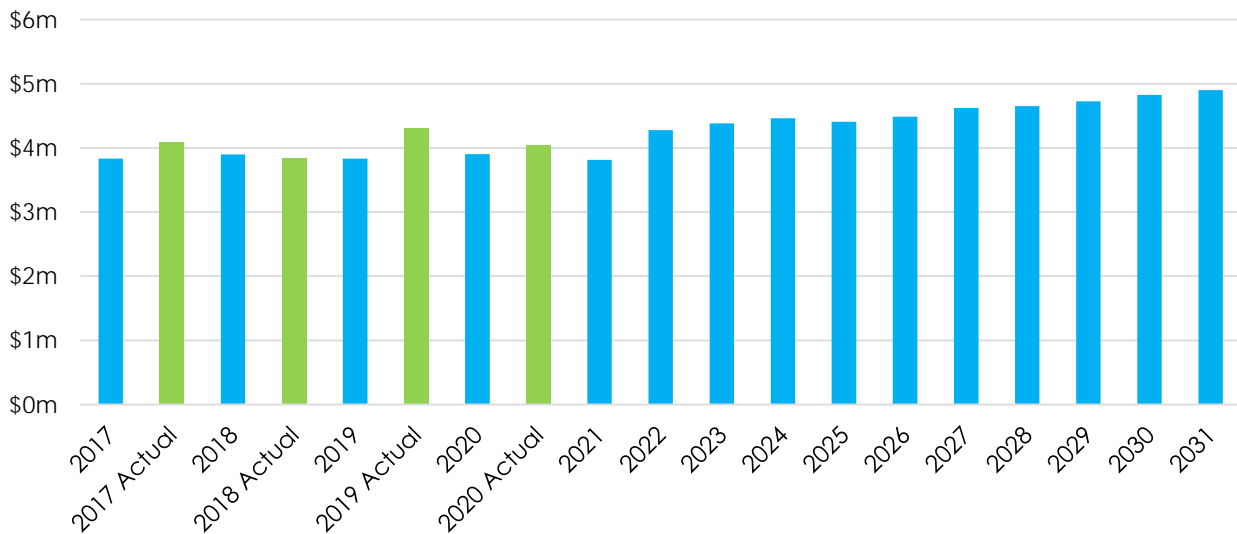


Figure 30: Solid waste - forecast operational expenditure compared to actual expenditure for the last three years



The forecast allows for increased expenditure on cleaning public areas and collecting litter as the current service is not meeting community expectations.

When the Waiapu landfill is eventually closed, landfill costs will increase as this waste will need to be transported out of the region. About 5% of landfill waste is deposited at Waiapu. This will be reassessed for the 2024 LTP when the future of the Waiapu landfill is known. Overall, landfill costs are forecast to decrease as the volume of waste sent to landfill reduces.

Solid Waste Climate Change Impact Statement

Solid waste activities are both at risk to climate change implications and contribute to climate change through greenhouse gas emissions. Paokahu and Waiapu landfills are the most significant contributors to our carbon footprint (excluding CCTO activities).

Projects that support adaptation include:

- Heritage landfill risk assessment and subsequent remediation work
- Works at the Waiapu and Paokahu landfills to improve consent compliance and long-term management

Projects that support mitigation include:

- New waste solutions adopted after Waiapu landfill reaches the end of its consented life have the potential to reduce emissions, such as enhanced Resource Recovery Transfer Station(s)
- Supporting the EnviroSchools programme
- Supporting businesses and community groups to empower and educate on environmental awareness and waste minimisation
- Continued work with MfE on projects such as the Resource Recovery Transfer Station feasibility study
- Public engagement process to gauge the appetite for change to the day-to-day operation of solid waste (such as a change to Wheelie Bins or kitchen waste bins)

4.9 Community Facilities

We provide parks and open spaces, amenity gardens, street trees, public conveniences and cemeteries throughout the region and an aquatic facility in Gisborne.

Titirangi, which is co-managed with Ngāfi Oneone, is an important cultural landscape and visitor attraction for the city, it also provides amenity value to the community.

Waingake is a new restoration project we are undertaking in partnership with Maraetaha Incorporation and supported by Ngai Tāmanuhiri, which will progressively increase native forest in the Pamoā forest Block. This will stabilise and protect the Waingake water supply pipeline and also restore and protect biodiversity and cultural values.

We also own and operate community and events facilities. These support and strengthen the community, encourage an active lifestyle, and promote economic growth through attracting events and visitors to the city.

These facilities help to make Gisborne a modern liveable city where its residents are able to access library and leisure opportunities and experience local and international events and performances.

The Tairāwhiti Community Facilities Strategy outlines development of a cost-effective and sustainable network of fit-for-purpose community facilities in Tairāwhiti over the next 20 plus years.

Recreation and amenity

Under the Community Facilities Strategy 2018, we have an Aquatic Facilities Plan, Open Space Plan, Play Spaces Plan and Sports Facilities Plan which set the long-term direction for recreation and amenity facilities in Tairāwhiti.

We own and manage over 1,190ha of open space. This includes destination parks, neighbourhood parks, sports parks and natural areas. This is a significant portfolio given the size of our population, and our ability to maintain all current assets is limited.

We also manage the Olympic Pool Complex, a community facility first established in the 1970s. Redevelopment of the complex started in September 2020 and is due to be completed early in 2023. Government has provided funding of up to \$40m for the redevelopment through the Crown Infrastructure Partners (CIP) COVID-19 response.

In partnership with Trust Tairāwhiti and Sports Gisborne Tairāwhiti we have developed a business case for central government investment in the region's sporting facilities.

Cultural activities

We provide facilities, services, public art projects and performing arts partnerships to create a sense of pride and local distinctiveness, and to reflect cultural diversity in our region and to house and support a regional museum to provide a safe repository for our taonga (treasures).

The HB Williams Memorial Library provides access to space and resources including relevant collection of materials and programmes including local histories, free internet, and a digital library, to inspire learning and civic and economic participation.

Tairāwhiti Navigations is a programme of five projects delivered together to ensure the full benefits - economic, tourism, place-making and community well-being and are realised through well connected and integrated design, landscaping and stories. Most elements are complete. The Titirangi Summit (concept), Titirangi Restoration and Hawaiki Turanga (installation) projects are ongoing.

Community facility assets are spread across the region on council owned land. There are a wide variety of asset types.

Table 21: Overview of community facilities assets

Asset type	Quantity	Description
Aquatic facilities	One Olympic pool complex	50m pool, 33m recreation pool, 98m hydroslide, therapy pool, diving pool, toddler pool, offices, changing rooms and kiosk
Art in public places	10 Graeme Mudge murals; 14 sculptures; monuments and cenotaphs	Own and maintain. Usually on public land. Trust secures funding
Arts facilities	1 library	HB Williams Memorial Library
	3 theatres	War Memorial Theatre
		Lawson Field Theatre
		Gisborne Soundshell Theatre
	1 museum	Tairāwhiti Museum and Art Gallery and Wylie Cottage
Cemeteries	Taruheru Cemetery and Crematorium 12 rural cemeteries (2 closed)	Buildings
		Amenity assets
Parks and open spaces	Total area of 960ha	Land
		Hardsurfaces
		Furniture, fences, signs & services
		25 monuments
Playspaces	43 playspaces 13 skatebowls 8 basketball hoops	
Public conveniences	60 public toilets and 18 changing rooms	
Sports facilities	30 sports parks Sports codes operate most facilities	2 main grandstands and one smaller facility
		91 pieces of sport equipment
Depreciated Replacement value (30 June 2020) Many assets area valued at market value because they are buildings		\$93m

What do we plan to spend on our community facilities?

Capital expenditure

We have estimated the capital needs for our community facilities infrastructure over the next 30 years. The first 10 year's forecast capital expenditure is included in the 2021-31 LTP.

Most of the proposed capital expenditure in the first 10 years (68% or \$44.5m) relates to redeveloping the Olympic Pool complex to meet community expectations. Construction commenced early in 2021 and is expected to be complete in 2023. This project has significant external funding. Capital expenditure of about \$3.5m is also forecast for years 1-3, which is intended to be used as seed funding to attract external investment in sports facilities in Tairāwhiti.

In total, just over 70% (or \$80m) of the proposed capital expenditure over the next 30 years relates to maintaining and renewing existing assets.

No significant capital projects (renewals, new facilities or major upgrades) are planned for years 5-10 of the LTP. This may have implications for levels of service in the long-term. Renewals are discussed further in section 4.10.

Figure 31: Projected capital expenditure – community facilities (inflated)

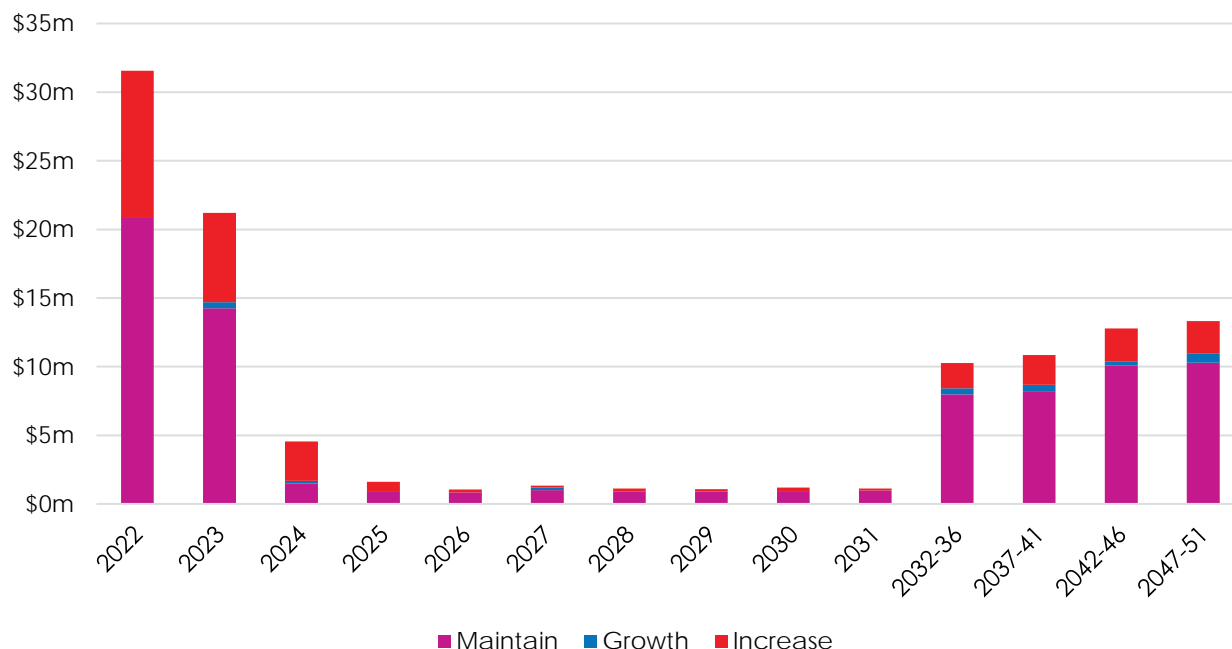


Figure 32: Community facilities – funding sources for forecast capital expenditure

How we will fund the capital programme over the next 10 years

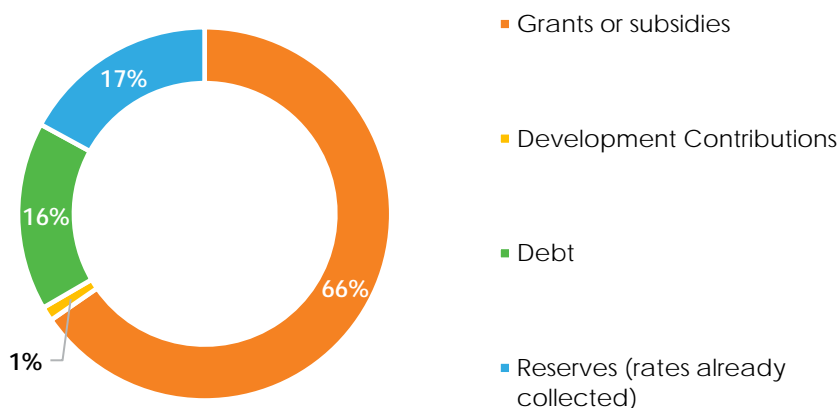
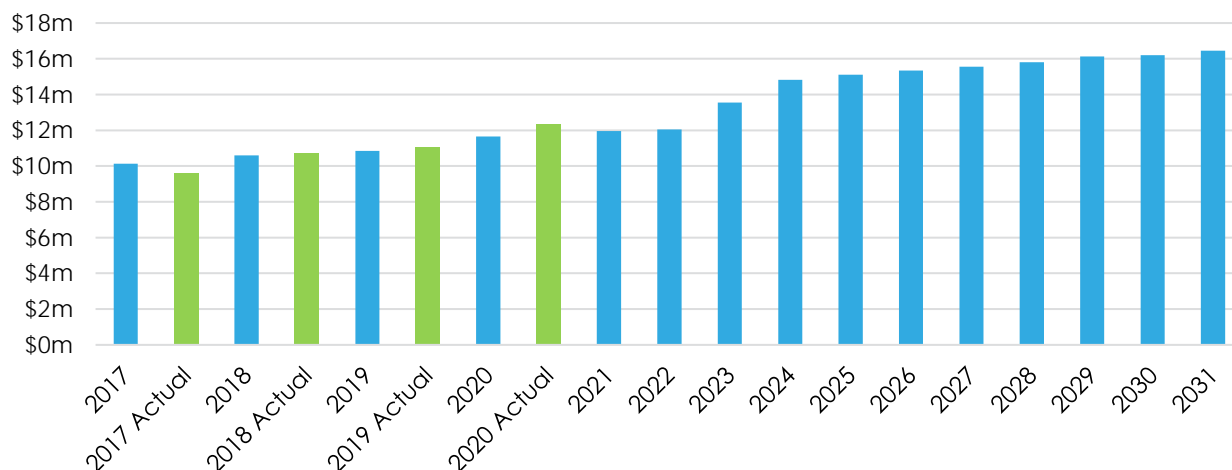


Figure 33: Community facilities - forecast operational expenditure compared to actual expenditure for the last three years

Operational expenditure

The next 10 year's forecast operational expenditure has been included in the 2021-31 LTP.



Expenditure increases in year 2, and then remains relatively static over the remaining years. The increase to operational expenditure is forecast to allow for additional staff numbers once the redeveloped Olympic Pool complex opens.

Community Facilities Climate Change Impact Statement

This activity supports adaptation through:

- Relocating or removing park furniture and equipment including steps/stairs as required
- Dune restoration which increases resilience from coastal hazards
- Plant pest management consistent with the Regional Pest Management Plan
- Tree planting programme will regulate temperatures/provide shade
- Continued implementation of Titirangi and Kopututea restoration partnerships
- Use of native species in amenity gardens
- Makorori foreshore improvements
- Continued monitoring of existing assets and implementation of future planning
- Hazardous tree remediation
- Building assessments of Wyllie Cottage, Star of Canada and Lysnar House and implementation of deferred maintenance programme

Projects that support climate change mitigation include:

- Restoration and planting programmes will support carbon sequestration
- Coastal and riparian vegetation programme will reduce mowing requirements
- Consideration of provision for natural and eco burials
- Olympic Pool upgrade has the potential to reduce operational emissions if energy efficiency improved in design (construction will also produce emissions)
- Expand and strengthen library e-tools
- Support for users to upskill their digital toolkit
- Native tree regeneration support
- Implementation of the Community Facilities Strategy will endeavour to promote resilience and sustainability. All projects will work to reduce climate risk and greenhouse gas emissions

4.10 How we will look after our infrastructure assets?

Delivering the Renewals Programme

Knowing when to replace assets and planning how to fund replacement is complex.

We use information on the expected life of an asset, its current condition and an assessment of the likely impact on the community and the environment if an asset fails (criticality) to plan when we will renew or replace infrastructure. This approach ensures that assets that are most critical for the delivery of services or pose the greatest risk through an unplanned failure are renewed at the appropriate time.

Depreciation (an operating expense) is an estimate of how fast our assets are used up (or consumed) due to use, wear and tear. Part of the rates we collect each year funds depreciation of our assets. This money is placed into reserve funds for the future renewal of assets.

When depreciation is higher than forecast capital expenditure, it can suggest we are not spending enough on the renewal or replacement of existing assets, which will have a negative impact on levels of service.

Overall, depreciation is similar to renewal expenditure. However, forecast expenditure on renewals varies between asset groups based on condition of assets, priorities and affordability. There are two asset groups where forecast expenditure on renewing assets is significantly lower than depreciation – water supply and stormwater. The reasons for this are:

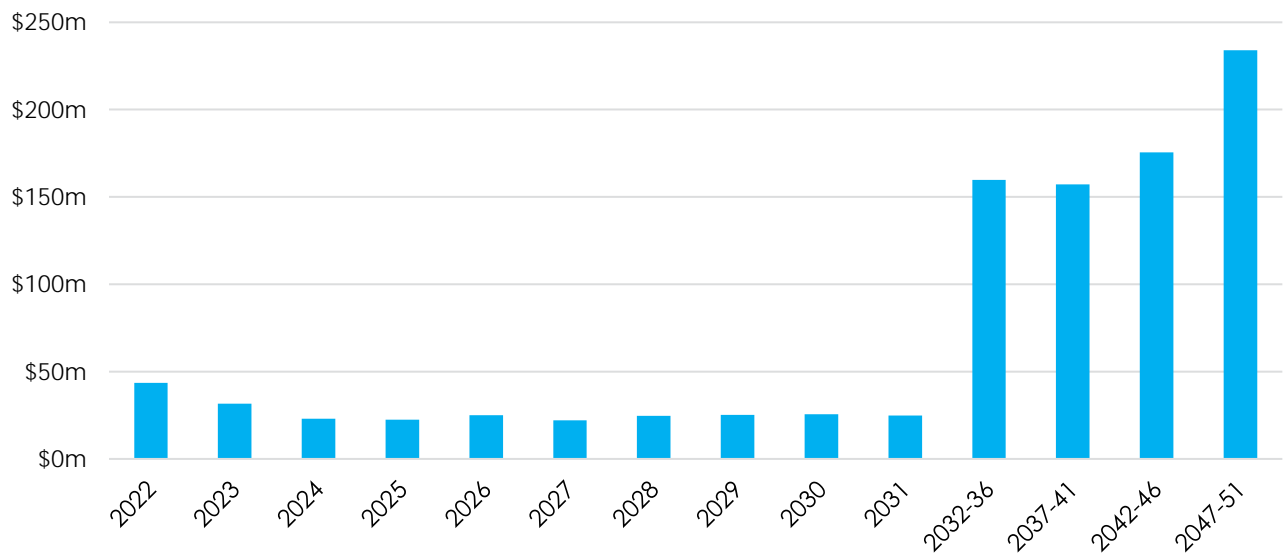
- We are building funds for the replacement of expensive, long-life water supply assets (two water treatment plants and the water supply pipeline), which are not due for renewal for another 30-40 years. There is limited or no renewal expenditure needed in the early years of their life.
- Our water treatment plants have not been broken down into individual components (each with a different useful life). This will be undertaken before the 2024 LTP and may result in our renewal planning aligning more closely to depreciation.
- Our stormwater assets mostly consist of pipes (no treatment plants) and secondary flow paths also exist to help convey stormwater during periods of heavy rain. This means the network is relatively low risk compared to water and wastewater.
- There are no major performance issues in the stormwater network due to the condition of existing assets. The more significant issue is whether the performance and capacity of the existing network needs to be increased. This is being addressed via catchment modelling and planning. Upgrades are planned within the 2021 LTP to address known issues through the Drainwise programme and other catchment area upgrades. Increasing the renewals programme ahead of detailed catchment modelling could mean we replace pipes now that later need to be replaced with bigger pipes. This is inefficient and costly.
- We have forecast that there will be increasing stormwater renewal requirements from about year 36, peaking in years 46-56. We need to ensure we have sufficient funding for this future work.

It is usual that not all the potential works forecast can be afforded within available funding. The budgeting process prioritises expenditure on maintaining and renewing existing assets before creating new ones.

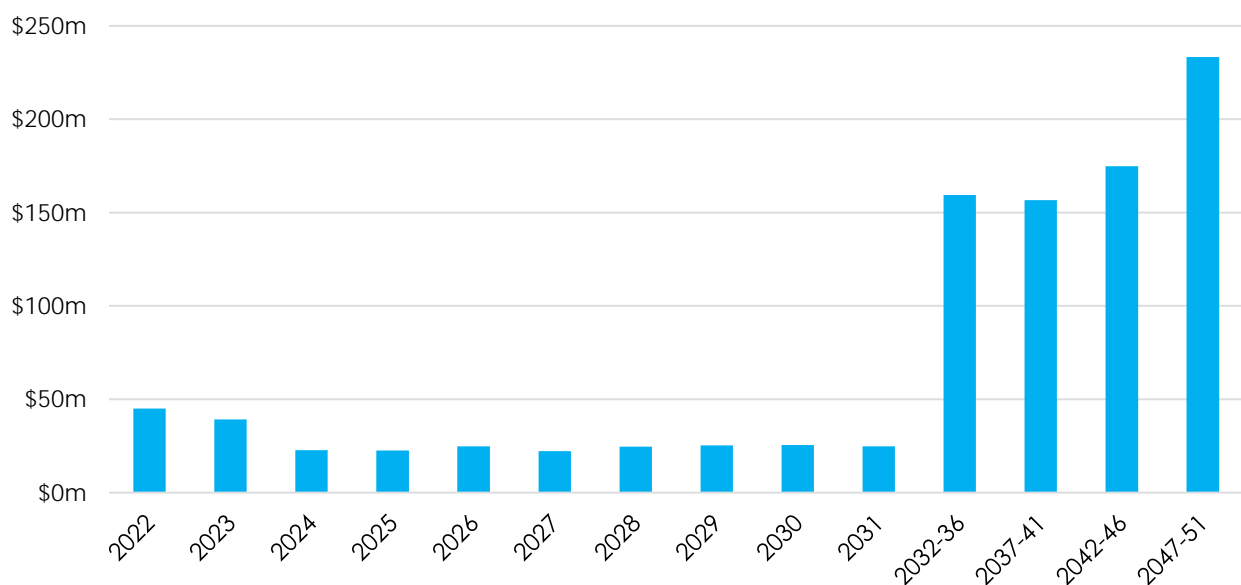
For each LTP we need to confirm the funding we will provide for the renewal of our existing assets.

Figure 34: Forecast expenditure on maintaining assets over the next thirty years

Forecast renewals over the next 30 years



Forecast renewals over the next 30 years



Expenditure in years 1-2 is significantly higher than later years due to the Olympic Pool redevelopment (70% of this project is classed as maintaining the asset).

Three waters

We estimate nearly \$200m is needed over the next 30 years to ensure our stormwater, wastewater, and water assets are kept in good condition and provide the same level of service to the community.

The renewals strategy adopted for the three waters (water, wastewater and stormwater) prioritises timing of renewals and upgrades based on asset criticality (consequences of failure) and the likelihood (probability) of failure. This assessment is updated at least every three years.

The focus for the next 10 years is renewing pipework, which has a recommended forecast capital budget of about \$35m. To help limit spikes in financial requirements and to ensure a steady stream of work for contractors, the renewals programme has been 'smoothed' over the ten years; however, expenditure is still about 12.5% higher than forecast in the 2018 LTP. This is in response to a condition assessment of critical pipes, which found higher rates of deterioration than expected. Work to address this has been prioritised in years 1-3 of the LTP.

There are other maintenance and renewal activities that require capital expenditure such as renewing pump stations and plant components.

Land, rivers and coastal

There is a modest renewal budget for these assets – about \$8m over the next 30 years. A large proportion of these assets (including storm channels, drains and much of the coastal protection works) are assumed to be managed through maintenance rather than renewal, and are not depreciated.

Roading

We have forecast capital expenditure of about \$700m over the next 30 years to maintain our roading assets. This includes an increase in expenditure in years 14-16 on renewing roads and road surfaces.

Data suggests that historically, asset management practices were predominantly reactive after significant asset 'sweating' by undertaking minimum preventative actions. Programming focused on essential/corrective maintenance and pavement decay under the intervention threshold.

The historic approach of deferring maintenance and renewals ('sweating the asset'), coupled with increased forestry volumes, has resulted in further deterioration of asset condition, and increased the costs to repair and renew at a later date.

Over recent years there has been significant investment in the roading network, from Council and central government (via the Provincial growth Fund and National Land Transport Fund). However, investment has still fallen short of what is needed to maintain the entirety of the roading network to expected levels of service. If optimal asset management was adopted, the estimated roading maintenance and renewal requirements would be about \$160 million more than has been included in the 2021-2031 LTP forecast across both capital and operational expenditure. This is not affordable for Council or Waka Kotahi.

In the 2021 LTP, we have maintained similar maintenance and renewal budgets as the 2018 LTP, but reprioritised spending to slow overall pavement deterioration and target resources at building and maintaining resilience within the network and adapting to climate change. Recent gains made as a result of PGF investment will be maintained.

We also intend to clarify expected levels of service with our community during the life of the LTP and implement other strategies to ensure safe access across the network at the lowest cost. Options being considered include:

- Using chipseal instead of asphalt in urban areas (current policy)
- A chip seal reversion strategy in rural roads
- No new seal extensions
- Increased use of 4-wheel drive only recommendations
- In targeted sections, it may be increasingly viable to revert sealed road to unsealed if maintenance and renewal costs become unaffordable

Community Facilities

There is a substantial investment in the Olympic Pool redevelopment (largely externally funded), but a modest renewal budget for all other assets means additional budget may be required in the 2027-2037 LTP if parks and open space assets are to be maintained as safe to use and meet community expectations.

A key focus is sporting and recreation facilities. There are 13 main council owned sports grounds in Tairāwhiti. These are a mixture of high, medium and low-grade fields with varying facilities (such as changing rooms and seating).

Due to high levels of use, and limited investment in the maintenance of fields and facilities, many of the sports grounds require significant investment. Similarly, the majority of changing and clubroom facilities for field sports are either non-existent or severely run down and require additional investment to keep them in operation.

A recent investigation into the condition of Tairāwhiti's sports fields identified a number capital improvement projects that could be implemented as a short-term solution. We have planned for some expenditure on upgrading sporting facilities (\$0.7m over the LTP) and are working with Trust Tairāwhiti and Sports Gisborne Tairāwhiti to develop a long-term and sustainable long-term management approach in line with the Communities Facilities Strategy 2018. We have forecast \$3.5m expenditure to act as seed funding and attract external investment. More detail can be found in the Tairāwhiti Sports Facilities Single stage business case November 2020.

Cultural facilities are generally in good condition due to recent renewals of theatres and the library. Some renewals work is planned for the museum (Star of Canada and Lysnar House), and operational work is planned to assess the future life and use of Gisborne Soundshell.

Other renewal peaks – beyond the life of the 2021 Infrastructure Strategy

Water supply renewal requirements peak in years 30-35 (replacement of the Waingake and Waipaoa treatment plants) and 35-40 (replacement of the water supply pipeline from Waingake to Gisborne). There are also significant spikes in wastewater in years 37-40 (replacement of the Gisborne wastewater treatment plant) and increasing stormwater renewal requirements from about year 36, peaking in years 46-56.

Significant capital expenditure decision

Replacing aging infrastructure – Decision Needed: Every 3 years

For each LTP we need to confirm the funding we will provide for the renewal of our existing assets. As part of the 2021-2031 LTP process, we decided to fund renewal of assets to the level recommended by asset managers.

Key options for decisions include:

- Whether there are assets we choose not to renew in the future.
- The extent to which the forecast renewal requirements are funded in each LTP.
- The extent to which climate change will impact on the current levels of service and whether upgrades or relocation of assets is required to maintain the level of service or the level of service will decrease

Forecast capital expenditure on capital renewal and maintenance projects

	Years 1-10	Years 11-20	Years 21-30	Comment
Water Supply Renewals	\$23m	\$29m	\$35m	Primarily water main renewals
Wastewater Renewals	\$31m	\$26m	\$31m	Primarily wastewater pipe renewals
Stormwater Renewals	\$9m	\$6m	\$7m	Primarily stormwater pipe renewals
Roading Renewals	\$164m	\$230m	\$310	Primarily road renewals and pavement maintenance
Rivers and Land Drainage	\$5m	\$4m	-	Primarily Waipaoa River Flood Control Climate Change Resilience project
Solid waste	\$2m	\$2m	\$2m	
Community facilities	\$43m	\$16m	\$20m	Most expenditure (\$26.4m) in years 1-10 relates to the Olympic Pool redevelopment.

Financial estimates in these tables have been rounded up to nearest \$1m for values up to \$50m and nearest \$10m for values over \$50m. This reflects the uncertainty of long-term financial estimates.

Āpitihanga 1:

Tirohanga Whānui o tō tātau mōhiotanga o te hanganga

Appendix 1:

Overview of our infrastructure knowledge

Good quality infrastructure planning relies on good quality asset knowledge. We need to understand how our assets perform, understand the lifecycle costs and the risks associated with failure. Uncertainty about data for an asset can impact on our financial sustainability.

Table 22 provides a summary of our asset knowledge. This is an overall picture. Over a whole network, there are always some assets needing renewal or maintenance, and performance can vary. The ratings used in Table 22 are based on the NAMS International Infrastructure Management Manual 2015. Further explanation is included in Table 23.

Table 22: Summary of asset knowledge on a network basis

Network	Value \$m DRC*	Overall Condition	Overall Performance	Data Confidence	Implications
Roads and Footpaths	\$1,650m	3-4 Maintenance and renewals required Significant maintenance and renewal backlog developing.	3 Moderate	A Highly reliable	The asset renewal requirements are well understood, but not affordable.
Water Supply	\$106m	2-3 Minor defects and some water main renewals are required in the short-term.	2 Good	B Reliable but less reliable for older assets	Condition assessment needed for some assets – programme in place.
Urban stormwater	\$59m	2-3 Minor defects and some stormwater pipe renewals are required in the short-term.	3 Moderate	B Reliable	Condition assessment needed for some assets – programme in place.
Wastewater	\$92m	4 Assets require renewal/ upgrade Wastewater main renewals are required in the short-term. Upgrade of WWTP required (underway).	3 Moderate	B Reliable but less reliable for older assets	Condition assessment needed for some assets – programme in place.
Land, Rivers and Coastal	\$69m	4 Assets require renewal/ upgrade Upgrade of the Waipaoa River Protection Scheme required (underway).	3 Moderate	B Reliable But less reliable for older assets and coastal assets.	

Network	Value \$m DRC*	Overall Condition	Overall Performance	Data Confidence	Implications
Recreation and amenity – aquatic facilities, cemeteries, parks and open spaces, sports facilities	\$55m	4 Assets require renewal/ upgrade Olympic Pool complex requires a major upgrade (underway), shortcomings with other sporting facilities to be addressed over the longer-term.	3-4 Moderate to poor	B Reliable / C uncertain	A significant budget increase required by 2028 if parks and open space assets are to be maintained as safe to use and meet community expectations.
Recreation and amenity – play spaces, public conveniences, street trees and gardens	\$9m	2-3 Minor defects and some play spaces and public conveniences require renewal.	2-3 Good to moderate	B Reliable	Renewals are planned in the 2021 LTP, but insufficient to maintain expected levels of service in the long-term. Engagement will occur with the community before levels of service are changed.
Cultural Activities - library and theatres	\$26m	2 Minor defects Only	2 Good minor shortcomings	B Reliable	Most major assets have been recently upgraded except the Soundshell theatre.
Cultural Activities - Museum buildings, Patutahi Hall	\$3m	4 Assets require renewal/ upgrade	3-4 Moderate to poor	B Reliable / C uncertain	Community buildings are ageing, renewals planned for museum buildings in the 2021 LTP.
Solid waste	\$2m	3 Maintenance required	2 Good minor shortcomings	B Reliable / C uncertain	Programme in place to improve knowledge of historic landfills.

*Depreciated Replacement Cost as of 30 June 2020

Table 23: Descriptors of asset knowledge adapted from the NAMS International Infrastructure Management Manual 2015

Condition	Performance	Data confidence
1 Very Good	1 Very Good	A Highly reliable Systematic and fully optimised data programme. Dataset accurate ± 2%.
2 Minor defects only Only minor maintenance works needed	2 Good	B Reliable Reliable data in information system with analysis and reporting. Dataset accurate ± 10%.
3 Maintenance required Maintenance needed to return the expected level of service	3 Moderate	C Uncertain Sufficient information to support basic analysis Dataset accurate ± 25%.
4 Assets require renewal/ upgrade	4 Poor	D Very uncertain Basic /incomplete information based on assumptions Dataset accurate ± 40%.
5 Very Poor Approaching unserviceable	5 Very poor	E Unknown No asset register

How do we assess the condition and performance of our infrastructure?

Three waters (water supply, wastewater and stormwater)

The condition of our below-ground assets (pipes) is assessed using:

- Age (as proxy for condition).
- Analysis of samples from burst mains and other faults (mainly used for water supply assets).
- Analysis of samples from key pipe ages/diameters as indicators of condition (mainly water supply assets).
- A review of industry/local government useful life information.
- Condition assessments of critical wastewater assets using CCTV and other tools.

Condition has primarily been assessed using age, supplemented with a range of direct sampling and assessment tools. We have recently inspected all our most critical wastewater pipes (largely interceptors > 300mm and some older earthenware pipes) using CCTV. This has identified some poor condition interceptors requiring high priority renewals using a cure in place (CIP) lining technology.

A selection of higher risk stormwater pipes is currently being planned to be assessed using CCTV and the results used to prioritise stormwater renewals.

Water pipes condition can't be assessed using CCTV, so expensive physical pipe sampling and analysis of asbestos cement and cast-iron pipes is undertaken during maintenance procedures or when faults are fixed. If the assessment shows a significant sample of pipes of a certain type and age are in a better condition than expected, then their remaining useful life may be adjusted across the network.

We plan to undertake more direct condition assessments using CCTV, which will provide more robust condition and performance data.

Regular performance and condition inspection programmes are in place for above ground assets, such as dams, pump stations, water supply treatment plants and reservoir facilities. These include a range of tools such as engineer inspections, drone flights and surveys.

Specific condition assessments have been carried out on the marine outfall to Turanga a Kiwa Poverty Bay. These include sonar, hydrographic survey and dive inspections. These inspections show that the pipe condition is good. Further inspections are planned to ensure confidence in the ongoing performance of the outfall.

Performance

Real time performance for wastewater and water networks, including treatment plants, is monitored using SCADA and telemetry networks.

Overall performance is assessed by computer models for each network, and these show system constraints, problem areas and future capacity under a range of scenarios.

We also assess Requests for Service and progress against the non-financial performance measures (NFPM)⁸ set for three waters to help identify performance and condition issues.

⁸ The Secretary for Local Government makes rules specifying non-financial performance measures for councils to use when reporting to their communities.

Roading and Footpaths

Our roading contractors undertake regular inspections of the condition of the roading network. We also commission independent contractors to undertake audits and surveys of network components. Network condition measures include:

- Visual inspections – where faults are noted, usually from a moving vehicle, during a periodic inspection.
- Asset inspection programmes, such as:
 - Regular programmed inspections of load-bearing and drainage structures.
 - Annual surface rating condition surveys.
 - Roughness surveys.
 - Test pit investigations.
 - Targeted strength testing to assess the network asset condition and performance.
- Safety inspections – periodic drive-over inspections.
- Change in the pavement integrity index (PII) of the sealed network.
- Maintenance costs per km of the network or VKT (vehicle kilometres travelled).

Data is recorded in a centralised system which also holds other information on our assets, such as age, useful remaining life, function, risk factors, and the One Network Road Classification (ONRC) category (Access, Low Volume, Arterial, Secondary collector).

Performance

The strength of unsealed roads is determined using Structural Numbers (SNP) generated using a Multi-Speed Deflectometer (MSD), which provides an indication of potential network performance and indicates if roads are becoming overloaded.

The Deighton Total Infrastructure Management system (DTIMS) is used to assess sealed road performance. This is software specifically designed to use condition analysis and prediction tools to assess current and remaining future life.

We also assess Requests for Service, and progress against the non-financial performance measures (NFPM)⁹ and levels of service set for roading and footpaths, to help identify performance and condition issues.

Land, Rivers and Coastal

Regular performance and condition inspection programmes are in place for these assets. This includes inspection by contractors and engineering surveys. Other measures to assess condition and performance include:

- Regular engineering surveys to monitor riverbed and berm level trends which is an indicator of capacity and hydraulic performance.
- 25% of flood control scheme stopbanks are required to be formally inspected each year (around 20km / year).
- Condition assessments using CCTV and other tools of culverts through stopbanks are undertaken as required on a risk-based approach.
- Coastal assets are inspected and assessed reactively following prolonged erosion activities when beach levels are low exposing these assets.

⁹ The Secretary for Local Government makes rules specifying non-financial performance measures for councils to use when reporting to their communities.

Solid Waste

The condition of our solid waste assets is assessed using install date and expected remaining life. This is supplemented by condition assessments of landfill sites and transfer stations by contractors.

We are moving from reactive management of some assets (bins) to an approach based on region-wide condition assessment.

Community facilities

The condition of our community facility assets is assessed using install date and expected remaining life. This is supplemented by key performance data, including:

- Condition assessment data.
- Requests for Service (which help identify performance and condition issues).
- Maintenance schedules and Building Warrant of Fitness standards
- Active management of warranties and service agreements.

How good is our infrastructure information?

We have undertaken substantial work to improve the reliability of data that underpins our asset management plans. We have reviewed our asset reliability grading system and adjusted the gradings we use to align with international standards and best practice. Most assets are now included in a consolidated asset management system. We are also developing a data improvement programme, including reviewing data research and resourcing requirements. This work will continue over the next few years.

There are still some gaps in Council's data about the condition of assets, especially for three waters assets installed early in the 20th century. Historical records for this period are not available or require considerable research to verify data.

We are committed to improving data collection and analysis for assets where the current data confidence rating is less reliable. This is shown in Table 24.

Table 24: Actions to improve reliability of asset data

Activity	Data gap	Data to be analysed	Value this data provides
Water supply and wastewater	Asset inventory and condition information for water supply and wastewater assets installed early in the last century. Historical records for this period are not available or require considerable research to verify data.	Maintenance requirements, condition assessments and historical data that informs remaining our assessment of the life of assets. Examples of data we will collect or verify are: <ul style="list-style-type: none"> • Installation dates, material types and diameter for our oldest assets. • References to as-built plans. • Other illogical or missing data. We will focus on critical assets first.	Better data will allow better preventative maintenance and renewal programmes to be developed. Proactive maintenance can be programmed. Long term renewal requirements can be mapped out.
Soundshell	Condition assessment of community building	Maintenance requirements and condition assessment informing remaining life of the asset.	A feasibility and building assessment for life and use of this asset is planned during the 2021 LTP. Renewal requirements can be mapped out and cost-benefit analysis of maintaining the asset undertaken.
Historic landfills	Limited information on the state and environmental risk caused by historic landfills.	Maintenance and remediation requirements. Risk of historic asset deteriorating.	Risk assessment to be undertaken during 2021 LTP to prioritise maintenance and remedial works needed to reduce risk to an appropriate level.

Levels of uncertainty and implications

Good quality asset management relies on good quality asset knowledge. We have reliable information about the condition of our critical infrastructure, which means we are able to confidently plan for the maintenance and renewal of these assets.

The rest of our asset data reliability is generally grade B or C, although information on some older assets is less reliable. This means that the data used to forecast maintenance requirements and when renewals are needed has an uncertainty of about 10% to 25%, and that renewal and maintenance in any year could vary to this extent.

Some assets will fail before reaching the end of their expected useful life, and some will last longer. For this reason, we are moving to a risk and condition-based approach to planning renewals rather than an age-based approach. We have assumed we will be able to manage this variance within the budgets we have set by prioritising renewals each year based on risk of failure.

Table 25 provides a summary of assets for which we are less confident about our data and the implications of this uncertainty.

Table 25: How we manage infrastructure when there is a lack of information

Asset group/sub-group	Issue	Implications and response
Above ground transport assets	A significant portion of the asset data is estimated.	Not a significant concern as all of these assets are above ground and can easily be inspected. Ongoing inspection and monitoring regime in place.
General	Some asset information may not be accurate or up to date.	These risks are minimal and are part of an asset management plans improvement plan
Community facility building assets	Asset condition and performance information for some community facilities Basic information is missing for some buildings.	Not a significant concern as all of these assets are above ground and can easily be inspected. Ongoing inspection regime in place.

Āpitihanga 2

Ngā whakaaro mō te whakahaere hanganga

Appendix 2

Assumptions about infrastructure management

This section sets out the assumptions we have used to develop the most likely scenario for management of our infrastructure assets over the next thirty years.

More detail on these assumptions is provided in the significant forecasting assumptions that accompany the 2021 LTP. More information on levels of service and growth in demand can be found in Appendix 3.

Assumption	Level of Uncertainty	Implications if incorrect	Mitigation
Capital programme and infrastructure assets			
All new infrastructure assets or significant changes to existing assets are accurately identified in the Infrastructure Strategy	Low	Forecast renewal and maintenance programmes may be inaccurate, resulting in unplanned expenditure	Asset management planning practices
The useful life of all significant assets is accurately recorded in Council's asset management plans. All significant assets are replaced at the end of their useful life unless otherwise identified in the LTP and Infrastructure Strategy.	Medium We have improved our asset data over the last three years, which allows us to better forecast the life cycle of assets. There are information gaps in some asset classes and condition/performance data is often less certain. This affects the reliability of future renewal forecasts.	Occasionally an asset will fail prior to its expected end of life, when this occurs, we either: <ul style="list-style-type: none">• Carry out reactive maintenance to immediately return it to service; or• Prioritise its replacement against the planned programme and renew it accordingly. Reactive rather than proactive maintenance and renewals tend to be more expensive and cause more disruption to the community and business.	Condition assessments of critical infrastructure prioritised. Council has an ongoing programme to obtain improved information on the age and condition of its assets.
Growth and Decline in Demand			
The population of the Gisborne District will continue to grow with the growth primarily focused around the Gisborne Urban Area. A medium to high growth projection is assumed. A growth rate of 0.6% per year is assumed for the first 10 years of the 2021 LTP. This is assumed to fall to 0.3% in years 11-20, and 0.2% in years 21-30 ¹⁰ .	Low	If the rate of growth or change in population structure is different from what has been predicted, changes will need to be made to the timing of the growth programmes and type of infrastructure and services delivered. Increased capital and operational expenditure may be required to meet the needs of both the younger and older populations.	The three-year review of AMPs and the LTP minimises the risk of expenditure not matching growth or community requirements. Infrastructure planning considers high growth projection as a sensitivity test.

¹⁰ Thomas Consulting. Gisborne District Council Growth Forecasts. 2020.

Assumption	Level of Uncertainty	Implications if incorrect	Mitigation
<p>The number of households is likely to increase at a slightly faster rate than population, as household size declines. This is likely to increase the demand for Council services.</p> <p>Non-resident demand for holiday home properties will be maintained at the current proportion of dwellings which are used as holiday homes.</p> <p>The region has a high population of people aged under 15 (23.1%) and over 65 (16.2%). The population forecasts reflect a general ageing of the population, although a recent rise in inward migration has resulted in more young people than was previously forecast.</p> <p>The types of services and infrastructure an ageing population will need (such as accessibility and recreational needs), will be different to the needs of other population groups (such as the younger population).</p> <p>The increasing age of the population and the lower percentage of working age population is likely to have an impact on some residents' ability to pay for services and the types of services required.</p>			
There will be no significant change to industrial/commercial demands on infrastructure (with the exception of the growth of heavy vehicles associated with forestry harvests).	Medium Infrastructure planning generally allows for some increase in industrial demand, but of a minor nature.	A significant change to the economy, such as a large employer choosing to locate in the region, may require Council to review and change its current activities and levels of service.	Demands of new industries/business will be quantified and an amendment to the Long-Term Plan developed if the costs or change to levels of service are significant. The TRMP review project will consider impact of zoning and land use change on infrastructure requirements.
Any changes to transport type and volume within the Gisborne District will not exceed projections.	Medium	Higher than forecast volumes of heavy traffic (such as logging trucks) would require greater road maintenance and upgrades, resulting in significant unbudgeted costs or increased deferred maintenance.	Volumes of heavy traffic are reassessed every three years.

Assumption	Level of Uncertainty	Implications if incorrect	Mitigation
Levels of Service			
<p>Levels of service will generally be maintained at similar levels for the 10 years of the LTP. Expenditure on maintenance and renewals will be prioritised in terms of condition of assets and their criticality.</p> <p>Some major projects, such as the Waipaoa River Flood Control Climate Change Resilience project, Waingake restoration programme, and the Olympic Pool redevelopment, will increase the level of service after the project is completed.</p>	<p>Low</p> <p>The level of service is largely established by the infrastructure already in place. In the longer-term (beyond the life of the LTP), levels of service may be impacted by climate change.</p>	<p>Costs may increase requiring an increase in rates or a reduction in levels of service in other areas. Rates affordability may require a reduction in levels of service.</p>	
<p>Conditions of resource consents held by Council for water takes, stormwater discharges, wastewater and solid waste management will have more stringent conditions.</p> <p>Conditions on other types of infrastructure consents held by Council will not be significantly altered.</p> <p>Significant consents that will be obtained/ maintained over this period are:</p> <ul style="list-style-type: none"> • Waipaoa water take for municipal supply (expires 2021) • Te Arai water take for municipal supply (expires 2026) • Waiapu landfill (expires 2025) • Te Araroa waste transfer station (expires 2025) • Te Karaka wastewater treatment plant (expires 2037, work expected before 2031) • Wastewater overflows (2026) • Paokahu landfill (expires 2032, closed landfill). 	<p>Medium</p> <p>We know that consent conditions are likely to change, but the extent of change is unknown until resource consent processes are complete.</p>	<p>Conditions required to obtain/maintain may result in higher costs than projected, and these costs will not be covered by planned funding.</p> <p>Inability to obtain key consents may result in Council being unable to provide key services.</p>	<p>Advance warning of likely changes is anticipated.</p> <p>Early engagement with mana whenua, stakeholders and consenting team will identify areas of change early.</p>

Assumption	Level of Uncertainty	Implications if incorrect	Mitigation
A new consent will be granted for the Waipaoa River water take for municipal supply, and the amount of water that can be taken will not be significantly changed.	Low We have significantly progressed the new consent for the Waipaoa water take, and take and undertaken pre-application discussions with the consent authority. Assessment against the Tairāwhiti Resource Management Plan indicates that continued abstraction from the river is appropriate. The existing consent has already been reviewed and abstraction limits reduced to meet the requirements of the Tairāwhiti Resource Management Plan.	If the amount of water that can be taken is significantly reduced, Council may need to impose more frequent water restrictions and/or install UV treatment at Waingake faster than planned and funded. Inability to obtain this consent may result in Council imposing more water restrictions.	A consent decision should be received before the 2021 LTP is finalised, which will allow adjustments to forecast expenditure to be made if necessary.
Legislative and regulatory three waters reform (water, wastewater and stormwater) will require Council to undertake significant operational and regulatory changes to meet new mandatory standards, including undertaking collaborative approaches to water service delivery.	High The Three Waters reform is underway, with some legislative change having occurred and further change expected to occur within the period of the LTP. At the time of preparing this LTP, we are unable to determine how potential legislative change might impact its operation or quantify the potential financial impact.	Responding to changes in legislation and political direction is part of normal Council operations. Current budget and resourcing allocations may be insufficient to meet new standards. The more significant issue is the affordability of any required changes for ratepayers.	Legislative changes generally have transition periods for Councils to respond as necessary. The three-year review of AMPs allows asset managers to respond to changes to legislative reform.
Council will continue to deliver water, wastewater and stormwater services over the life of the 2021 LTP.	High	Amalgamation of authorities and/or new structures to manage particular classes of assets (such as a water CCO) would impact the way the assets are managed, particularly the synergies between the current infrastructure activities although the fundamental service delivered by the asset is likely to remain the same. Infrastructure challenges such as renewal, resilience, and changes in growth and demand exist regardless of the organisation that provides these services.	The three-year review of AMPs allows asset managers to respond to changes to legislative reform. The infrastructure strategy discloses the issues we expect will arise, or will be faced, in the water, stormwater and wastewater activities. This will inform future decision-making once there is more certainty on the shape of the three waters reform.

Assumption	Level of Uncertainty	Implications if incorrect	Mitigation
Other significant assumptions			
Government assistance in the event of a natural disaster will remain the same as present.	Low The national CDEM Plan was due for review in 2020. This Plan covers Government financial support to local authorities during recovery. The current plan remains in place until it is replaced.	Changes to Government the assistance for recovery of underground infrastructure may require Council to respond with changes in its insurance or other actions. No allowance has yet been made in our financial estimates.	
Natural hazards, such as floods, will cause damage to Council infrastructure. It is assumed that there will be some minor natural hazard events during the LTP period, for example flooding. It is assumed that no natural hazard or disaster causes widespread or catastrophic damage to Council infrastructure during the Infrastructure Strategy period.	Medium	Extreme weather events have the potential to cause significant damage to the District's infrastructure. In the event of a medium or larger event, Council's emergency reserves may not be adequate. Council may have to review its levels of service, its investment in facilities and infrastructure and consider exceeding limits in its Financial Strategy to support the recovery of the district.	The CDEM Group has response and recovery plans for such eventualities that include lifelines. Sufficient borrowing capacity and insurance to fund minor-moderate damage to infrastructure.
Climate change: Changes to weather patterns and impacts on the coastal environment as per the 2021 LTP significant forecasting assumptions. Climate change will have impacts on existing infrastructure assets. For some assets the level of service will reduce over time unless upgrades are made or assets are relocated or protected. Current climate change trends will be allowed for when planning infrastructure and services. Addressing the longer-term impacts of climate change on infrastructure may Council to make significant asset management changes, which will require additional resourcing.	Medium The longer-term impacts of climate change for Council infrastructure, and level of central government support and assistance is unknown and may be insufficient.	The effects of Climate Change occurring more quickly than anticipated may require Council to review and change its current activities and levels of service. This could have a significant financial impact on the community.	Provision is being made to adapt infrastructure for climate change, based on NIWA predictions for 2090, given the long life cycle of assets. If the changes are different from what is predicted, this will be assessed as they become evident.
Financial			
All asset revaluations are a best estimate based on historical asset values, national infrastructure contract rates, forecast capital expenditure, BERL inflation indices and other indices. All revaluations result in an appropriate change to revaluation reserves and the depreciation expense.	Medium	If asset values change significantly, the costs of funding depreciation may increase. Council may need to consider increasing fees and charges and/or rates to pay for the increased costs of funding depreciation. If value changes significantly, depreciation	Revaluation occurs every three years, and adjustments made every year based on construction and other cost movements.

Assumption	Level of Uncertainty	Implications if incorrect	Mitigation
Asset Replacement Cost values are set based on national rates.	Medium Due to our isolated location we tend to and pay more for infrastructure due to limited contractor competition and cartage costs. Increasing compliance costs associated with meeting Health & Safety requirements may also be passed on by contractors.	funding may be insufficient to fund asset replacement.	
Waka Kotahi Financial Assistance Rate (FAR) reduces to 66% by 2023/24 and then remains at 66%. Council's local share is affordable. Requirements and specifications for the performance of subsidised work will not alter to the extent that it impacts adversely on operating costs.	Low	Council's cost share is increased if FAR is reduced. If local share is not affordable, Council may need to consider reducing its programme of transport infrastructure investment and, levels of service may decrease as a result. Changes to the funding priorities of Waka Kotahi are outside Council control and they vary from project to project. The maximum financial impact would be the elimination of the subsidy.	Regular communication and engagement with Waka Kotahi through the Regional Transport Committee and Strategic Transport Advisory group.
Council will receive the operational and capital revenue included in the bid to the National Land Transport Fund (NLTF) ¹¹ . Any variations to this will be minor and immaterial and will not impact delivery and levels of service.	High	If Council does not receive the bid amount for operational and capital expenditure: If less than 5% reduction against the bid amount, then the programme would be spread over full delivery across the network and there would be minimal impact on delivery and expected level of service. If more than 5% reduction against the bid amount, Council will need to look for alternative sources of funding, potentially reduce levels of service in some areas, and may have to reduce or delay some capital expenditure.	Regular communication and engagement with Waka Kotahi through the Regional Transport Committee and Strategic Transport Advisory group.
External funding for projects, when stated, will be realised.	Low	Difficulties obtaining funding may result in reductions or delays in the capital works programme.	

¹¹ This assumption is required due to a delay in the process for this round of the NLTF process. This assumption is not normally required in Council's Infrastructure Strategy.

Assumption	Level of Uncertainty	Implications if incorrect	Mitigation
Confirmed funding contracts with central Government for infrastructure projects are not withdrawn or reduced.	Medium Government priorities may change, especially given the funding needed for COVID-19 recovery.	The likelihood of funding being removed for infrastructure projects is low as investment in infrastructure delivery is consistent with Government's COVID-19 recovery response. However, the impact would be high - some projects may not be able to proceed if funding is withdrawn or reduced. Council may need to review the external funding component of the project and the rates contribution.	Regular communication and engagement with the Provincial Development Unit.
New funding streams may become available (in response to COVID-19 or as recommended by the Productivity Commission) to assist with infrastructure delivery, climate change adaptation measures and to recognise increased responsibilities placed on local authorities by central government.	High	New funding may mean some projects can be fast-tracked or limit rates increases in future years if borrowing is reduced. The Revenue & Financing Policy allows such funding sources to be utilised. New funding streams are not available or are complex to access and require additional resourcing to manage.	
<p>The cost per tonne for municipal landfills will increase from \$10 to:</p> <p>1 July 2021 \$20 1 July 2022 \$30 1 July 2023 \$50 1 July 2024 \$60</p> <p>The levy will also be expanded to include additional fill types. Council's waste is disposed of at these types of fills. This will increase construction contract costs if alternative methods of disposal or reuse are not used.</p>	Medium The initiative does not have cross party support.	If the levy increase is not implemented in line with the current plan, then this could reduce the future costs to Council.	
Due to an increase in the waste levy there will be additional revenue available for initiatives that support waste reduction e.g. NZ-based recycling infrastructure. Council will see an		If the levy increase is not implemented in line with the current plan then this will reduce the potential revenue available for Council.	

Assumption	Level of Uncertainty	Implications if incorrect	Mitigation
Revenue from development contributions will be at or above the levels predicted in the Development Contributions Policy.	Low	<p>If the number of new properties paying development contributions is less than forecast over the funding life of assets, then the revenue will not be sufficient to fund the growth component of the capital programme.</p> <p>The altered timing will impact on Council's cash flows and may necessitate changes to planned borrowing. Increased debt being held by Council may impact on debt limits under the Financial Strategy. Either a rates increase or levels of service decrease may be required as a result.</p> <p>Planned projects to increase network capacity to support growth may not be needed and would not occur.</p>	

ĀpitiHanga 3:

Ngā whakaaro mō ngā Ratonga Kōeketanga me te Whakarahinga Whakatipu

Appendix 3:

Assumptions about Levels of Service and Growth in Demand

Levels of Service

This section sets out the assumptions about the level of service our infrastructure will provide. We have used these assumptions to develop the most likely scenario for management of our infrastructure assets over the next thirty years.

Growth

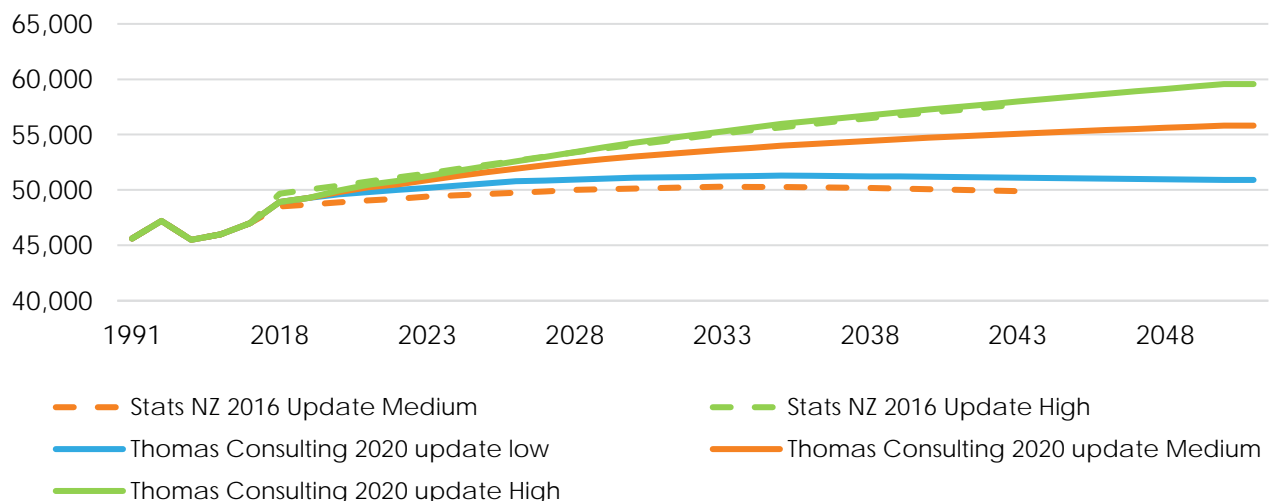
We forecast the infrastructure required to provide for growth by analysing:

- Population projections.
- Hydrological network and process modelling.
- Capacity reviews at water and wastewater treatment plants.
- Strategic infrastructure requirements determined through structure planning.
- Engagement with government agencies and mana whenua on future infrastructure requirements
- Developing integrated catchment management plans (ICMPs) which will identify issues and propose best practicable solutions for growth on a catchment basis.

Population projections

Gisborne is currently experiencing a period of higher than forecast population growth. This means we need to review the impact of updated growth forecasts on our infrastructure requirements and develop further options to provide for growth.

Population forecasts for Gisborne District



We have assumed that the population of the Gisborne District will continue to grow with the growth primarily focused around the Gisborne Urban Area. A medium to high growth projection is assumed.¹²

Under this assumption, the population will grow to around 53,200 by 2031 and 55,800 by 2051 (Thomas Consulting 2020 Update Medium). We have also assumed that most of the district's population (nearly 80%) will live in the Gisborne urban area. By comparison, the population forecasting used to support the 2018 LTP suggested a district population of 49,806 by 2031.

We also expect the demand for housing or accommodation for seasonal workers to continue and potentially grow. Worker accommodation is one of the priorities identified in the Gisborne Housing Strategy developed by Manaaki Tairāwhiti¹³.

Population growth and demand for more housing has implications for our infrastructure and delivery of community services affecting both capital and operational expenditure.

Updating the Tairāwhiti Resource Management Plan (TRMP) is one of our priorities for the 2021 LTP. We expect effort to be placed on planning for growth via the TRMP project rather than new capital works projects aside from those already planned in relation to development of the Taruheru greenfield site. This will ensure that infrastructure growth projects align with the strategic direction, and rules contained in the new TRMP.

Water supply

Our water supply infrastructure provides households and businesses with a safe, high quality and sustainable water supply.

Levels of Service

In general, we are planning to keep our service levels the same. In order to maintain the current service levels, we are planning to spend more than has been spent in recent years on water supply infrastructure to replace assets – the focus for the first 10 years of the Infrastructure Strategy is on reinstating the Sang Dam and replacing asbestos cement pipes.

A significant change to the level of service are two projects funded via the Three Waters post-COVID-19 stimulus package:

- Muriwai pipeline and reticulation – top-up water supply to rainwater tanks on individual properties.
- Ruatoria water supply- development of a bulk water supply point.

These projects help address long-standing concerns about the security and safety of water supplies available to communities in townships not connected to the municipal water supply. We anticipate these will be completed before the year 1 of the LTP.

Investment is being made to improve our management of water safety risks based on the Water Safety Plans. This includes residential backflow prevention and UV treatment at Waingake water treatment plant and will increase the level of service.

In terms of demand management, we have assumed that water residential metering will be rolled out over the next 10 years to enable better monitoring, management and understanding of residential water use

¹² Thomas Consulting. Gisborne District Council Growth Forecasts. 2020. Stats NZ. Subnational population estimates: At 30 June 2020. <https://www.stats.govt.nz/information-releases/subnational-population-estimates-at-30-june-2020>

¹³ Eaquib, Shamubeel and Lees, Kirdan. The Gisborne Housing Strategy 2019 – prepared for Manaaki Tairāwhiti and Trust Tairāwhiti

With this additional investment our assets will be more resilient, and water will be treated to a higher standard. Residents and businesses can continue to expect:

- water that is safe to drink
- a well-maintained water network
- a timely response if there is a problem with the water supply
- a quality service
- sufficient water supply capacity to meet demand.

Growth in Demand

Key water supply infrastructure assets we anticipate will be needed to provide for growth include:

- Network extensions for greenfield growth areas – the current focus is on the Taruheru Block. New areas may be added as a result of the TRMP project
- Specific network capacity improvements within the existing network (such as new booster stations)
- Integration of new infrastructure built by developers into our networks
- Capacity and quality upgrades to our water treatment plants
- Investigation of new reservoirs to support growth
- Extending the reticulated network
- Investigation of a new water supply source

Wastewater

Our wastewater activity provides Gisborne, Te Karaka and the western industrial area with a reliable wastewater service that protects people's health and the health of our waterways. We also provide four septate disposal sites in the rural area. Wastewater is provided in a way which meets the requirements under the Local Government Act, Health Act and resource consent conditions.

Levels of service

There are currently some levels of service gaps around trade waste capacity and pump stations that overflow during wet weather. The budgets set in the LTP and this Infrastructure Strategy will address some of these issues. We are also planning to spend more on replacing assets.

We have already made a significant investment to upgrade the level of treatment at the Gisborne wastewater treatment plant so that the plant is operated in accordance with our resource consent conditions. Further investment is included in the LTP and Infrastructure Strategy to continue this process and develop land-based disposal options for wastewater from the Gisborne and Te Karaka wastewater treatment plants.

With this level of investment, our assets will be more resilient, and wastewater will be treated to a higher standard. Residents and businesses can continue to expect:

- The wastewater system is adequately designed and maintained
- The wastewater system is managed in a way that minimises impact on the environment
- A timely response if there is a problem with wastewater system
- A quality service

Growth in demand

Key wastewater infrastructure assets we anticipate will be, needed to provide for growth include:

- Network extensions for greenfield growth areas – the current focus is on the Taruheru Block. New areas may be added as a result of the TRMP project
- Specific network capacity improvements within the existing network (such as new or upgraded pump stations). An assessment of the wastewater network capacity has identified potential constraints to development. More detailed growth planning undertaking as part of the TRMP review will help prioritise network improvements for the 2024 and 2027 LTP
- Integration of new infrastructure built by developers into our networks
- Capacity and quality upgrades to our wastewater treatment plants
- Extending the reticulated network

Stormwater

Our stormwater network protects people, dwellings and properties from flooding in a way that protects the environment and public health.

Levels of Service

Inflow and infiltration of stormwater into the wastewater network causes overflows of wastewater on private property and overloads the wastewater pumpstations, causing overflows into waterways. The Drainwise programme is designed to reduce the amount of stormwater directly entering the wastewater system by 85% and addresses public and private infrastructure. A model of the wastewater system¹⁴ has been used to prioritise works. The highest priority catchments are Kaiti and Whataupoko. These are the areas least able to cope with the amount of stormwater entering the wastewater network.

Stormwater catchment modelling has identified urban catchments where there is a higher risk of flooding. This means that the primary stormwater network is not capable of carrying a minimum of a 1 in 10-year flood. This modelling is supported by reported events. Areas of concern are located in the Graham/Delatour, Whataupoko, Elgin, central business district (CBD) and Te Hapara catchments.

We are planning to spend more on replacing and upgrading stormwater assets so we can maintain the same levels of service for stormwater within the existing city over the period of the Infrastructure Strategy whilst addressing areas more likely to experience flooding issues and the high levels of stormwater entering the wastewater system through the Drainwise programme.

Over the life of the Infrastructure Strategy, we expect further investment to be made in improving the quality of stormwater discharged into waterways and the sea.

Over the next three years, catchment management plans will be prepared for stormwater catchments in the urban area. These will be guiding documents for future management and development of the stormwater network and will help ensure the community can continue to expect that:

- the stormwater system is adequately designed and managed
- the stormwater system is managed in a way that minimises impact on the environment
- a timely response if there is a flooding event
- a quality service.

¹⁴ Gisborne Wastewater Network Model Updates and Upgrades (BECA 16 November 2017)

Growth in demand

Key stormwater infrastructure assets we anticipate will be needed to provide for growth include:

- Network extensions for greenfield growth areas – the focus for the next 10 years is on the Taruheru block
- Specific network capacity improvements within the existing network (such as new swales or increased pipe sizes)
- Integration of new infrastructure built by developers into our networks.
- Extending the stormwater network

Roading and Footpaths

We provide a safe and efficient transport network for Gisborne and the wider region which integrates walking, cycling, buses, private vehicles and freight.

Levels of Service

There are currently some levels of service gaps around satisfaction with roads and response times to service requests. Deterioration modelling and forward work plans show that the current level of funding will not meet the expected levels of service, and we cannot afford to increase investment in the short-term to close this gap. We are taking a risk-based asset management approach.

Resources will be targeted to building and maintaining resilience within the network and adapting to climate change. We are also developing a strategy to maintain safe access across the network at the lowest cost. If additional investment is not made during the life of the Infrastructure Strategy, we expect that some low-volume sealed roads will revert to unsealed, and more of the network may be subject to a recommendation to use four-wheel drive vehicles.

We have also seen a gradual increase in the number of reported deaths and serious injuries over the last 10 years. We are working to improve the safety of the network through intersection safety upgrades and speed management, bridge strengthening, upgrading key routes and enhancing our active transport network. It is hoped that it will decrease the number of fatalities and serious injury crashes on local roads in Tairāwhiti

Resident satisfaction has improved for cycleways and footpaths and we have now developed a long-term (10 year) city-wide cycling network plan.

Over-time, residents will be able to expect:

- A roading network that provides for safe access options
- Affordable and accessible transport options that balance the needs of all users
- The roading network is designed and managed for safe use with low crash and injury rates
- A timely response if there is a problem with roads or footpath
- A quality service

Growth in demand

Primarily, growth in demand will be managed through provision and facilitation of modal choice, such as ongoing development of public transport, cycling and walking options. We have now developed a long-term (10 year) city-wide cycling network plan to help increase cycling and walking options and reduce car reliance in the urban area.

New roads and supporting transport infrastructure will be required to enable greenfield development areas. The current focus is on the Taruheru Block. In the order of 400-800 new houses are expected to be constructed at this location, depending on housing density. One new house is assumed to equal about 10 extra traffic movements a day.

In addition to the roading projects already completed to serve existing development, the following projects are planned to address access and efficiency issues and provide better travel options, including active transport choices:

- Main Road (Makaraka) to Nelson Road – road link
- Main Road (Makaraka) to Nelson Road - new bridge
- Supporting infrastructure for the surrounding area: lighting, footpath and cycleway improvements

Land, Rivers and Coastal

We minimise and prevent damage to land, buildings, and infrastructure caused by floods and erosion.

Levels of Service

We are undertaking a major project to increase the level of service provided by the Waipaoa River Flood Control Scheme. This should be completed in 2031. We intend to confirm the current level of service delivered by the Te Karaka stopbanks (in years 1-3) and consult the community on findings. We will consider increasing levels of service if the community is willing to fund improvements.

No major projects are planned to increase levels of service in drainage areas. The focus will be on maintaining existing schemes.

With this level of investment, our assets will be more resilient, and the Poverty Bay Flats will be protected to a standard that takes into account the impacts of climate change. Residents and businesses can continue to expect:

- We will minimise flood risk and coastal erosion to ensure communities are safe and prepared.
- We will manage the effects of coastal erosion and the drainage of rivers and streams to minimise flood risk.

Growth in demand

No projects or programmes are planned to respond to growth demands.

Solid Waste

Levels of Service

We are planning to maintain the same levels of service for solid waste management within the existing urban areas over the period of the Infrastructure Strategy. We are increasing operational expenditure on cleaning public areas and litter bin collection as we are not meeting current customer satisfaction targets for this service.

We expect will be an increased focus from central government on waste streams and recycling across councils. In the future, this may require operational and capital expenditure changes to comply within short timeframes. We are working with the Ministry for the Environment to improve the operation of existing transfer stations and develop a feasibility study to support an application to fund a regional Resource Recovery Centre. If those measures are successful, we assume we will see an increased level of recycling and waste minimisation.

Overall, the community can continue to expect:

- Solid waste facilities are adequate and available to the community, including regular kerbside collection services and transfer stations.
- Communities are kept clean – public bins emptied regularly, and litter removed
- Waste is diverted from the landfill via waste minimisation methods

- No adverse effects on the environment or human health from the Paōkahu and Waiapu landfills
- Increased awareness of issues surrounding heritage landfills

Growth in demand

There are no forecast growth projects. However, growth in demand will be considered as part of developing the business case for the regional Resource Recovery Centre.

Community Facilities – Recreation and Amenity

Levels of Service

Major investment in the aquatic centre is underway to increase the current level of service and customer experience.

There are currently some levels of service gaps around satisfaction with parks and reserves, public conveniences and street trees. This is a result of consistent underinvestment in operational expenditure. The budgets set in the LTP and this Infrastructure Strategy will address some of these issues.

We have planned for some minor changes to service levels over the life of the Infrastructure Strategy:

- Improve the quality of our playgrounds over the next 30 years for a better play experience. The number of neighbourhood playgrounds may be reduced over this period
- Improve the quality of public conveniences over the next 30 years and change the location and type of services to reflect community needs. The number of public conveniences may be reduced over this period
- Increase expenditure on planned street tree maintenance and street tree planting renewal programme to reduce the number of customer complaints and service requests relating to trees

There is a more significant performance gap around our sporting facilities. A condition assessment of outdoor grounds found that work is required on nearly all sports facilities to bring the playing areas and supporting infrastructure up to an acceptable standard. In addition, many facilities are single-use and lack the flexibility required by the community.

As part of implementing the Communities Facilities Strategy 2018, we have worked with Sports Gisborne Tairāwhiti and trust Tairāwhiti to develop a preferred response to address these issues and maintain an appropriate level of service¹⁵. This is a long-term approach, expected to be implemented over 20 years or more. Implementation will require external investment and support.

The preferred response is to progress four strategic sporting hubs:

Table 26: Strategic sporting hubs proposed for Tairāwhiti

Sport and Recreation Hub	Preferred Location
Indoor and court sports hub	Childers Road Reserve
Outdoor and field sports hub	Gisborne Golf Park
River sports hub	Anzac Park and Marina Reserve
East Coast regional hub	Whakarua Park, Ruatoria

¹⁵ Trust Tairāwhiti, Sports Gisborne Tairāwhiti & Gisborne District Council. Tairāwhiti Sports Facilities Single stage business case – November 2020

In the short-term, we will progress field upgrades and other smaller projects, subject to receiving regional funding support.

In general, residents will continue to be able to expect:

- a network of accessible parks and open spaces for recreation and green space throughout the region
- cemeteries with high amenity values, and accurate information about who has been buried there
- clean and accessible public toilets and changing rooms
- an Olympic Pool facility that is well visited, enjoyed, and safe to use
- progressive development of a network of fit-for-purpose sport and recreation facilities.

Growth in demand

The value of green spaces and natural local areas was heightened during the first level 4 and level 3 containment measures period (23 March 2020 – 12 May 2020). Local outdoor recreation facilities are likely to see increased demand from residents. These serve as 'third places' for people in a world where the work and home intersection is changing. Council is the key provider of this service in Tairāwhiti and has a high level of open space and reserve land per capita.

We intend to provide additional reserve space to service the Taruheru Block development.

Community Facilities – Cultural Activities

The cultural infrastructure covered in this strategy helps to make Gisborne a highly liveable city.

This Strategy has been prepared on the assumption the service levels are maintained to the current standard. Residents will continue to be able to expect:

- Cultural facilities that are accessible to Tairāwhiti residents and visitors.
- Regular and varied programmes, events and exhibitions at cultural facilities.
- Cultural facilities that are fit for purpose, clean and safe.

Growth in demand

The current infrastructure is adequate to meet the needs of a larger population, and we plan to increase use of existing facilities rather than add new assets.