



Whakatāne-Kawerau

SPATIAL PLAN FOUNDATION PAPER

Infrastructure

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1 Purpose of the Spatial Plan

Recent population growth in Whakatāne and Kawerau Districts was unexpected, with Statistics New Zealand forecasts prior to 2013 forecasting that the population in both Districts would decline. Instead, since 2016 the opposite has happened with both Districts experiencing population growth at a higher rate than many other locations in New Zealand.

In 2020, the Government released the National Policy Statement – Urban Development (NPS-UD) which requires all Tier 1, 2 and 3 territorial authorities¹ to provide sufficient development capacity to meet expected demand for housing in the short (1-3 years), medium (3-10 years) and long (11-30 years) term. Recent analysis in Whakatāne and Kawerau shows there is sufficient land (infrastructure ready and plan-enabled) to meet population growth predictions in the short to medium term, but not in the long term.

The purpose of the Spatial Plan is to identify:

- how much land will be required for housing development over the next thirty years
- where housing development will take place
- the types of housing that will be delivered
- the infrastructure (transport, three waters, community, lifelines) requirements for the development that is proposed.

Five *Foundation Papers* have been prepared to set the scene for the Whakatāne Kawerau Spatial Plan. They have two purposes: to describe the current state; and to identify challenges facing the two Councils as they seek to provide sufficient land for the forecast levels of future growth. Each paper focuses on a different aspect of the current situation in the two Districts including:

- People and community
- Housing and Land
- Economy and jobs
- Infrastructure
- Natural Environment.

The Foundation Papers provide in-depth analysis of the status quo in both Districts. Together they form the starting point for understanding the needs of our communities now and going into the future. The Foundation papers also provide data that will be used to develop a business case(s) seeking support for and investment in the infrastructure and services required to enable the future development to occur.

¹ Whakatāne District is a Tier 3 Council.

Partnership with Tangata Whenua

Approximately half of the population in the Whakatāne and Kawerau District's identify as Māori. Affiliated to the seven iwi of the two districts (Ngāti Awa, Ngāi Tūhoe, Ngāti Rangitahi, Tūwharetoa ki Kawerau, Ngāti Manawa, Ngāti Whare and Ngāti Makino) are over 80 hapū and 69 marae.

The cultural landscape within the Whakatāne and Kawerau Districts is complex, with seven recognised iwi - Ngāti Awa, Ngāi Tūhoe, Ngāti Rangitahi, Ngāti Manawa, Ngāti Whare, Tūwharetoa ki Kawerau and Ngāti Māhino – and many more hapū. Many iwi have rohe that overlap with each other. All iwi have settled treaty claims with the Crown, providing redress for Treaty breaches.

Preparing the five foundation papers has been a collaborative project undertaken jointly by Whakatāne District Council, Kawerau District Council and the Bay of Plenty Regional Council. The purpose of the Foundation papers was to collate and gather publicly available information and data in order to provide a 'snapshot in time' of life in Whakatāne and Kawerau from a range of perspectives.

The Councils recognise the importance of incorporating Mātauranga Māori values and principles into development of the Spatial Plan. Developing partnerships with local iwi and hapū will be intrinsic to the success of the Strategy going forwards. Planning for growth needs to provide options for co-design, co-management and co-governance.

2 Key Findings - Infrastructure

The provision of infrastructure is a core function of local authorities. However, delivering infrastructure that is fit for purpose is becoming more challenging for many councils. Gross debt levels in councils continue to increase at the same time as population pressures and ageing infrastructure come together to stretch councils' ability to fund its services.

2.1 Three Waters

In 2020, the Government initiated the Three Waters Reform Programme to reform local government three waters service delivery arrangements. One possible outcome of this reform is that the management and operation of the three water assets may move to another agency. There are currently a number of uncertainties around the final outcome.

2.1.1 Whakatāne District

Whakatāne District Council owns and operates nine different schemes to supply potable water throughout the District. Two key challenges related to water supply include the need for a new source of water for Whakatāne/Ōhope and the need to upgrade significant infrastructure in order to meet higher environmental standards.

The Council manages eight stormwater schemes which cover over 1,697 hectares of land and 78% of the District's population. A key challenge relating to stormwater includes the need to upgrade infrastructure to improve the quality of discharged stormwater. In addition, the stormwater system is inadequate when faced with extreme wet weather events. Because much of the Rangitāiki Plains is low-lying, changes to groundwater levels caused by climate change could have a significant impact on Council's stormwater infrastructure and assets. New stormwater discharge consents will be needed from the Bay of Plenty Regional Council (BOPRC) over the next ten years.

The Council manages six wastewater schemes, which cover over 1,691 hectares and serve 75% of the District's population. In order to meet higher environmental standards, significant investment will be required to upgrade wastewater treatment plants and provide a reticulated wastewater system for Matatā township. New wastewater consents are required by 2026 but the extent of the works required for the new consents to meet any new compliance requirements is currently unknown.

The existing three waters programme of works and budget do not allow for this additional infrastructure other than the Matatā Wastewater Project. This means that any housing or commercial development outside locations currently serviced by the Council's three waters infrastructure will require new funding for three waters infrastructure which must be provided before development can take place.

2.1.2 Kawerau District

The Kawerau District water supply network distributes potable water to around 2,700 households, five large industrial plants and approximately 175 businesses. Existing pipes have a build-up of manganese which is discolouring the water. Approximately 48km of pipe will need to be replaced by 2027.

The stormwater system manages rainfall run-off and mitigates surface water flooding. Some extreme events have exceeded the network's capacity in recent years in several locations.

A single wastewater system services around 2,775 properties, including approximately 250 businesses. Four large industrial plants use the network to dispose of domestic waste.

2.1.3 Bay of Plenty Regional Council

The Bay of Plenty Regional Council (BOPRC) manages five separate Rivers and Drainage Schemes in the Bay of Plenty with three of the schemes located within Whakatāne District: the Rangitāiki Drainage Scheme, the Rangitāiki-Tarawera Rivers Scheme, and the Whakatāne-Tauranga Rivers Scheme. Urban settlements including Whakatāne, Ōpōtiki and Edgecumbe rely heavily on the existence and performance of flood protection assets. Without the network of stopbanks, pump stations, erosion protection and other flood protection assets, these townships would be flooded. All drainage schemes have a range of issues that will need addressing over time.

2.2 Road Transport

Waka Kotahi (New Zealand Transport Agency) manages the state highway network in the Bay of Plenty while Whakatāne and Kawerau District Councils manage the local roading networks.

Whakatāne District Council manages 905km of roading, 177 bridges and other infrastructure including guard railings, bus shelters, streetlights, footpaths and cycleways etc. Overall, the assets are in good condition. Together the communities of Whakatāne Township, Awakeri, Edgcombe, Te Teko, Te Mahoe Taewhakaia, Matatā and Coastlands generate approximately 21,000 traffic movements per day, travelling into town via the Landing Road Bridge. Having just one river crossing available directly into town, makes the route vulnerable in the event of a significant civil defence emergency.

Whakatāne has a high fatal and serious crash rate for vulnerable users on urban arterial and collector routes relative to the rest of New Zealand. An ageing population is seeing increased demand for mobility scooters. Residential growth west of the river is putting pressure on urban arterial access into town. The recently adopted *Active Whakatāne Strategy* outlines key areas of investment meet the needs of active users².

Kawerau District Council manages 41km of roading together with other infrastructure including kerbs, footpaths, street lighting, one bridge and five culverts. An ageing population will require upgraded infrastructure to meet the needs of mobility scooters. Development in the industrial area will generate more traffic and require additional roads and infrastructure.

Although the existing roading transport meets the needs of many users, additional infrastructure will be required over time to improve the safety of vulnerable users such as pedestrians, cyclists and users of mobility scooters. The potential effects of climate change are currently being assessed and will have a financial impact. Any future development will require a significant upgrade of parts of the existing roading network. The existing transport programme of work and budget do not provide for these upgrades.

2.3 Rail

Rail plays a significant freight role in the region, with the Bay of Plenty section of the East Coast Main Trunk line (ECMT) carrying over a third of New Zealand's rail traffic. The region has 321 km of rail network extending from Hamilton in the west to Taneatua and Murupara in the east. The East Coast Main Trunk (ECMT) is 182 km long and runs through Hamilton and Tauranga to Kawerau. The unused portions of rail track in the region include Hawken – Taneatua (26 km), and the Rotorua branch (48km).

The Port of Tauranga is New Zealand's largest export port and handles approximately 35% of all New Zealand's imports and exports. Approximately 40% of imports and 50% of exports through the Port of

² Active users include pedestrians, cyclists, skateboarders, and wheelchair and mobility scooter users.

Tauranga are transported via rail³. Expansion of the port is currently being planned which will include increased freight rail services to and from the upper North Island.

In 2017/18 nearly 8m tonnes moved on rail, to, from, and within the Bay of Plenty. This means that approximately one half of all rail traffic in the country had an origin or destination, or both, within the Bay of Plenty region. The East Coast Main Trunkline (ECMT) is currently operating 23 trains of different configurations. There is capacity for more services, for some time within the ECMT before additional infrastructure investment is required. There are currently no significant rail constraints within the Bay of Plenty network.

A number of emerging industries and development opportunities underway in the Eastern Bay are expected to have an impact on the amount of freight moved in the Bay of Plenty. These include the Opotiki Aquaculture and Harbour Development, Kawerau Industrial Land Development and Container Terminal, high value horticulture and water bottling through Otakiri.

2.4 Ports and Airport - Whakatāne

Whakatāne District Council's port assets consist of land and buildings located at Whakatāne Port, Ōhope Port and Thornton Port. In order to meet the current shortage of commercial berth capacity and demand, work is being undertaken to build a new Whakatāne Boat Harbour at Keepa Road.

Whakatāne Airport is the air gateway to the Eastern Bay of Plenty which enables airport based commercial and recreational activities to be undertaken. Scheduled passenger services from Whakatāne to and from Auckland are currently provided by Air Chathams. Whakatāne Airport provides a vital link during business-as-usual and in emergencies. It is defined and listed as a lifeline utility in Schedule 1 of the Civil Defence Emergency Management Act 2002.

In addition to Whakatāne Airport, the Council also own the Galatea Airfield which is utilised mainly for recreational and agricultural operations.

Whakatāne Airport requires an ongoing programme of critical maintenance in a number of areas, including the runway surface, taxiways, and carparks. A revised seismic assessment of the Airport Terminal undertaken by BSK Consulting Engineers Ltd in early 2018 showed a minor upgrade to the upper floor support posts connections was needed to address a critical weakness. Note that the internal tower area of the terminal building has been closed and off-limits for more than 10 years, as it is believed to be a health and safety risk. In 2019, the Terminal building was listed as a Category 1 listing on the Heritage New Zealand List, which means that alterations to the building, or demolition of the building cannot be undertaken without approval from Heritage New Zealand.

³ Port of Tauranga data 2016

An initial high level risk assessment of the airport shows that climate change effects could damage the airport infrastructure and assets, while extreme weather and flooding could compromise its operation. Increased hot days could also affect usage and damage runways and flooding could reduce road access to the airport.

2.5 Networks – Electricity, Copper and Fibre

Electricity is generated at hydroelectric dams at Wheao River, Aniwhenua and Matahina on the Rangitāiki River, and at the Kawerau Geothermal Station.

New Zealand is currently in the midst of a major upgrade of its telecommunication infrastructure. Within the Bay of Plenty, there are 21 towns and cities with Ultra Fast Broadband (UFB) available, and 69% of those with access have connected. This means that 83,410 premises in the region are now connected to the UFB network with the total invested in the Bay of Plenty totalling \$12.2 million. The towns/cities that have the greatest uptake are Tauranga (78%), Rotorua (65%), Kawerau (64%) and Whakatāne (63%).

2.6 Education

Schools lie at the heart of many communities, particularly in rural communities. There are 36 schools in Whakatāne and Kawerau Districts, with nineteen of these in the Whakatāne urban area. There is currently sufficient capacity available in the schooling network catchment, although population growth to the extent that has been forecast can be expected to affect the future capacity of the network.

2.7 Natural Hazards and Climate Change Risks to Infrastructure

Due to the region's geography and coastal location, Whakatāne and Kawerau Districts are subject to a range of natural hazard risks including slips, debris flows, flooding, tsunamis, earthquakes and volcanic eruption. These can all have a detrimental effect on all forms of infrastructure within the region. Much of the infrastructure within the two Districts is likely to be threatened by the effects of climate change. As temperatures rise and wind, rainfall and seasonal patterns shift, there will be more extreme weather events and unpredictable weather.

Improving the resilience of the networks is a key part of the work programmes of all asset owners and managers. The current focus is on identifying the climate change risk profile associated with assets, with the intention of undertaking upgrades to increase resilience over the longer term. This work will require high levels of resourcing and is likely to create a financial challenge for the infrastructure asset owners.

3 Introduction

Infrastructure provision is a core function of local authorities and together with providing an enabling regulatory framework, is often the councils' key contribution to local economic development. Providing infrastructure that is fit for purpose is becoming increasingly challenging for councils. Gross debt levels in councils continue to increase at the same time as population pressures and ageing infrastructure come together to stretch councils' ability to fund its services. Recent analysis shows that the majority of local government gross debt levels has increased since 2010, with a focus of this spending being on renewing existing infrastructure rather than investing to accommodate growth⁴. The current environment presents both challenges and opportunities for infrastructure.

In both Whakatāne and Kawerau Districts, stormwater schemes protect areas of productive land while infrastructure such as water and wastewater are key for processing and manufacturing. Roads, rail, airports and ports are key to getting goods to market. Infrastructure also contributes to community health and wellbeing with services such as water supply, solid waste and wastewater contributing to public health.

4 Three Waters

Whakatāne and Kawerau Districts are responsible for the delivery of three types of water services in their District: drinking water, wastewater (sewage) and stormwater. The Bay of Plenty Regional Council (BOPRC) has responsibility for:

- Flood protection and control
- Emergency Management
- Resource regulation and monitoring
- Catchment management.

4.1 Three waters reforms

In 2020, the Government initiated the Three Waters Reform Programme to reform three waters service delivery arrangements. Due to the uncertainty around the final outcome of the reforms, the discussion in this paper regarding three waters infrastructure describes the current state of three waters infrastructure in both Districts.

⁴ <https://www.infometrics.co.nz/article/2019-09-rising-council-debt-across-new-zealand>. Downloaded 3 May 2022

5 Whakatāne District Council

5.1 Water Supply

Whakatāne District Council provides potable water to approximately 13,200 households and businesses throughout the District (Figure 1). The Council owns and operates nine separate water supply schemes to provide water throughout the District. These are Whakatāne/Ōhope, Otumahi, Rangitāiki Plains, Tāneatua, Murupara, Matatā, Waimana, Rūātoki, and Te Mahoe. All water supplies except Murupara are chlorinated. A brief overview and description of the Council water supply schemes is shown below (

Figure 2).

Figure 1: Water Supply - Whakatāne District

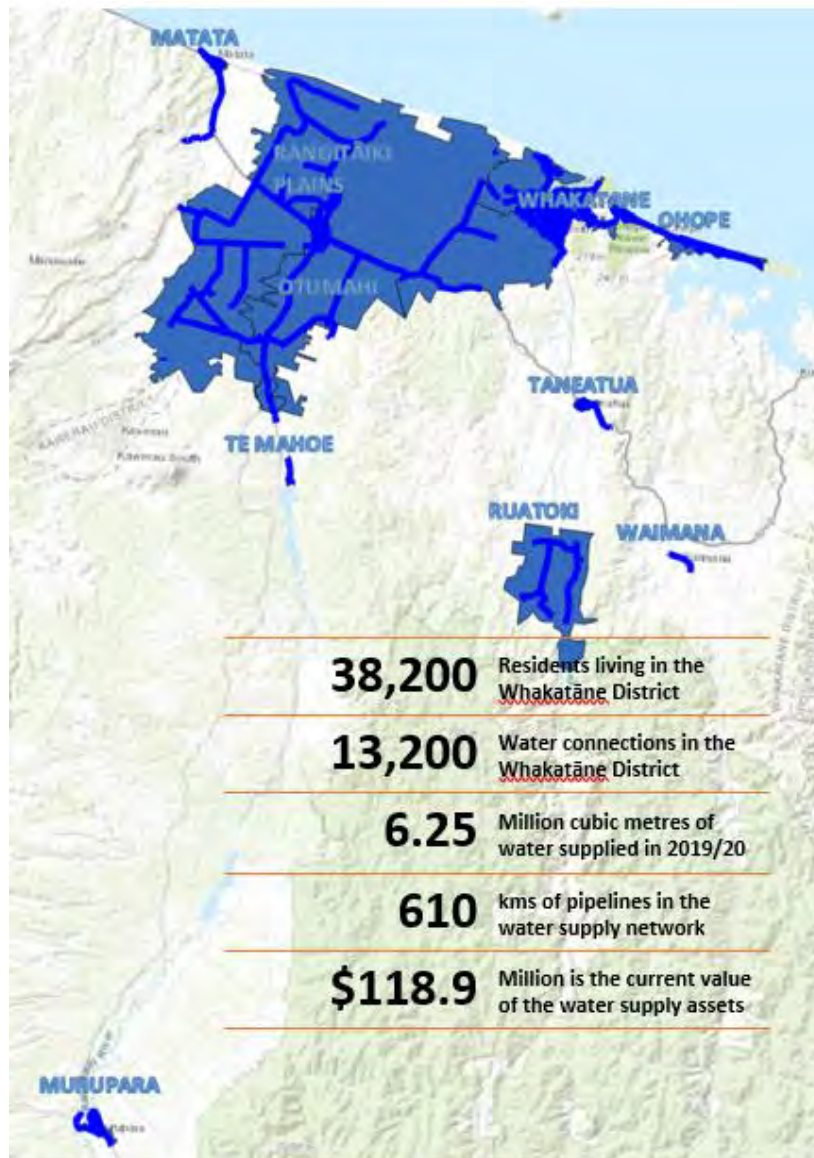


Figure 2: Description of Whakatāne District Council water supply schemes

Scheme	Description
Whakatāne / Ōhope	The Whakatāne scheme draws its water from the Whakatāne River adjacent to the treatment plant at Valley Road. The raw water undergoes coagulation and sand filtration. The treated water is then pumped to three reservoirs on a hill near the treatment plant. It is delivered (largely via gravity) to the Whakatāne township. There is also a pumped linkage to Ōhope.
Otumahi	The Otumahi scheme was established in 2018 and provides water to Edgecumbe and Te Teko townships. Source water for the scheme comes from bores at Paul Road and Tahuna Road. Due to water safety concerns, in December 2020, the small Penetito scheme was decommissioned and these properties were connected to the Otumahi Scheme.
Rangitāiki Plains	The principal source for this scheme is the Braemar spring at the western side of the plains. Customers on the scheme consist mainly of rural farming and lifestyle blocks with a secondary bore source located at Johnson Road. Both sources contain arsenic in quantities greater than those allowable in the Drinking Water Standards.
Tāneatua	The source of the water is a shallow bore located off Puketi Road. The treated water is pumped direct to two reservoirs located on hills to east of the town.
Murupara	Water supply is via two bores and water is then pumped to reservoirs nearby. The Murupara scheme does not include any disinfection – in accordance with community wishes.
Matatā	Jennings Spring is the source for this scheme. Water is transferred via gravity and booster pump to two reservoirs located on a hill above the township.
Waimana	Water is sourced from Hodges Road bore and pumped to reservoirs above the town.
Rūātoki	Water is taken from a shallow bore alongside the Whakatāne River. The water is chlorinated, filtered and UV treated and pumped to a reservoir via a high-lift pump set.
Te Mahoe	Water is taken from a bore in the village and pumped to the reservoir. Te Mahoe is a very small village comprising of approximately 30 houses.

Some 93% of water connections are metered with eight of the ten schemes fully metered, while Matatā and Murupara have meters on commercial connections only. The Council water supply system comprises:

- 9 water supply schemes
- 29 treatment plants
- 17 pump stations
- 38 reservoirs
- 118 km of trunk mains
- 421 km of mains
- 70 km of service lines
- 2,864 valves.

5.1.1 Water Supply - Key challenges

The key challenges currently facing Whakatāne District Council relating to water supply are:

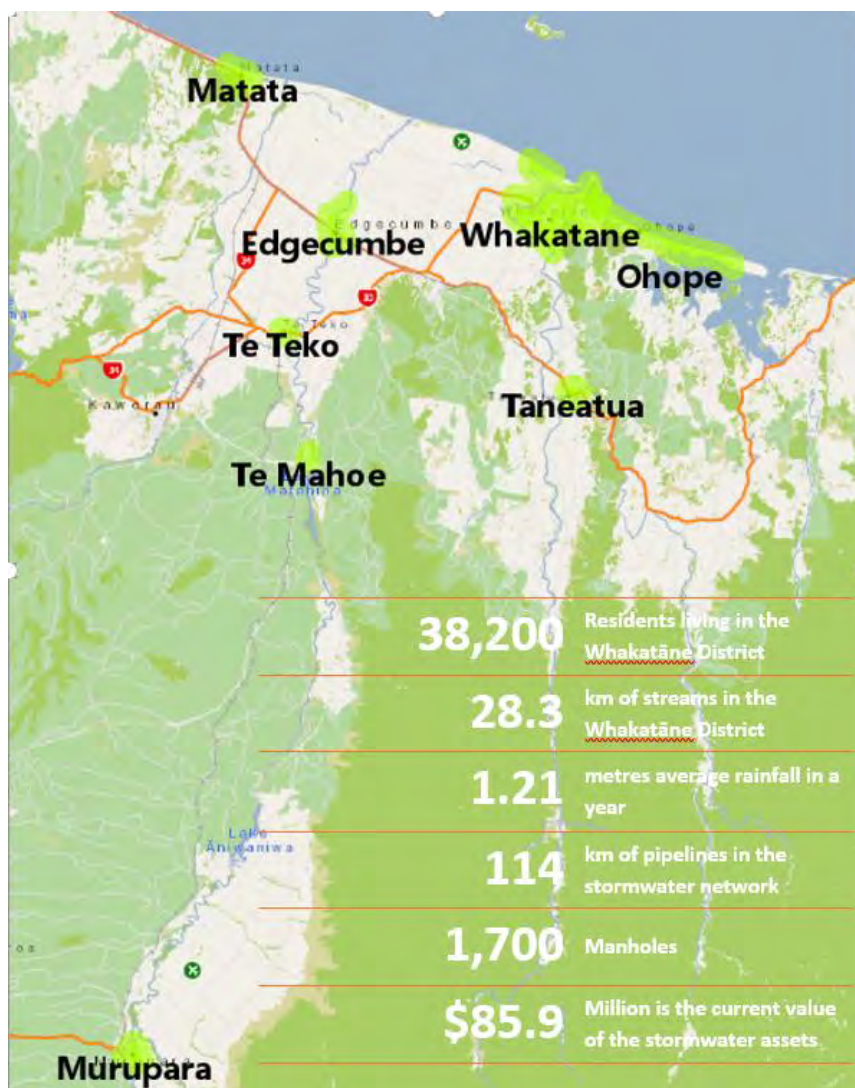
- Two of the Council's important water supplies have source water issues and vulnerabilities. These include arsenic contamination, salinity and potentially cyanobacterial contamination. The establishment of new Drinking Water Regulator *Taumata Arowai* is requiring improved standards, levels of service and improved security of water sources across all schemes.
- Currently the Whakatāne / Ōhope drinking water is supplied from one river source with capacity available for just over 24 hours' worth of water storage. These constraints pose a risk to service levels should the projected growth and development within the catchment area materialise, increasing the demands on this service. The Council is currently investigating significant investment in an alternative water supply in 2031-39. In addition, the Council's water storage reservoirs are coming to the end of their asset lifecycle.
- While the Council has most of the infrastructure necessary to service a stable population base, pressure for new and improved assets and services has come from population growth. Future development in the District will require investment in upgrades and extensions to existing infrastructure as well as the provision of new infrastructure to service new development areas.

5.2 Stormwater

The Council manages eight stormwater schemes which cover over 1,697 hectares of land and 78% of the population in the District. (Figure 3). Stormwater systems are designed to take stormwater away from built-up urban areas and disperse it within waterways to minimise the effects of flooding on property and risk to human life. The Council also seeks to minimise the negative impact on the environment such as erosion of stop banks and the contamination of streams and rivers. The Council stormwater infrastructure includes:

- 8 stormwater schemes
- 96 km of pipes
- 21 pump stations
- 21.1 km open channels/streams
- 21 storage ponds/retention dams.

Figure 3: Stormwater assets – Whakatāne District Council



5.2.1 Stormwater - Key challenges

The key challenges facing Whakatāne District Council stormwater system are:

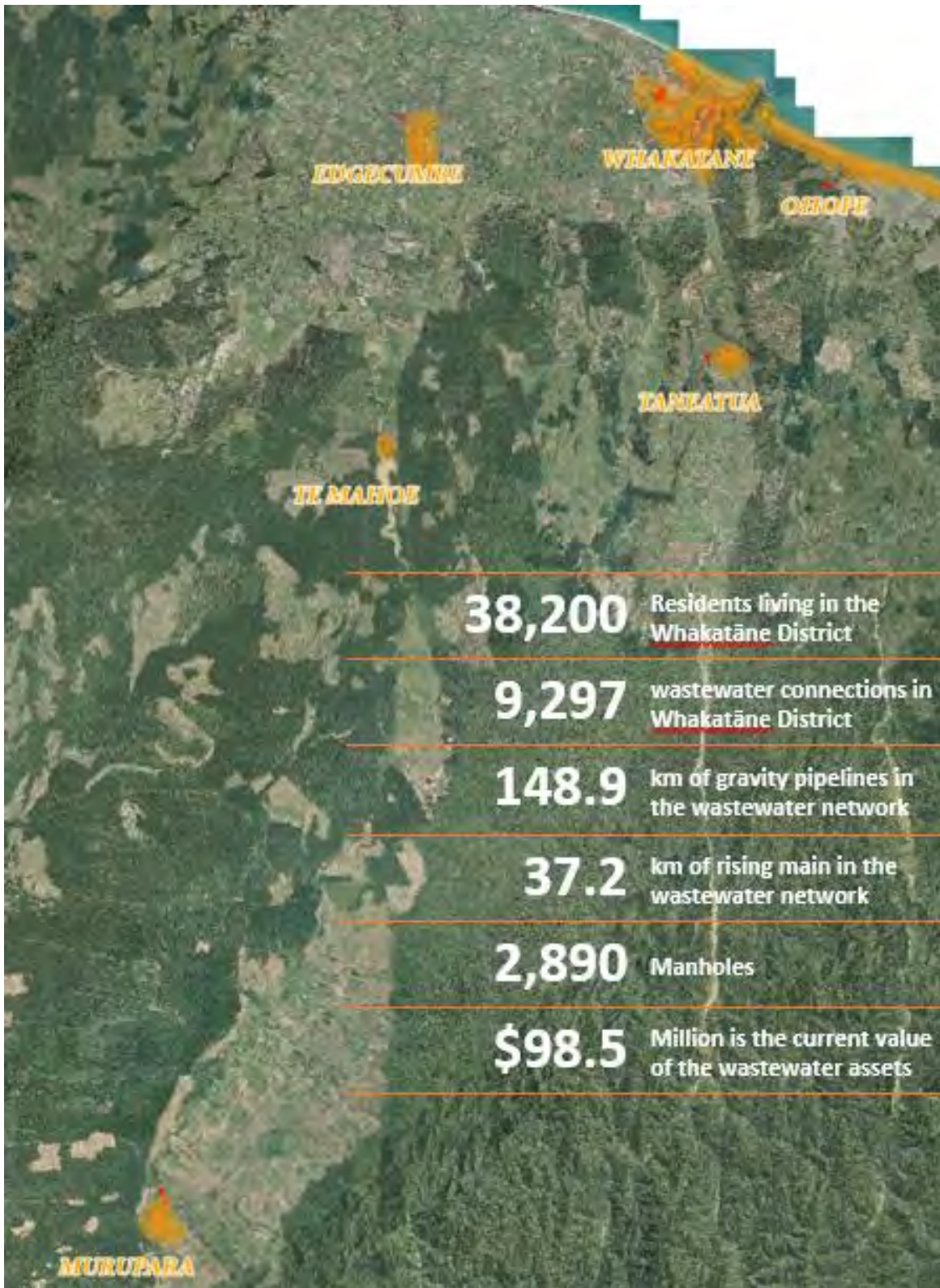
- Growth and demand in the Whakatāne and Ōhope urban areas will require future upgrades to existing infrastructure. Improvements in the quality of stormwater outfalls/discharges will be required over the next ten years.
- New stormwater discharge consents will be needed over the next ten years.
- The stormwater system has inadequacies when faced with extreme wet weather events. These inadequacies were highlighted in 2010, 2011, 2014, and 2017 when flooding and landslips were experienced. In particular, during the 2014 flood events water from the Wainui Te Whara catchment overflowed into the Whakatāne urban area creating a significant flooding problem. The Edgumbe township is prone to flooding and was seriously affected by the 2017 flood as a consequence of Rangitāiki River stopbank breach. Since then, these two particular issues have had capital improvements programmed and are being addressed. Various other parts of the stormwater network have deficiencies and these will be further investigated and programmes developed for upgrades and/or new capital works.
- The impact of climate change on stormwater infrastructure is of growing concern. As much of the Rangitāiki Plan is low-lying, changes to groundwater levels caused by climate change could have a significant impact on Council's stormwater and infrastructure and assets.
- Affordability/levels of service. Council is working with the community to determine programmes that ensure the long-term sustainability of assets. Key drivers such as community wellbeing and expectations, as well as ongoing legislative responsibilities are used to assist in the prioritisation of projects.

5.3 Wastewater

Whakatāne District Council manages six wastewater schemes (Figure 4) which cover over 1,691 hectares of land and 75% of the population in the District. The wastewater system is made up of:

- 6 wastewater schemes
- 6 treatment plants
- 57 pump stations
- 9,297 sewer connections
- 149km of gravity pipelines across the network
- 37.2km of rising main across the network
- 2,890 manholes

Figure 4: Wastewater Assets - Whakatāne District Council



5.3.1 Wastewater – Key challenges

The key challenges facing Whakatāne District Council relating to wastewater are:

- Work is currently being undertaken to consider options for a new reticulated wastewater scheme for the Matatā community.
- Environmental standards continue to increase regarding the quality of discharged wastewater around the District. Conforming to higher standards will require a significant amount of work, including upgrades to the wastewater treatment plants.
- New investment in wastewater treatment, along with improvements to the quality of wastewater outfalls/discharges will be required over the next ten-year period.
- New wastewater consents are required by 2026. The extent of the works required for new consents to meet any new compliance requirements is currently unknown. Work is currently being undertaken to identify consent conditions and upgrade requirements to the wastewater infrastructure.

6 Kawerau District Council

6.1 Water Supply

Kawerau was purpose-built as a town sixty-five years ago with much of the reticulation infrastructure being constructed at that time. The Council’s main focus to date has therefore been on maintenance.

The water supply network distributes potable water to around 2,777 households, five large industrial plants and approximately 175 businesses. Resource consents are held from BOPRC for the extraction of all water used for public supply. These consents stipulate the amount of water that is allowed to be taken and a maximum extraction rate. Kawerau's water is principally sourced from two springs. On the rare occasions when demand is high and spring flows are low, Council can obtain additional water from a bore field. Large water users have metered supplies. The key components of the system are shown below (Figure 5).

Figure 5: Kawerau District water supply - key components

Water Supply Asset	Description
Population served	7,460
Number of properties connected	2,845
Number of properties not connected (includes vacant sections)	88
Length of reticulation (km)	78
Number of pumping stations	2

Kawerau District Council’s critical assets include:

- Two springs – (Umukaraka/Holland and Pumphouse)
- Five pumps
- Water treatment equipment – used for UV correction, UV treatment and chlorination
- Three concrete reservoirs
- Pipes – 78 km
- Other assets – two bores with pumps, telemetry system, valves, fire hydrants, service connections, meters, backflow preventers and Pumphouse with UV, lime and chlorine buildings.

Kawerau’s water supply network is generally adequate for current demands and has excess capacity that would enable it to cope with any reasonable increased demand. The three reservoirs provide 11,250m³ of storage which equates to 2.7 days of storage at the current average demand and one day at current peak demand. The reticulation system was extended by approximately two kilometers in 2018 to service the new industrial subdivision located to the northeast of town on the Putauaki block.

6.1.1 Water Supply – Key Issues

The key issues facing Kawerau District Council relating to Water Supply are:

- The existing pipes have a build-up of manganese which is discolouring the water supply. In order to address this issue, the Council will replace approximately 48 km of water supply pipes over the next six years at a cost of \$12 million (\$2.0 million annually).
- The COVID-19 pandemic has created challenges to supply chains and depleted the availability of stock and products. Kawerau District Council has developed and implemented management plans and policies to mitigate the risks associated with supply chains and contractor labour shortages.

6.2 Stormwater

The Kawerau community is served by a Council owned and run stormwater system designed to manage rainfall run-off and mitigate surface water flooding. Stormwater is collected almost exclusively from the roading network and channelled through a network of pipes into natural waterways. The table below summarises the key components of the system including additional infrastructure soon to be vested in Council following the residential developments of Porritt Glade and Central Cove (Figure 6).

Figure 6: Kawerau District Stormwater - Key Components

Stormwater Asset	Description (Soon to be vested)
Length of piping (km)	38.6 (+0.6)
Number of cesspits	778 (+8)
Number of outfalls	20 (+1)
Number of manholes	526 (+3)

Kawerau District currently holds resource consents from BOPRC for three stormwater discharges into the Tarawera River and Ruruanga Stream. Kawerau’s stormwater network is generally adequate for current rainfall runoff demands and most of the network has some spare capacity.

Some extreme events (high intensity and short duration) have exceeded the network’s capacity in recent years in several locations. Updates to the system have recently been undertaken to reduce the risk to property in these areas with a greater emphasis now placed on ensuring streams are proactively maintained with regular clearing of vegetation.

6.3 Wastewater

Kawerau District is served by a single reticulated wastewater system which services around 2,700 properties, including approximately 250 businesses. Four large industrial plants use the network to dispose of domestic waste.

One business, the Waiu dairy factory is consented and charged for the disposal of trade waste via the wastewater system since June 2019. The key components of the system is shown below (Figure 7). Kawerau District Council holds resources consents from BOPRC for the discharge of treated wastewater from the treatment plant and the breakdown of wastewater solids. The existing wastewater network has excess capacity enabling it to cope with any reasonable increased demand. Blockages in the network happen approximately one to two times per month and temporarily reduce capacity.

A boundary adjustment was carried out in 2012 with the subsequent initial development of the new industrial park. Council constructed a service line to the new industrial park on SH34 in response to this and the new Waiu dairy factory came online with a consent to dispose of trade waste in June 2019.

Figure 7: Kawerau District Wastewater System - Key components

Wastewater Asset	Description
Number of properties connected	2,685
Length of reticulation (kms)	58
Number of pumping stations	4
Number of treatment plants	1
Manholes	767
Wastewater treated (Avg m ³ /day)	2,200

7 Bay of Plenty Regional Council

7.1 Rivers and Drainage

BOPRC manages five separate Rivers and Drainage Schemes in the Bay of Plenty (Figure 8). These schemes have been developed over many decades and provide essential services to keep communities safe from the harmful effects of flooding. For example, the urban settlements of Whakatāne, Ōpōtiki and Edgecumbe rely heavily on the existence and performance of flood protection assets. Without the network of stopbanks, pump stations, erosion protection and other flood protection assets, these townships would be flooded.

The schemes contain a mix of assets including stopbanks, floodways, level control structures, erosion control structures, pump stations, canals and drains. These assets have a value in excess of \$420 million including:

- Over 380km of stopbanks
- Nearly 3km of concrete flood walls
- 140 flood gates
- 12 pump stations.

Figure 8: Bay of Plenty Regional Council - Overview of River and Drainage Schemes



7.1.1 Strategic issues – BOPRC Rivers and Drainage Activity

The key strategic issues affecting the Rivers and Drainage activity are:

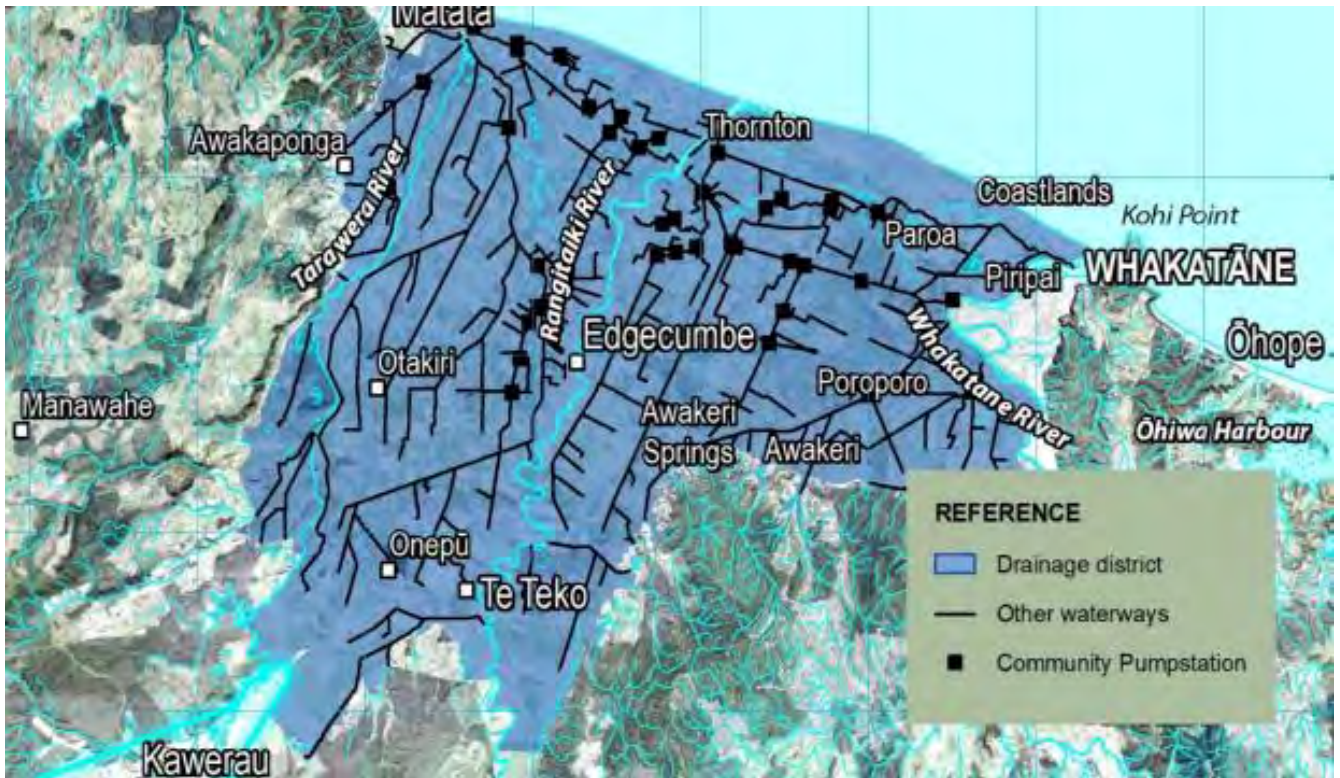
- Scheme affordability / sustainability
- Climate change (through sea level rise and increased intensity and frequency of storm events)
- Residual risk of flood protection asset failure
- Damage to critical assets
- Flood events greater than design levels (overtopping of stopbanks and widespread inundation behind stopbanks)
- Population growth or decline – affects scheme affordability and demand
- Geotechnical issues - Tectonic subsidence and ground shrinkage in floodplains. Ground levels are expected to drop by around 1 metre over the next 100 years in some floodplains
- Stopbank alignment – too close to river channel increasing risk of undermining
- Stopbank narrowness in some rural locations
- River gravel management
- Increased requirement to waterways for recreational purposes
- Environmental effects and enhancement – e.g. discharges from drains/pump stations is an issue, e.g. wetland enhancement is a positive. Water quality.

These issues affect all schemes differently which means that the works required to address them will need to be individually tailored to meet the specific requirements of each scheme.

7.2 Rangitaiki Drainage Scheme

The Rangitāiki Drainage Scheme provides gravity drainage to much of the Rangitāiki Plains, an area of approximately 29,000 ha between Matata, Whakatāne and Kawerau (Figure 9). The Plains is predominantly dairying land with small areas of wetland reserve and urban development. The scheme has 88 km of major canals (arterial) and 240 km of drains which drain excess water from the Rangitāiki Plains into the Tarawera, Rangitāiki and Whakatāne rivers.

Figure 9: Rangitaiki Rivers Scheme



7.2.1 Rangitāiki Drainage Scheme - Key Issues

The key issues related to the Rangitāiki Drainage Scheme are:

- Lowering of ground levels as a result of peat shrinkage
- Sea level rise
- Restriction of access to stream banks by landowners, physical constraints and unauthorised crossings
- Weed control and disposal
- Drain and pump station discharge water quality
- Pest weed incursion (e.g. Alligator weed)
- Aggradation from outside of the drainage area
- Catchment land use changes e.g. lifestyle blocks, subdivision
- Seismic movement
- Damage to assets from major flood event
- Organic land use restricting maintenance activities
- Environmental concerns e.g. fish passage, wildfowl breeding.

7.3 Rangitāiki-Tarawera Rivers Scheme

The Rangitāiki-Tarawera Rivers Scheme includes the two adjoining catchments of the Rangitāiki River and the Tarawera River (Figure 10). The scheme provides flood protection for urban areas in the lower parts of the catchments. Stopbanking, edge protection and geotechnical interventions are important to the settlements of Kawerau, Te Teko and Edgcumbe, and to rural communities on the Rangitāiki Plains through the management of flood risk. Further Rivers and Drainage assets across the wider area provide important community services, particularly in the arable Rangitāiki Plains, Galatea and Waiohau Plains.

Figure 10: Rangitāiki-Tarawera Rivers Scheme



7.3.1 Edgcumbe/Lower Rangitāiki flood mitigation

Flooding in 2004 caused significant damage to private and public property and also raised concerns regarding the integrity of the stopbanks surrounding Edgcumbe. Whakatāne District Council and BOPRC worked together to investigate options to protect the town from future flooding. Upgrades to the Rangitāiki Floodway constitute the last outstanding work to complete this project.

The 2017 Flood Repair Project is nearing completion. By the end of the project, approximately \$21M will have been spent in the scheme area, approximately \$15M of which will have been spent on flood damage from Te Teko downstream.

7.3.2 Rangitāiki-Tarawera Rivers Scheme - Key Issues

The key issues related to the Rangitāiki-Tarawera Rivers Scheme are:

- Private ownership of riparian land restricting access
- Water level variance as a result of hydroelectric power station activity causing bank erosion
- High level of debt for the scheme
- Flooding, Edgcumbe earthquake, geotechnical issues with stopbanks and resultant major capital projects including Rangitāiki Floodway widening
- Stopbank upgrading required to the Rangitāiki Floodway
- Dams - adverse effect on edge protection vegetation works due to fluctuations in river water levels. Assists with attenuation during storms, sedimentation of Lake Aniwanīwa Dam headwaters
- Gravel accumulation in upper tributaries
- Land use changes in the upper catchment resulting in increased discharges and increased gravel and sediment
- Land use changes, particularly conversion to kiwifruit, in the lower catchment causing access issues
- Stock damage
- Weeds and pest control (damaging stopbanks)
- Backlog of tasks relating to floodplain management strategies.

7.4 Whakatāne-Tauranga Rivers Scheme

The Whakatāne-Tauranga Rivers Scheme comprises the Whakatāne River Catchment and includes the Tauranga River (known as the Waimana River prior to 2014 Tūhoe Settlement). The scheme provides flood protection, channel edge stability, some drainage and flood pumping within the catchment, including the town of Whakatāne. Within the urban area of Whakatāne, flood protection works (excluding the stopbanks that adjoin the Whakatāne River) are managed by Whakatāne District Council. The Whakatāne-Tauranga Rivers Scheme boundaries and location are shown below (Figure 11).

Figure 11: Whakatāne-Tauranga Rivers Scheme



7.4.1 Kopeopeo Canal Remediation Project

The Kopeopeo Canal Remediation Project was a significant restoration project involving a tributary of the Whakatāne River (i.e. part of the Whakatāne-Tauranga River Scheme). The Kopeopeo Canal flows from the Rangitāiki Plains from the west of State Highway 30, joining the Orini Stream and discharging into the Whakatāne River opposite the Whakatāne Township (Figure 12).

The Canal was contaminated between the 1950s and late 1980s as a result of stormwater discharges and the dumping of waste material from a former sawmill, which treated timber using Pentachlorophenol (PCP). The Kopeopeo Canal Remediation Project involved dredging of approximately 35,000m³ of contaminated sediment from the Canal and transferring it to secure containment sites where it is treated.

Figure 12: Kopeopeo Canal Remediation Project location



7.4.2 Whakatāne-Tauranga River Scheme – Key Issues

The key issues related to the Whakatāne-Tauranga Rivers Scheme are:

- Berm and river aggradation, particularly in tidal reaches
- Private ownership of riparian land restricting access, particularly in the Tauranga River
- Encroachment in Whakatāne urban area
- Gravel accumulation and extraction
- Land use changes in the upper catchment resulting in increased discharges and increased gravel and sediment
- Ongoing flood damage repair works
- Stock damage
- Community expectations around scheme management
- Weeds and pest control (damaging stopbanks)
- Maintenance of flood relief fuse at the rivermouth

- High level of debt
- Environmental including fish passage and contaminated sites
- Contaminated sediments in the lower reaches of the Kopeopeo-Orini Canal from industry discharge
- Rating in arrears (to take into consideration when prioritising works).

8 Transport

8.1 Freight routes through Eastern Bay.

Approximately 56% of national freight movements pass through the upper North Island⁵ while the port of Tauranga is the nation's most active export port by some margin. In the year to June 2021, 25.7 million tonnes of goods were exported through Tauranga, which equates to approximately 35% of the national tonnage⁶.

Economists refer to the geographic area bound by Auckland, Hamilton and Tauranga as the 'Golden Triangle'. This is because about 50% of New Zealand's population lives within this triangle while much of the country's economic activity also takes place within this geographical area. The Golden Triangle is also a major centre of growth in New Zealand's residential property market. Of the Government's \$129 billion earmarked for infrastructure projects over the next 10 years, 77% (approximately \$100 billion) is to be spent on projects within the Golden Triangle with \$55 billion of the expenditure on roading and land transport projects⁷.

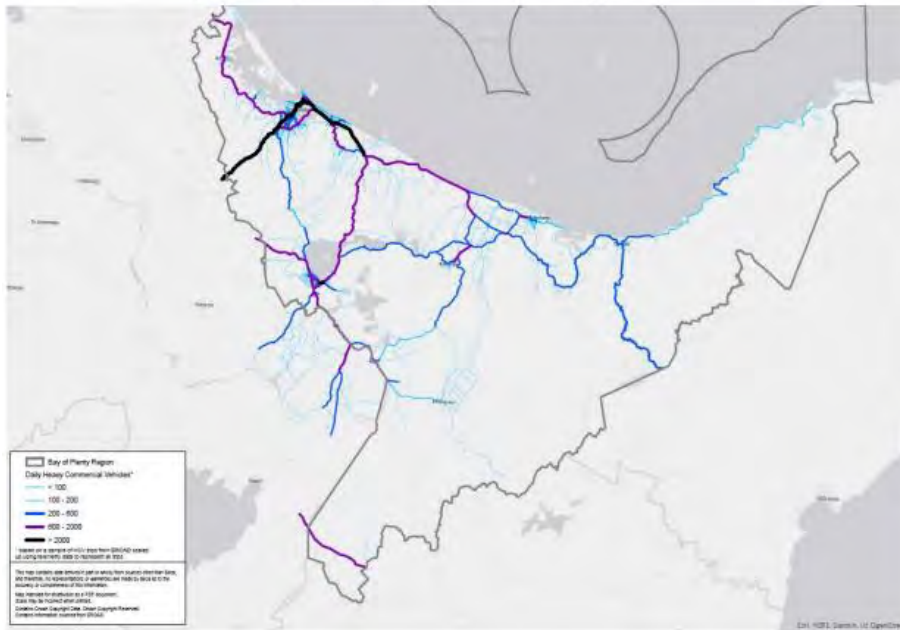
The Bay of Plenty State Highway network provides the key road connections for freight movements across the Bay of Plenty with much of the inter-regional freight movement focused on the Port of Tauranga. The following heat map shows the key freight corridors by volume with thick black lines representing the highest freight volume corridors (Figure 13).

⁵ Bayleys Research (2019). The Golden Triangle Logistics 2019

⁶ <https://www.port-tauranga.co.nz/port-of-tauranga-result-boosted-by-increased-trade-volumes-strong-subsidiary-and-associate-earnings/#:~:text=Imports%20increased%204.0%25%20to%209.4%20million%20tonnes%2C%20and%20exports%20increased,14.3%25%20to%206.3%20million%20tonnes>. Downloaded 3 May 2022.

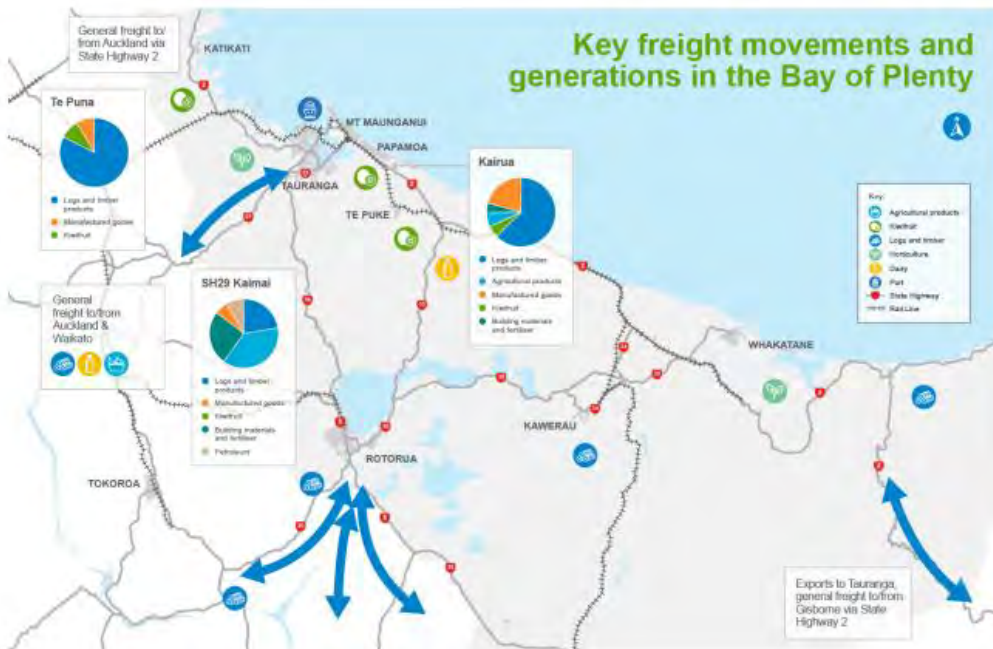
⁷ Bayleys (2019). The Golden Triangle Logistics 2019

Figure 13: Key freight corridors by volume - Bay of Plenty region



Logs and timber products contribute significantly to freight movements on SH2 north and south of Tauranga (Figure 14). Other key commodities moved in the region include kiwifruit, manufactured goods, building materials and fertilizer⁸.

Figure 14: Key freight movements and generations in the Bay of Plenty



⁸ UFTI (2020) Bay of Plenty Regional Freight Flows Study

The intensity around the Golden Triangle will continue to place pressure on both SH29 and rail capacity to support freight to and from the port and the wider region. Modelling predicts there will be an increase in logs and timber products, building materials and manufactured goods, while dairy movements are likely to decline. Kiwifruit export volumes are predicted to increase by 10% over the next ten years, which will result in an increase in truck movements, particularly during the harvest season.

Larger vessels at the Tauranga Port will have an impact on supply chain activities. Significant additional demand will be needed to generate mode shift from road to rail, however the location and role of new inland ports at Kawerau and Rangiora in the Bay of Plenty, and Ruakura in the Waikato could be key to facilitating this change.

8.2 Provincial Growth Fund: Eastern Bay of Plenty Transport Considerations

Three of the projects in the Eastern sub-region funded by the Provincial Growth Fund in 2020 are likely to have an impact on freight flows across the wider Bay of Plenty⁹. They are:

- Agricultural development in eastern Bay of Plenty. The proposed development will expand the area planted in kiwifruit to 450 hectares and high value berry fruits to 150 hectares.
- Aquaculture in Ōpōtiki. The gross output is anticipated to equal 40,000 tonnes per year by 2040 as the area to be farmed is expanded. It is planned that the output will be processed locally in Ōpōtiki, with the total transport requirement for the finished product of about 16-20,000 tonnes per year.
- Kaweru Pūtauaki Industrial development cluster. A number of integrated proposals for the Kawerau area are estimated to generate up to 1,400 local jobs in existing and new industries. These include:
 - Container terminal
 - Fenglin particle board plant
 - Sawmill expansion by Sequal and other operators
 - New dairy plant.

The expected impact of all the PGF projects on total heavy vehicle flows is shown below (Figure 15)¹⁰.

⁹ UFTI & BOPRC (2020). Bay of Plenty Regional Freight Flows Study 2020.

¹⁰ UFTI and the BOPRC (2020) Bay of Plenty Regional Freight Flows Study 2020.

Figure 15: PGF Schemes. Possible impacts on total heavy vehicle flows

PGF Proposal	High Transport Demands		
	Estimated tonnes pa	Heavy Commercial Vehicles per day average	Heavy Commercial Vehicles per day peak
High value horticulture	20,000	10	50
Ōpōtiki Aquaculture – Processed Material	16 – 20,000	5-10	5-10
Kawerau Pūtauaki Industrial Development Cluster		Reduction of 200	Reduction of 200

8.3 Commuter patterns within the Eastern Bay

Significant levels of commuting take places between different locations within the Eastern Bay. The 2013 census data below (Figure 16) covers people who worked in the seven days leading up to census 2013, based on where they live ('people who live in') and where they work ('people who work in')¹¹.

Reading across the “people who live in Whakatāne” line, which shows where Whakatāne residents commuted to on census day 2013: 10,131 worked in Whakatāne, 900 commuted to Kawerau, 228 to Ōpōtiki and 789 to other areas (mainly Rotorua and Tauranga).

Reading down the “people who work in Whakatāne” column, which shows where Whakatāne workers commuted from on census day 2013: 10,131 lived in Whakatāne, 330 commuted from Kawerau, 189 from Ōpōtiki and 831 from other areas (mainly Tauranga, the Western Bay of Plenty District or Rotorua).

Similarly, most people who live in Kawerau work in Kawerau, but many of the people who work in Kawerau have commuted from Whakatāne. Whakatāne and Kawerau are quite interdependent labour markets. On the other hand, Ōpōtiki is much more independent with few people commuting either in or out.

Figure 16: Commuting patterns in the Eastern Bay of Plenty

		People Who Work In				
		Whakatāne	Kawerau	Ōpōtiki	Other Areas	Total
People Who Live In	Whakatāne	10,131	900	228	789	12,048
	Kawerau	330	1,056	..C	102	1,488
	Ōpōtiki	189	15	2,430	96	2,730
	Other Areas	831	273	129	n/a	1,233
	Total	11,481	2,244	2,787	987	17,499

Source: Stats NZ 2013 census, RCG

¹¹ The other areas people from Whakatāne commuted to were mainly Tauranga and Rotorua.

9 Roading – Whakatāne and Kawerau Districts

The road network is the primary means of travel for both passengers and freight in the Eastern Bay of Plenty. The sub-region's roads are of two kinds: state highways and local roads. State highways provide the major connections between New Zealand's Districts and regions. State highways are managed and funded directly by central government through Waka Kotahi (NZTA)¹². Local roads provide for local connections within Districts and link to the state highway network. Local roads are administered by local territorial authorities and funded through rates with a subsidy from Waka Kotahi's Land Transport Fund.

9.1 Whakatāne District

Whakatāne District Council provides and manages a safe, integrated and efficient transport across the District including provision for private vehicles, freight, public transport, walking, cycling and pedestrians (Figure 17). The Council also manages on-street and off-street parking facilities. The Council and Waka Kotahi work closely on the future planning and investment of the transport system, including the continued monitoring of population growth and development demands.

The transport network, which has been guided by the topography of the District is made up of:

- 905km roads (702km sealed, 203km unsealed)
- 177 bridges
- 170km guard railing
- 18 bus shelters
- 7,261 signs
- 3,453 streetlights
- 258 retaining walls
- 3,453 streetlights
- 260km kerb and channel
- 2,165 stormwater catchpits
- 9.8km off-road cyclepaths
- 196km footpaths
- 405 traffic islands
- 4,085 culverts

There are approximately 21,000 traffic movements travelling into town via the Landing Road Bridge per day. Having just a single river crossing over the Whakatāne River directly into town makes the route vulnerable in the event of a significant civil defence emergency.

Although the existing roading transport meets the needs of many users, additional infrastructure will be required over time to improve the safety of vulnerable users such as pedestrians, cyclists and users of mobility scooters. The potential effects of climate change are currently being assessed and can be expected to have a financial impact. Any significant future development will require a significant upgrade of parts of the existing roading network. Currently the existing transport programme of work and budget does not provide for these upgrades.

¹² UFTI and the BOPRC (2020 Bay of Plenty Regional Freight Flows Study 2020).

9.2 Kawerau District

Kawerau District is served by 41km of roading (excluding SH34). The key assets are:

- 41 km road
- 72 km of kerbs
- 73km² of footpaths
- 1 bridge
- 5 culverts
- 764 Street lights.

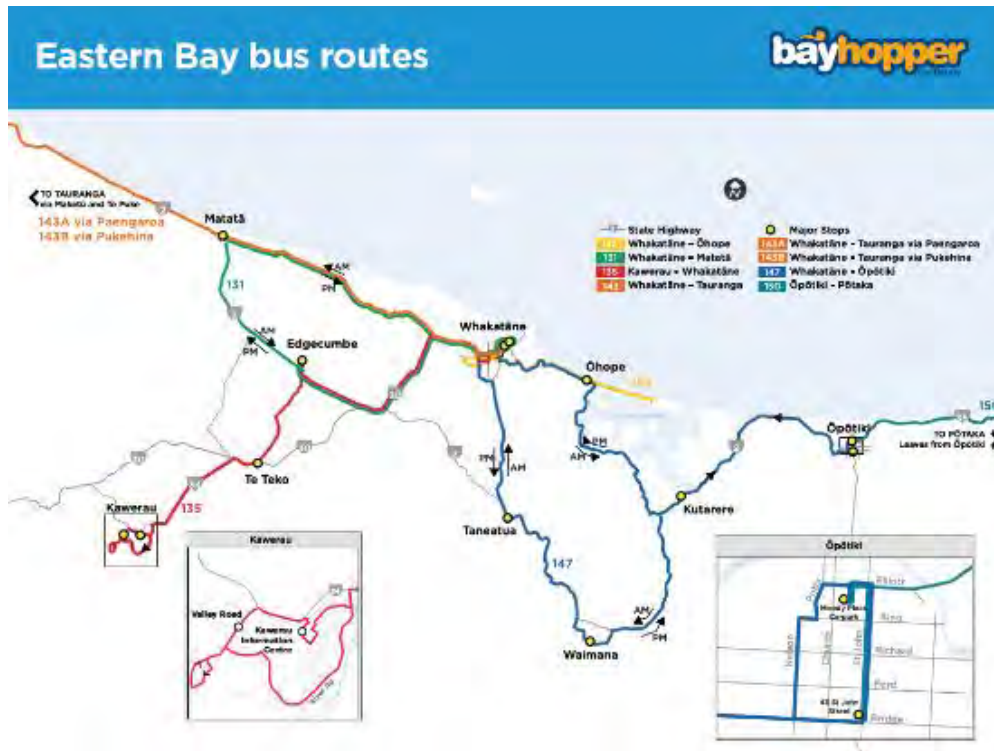
Key issues affecting roading in Kawerau are:

- Long term population growth estimates are uncertain. Any significant population decline will make it difficult to fund ongoing maintenance and upkeep of the roading network.
- Development in the industrial area will generate more traffic which may require additional roads and infrastructure.
- An ageing population will require upgraded infrastructure to meet the needs of mobility scooters.

9.3 Public Transport

Public transport is delivered in partnership with local council and Waka Kotahi. The regional Public Transport Plan directs investment in public transport across the region. Public transport is funded on a near equal basis by the National Land Transport Fund, rates and user fares. The Eastern Bay bus routes are shown below (Figure 18). In the Eastern Bay of Plenty, patronage between September and December 2021 was up 12.7% on the same period last year but 21.4% down on 2019/20.

Figure 18: Eastern Bay bus routes



9.4 Active Transport Modes

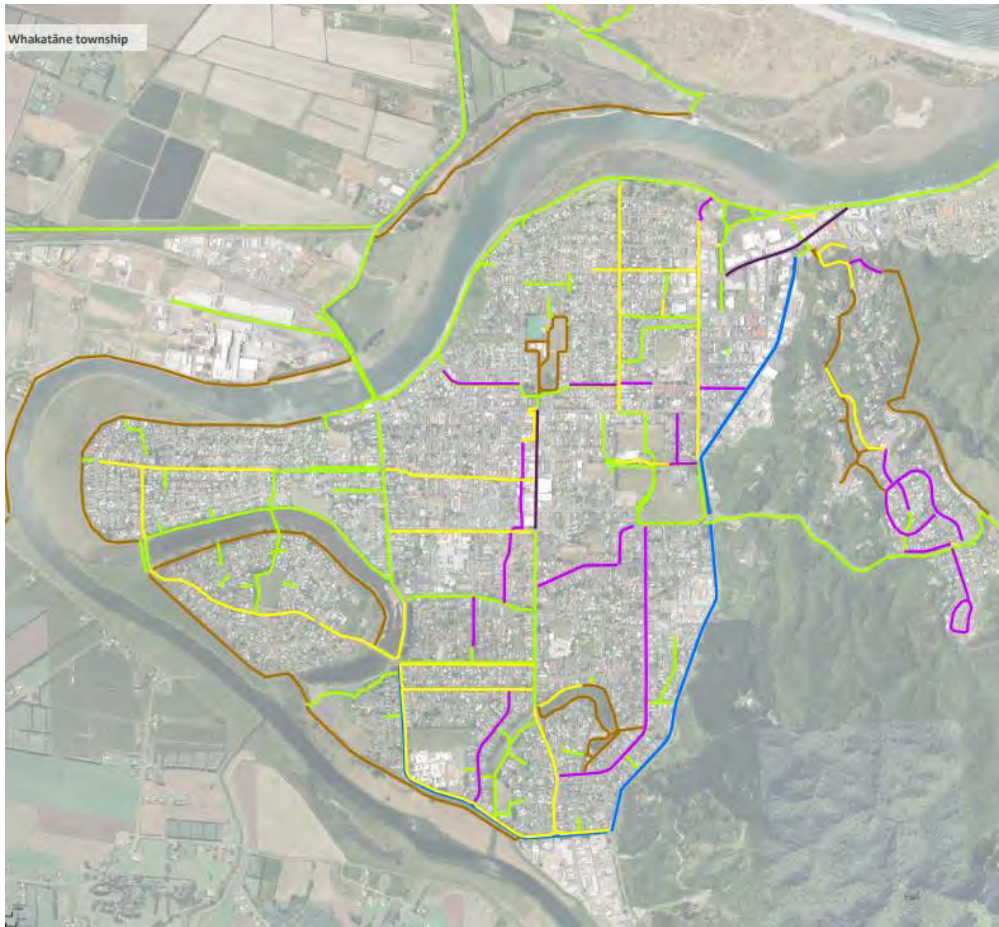
Active user groups include pedestrians, cyclists, mobility scooter and wheelchair users, and skateboarders. Active transport infrastructure such as shared paths can be used by a wide range of user groups (Figure 19). In addition to shared paths, the cycling network includes:








- On-road cycle lanes, which consist of space allocated through line marking and signs on existing carriageways. These are appropriate where traffic is slow moving or traffic volumes are lower; and
- Off-road cycle paths which consist of a separate facility either adjacent to the road carriageway or away from the road through reserve or other space. These are appropriate in high speed and higher traffic volume locations.

Key Issues associated with active modes include:

- Whakatāne has a high fatal and serious crash rate for vulnerable users on urban arterial and collector roads
- Residential growth on the western side of the river is leading to increased pressure on the urban arterial access into town unless suitable infrastructure supporting mode choice is developed
- An ageing population is seeing an increased demand for mobility scooters and e-bikes access across the District.

Figure 19: Active Whakatāne - Active Transport Infrastructure



Facility type	
Cycle lane	
Shared path	
Footpath (cycling allowed)	
Trail	
Neighbourhood greenway	
Low speed commercial	
Small towns initiatives: details to be developed with communities	

9.4.1 Active Whakatāne

In 2020 Whakatāne District Council adopted the *Active Whakatāne Strategy*, which represented a collective vision for active transport and recreation. The Key Investment Areas of the *Active Whakatāne Strategy* are:

- Commuter walking, scootering and cycling – shared paths and greenways along streets, paths through parks and reserves and improved on-road cycleways
- Safe ways to school – wider sealed shared paths along key streets to and from schools, and along commuter routes
- Recreational walking and cycling trails -through parks and reserves, stop banks, coastal and harbour reserves.

10 Rail

10.1 Role of Rail in the Bay of Plenty

Rail plays a significant freight role in the region with the Bay of Plenty section of the East Coast Main Trunk line (ECMT) carrying over a third of New Zealand’s rail traffic. It is the most densely utilised section of the national rail network¹³. The region is home to the Port of Tauranga, New Zealand’s largest export port, which handles 30% of the country’s imports and exports. The Port is a key connection between the upper North Island, central New Zealand and international markets and transports significant volumes of product internally via rail and road.

The region has 321 km of rail network extending from Hamilton in the west to Taneatua and Murupara in the east (Figure 20). The East Coast Main Trunk (ECMT) is 182 km long and runs through Hamilton and Tauranga to Kawerau. The unused portions of rail track in the region include Hawkens – Taneatua (26 km), and the Rotorua branch (48km).

Figure 20: Bay of Plenty Rail Network



²⁸ https://en.wikipedia.org/wiki/List_of_railway_lines_in_New_Zealand

²⁹ KiwiRail data sets 2019.

¹³ UFTI (2019) Bay of Plenty Region Passenger and Freight Rail Report. May 2019

The Bay of Plenty region’s rail network carries approximately 1.355 billion net tonnes of freight per kilometre per annum (Figure 21). The ECMT within the Bay of Plenty has the capacity to operate 12 (9 locomotive long) trains per day each way within the current infrastructure and operations. Currently the line is operating 23 trains of different configurations. There is capacity for more services for some time within the ECMT before additional infrastructure investment is required and there are currently no significant rail constraints within the Bay of Plenty network.

Figure 21: Rail Traffic to, from and within the Bay of Plenty 2017/2018 (m tonnes)¹⁴

	Tonnes (m)	Commentary
To Bay of Plenty	3,654	Excluding internal BOP traffic
From Bay of Plenty	1,448	Excluding internal BOP traffic
Within Bay of Plenty	2,684	
Total	7,785	

10.2 Eastern Bay Sub-Region

Rail plays a significant freight role in the Eastern Bay sub-region transporting logs, fertiliser, wood pulp, paper and cardboard from Murupara and Kawerau to the Port of Tauranga. It is estimated that the Eastern Bay of Plenty exports more than 33,000 containers per annum¹⁵, with the majority of these currently being transported on road. A number of emerging industries and development opportunities underway in the sub-region will have an impact on the freight task in the Bay of Plenty. These include the Opotiki Aquaculture and Harbour Development; Kawerau Industrial Land Development and Container Terminal; high value horticulture and water bottling in Otakiri.

11 Ports - Whakatāne

The Whakatāne District Council manages three ports and the following associated assets in the District:

- Commercial Harbour facilities
- Recreational Harbour facilities
- Harbour property assets.

Harbour property assets consist of land and building assets. Land assets were largely vested in the Council to provide income for the Harbour Endowment fund. The port and harbour locations, and assets owned and managed by Whakatāne District Council are shown below (Figures 22 to 25).

¹⁴ Bay of Plenty Regional Freight Flows Study (February 2020). Prepared by Beca, Richard Paling and Murray King for UFTI and the Bay of Plenty Regional Council.

¹⁵ Kawerau Container Terminal: A Feasibility study from a Logistics Perspective, Scion, January 2017.

Figure 22: Area location for Ports and Harbours in Whakatāne District



Figure 23: Whakatāne Port Zone Commercial Wharf and Otuawhaki Wharf

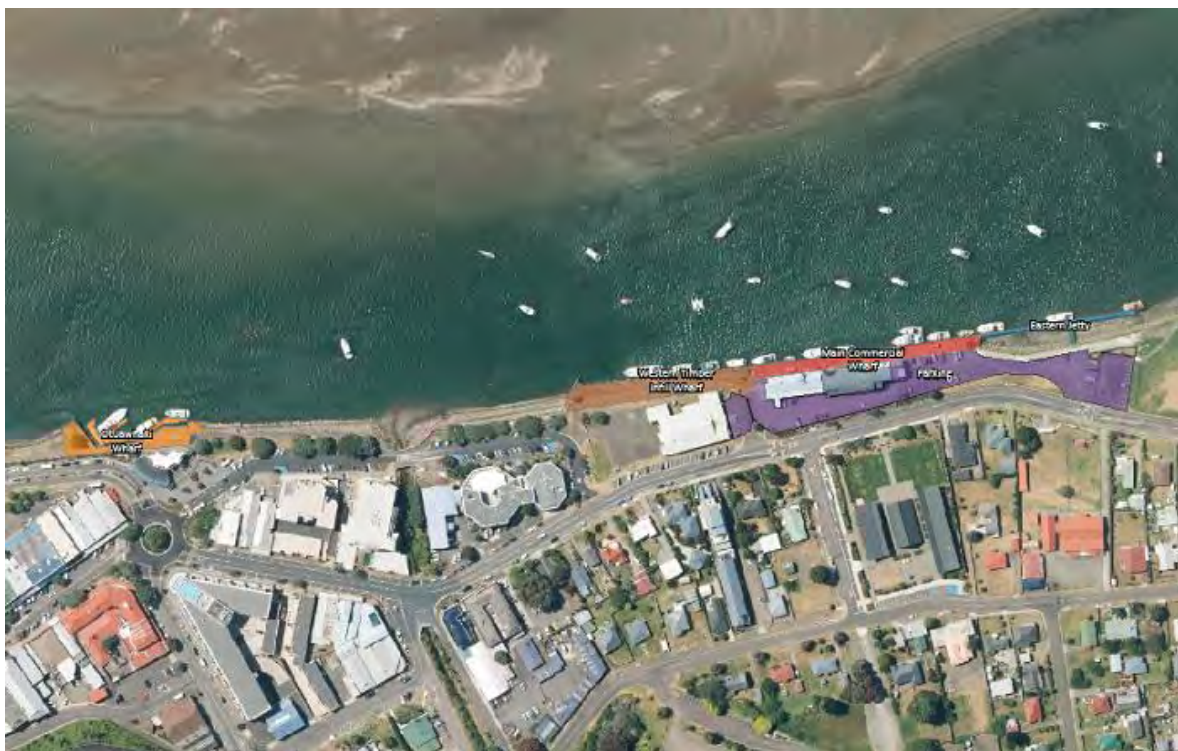


Figure 24: Ōhope Port Zone



Figure 25: Thornton Port Zone



An overview of the key Ports Assets is shown below (Figure 26).

Figure 26: Overview of Port Assets

Asset	Description
Commercial Port Facilities	<ul style="list-style-type: none"> Whakatāne Main Commercial Wharf, including Eastern finger jetty, Western timber infill wharf Otuawhaki Wharf
Recreational Facilities	<ul style="list-style-type: none"> Whakatāne boat ramp, jetties and trailer park Port Ōhope wharf, jetties, boat ramp, carpark and site amenities Ōhiwa boat ramp Thornton boat ramp and jetties Goodwin’s Landing boat ramp Whakatāne River / Eivers road waka ramp
Shared Facilities	<ul style="list-style-type: none"> Whakatāne Game Wharf Whakatāne Vessel Hardstand Whakatāne Harbour navigational equipment Whakatāne Harbour eastern and western training walls, eastern groyne

Key issues facing the port include:

- There is a shortage of available commercial berths at Whakatāne’s existing facilities. The PGF¹⁶ application to develop a fit for purpose boat harbour on Te Rāhui Lands Trust land at Keepa Road was successful. The project is currently seeking resource consent approval from the Environmental Protection Agency with a ruling expected in June 2022. The next phase will be to seek BOPRC Bylaw and Department of Conservation concession approvals while undertaking detailed design with construction expected to start in early 2023 subject to the availability of construction resources.
- Western Spit Wall. After the cyclones and major flood events in April 2017, investigations are underway into possible future built solutions to provide the most ideal harbour outlet to minimise flood risk and maintain a safe, efficient navigation channel.
- Harbour Entrance. Council is currently reviewing its ongoing relationship with BOPRC to clarify where responsibility sits for maintaining the navigational channel going forward and how the parties work together to collectively ensure the safety and usability of the harbour entrance and channel.

¹⁶ Provincial Growth Fund

12 Airport

Whakatāne Airport is the gateway to the Eastern Bay of Plenty sub region, and enables airport based commercial and recreational activities can be undertaken. The airport operates as a Council Controlled Organisation (CCO) under a 50/50 Joint Venture agreement with the Crown. Scheduled passenger services from Whakatāne to and from Auckland are currently provided by Air Chathams. In addition to Whakatāne Airport, the Council also owns the Galatea Airfield which is utilised mainly for recreational and agricultural operations. An overview of the Airport Assets is shown below (Figure 27).

Figure 27: Overview of Airport Assets

Airport Asset	Description
Whakatāne Airport Runway	1 x 1,280m sealed with taxiways and apron 1 x 750m grass
Whakatāne Airport Buildings	Terminal Building
Whakatāne Airport Supporting Facilities	Navigational lighting and equipment Carpark and access road Perimeter and security fencing Other site improvements
Galatea Airfield	1 x 1,025m grass runway, fencing

Prior to the nationwide lockdown in March in response to the COVID 19 threat, demand had been growing and air services were operating at 72% capacity. Following the lockdown, demand fell to 45% capacity as the flight schedule was reduced from six flights/day before the lockdown to four flights/day now. Passenger movements fell from 25,000 per annum in 2019 to 17,973 in 2020. Whakatāne Airport provides a vital link during business-as-usual and in emergencies. It is defined and listed as a lifeline utility in Schedule 1 of the Civil Defence Emergency Management Act 2002.

The likely effects of climate change include projected changes in temperature, wind, extreme weather events and sea levels. An initial high level risk assessment of the airport shows that climate change effects could damage the airport infrastructure and assets, while extreme weather and flooding could compromise its operation. Increased hot days could also affect usage and damage runways and flooding could reduce road access to the airport (Figure 28).

Figure 28: Climate Change Risks to the Airport

Climate Change Effects	Potential damage to airport infrastructure
Increased temperature (increased heatwaves and droughts)	- Fire risk increases - Tarmac melting / damage - Water issues could affect grazing lease
Flooding (river and surfaces)	Access to airport will be reduced due to flooding on surrounding low level land
Coastal hazards (sea level rise, inundation, erosion, groundwater)	Rising groundwater
Increased fire weather	Fires damage assets and prevent airport usage
Extreme weather events (storms, wind, landslips)	Will effect airport usage
Other	Insurance risks. Increased maintenance costs.

The airport requires critical maintenance in a number of areas including the runway surface, taxiways, and carparks. Airport resurfacing work was completed in 2019-2020 to address seal issues on the runway. A revised seismic assessment of the Airport Terminal undertaken by BSK Consulting Engineers Ltd in early 2018 showed a minor upgrade to the upper floor support posts connections was needed to address a critical weakness. Note that the internal tower area of the terminal building has been closed and off-limits for more than 10 years, as it is believed to be a health and safety risk. In 2019, the Terminal building was listed as a Category 1 listing on the Heritage New Zealand List, which means that alterations to the building, or demolition of the building cannot be undertaken without approval of Heritage New Zealand.

13 Network - Electricity

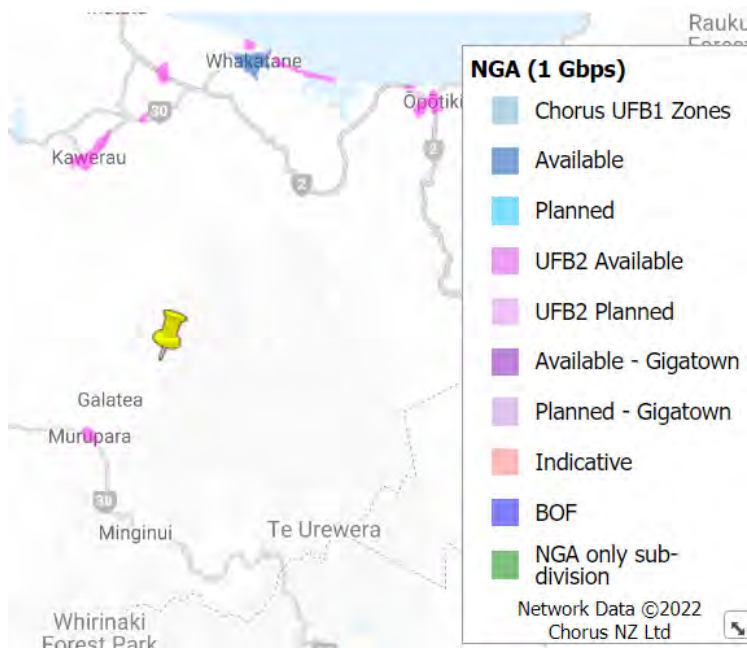
Electricity is generated at hydroelectric dams at Wheao River, Aniwhenua and Matahina on the Rangitāiki River, and at the Kawerau Geothermal Station.

Horizon Networks owns, manages and operates the electricity network that serves the Eastern Bay of Plenty region. The network covers more than 8,000km and supplies more than 24,000 customers, with a maximum demand of 90MW of electricity.

14 Network – Copper and Fibre

New Zealand is currently in the midst of a major upgrade of its telecommunication infrastructure. The Ultra-Fast Broadband (UFB) programme and the Rural Broadband Initiative (RBI) are delivering vastly improved broadband services to urban and rural New Zealand. Overall, 86% of New Zealanders can now access UFB. Within the Bay of Plenty, there are 21 towns and cities with UFB available, and 69% of those with access have connected. This means that 83,410 premises in the region are now connected to UFB. The total invested in the Bay of Plenty is \$12.2 million. The towns/cities that have the greatest uptake are Tauranga (78%), Rotorua (65%), Kawerau (64%) and Whakatāne (63%). The areas within Whakatāne and Kawerau District where fibre is available is shown below (Figure 29: Areas in Whakatāne and Kawerau where home fibre is available).

Figure 29: Areas in Whakatāne and Kawerau where home fibre is available



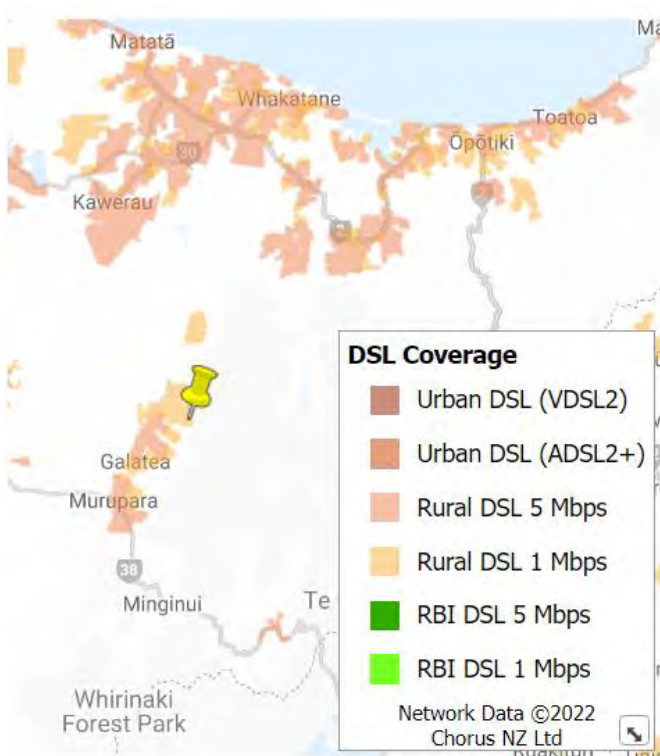
Because the settlements in Whakatāne and Kawerau are separated, linkages between them have to be connected and the map below shows where Chorus’ fibre network linkages are located (Figure 30:).

Figure 30: Fibre network linkage in Whakatāne and Kawerau



In those areas where fibre is available, the copper network may be withdrawn in the future, but no such decision has been made at this stage. The map below shows the extent of the copper network in the Eastern Bay (Figure 31). The darker the colour, the faster the speed. In terms of capacity constraints, Chorus advises there are no current constraints within the existing network and they are confident that any additional capacity could be met as required.

Figure 31: Copper network in the Eastern Bay



15 Community Infrastructure

15.1 Whakatāne Community Facilities

The provision of soft infrastructure includes appropriate recreational facilities, health and education facilities and green open spaces. While there are many open spaces and recreational facilities across the District, further work is needed to assess whether these facilities and spaces are appropriate or will be adequate to meet the future demands of the communities they serve.

Whakatāne District Council owns and manages a range of properties including buildings and site features at 84 properties. These are grouped into five main categories (Figure 32).

Figure 32: Whakatāne District Community Facilities

Community Facilities	Description
Community Halls and Pavilions,	11 urban and rural community based halls and pavilions in the District including the Whakatāne District War Memorial Hall (War Memorial Hall).
Commercial Property	The Council owns a number of buildings (rental housing and commercial tenancies) that are leased or tenanted and provide a revenue. These assets are kept in the Council’s ownership for strategic reasons and are managed to achieve a commercial return in the medium term.
Operational Property	Includes assets that provide essential services to the community and those that are supported by the local community. There are 15 properties in total

Community Facilities	Description
	which include the Civic Centre, the Visitor Information Centre, workshops and depots at both Te Tahī Street and Keepa Road.
Public Conveniences	39 public conveniences are available for the public at various parks, reserves and popular recreational locations. There are a further 4 internal toilet fit-outs by the Council in sports complex.
Other Community Property and Structures	A diverse collection of buildings and structures have been bought together in this category. All serve some community need.

Whakatāne District Council also manages seven categories of recreation assets (Figure 33).

Figure 33: Whakatāne Recreation Facilities

Recreation Facilities	Description
Arts and Culture	The District's Library & Exhibition Centre - Te Koputu a te Whanga a Toi and the new Museum and Research Centre - Te Whare Taonga o Taketake are the principal buildings in this asset category. There are also smaller libraries in Ōhope, Edgecumbe and Murupara.
Aquatic Centres	Whakatāne District has two swimming pool complexes, the Whakatāne Aquatic and Fitness Centre, and the Murupara Swimming Pools (also known as A H Lynd Memorial Baths).
Camping Facilities	Two serviced camping facilities provided by the Council are the Pikowai Camping Ground and the Whakatāne Holiday Park. The Pikowai facilities are rudimentary with toileting and showering facilities. The Whakatāne Holiday Park provides full range of camping options and facilities
Freedom Camping Facilities	There are four un-serviced byway camping facilities, though water supplies and dump station are located at a number of these sites.
Cemeteries & Crematorium	Six cemeteries are administered by Council. The Matata cemetery is managed by a trust on behalf of the Council. The crematorium is situated in Hillcrest cemetery.
Playgrounds	These are located on almost every reserve and include play equipment (swings, slides, etc.), surfacing, and in some areas, shade-sails.
Sports & Recreational Facilities	These are large reserves almost exclusively used for organised sport which may contain sports fields, clubrooms and other improvements etc.
Reserves	Reserves: are located in urban Whakatāne, Edgecumbe, Murupara, Ōhope, Taneatua and various other rural areas. Many of these contain playground facilities (swings, slides etc.). Reserves have been classified to demonstrate their overall function as: Community Reserves, Esplanade, Conservation & Coastal Reserve, Significant Sites.

Future housing developments will need to ensure that an appropriate level of community infrastructure is provided within the development.

15.2 Kawerau Community Facilities

Kawerau District Council manages a wide range of community facilities as outlined below (Figure 34):

Figure 34: Community Facilities owned by Kawerau District Council

Community Facility	Location
Visitor Information Centre	Town Centre
Dog Pound	Spencer Avenue
Library / Museum	Jellicoe Court, Town Centre
Pool Complex (five pools, splash pad & jumping pillow, changing and ablutions facilities)	Cnr Plunket & Glasgow Sts
Community Halls (four), Town Hall, Concert Chamber, Recreation Centre, Bert Hamilton Hall	Ranfurly Court / Onslow Street / Porritt Drive
Public Toilets	Various Reserves, Ranfurly Court, Info Centre, Cemetery
Passive Reserves	Various
Sports Fields (3)	Prideaux Park, Firmin Field, Tarawera Park
Public Art Features	Various
Playgrounds and Courts	Various
Tarawera Park Clubrooms	Cobham Drive
Firmin Field Lodge	Cobham Drive
Other Buildings (Cricket, Tennis/Netball pavilions and Onepū Sports Pavilion)	Plunket Street and Cobham Drive
Cemetery	Valley Road
Works and Services Depot	SH34 / Tamarangi Drive
District Office and Annexes	Ranfurly Court / Islington Street

16 Education

16.1.1 Primary and secondary education

Schools often lie at the heart of communities, particularly rural communities. There are 36 schools in Whakatāne and Kawerau Districts, with nineteen of these in the Whakatāne urban area. (Figure 35). Currently there is a lot of capacity still available in the schooling network catchment, however there are pressures that would need to be considered depending on the specific location of any development.

Figure 35: Schools in Whakatāne and Kawerau Districts¹⁷

Area	Primary Yr 1-6/8	Intermediate Yr 7-8	Secondary Yr 9-13	Composite Yr 1-13	Total	Kura Kaupapa Māori – included in total school number
Whakatāne	13	1	2	3	19	7
Kawerau	2		1	1	4	1
Edgecumbe	8		1		9	1
Murupara ¹⁸	1			3	4	2
	24	1	4	7	36	10

16.1.2 Tertiary education

Twelve tertiary education providers registered with the New Zealand Qualifications Authority, offer courses across a range of careers in the two Districts. These are:

- Te Whare Wānanga o Awanuiārangi offers a range of qualifications, from community education programmes to doctoral degrees
- Toi Ohomai Institute of Technology has a Whakatāne campus offering a variety of tertiary education courses
- Anamata is an NZQA-registered Private Training Establishment (PTE) offers courses in Tāneatua and Whakatāne in construction trades, language and culture, and social services and health
- Eastbay REAP (Rural Education Activities Programme) is an NZQA-registered PTE establishment that was founded in 1981 by the Ministry of Education. Eastbay REAP delivers training in Whakatāne, Kawerau and Murupara
- Bay of Plenty School of Welding offers welding courses in Murupara
- Industry Training Solutions offers a range of courses primarily associated with the hospitality industry in Whakatāne and online
- Industry Training Works offers arrange of workplace health and safety courses in Kawerau
- Meditrain Ltd offers a range of health and safety and first aid courses in Kawerau
- New Zealand Red Cross offers first aid courses in Whakatāne
- Southern Institute of Technology offers a range of courses in Minginui
- Electrical Training Company Ltd offers electrical training in Whakatāne.

¹⁷ Ministry of Education 2022

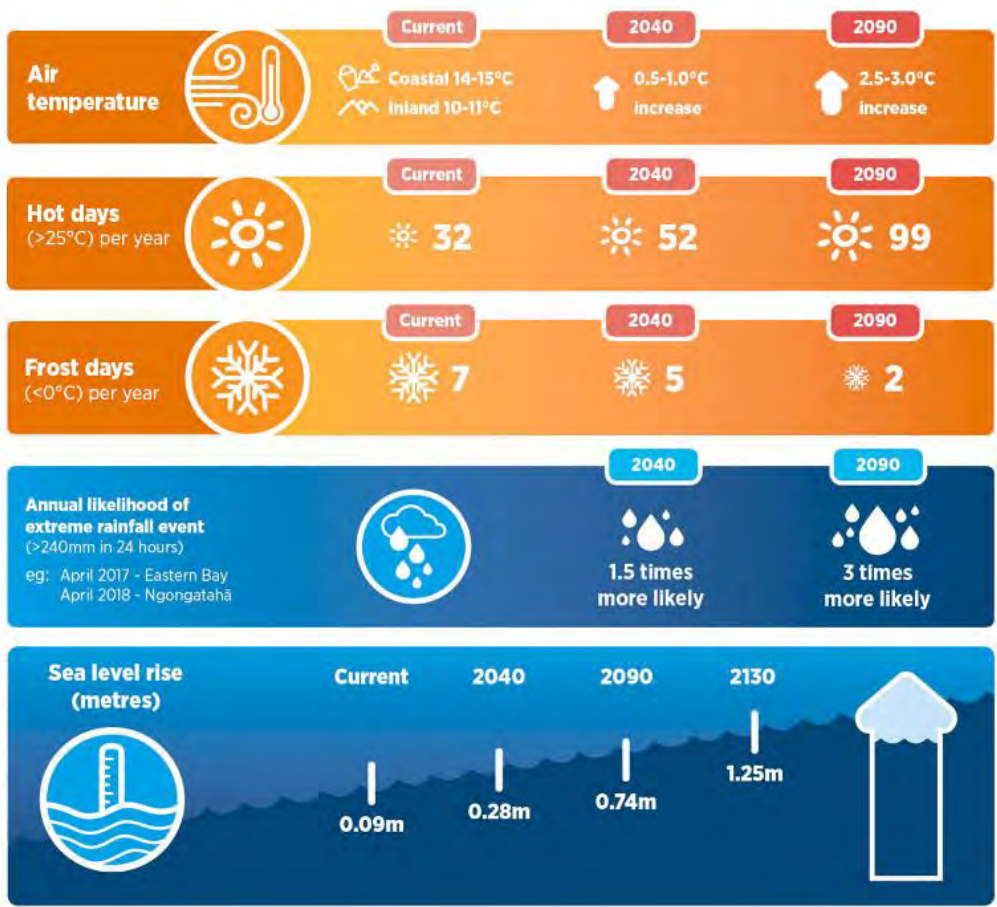
¹⁸ Note that Murupara falls within the Rotorua NENP Education Catchment.

17 Natural Hazard and Climate Change Risks to Infrastructure

Due to our geography and coastal location, Whakatāne and Kawerau Districts are subject to a range of natural hazard risks including slips, debris flows, flooding, tsunami, earthquakes and volcanic eruption. These can all have a detrimental effect on all forms of infrastructure within the region.

Much of the infrastructure in the Eastern Bay is exposed to the effects of climate change, including sea level rise, high winds, inundation and temperature change. As temperatures rise, and wind, rainfall and seasonable patterns shift so that there will be more extreme weather events and unpredictable weather. Improving the resilience of the networks is being factored into the work programmes of all asset owners and managers. The current focus is on identifying the climate change risk profile associated with all assets, with the intention of undertaking upgrades to increase resilience over the longer term. This work will require high levels of resourcing, that is likely to be a challenge for all infrastructure asset owners. The expected changes arising from climate change in the Bay of Plenty are outlined below (Figure 36).

Figure 36: Likely impact of Climate Change in the Bay of Plenty



18 Implications of future growth on infrastructure

Some existing three waters infrastructure needs to be upgraded to meet higher environmental standards and new infrastructure will be needed to meet the requirements of exiting settlements such as Matatā. Addressing the effects of climate change could require additional upgrades over time. The extent of this work and the resulting costs have not yet been identified. Future development outside locations that are currently serviced will need new three waters infrastructure to be provided. The existing three waters programme of works and budget do not allow for this additional infrastructure.

Although the existing roading transport meets the needs of many users, additional infrastructure will be required over time to improve the safety of vulnerable users such as pedestrians, cyclists and users of mobility scooters. The potential effects of climate change are currently being assessed and can be expected to have a financial impact. Any significant future development will require a significant upgrade of parts of the existing roading network. The existing transport programme of work and budget do not provide for these upgrades.