



Porirua City Council

Part 3: Asset Management Plan

For Release, Version 9, 27 February 2025



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Context, purpose and assumptions

Context

- This Asset Management Plan (AMP) provides the shareholder council with details on each of its 3 Waters physical assets including the scale and extent, condition and performance, financial forecasts and associated risks.
- This council-focused AMP is supported by three linked, higher tier AMPs, covering physical assets at a metropolitan scale by each of water supply, wastewater and stormwater.
- This AMP has been produced based on the most relevant data available at the time e.g., shareholder council adopted Long Term Plan (LTP 2024-2034); 30-Year capital programme forecast provided as part of council's infrastructure strategy development– see s8.1; LTP 10-Year budget – see s8.2, 8.3 and 8.4; and National Transition Unit (NTU) 30-year unconstrained capital forecasts (April 2023) – see s9.1 and s9.2.
- There are a relatively high proportion of assets still in service operating beyond their expected service life therefore renewals planning has forced a more reactive approach than is ideal under good asset management practice e.g., robust risk-based renewal prioritisation.

Purpose

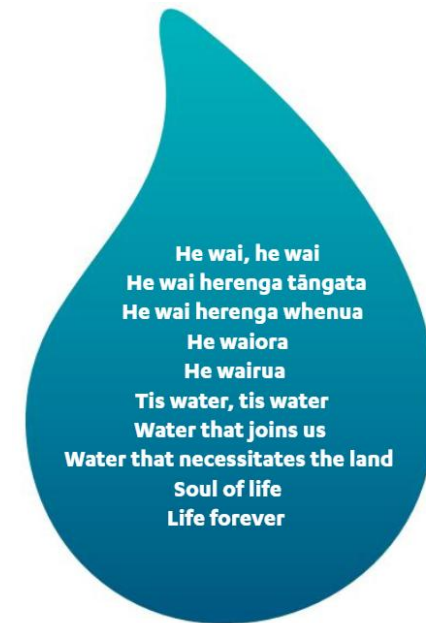
- This AMP is produced for the shareholder council so it can understand key aspects of the respective physical assets and be aware of uncertainties, confidence and risks.
- Elements of this AMP and the higher tier AMPs may be used to support production of Water Service Delivery Plans (WSDP). Material differences between data presented in the AMP and WSDP may arise e.g., through WSDP funding scenario modelling.

Assumptions

The following key assumptions apply to this shareholder councils AMP:

1. LTP-related asset values are based on unit rates obtained from specific, representative capital projects identified by Wellington Water Limited (WWL) and has 'Level zero - 100% contingency' applied – see the WWL Cost Estimation Manual.
2. NTU projects and programmes reflect the upper limit value of all 3 Waters activities required to deliver all projected metropolitan scale renewals, levels of service, and growth requirements as assessed at that time. Due to financial constraints driven by council affordability levels some NTU projects are not accommodated in the LTP 10-Year plan.
3. WWL financial data has by necessity been drawn from several sources which reflects the focus/refocus from Water Service Entities to shareholder council requirements.
4. The scale (including cost), extent and timing of renewals across all physical assets has been estimated based on various methodologies including desktop, physical inspections, and inferred analysis (same materials, installation years etc).
5. The financial constraints of shareholder councils have not enabled WWL to fully adopt a best practise approach to critical and non-critical asset renewal based on criticality, condition (failure risk), and levels of service, as councils have been unable to fund the required level of asset renewals.

1. Introduction
2. Partnerships and stakeholders
3. Three Waters services and assets we manage
4. Three Waters current level of service and performance measures
5. Demand and planning for the future
6. Risk management and resilience
7. How we deliver the services (Lifecycle management plans)
8. 10-year Three Waters investment forecasts
9. 30-year Three Waters investment forecasts
10. Continual asset management improvement



Wellington Water's Purpose:

Wellington Water exists so that people in the Wellington Region have safe, reliable, compliant, and affordable drinking water, stormwater, and wastewater services.

1. Introduction

1.1 Council overview

The Porirua District covers about 175km² and is formed around the two arms of Te Awarua-o-Porirua Harbour and the coastline. The Porirua City centre was developed in the 1960s, and much of the residential areas were developed between the 1940s and 1960s.

Porirua is centrally located in the Wellington Region and is connected to Kāpiti Coast and Wellington City via commuter rail, to the Porirua Valley by SH58, and to the rest of the North Island by SH1.



Porirua encompasses an area of 175km², with about 61km² being urban and 114km² classed as urban rural.



The city is built around Te Awarua-o-Porirua Harbour, with many waterways flowing into it. There are seven sub-catchments and over 275km of streams in Te Awarua-o-Porirua Whaitua.



Population
56,559



Source – Scotts WRWSDP

1.2 Community outcomes

PCC key priorities are described below:

Our people

We are diverse and inclusive – a city with lifelong economic and social opportunities



Our harbour

We have a healthy harbour and catchment – a thriving natural environment



Our home

We build to last and adapt to change



Three Waters contribution to these are:

- Safe and healthy water.** We provide water services to ensure safe drinking water and work to eliminate the public health risks from Three Waters services over time.
- Respectful of the environment.** When we provide water services, we seek to avoid harm to the natural and built environment and over time enhance it for the benefit of future generations.
- Resilient networks** support our economy. We provide reliable day-to-day water services that can withstand shock and stresses and support a strong and growing regional economy.
- Optimal performance.** We have a capable, adaptive, and collaborative workforce competent in applying asset management practices, using innovative practices and exchanges of knowledge to drive optimal performance.

Source: PCC LTP 24-34

1.3 Three Waters services objectives

Water supply: Provision of a safe, high quality, reliable and resilient water supply that aims to support the achievement of Council's goals by protecting the health and safety of the community and supporting economic growth and development.

Wastewater: Provision of a secure, efficient and resilient wastewater service that aims to support the achievement of Council's goals by protecting the health of the community and our waterways from the harmful effects of wastewater and supporting economic growth and development.

Stormwater: Provision of a stormwater service that aims to efficiently manage and control flows and support the achievement of Council's goals by protecting the public and property from the effects of flooding and minimising the impact of runoff on the environment.

Source – PCC AMP

1.4 Key asset register facts

Water Type	Asset Type	Quantity	Completeness	Confidence
Water Supply	Reservoirs	16 Sites	A	A
		18 Tanks	A	A
	Pipes	362.30km	B	B
Wastewater	Pump Station Sites	14	A	A
	Pipes	429.29km (PCC)	B	B
		10.6km (PWJV)	B	B
	Pump Stations	62 (PCC)	A	A
		3 (PWJV)	A	A
	Treatment Plants	1	A	A
Stormwater	Pipes	353.50km	B	B
	Pump Stations	0 Sites	N/A	N/A

Source: WWL DPS Asset Data Summary Report 2024

1.5 Three Waters challenges and priorities

The WWL priorities below support Porirua City Council's vision for its community:

Priority 1. Looking after existing infrastructure
(renewal, operations, maintenance and critical services)

Looking after existing assets is foundational to a sound risk management approach – it reduces incidents that usually cost more and has less negative effects when work is planned.

Priority 2. Supporting growth

Growth is inevitable and must be managed to ensure it does not add to existing issues for the three waters network.

Priority 3. Sustainable water supply and demand

We are near capacity for water supply

Priority 4. Improving env. water quality

Community expects better water quality than we have now

Priority 5. Net carbon zero 2050

Carbon emissions are a key contributor to climate change

Localised issues

- Reducing flood risk
- Seismic resilience
- Firefighting water supply

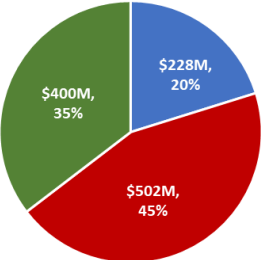
Individual activities associated with localised risks will be progressed as funding allows

System-wide issues that need addressed over the next 30 years

1.6 Three Waters asset valuation

PCC has \$1.13 B in Three Wates assets (optimised replacement cost) as at June 2024.

Three Waters Replacement Value (ORC)



Category	Value	Percentage
Drinking water	\$228M	20%
Wastewater	\$502M	45%
Stormwater	\$400M	35%

Source: PCC 2024 June Valuation Summary Spreadsheet -V1-241120

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2. Partnerships and stakeholders

2.1 Mana Whenua partnership

Rangapū tangata whenua | Tangata whenua partnership

Te Tiriti o Waitangi (the Treaty of Waitangi) is the founding document between Māori and the Crown. The Council has delegated responsibilities from the Crown to ensure that local authorities observe the principals of te Tiriti (the Treaty). The Local Government Act 2002 (the LGA) requires the Council to engage with Māori in decision-making processes relating to a wide variety of issues. We ensure that through our Long-term Plan we actively engage, promote and collaborate with Ngāti Toa Rangatira as the mana whenua as well as with the wider Māori population (taurahere) living in Porirua.

Our Ngāti Toa Rangatira partnership We are committed to partnering with Ngāti Toa Rangatira with all that we do. We engage through their iwi authority, Te Rūnanga o Toa Rangatira (Ngāti Toa). The Council and Ngāti Toa have signed a partnership agreement that outlines the shared commitment to the future wellbeing of Porirua. It provides the opportunity for Ngāti Toa to contribute to Council decisions and to provide leadership. This is done through various inputs, including feedback for the Long-term Plan, leadership and maintaining a close working relationship.

The Māori strategy for Porirua In December 2023 the Council launched the Maungaroa 2050 Māori Strategy. The strategy outlines the priorities and aspirations of Māori living in Porirua and how we can get there by 2051. The strategic priorities are:

- herea te taiao (environment) harbour and taiao are prioritised and invested into herea te hāpori (communities) whānau centric Porirua, marae, community spaces
- herea te ūkaipō (presence) increase presence and visibility of mana whenua
- herea te hoe urungi (partnership) Tiriti-led framework of partnership
- herea te waka (supporting our staff) prioritise, support and resource our staff.

The strategy is aligned with the Long-term Plan 2021–2051 and a corresponding three-year action strategy. As part of ūkaipō and urungi, we provide opportunities for Māori to engage in discussions with the Council to ensure their perspective is reflected in decisions affecting the environmental, economic, social and cultural wellbeing of our city for now and into the future. Under herea te hāpori, we are building meaningful engagement and ongoing working relationships with taurahere Māori mainly through Horouta Marae and Maraeroa Marae, as well as the Ngāti Toa communities of Takapūwāhia and Hongoeka.

Source: PCC LTP 24-34

Three Waters Iwi and community engagement

Iwi and community consultation is undertaken for abstraction/discharge consents and all significant projects.

2.2 Key customers and stakeholders

The Three Waters activities exist to meet the needs and requirements of customers, partners and key stakeholders. The table below identifies the areas of interests, expectations and involvements of these groups.

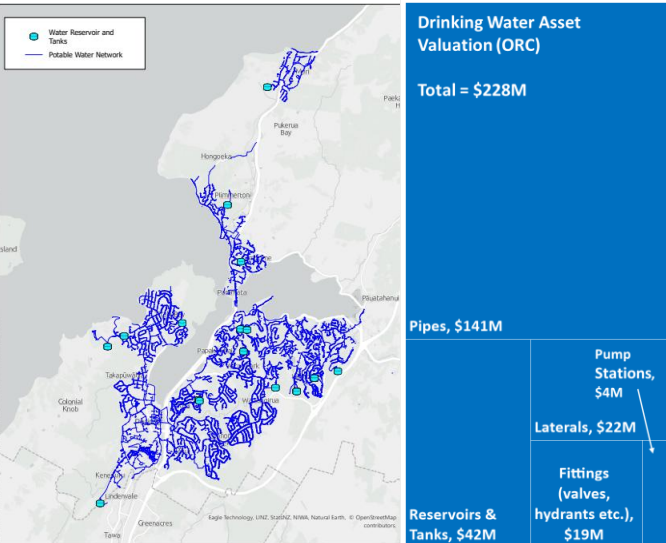
Customers/Stakeholders	Area of Interest	Involvement/Expectations
Homeowners, businesses, organisations, health and medical facilities, education facilities, community groups, tourists and visitors	Water, wastewater, stormwater usage	These customers realise the benefits provided by the water supply, wastewater and stormwater activities
Iwi-Māori	Te Mana o te Wai Iwi & Hapū cultural heritage	All water to be respected and mauri of water to be protected and enhanced. Mana whenua to be involved in management of water supply, wastewater and stormwater issues
Greater Wellington Regional Council	Development, usage and discharge plans	Asset owner - drinking water intakes, treatment and bulk conveyance. Administers and enforces effective resource management in the region. Applications are processed through Regional Council
Water Services Regulator Taumata Arowai & Ministry of Health	Drinking water safety Three Waters service performance	Compliance with drinking water standards and regulations
Audit New Zealand	Compliance and financial regulation	Carries out annual audits of Council on the Auditor-General's behalf to give ratepayers assurance that Council is appropriately reporting on how they spend public money and on the services they have provided
Other Government agencies, Ratepayers Associations, Environmental groups, Fish and Game	Development, usage and discharge plans	These groups liaise with Council in relation to three waters services. Affected parties to Council's resource consents.
Utility providers	Service delivery (Term Service Contracts)	Access to assets for operations and maintenance, including planned and reactive works. Payment for services provided within contract terms.
Other utility providers	Operations, performance and management of works	New Zealand Utilities Advisory Group (NZUAG) requirements for co-ordinating networks
Emergency Management/Civil Defence	Emergency Operations	In the event of a Civil Defence emergency, they provide advice and work alongside emergency services, lifeline utilities and government departments
Elected Members, Committees, CEO, Management and Staff	Performance and management of services	Key internal stakeholders responsible for the management and operation of the Three Waters system

3. Three Waters services and assets we manage

3.1. Water supply

The water supply network receives treated water from the Greater Wellington Regional Council’s bulk water network. This is stored in local reservoirs and distributed via a pressurised pipe network to consumers at their point of connection (boundary toby).

The figure below summarises the extent and value of water supply network assets.



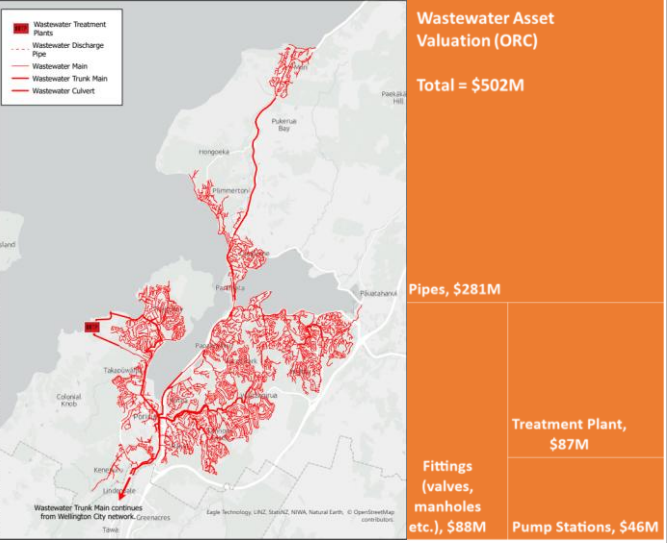
3.2 Wastewater

The wastewater network is made up of local collection sewers taking wastewater from properties ,through gravity pipelines, pump stations and pressurised (rising) mains.

Some wastewater within the WCC area is conveyed to and treated at the PCC Titahi Bay WWTP e.g., parts of Johnsonville, Churton Park and Tawa).

There is a JV between PCC and WCC for treatment of wastewater.

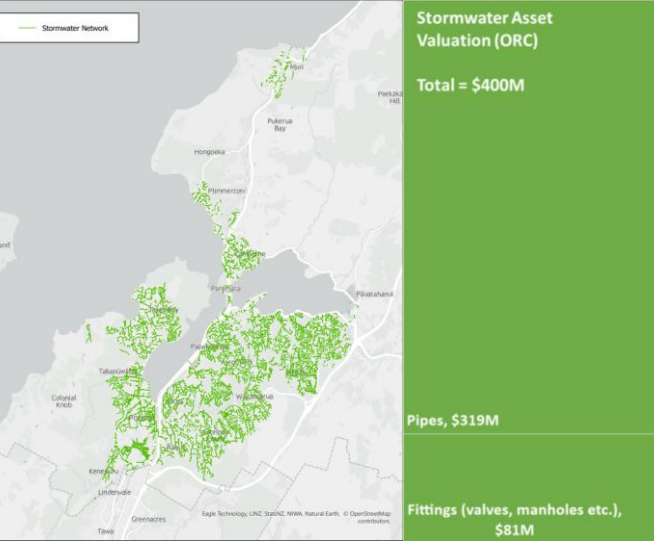
The figure below summarises the extent and value of WCC wastewater network assets.



3.3 Stormwater

PCC stormwater is discharged to constructed wetlands e.g., Elsdon Park, constructed networks (to coastal discharge points) and streams and then to the coast e.g., Porirua, Kenepuru. PCCs stormwater is subject to flooding due to lack of network capacity , built on overland flow paths especially due to historical land development, building practices and blocked overland flow paths such as Karehana catchment.

The figure below summarises the extent and value of stormwater network assets



3.4 State of the assets

3.4.1 Asset Condition, Criticality and Reliability Definitions. Critical Assets.			
The tables below describe the asset condition, criticality and reliability definitions. An outline of this Councils critical asset groups is provided. To determine the condition and physical state of an asset, the asset’s age is used to indicate replacement and timing, as well as the identification of maintenance or other interventions that may be required.			
	Asset Condition	Data Reliability	Critical Assets
Definitions	Determined based on the performance of a physical, visual, desktop, or modelled condition assessment activity. Inspection techniques differ by asset class. See chart below: Very Good (1): No observable defects or deterioration. Good (2): No defects evident that if worsened would result in asset failure. Moderate (3): Defects evident that if worsened could result in asset failure. Poor (4): Significant defects and/or serious deterioration affecting an asset's structural integrity evident. Very Poor (5): If the asset has not already failed, it could fail at any time.	Determined based on the type of inspection method and extent of that inspection method. The determination may differ between asset classes: (A) Highly Reliable: Data based on sound records, procedures, investigations, and analysis which is properly documented and recognised as the best method of assessment. (B) Reliable: Data based on sound records, procedures, investigations and analysis which is properly documented but has minor shortcomings; for example, the data is old, some documentation is missing, and reliance is placed on unconfirmed reports or some extrapolation. (C) Uncertain: Data based on sound records, procedures, investigations, and analysis which is incomplete or unsupported, or extrapolation from a limited sample for which grade A or B data is available. (D) Very Uncertain: Data based on unconfirmed verbal reports and/or cursory inspection and analysis. (E) Unknown: None or very little data held.	Determined based on an assessment of the asset(s) failing against Wellington Water's service goals and four criticality factors. See Asset Criticality Framework for details. VLCA (1): Very Low Critical Asset LCA (2): Low Critical Asset MCA (3): Moderate Critical Asset HCA (4): High Critical Asset VHCA (5): Very High Critical Asset
Actions	There is a programme in place to improve understanding of the condition of the assets we manage. Through the collection and analyses of condition data, we will be able to progress to a more condition-based remaining life approach.	There is an ongoing programme in place to improve asset data reliability. This takes place through the analysis of asset data completeness and accuracy and through the update of asset data information, from field checks, audits and condition assessments. The aim is to move the asset data reliability rating up to reliable and very reliable.	An asset criticality framework exists, and renewals and replacement priority is given to the ‘Very High Critical Assets’ (VHCA).

Critical Assets	Critical Assets		
	Water Supply • Pump stations and reservoirs and trunk mains with no redundancy/contingency • Assets servicing a very large % of the connected/vulnerable population • Location based watermains that intersect a state highway/buildings or a water course • Water sources and treatment plants are owned and managed by GWRC	Wastewater • Wastewater treatment plants • Pump stations and trunk mains with no redundancy/contingency • Assets servicing a very large % of the connected/vulnerable populations • Location based Pipes that intersect state highways /buildings or are within 20 metres of a water course (includes pipe bridges)	STORMWATER • Detention ponds and soakage cells • Pipes with diameter >=225mm (pre-2000's) and >=300mm (2000's onwards) • Coastal stormwater outlets (littoral zone)

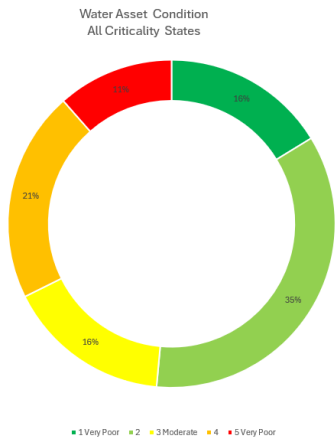
3.4 State of the assets (cont.)

3.4.2 Water supply

Network Assets. The PCC water supply network asset register details are provided below.

Water Type	Asset Type	Quantity	Completeness	Confidence
Water Supply	Reservoirs	16 Sites	A	A
	18 Tanks			
	Pipes	362.3km	B	B
	Pump Station Sites	14	A	A

Network Condition. The PCC water supply network asset condition is provided in the figure adjacent. This is limited to assets with a criticality value.



Water Supply – Summary of Network Issues and Challenges. A significant issue for Porirua is the rise in the number of water supply pipe assets that will reach the expected end of their life in the next 10-years and continuing for 30 years (Approx 10 % is past its expected life with an additional 15% reaching its end of life in the next 10 years) . The high renewal requirements are because of the amount of asbestos cement pipe that was installed as Porirua was developed post war. Consequently, asset replacement will need to focus on watermains in streets where failure levels accelerate.

Although little condition assessment has been completed it is well documented that the life of asbestos cement pipe is determined by the loss of cement in the pipe wall over time and early failure history of pipes are a good indication of the network reaching its end of life.

The asbestos cement pipes are brittle, slowly corroding and vulnerable to failure immediately after an earthquake. Priority for renewal in current plans must be given to pipes with historic failures, service interruptions and high repair costs as well as the HCA or VHCA assets that have been validated as close to failure through condition assessment. If HCA or VHCA asset are not replaced until failure because of delays, lengthy and extensive service interruptions will occur. Ongoing condition assessment will be vital to maximise the life of the pipe network.

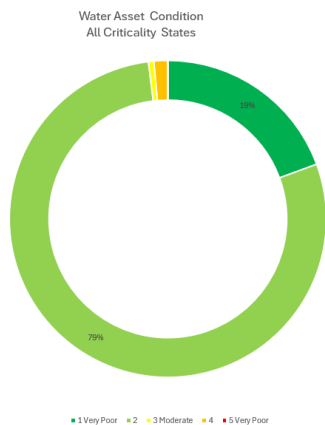
Reservoirs . All reservoirs are regarded as VHCAs. If reservoirs are removed from service, widespread loss of water supply will result. All reservoirs have been visually assessed with emphasis on contamination and health and safety risks. In the interim all health and safety and contamination risks can be mitigated through minor works and good maintenance. Funding for minor works has been allocated, and work continues to prevent risks identified. Growth in Porirua is putting pressure on the amount of available storage and new reservoirs are planned.

3.4.3 Stormwater

Network Assets. The PCC stormwater network asset register details is provided below.

Water Type	Asset Type	Quantity	Completeness	Confidence
Stormwater	Pipes	353.5km	B	B
	Pump Station Sites	0	N/A	N/A

Network Condition. The PCC stormwater network asset condition is provided adjacent. . This is limited to assets with a criticality value.



Stormwater network – Summary of Network Issues and Challenges. Generally, the condition of the stormwater network is newer and should require low renewal rates for the next 30 years. Furthermore, the nature of the water carried is less corrosive than for wastewater pipes although materials used are similar. Structural failure of critical stormwater pipes is likely to be hazardous to public safety, roadways and buildings.

Planning for renewals must be integrated with capacity assessment to protect against floods and climate change. Nevertheless, condition assessment remains vital to adequately plan the renewal or upgrade of critical stormwater pipes. Renewal priority must be given to condition grade 4 and 5 assets combined with flood risk assessment.

3.4 State of the assets (cont.)

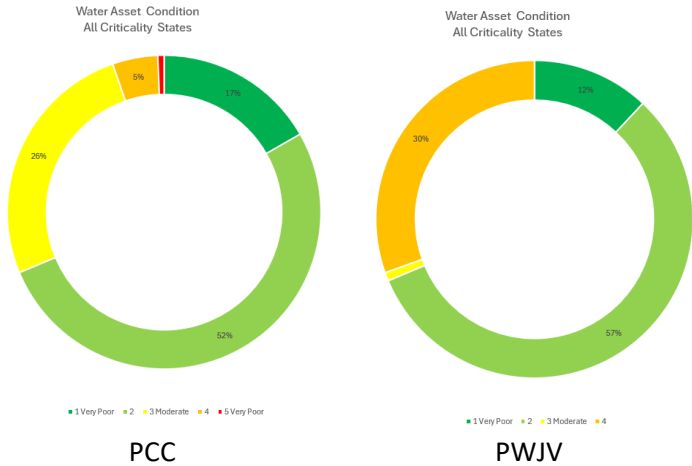
3.4.4 Wastewater including treatment plants

Network Assets. The PCC wastewater network asset register details are provided below.

Water Type	Asset Type	Quantity	Completeness	Confidence
Wastewater	Pipes	429.29km	B	B
		10.6km (PWJV)		
	Pump Station Sites	62	A	A
		3 (PWJV)		
	Treatment Plants	1	A	A

Source: WWL DPS Asset Data Summary Report 2024

Network Condition. The PCC wastewater Network asset condition is provided below. This is limited to assets with a criticality value.



Wastewater network – Summary of Network Issues and Challenges. There is a portion of the wastewater network (5%) that is overdue for replacement but a significant amount reaching its end of life in the next 10 years (an additional 23%). As for water supply, this is because of the high use of asbestos cement pipe in the network as government housing development proceeded. Failure of HCA and VHCA wastewater pipes will result in structural collapse and lengthy overflows of untreated wastewater into the immediate receiving environments such as beaches, harbours or waterways. The high level of renewals likely to be needed in the next 10 years is primarily an outcome of materials selected and date of installation. Wastewater pipes made of concrete, asbestos cement and earthenware are always vulnerable to corrosion and this has been evidenced through the need to replace the continually failing Paremata Rising main along SH1. Ongoing condition assessment will be vital to maximise the life of the pipe network.

Pump Stations (3 Waters). Pumps stations (water supply, wastewater and stormwater) are critical facilities. Within these facilities are also critical mechanical and electrical assets that on failure would result in supply disruption health and safety risks in the immediate vicinity, flooding and environmental pollution. Condition assessment of pump station assets is ongoing and critical asset renewal dates have been identified. Deferral of renewal funding will simply heighten the likelihood of the consequences listed above.

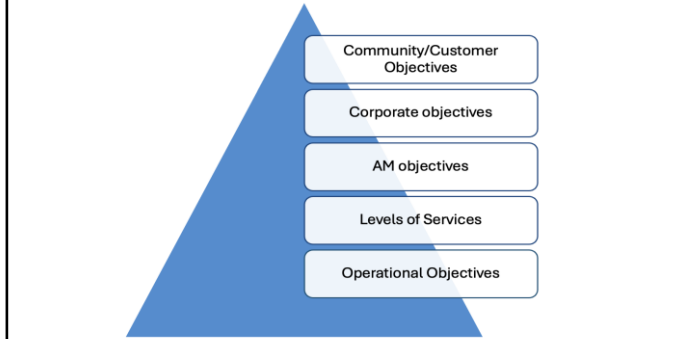
Wastewater Treatment Plants. The Porirua wastewater treatment plant is a highly critical facility. Within this facility are critical assets that on failure would result in supply disruption, health and safety risks in the immediate vicinity, offensive odour, flooding and environmental pollution. Although significant upgrade/renewal work has been done at the plant in recent years, a rigorous maintenance and renewal plan must be maintained in a plant that contains short lived mechanical/electrical assets that operate in a harsh environment. Failure of these assets heightens the risk of consent non-compliance and unplanned discharges to the environment.

4. Three Waters current Levels of Service and performance measures

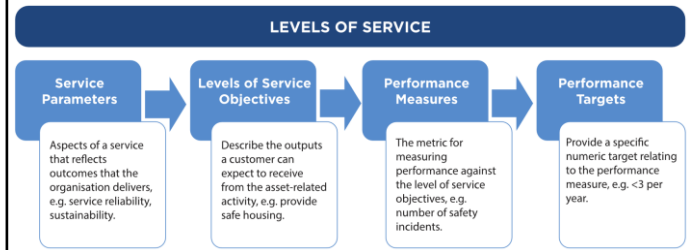
4.1 Levels of Service defined

Levels of service define the type and extent of services delivered to the customer. They are written from a customer viewpoint such that Council can set targets against the levels of service to demonstrate outputs and performance against the community outcomes.

Levels of service are a link between Council’s strategic goals and key priorities, AM objectives, detailed operational objectives and performance measures. They are based on user expectations, statutory and national standard requirements.



The levels of service framework, outlined below includes service parameters, objectives, performance measures and targets.



4.2 PCC key priorities

PCC key priorities identified in the LTP are summarised in the diagram:



- The PCC Three Waters levels of service contribute towards achieving these key priorities:
- Provision of Three Waters infrastructure to meet regulatory requirements, growth demand
 - Compliance with resource consent requirements and undertaking operations and maintenance activities to ensure the environment is always protected
 - Provision of Three Waters Infrastructure that underpins and supports the local economy
 - Planning and delivery of financially sustainable Three Waters Services

4.3 Wellington Water customer outcomes and goals

As the PCC Three Waters service provider Wellington Water has developed customer outcomes and goals detailed in the table adjacent. These outcomes and goals guide Wellington Water’s service delivery and the achievement of the PCC’s Three Waters Levels of Service detailed in the next three sections (Sections 4.4-4.6).

The levels of service and performance measures detailed in these sections align with PCC’s LTP Three Waters performance measures.

There are also more technical performance measures included in operational plans and service contracts.

Safe and healthy water	Respectful of the environment	Resilient networks support our economy
 We provide safe and healthy drinking water	 We manage the use of resources in a sustainable way	 We minimise the impact of flooding on people’s lives and proactively plan for the impacts of climate change
 We operate and manage assets that are safe for our suppliers, people and customers	 We will enhance the health of our waterways and the ocean	 We provide three water networks that are resilient to shocks and stresses
 We provide an appropriate region-wide fire-fighting water supply to maintain public safety	 We influence people’s behaviour so they are respectful of the environment	 We plan to meet future growth and manage demand
 We minimise public health risks associated with wastewater and stormwater	 We ensure the impact of water services is for the good of the natural and built environment	 We provide reliable services to customers

4.4 Water supply Level of Service and performance

4.4.1 Water Supply - Safety of Drinking Water

Measure: The Council provides safe and reliable potable water for household and business use in urban areas

The table below shows that Council drinking water supplies have not fully complied with the following criteria for the last three years: (a) part 4 of the drinking-water standards (bacteria compliance criteria), and (b) part 5 of the drinking-water standards (protozoal compliance criteria)

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
The extent to which the local authority's drinking water supply complies with part 4 of the drinking-water standards (bacteria compliance criteria)	100%	Compliant	Compliant	Compliant	Compliant	Compliant
The extent to which the local authority's drinking water supply complies with part 5 of the drinking-water standards (protozoal compliance criteria)	100%	Compliant	Compliant	Compliant	Compliant	Compliant

Outlook: There are no compliance issues forecast for PCC.

4.4.2 Water Supply - Fault Response Times

Measure: The Council provides a responsive call-out service to attend to customers' issues with their water supply

The table below shows the median times to attend and resolve call-out in response to a fault or unplanned interruption to the water supply system for Urgent and Non-urgent call-outs.

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
Median response time to attend urgent call-outs	<=90 (mins)	86 mins	Close to or meeting LOS target	Close to or meeting LOS target	Close to or meeting LOS target	Close to or meeting LOS target
Median response time to resolve urgent call-outs	<= 8 (hours)	2.9 hours	Continue to meet LOS	Continue to meet LOS	Continue to meet LOS	Continue to meet LOS
Median response time to attend non-urgent call-outs	<= 20 days	6 working days	Continued deterioration	Continued deterioration	Continued deterioration	Continued deterioration
Median response time to resolve non-urgent call-outs	<= 20 days	11 working days	Continued deterioration	Continued deterioration	Continued deterioration	Continued deterioration

Outlook: With the indicative level of investment, we can expect to see the trend in the response time for non-urgent works continuing to worsen.

4.4.3 Water Supply - Demand Management and Water Loss

Measure: The Council promotes the efficient and sustainable use of water

The table below shows the average consumption of drinking water per day per resident and the percentage of real water loss from the Council's water networks.

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
The percentage of real water loss from the local authority's networked reticulation system	<= 20%	30%	Increased losses	Increased losses	Increased losses	Increased losses
Average consumption of drinking water per day per resident	<320L	329L	Increased consumption (including losses)	Increased consumption (including losses)	Increased consumption (including losses)	Improving after Water Meters

Outlook: As with the increasing backlog of leaks, the indicative level of funding will see further deterioration. Evidence has shown that water meters will have an impact on consumer behaviours which should bring down consumption. Council can expect a reduced consumption (including private leaks) once water meters are installed. Adding meters without additional network interventions will not reduce water losses in the network but will enable leaks to be identified and quantified much more rapidly, enabling more efficient leakage management.

4.4.4 Water Supply - Customer Satisfaction

Measure: The Council provides a responsive call-out service to attend to customers' issues with their water supply

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
The total number of complaints received about drinking water taste, clarity, odour, water pressure or flow, continuity of supply or the response to any of these issues; expressed per 1000 connections	<=20	33	Deteriorating, not meeting LOS	Deteriorating, not meeting LOS	Deteriorating, not meeting LOS	Deterioration, inability to meet LOS in outer years

Outlook: Complaints are tied strongly to investment in the network. We can expect to see the level of complaints continue to increase under indicative budgets.

4.4.5 Water Supply - Volume of Water Abstracted

This performance measure is applicable to GWRC as the bulk water supplier.

4.5 Wastewater Level of Service and performance

Source – Stage 4 – WWL Final LTP close-out advice & PCC 2023-24 Annual Report

4.5.1 Wastewater - System and Adequacy

Measure: Adequate wastewater services for household and business use will be provided in currently serviced urban communities

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
The number of dry weather sewerage overflows from the territorial authority's sewerage system, expressed per 1000 connections	<20	4.9	Status quo, meet LOS	Status quo, meet LOS	Status quo, meet LOS	Status quo, meet LOS

Outlook: It is difficult to draw strong conclusions, but the level of Opex funding provided means that there is a risk of deteriorating performance

4.5.3 Wastewater - Customer Satisfaction

Measure: Council will respond as required to faults and complaints received from its customers

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
The total number of complaints received about sewerage odour, sewerage system faults, sewerage system blockages and the response to any of these issues; expressed per 1000 connections	<=30	29	Status quo, may meet LOS	Status quo, may meet LOS	Status quo, may meet LOS	Status quo, may meet LOS

4.5.2 Wastewater - Fault Response Times

Measure: Council will respond as required to faults and complaints received from its customers

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
Median response time to attend a sewage overflow resulting from a blockage or other fault in the sewerage system	<= 90 mins	79 mins	Status quo, will not meet LOS	Status quo, will not meet LOS	Status quo, will not meet LOS	Status quo, will not meet LOS
Median response time to resolve a sewage overflow resulting from a blockage or other fault in the sewerage system	<= 8 hours	2.7 hours	Status quo, meet LOS	Status quo, meet LOS	Status quo, meet LOS	Status quo, meet LOS

4.5.4 Wastewater - Discharge Compliance

The Council's wastewater services do not negatively impact on public health or the natural environment in line with legislative requirements

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
Number of abatement notices received in relation to the resource consents for discharge from sewerage systems	0	0	Increasing compliance	Increasing compliance	Increasing compliance	Compliance
Number of infringement notices received in relation to the resource consents for discharge from sewerage systems	0	1	Increasing compliance	Increasing compliance	Increasing compliance	Compliance
Number of enforcement orders received in relation to the resource consents for discharge from sewerage systems	0	0	Increasing compliance	Increasing compliance	Increasing compliance	Compliance
Number of successful prosecutions in relation to the resource consents for discharge from sewerage systems	0	0	Increasing compliance	Increasing compliance	Increasing compliance	Compliance

Outlook: The preferred level of investment from the council will see improvements at the wastewater treatment plant which should result in less actions from the regulator.

4.6.1 Stormwater - Performance Measures

The Stormwater performance measures are detailed in the table below:

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
The number of flooding events that occurred throughout the year	<=2	0	Weather dependant	Weather dependant	Weather dependant	Weather dependant
For each flooding event, the number of habitable floors affected; expressed per 1000 connections	<0.24	N/A	Weather dependant	Weather dependant	Weather dependant	Weather dependant
Median response time to attend a flooding event	<=8 hours	N/A	Weather dependant	Weather dependant	Weather dependant	Weather dependant
The number of complaints received by a territorial authority about the performance of its stormwater system, expressed per 1000 connections	<=20	8	Status quo, may not meet LOS (weather dependant)	Status quo, may not meet LOS (weather dependant)	Status quo, may not meet LOS (weather dependant)	Status quo, may not meet LOS in outer years

Outlook: Again, it is difficult to draw strong conclusions. Importantly, this level of investment will not be sufficient to mitigate damage to people, property or infrastructure from the effects of climate change into the future.

4.6.2 Stormwater - Discharge Compliance

The Council minimises the environmental impact of protecting habitable areas from flooding

Performance Measure	Target	2023/24 Result	2024/25 Forecast	2025/26 Forecast	2026/27 Forecast	2027-34 Trend
Number of abatement notices received in relation to the resource consents for discharge from stormwater systems	0	0	N/A	N/A	N/A	N/A
Number of infringement notices received in relation to the resource consents for discharge from stormwater systems	0	0	N/A	N/A	N/A	N/A
Number of enforcement orders received in relation to the resource consents for discharge from stormwater systems	0	0	N/A	N/A	N/A	N/A
Number of successful prosecutions in relation to the resource consents for discharge from stormwater systems	0	0	N/A	N/A	N/A	N/A

5. Demand and planning for the future

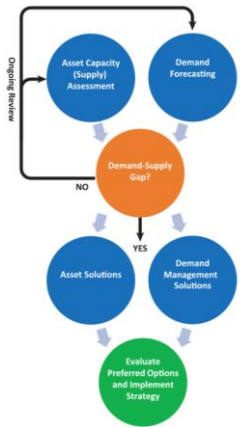
5.1 Understanding demand

Demand represents the quantity of products or services wanted by customers at a specified price and time. Demand forecasting helps provide an understanding of future service demand trends and helps with planning to meet changing demand over time. There is a level of inherent uncertainty and risk in the demand management process outlined in the diagram shown.

Demand management involves:

- Assessment of asset capacity
- Identifying demand drivers
- Forecasting future demand
- Assessing Demand-Supply gaps
- Identifying demand management solutions

Demand management planning is vital to ensure services are available at the required levels to meet customer requirements and expectations. It is also important to help effectively manage constraints and shortages of supply.



5.2 Key Three Waters demand drivers

Understanding and monitoring demand drivers helps plan for future service demand and the development of organisational growth and demand strategies, policies and plans.

Demand drivers	
Demographics	Trends in population growth, age demographics
Tourism	Seasonal peaks and tourism trends
Economic development	Economic climate and growth trends
Legislation	Legislation and regulatory requirement changes
Climate change	Climate change impacts and trends
Land use and land development	Land use and land development demand and trends

5.3 Demand management and forecasting

Wellington’s demand for water is increasing Wellington Water currently supplies approximately 175 million litres of drinking water per day on average to residents and businesses within the metropolitan area. Demand for water has increased by around 30% over the last 10 years - close to 3 times the rate of population growth. This has been caused by a rapid increase in water loss in the city council reticulation networks.

Challenges for future supply Looking ahead there are significant challenges that will affect supply and demand, and impact Wellington Water’s ability to provide appropriate standard of water security. These include:

- Population growth – an additional 130,000 people over the next 30 years is expected to drive up the demand for water.
- Environmental enhancements – less water available during summer in response to recommendations from the Whaitua Te Whanganui-a-Tara Committee.
- Water loss – which has increased over recent years and is currently a substantial component of the overall demand for water. Water loss will also need to be reduced to meet water efficiency requirements in the Natural Resources Plan.
- Climate change and sea level rise –expected to impact demand, water availability and sustainable yield from the Waiwhetū aquifer.
- Water shortage level of service (LoS) – the current 1-in-50 year LoS is low by national and international standards. Pressure from public, political or regulatory sources could result in the LoS increasing to a 1-in-200 or 1-in-500 year standard.

There is uncertainty and variability in how and when these challenges might impact the supply / demand balance, because they largely depend on external factors outside of Wellington Water’s direct control. Instead of creating a single plan based on a single scenario, Wellington Water has developed an adaptive plan that responds to these challenges and their effects as they change over time.

Baseline supply / demand balance The baseline supply / demand balance for the Wellington metropolitan water supply is shown in the figure. This illustrates the supply gap that is predicted to occur with population growth if no action is taken to increase supply and/or reduce demand.

Timing and sequencing of options A Dynamic Adaptive Pathways approach was taken to testing different sequences, or pathways, of options to increase supply or reduce demand. The pathway that was found to be most robust was:

- Investment in water loss management (with investment increasing over time);
- Residential metering (with volumetric charging and demand management);
- Pākura Lakes Stage 1 (lakes 1 and 2);
- Managed Aquifer Recharge;
- Wainuiomata Storage;
- Pākura Stage 2 (lake 3 and WTP upgrade); and
- Purified Recycled Water or seawater desalination.

Assessment of options using many combinations of future scenarios showed that the first three options are required in the 2024-34 period. This is referred to as the “Keep, Reduce, Add” sustainable water supply strategy, meaning:

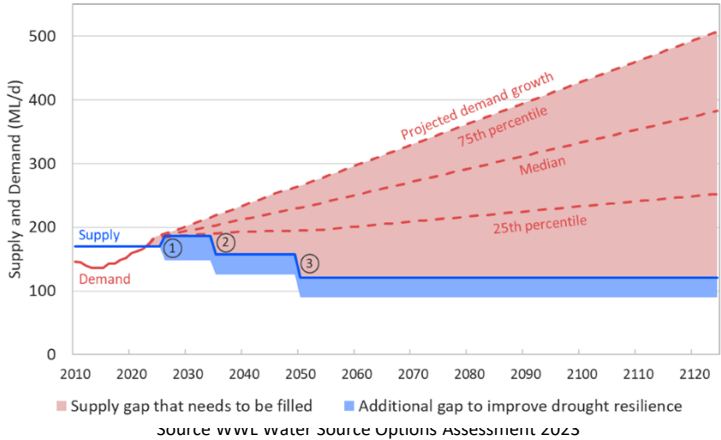
- Keep water in the pipes by managing water loss and replacing old infrastructure.
- Reduce water demand through universal metering and demand management.
- Add more supply by completing the Te Marua WTP optimisation project and constructing the proposed Pākura Lakes 1 and 2.

The timing for interventions beyond the mid 2030’s will depend on how growth and other factors change over time and will be the subject of ongoing monitoring.

Key Capital Investment-Storage Capacity Improvement. For PCC the following are required:

- new Aotea Reservoir (11,300 cu.m) will replace the existing Porirua Low Level #1 Reservoir (2,300 cu.m) that is due for renewal in the next 40 years
- new 6.2ML reservoir at Plimmerton (shortfall and growth iii) a new Porirua High Level #2 (8,700 cu.m) will also be built adjacent to the existing Porirua High Level #1 Reservoir (4,500 cu.m) reservoir that is also inadequate to meet growth forecasts.

In the latter two cases, demand is not likely to compensate for the growth forecast before renewal or strengthening of the existing reservoirs. It is not practical to keep the existing reservoirs that cannot meet future demand.



5.4 Managing demand

	5.4.1 Water supply	5.4.2 Wastewater	5.4.3 Stormwater
Meeting Existing Demands	There are a range of Water demand management and mitigation measures to help manage the increasing Water demand challenges, including: • Water restrictions • Education programmes • Leak detection programmes • Network efficiency programmes • Effective demand forecasting to ensure that future demand for the service is understood • Water hydraulic modelling programmes to assist with growth and demand analysis and forecasting • Management of customer demand, to reduce demand for over-utilised assets, through pricing, regulation and education • Capital investment planning	• Treatment plant optimisation strategies • Review contingency plans and readiness • Undertake wastewater hydraulic modelling to assist with growth and demand analysis and forecasting • Effective demand forecasting to ensure that future demand for the service is understood • Investigate disposal options and optimisation of liquids and solids • Management of customer demand, to reduce demand for over-utilised assets, through pricing, regulation and education	• Undertake stormwater hydraulic modelling to assist with growth and demand analysis and forecasting • Network upgrades • Risk and hazard planning and management • Effective demand forecasting to ensure that future demand for the service is understood • Management of customer demand, to reduce demand for over-utilised assets, through pricing, regulation and education
Meeting Future Demands	• Participate in wider organisation future planning and strategy development • Infrastructure planning and budget forecasting • Adopt “right sizing” the infrastructure assets approach • Capital project implementation • Network efficiency and optimisation programme implementation • Renewals projects with an element of upsizing due to growth capacity requirements have funding allocations split between renewals, levels of service and growth	• Participate in wider organisation future planning and strategy development • Identify and prioritise growth projects based on planning discussions with the large developers • Better growth forecasting by use of analysis of subdivision and building consent data and trends • Funding timing and allocations are based on the outcomes of negotiations with developers and budget estimates are used in the development contributions model • Renewals projects with an element of upsizing due to growth capacity requirements have funding allocations split between renewals, levels of service and growth	• Participate in wider organisation future planning and strategy development e.g., new properties required to have ‘hydraulic neutrality’ • Monitor, plan and implement appropriate responses to future climate change impacts • Identify and prioritise growth projects based on planning discussions with the large developers • Better growth forecasting by use of analysis of subdivision and building consent data and trends • Funding timing and allocations are based on the outcomes of negotiations with developers and budget estimates are used in the development contributions model • Renewals projects with an element of upsizing due to growth capacity requirements have sufficient funding allocations split between renewals, levels of service and growth. Note there is a significant cost escalation impact c3-4x diameter increase is equivalent to c5-10x cost increase at a 10% AEP LoS increase.

6. Risk management and resilience

6.1 Risk management approach and key risks

Council has developed a Risk Management Policy and a corporate Risk Management Framework. The Risk Management Framework ensures that all key risks have been identified, assessed and mitigation measures developed and implemented wherever possible. Wellington Water also operates a risk management framework aimed to identify, mitigate and report on risks and hazards. Key risks (Critical & High rated risks) for the Three Waters network are listed below.

6.2 Key risks and mitigation measures – Three Waters (Source WWL 2021 AMP, WWL Advice Stage 4, WIML, Scotts WSDP)

Activity	Risk Item	Key Mitigation Measures
	Looking After Existing Infrastructure	
Three Waters	Current 10-year LTP investment is well short of what is required to renew ageing parts of the network e.g., Plimmerton wastewater network There is not funding in the LTP to address system deterioration	• Condition Assessment of Assets in Theoretical backlog, taking a criticality and risk approach to prioritising assessment work • Updating asset data based on assessment findings and reassessment of backlog • Planning and implementing risk-based priority renewals within funding limits. This may require a review of the balance of renewals funding between the three waters as new asset information comes to light
Three Waters	O&M budgets are insufficient for the amount of planned maintenance needed and reactive maintenance increases. Operational funding for finding and fixing lead is constrained and there is a backlog of works to complete. Funding for preventative and reactive maintenance along with investigation and monitoring activities has been reduced or deferred.	• Review and develop risk-based O&M works priorities • Develop an understanding of critical risks and hazards within the operational works areas, monitor and report and adapt programme to allocate resource to areas of highest priority • Identify areas of expenditure that are imposed on operational costs by other stakeholders and utilities and that may present opportunity for saving through collaboration
Three Waters	Control of discharges i.e., wastewater and stormwater overflows is unable to guaranteed. As a result, mana whenua and community expectations are unable to be met.	• Fund growth related capital and renewals projects and levels of service improvements which minimise reduced environmental water quality
Two Waters	Achievement of global wastewater network and stormwater discharge consents is estimated at \$4.7 B (2040 standards, unbudgeted) and there is no certainty investment will achieve GWRC targets.	• None identified at present
Two Waters	For water and wastewater services. Pumpstations are at risk of failure due to a backlog of renewals, condition and funding constraints. The current Capex is not sufficient to address the required investment, and there is a backlog of mechanical and electrical asset related renewals. The lead time for specialist replacement equipment may be long, leaving customers with no or a lower level of service e.g., lower water pressure, routine wastewater overflows, increased reactive costs	• Target renewals and capital funding based on criticality.

6. Risk management and resilience (cont.)

6.3 Key risks and mitigation measures - Water Supply (Source WWL 2021 AMP, WWL Advice Stage 4, WIML, Scotts WSDP)

Activity	Risk Item	Key Mitigation Measures
	Looking After Existing Infrastructure	
Water Supply	Water demand for Porirua City is outstripping supply due to water loss in the network and growth. This is contrary to the principles of Te Mana o te Wai.	- Network optimisation programmes including private side - Water loss management programmes
Water Supply	Water supply reliability over summer is at risk and a new water supply is needed	- Implement a water metering programme - Minimising the future cost of water infrastructure by exploring ways of reducing the demand for water and influencing water use behaviour
Water Supply	Overall seismic resilience across all reservoirs is lower than WWL considered the level of required storage.	Fund for seismic resilience improvements across targeted reservoirs
Water Supply	Reservoirs storage is insufficient to meet firefighting and peak demand needs. While growth is continuing, this is degrading remaining capacity. Additionally, developers are installing onsite storage to mitigate some risk.	Fund for reservoir capacity improvements
Water Supply	Some water reservoirs including Broken Hill and Porirua are vulnerable to contaminants entering them. This could result in contaminants reaching customers and water not being safe to drink / unhealthy. Funding for the replacement Aotea reservoir has not been secured.	- Increase maintenance if funding is made available. - Complete a water storage management plan - Immediate term demand management plan implementation - Storage upgrade planning, funding and mitigation

6.4 Key risks and mitigation measures - Stormwater (Source WWL 2021 AMP, WWL Advice Stage 4, WIML, Scotts WSDP)

Activity	Risk Item	Key Mitigation Measures
Stormwater	Funding has been limited for existing Levels of Service flooding issues e.g., Karehana and Hongoeka catchments and Takupuwahia pipe upgrades. Stormwater Very High Criticality Assets - Papakowhai Road, Bernie Wood Reserve, Hampshire Street and Sievers Grove are examples. There is a potential for third party property damage and a decline in customer satisfaction.	Investment in the stormwater network including adaption practices and mitigation measures
Stormwater	Roles and responsibilities around management of stormwater where it enters urban streams is unclear. This includes planned maintenance activities.	- Agree on ownership, responsibilities and allocate a budget to manage urban streams and stormwater entry points. - Inform customers of ownership and management responsibilities
	Climate Change and Zero Carbon	
Stormwater	The stormwater network experiences flooding, high groundwater levels and climate change (coastal erosion impacts on outlets)	Investment in the stormwater network including adaption practices and mitigation measures. Cannons Creek works (Kainga Ora and PCC)

6. Risk management and resilience (cont.)

6.5 Key risks and mitigation measures - Wastewater (Source WWL 2021 AMP, WWL Advice Stage 4, WIML, Scotts WSDP)

Activity	Risk Item	Key Mitigation Measures
	Looking After Existing Infrastructure	
Wastewater	Wastewater pump station renewals are not keeping pace with asset deterioration leading to capacity constraints and potential surcharge risks. Note – also see Three Waters above for network pipe renewals	- Condition Assessment of assets in the theoretical backlog , taking a criticality and risk approach to prioritising assessment work - Updating asset data based on assessment findings and reassessment of backlog - Planning and implementing risk-based priority renewals within funding limits
Wastewater	Wastewater network resiliency is compromised due to underinvestment and growth is continuing ahead of asset renewals and capital upgrades. Key projects include the Eastern Porirua Regeneration Project - Overall upgrades - Wastewater (excl JV), Western Porirua, Ngati Toa lead development - Wastewater (excl JV), Whitby Wastewater (excl JV) Pipe Upgrade and CBD storage	- Review and improve operations plans and procedure to optimise performance within the known asset constraints - Develop contingency plans - Review the demand management data (including I & I reduction) benefits and any current implementation as part of an integrated wastewater strategy for PCC
Wastewater	The Paramata rising main surcharges at a location near SH59 and the main trunk railway. This could interrupt traffic and rail services.	- Fund increased capacity in the rising main - Identify and control/reduce inflow and infiltration
Wastewater	PCC WWTP unit process limitations (ammonia reduction requirements) will limit growth relate inflow	Undertake ammonia reduction improvements in 2031/2032 (growth projections limited)
Wastewater	Sludge (solids) drying components at the new PCC WWTP are at capacity (limited redundancy)	Continue project to improve the solids handling capacity and improve odour treatment (2025).
Wastewater	Landfill disposal of WWTP sludge at Spicer Valley may not be permitted after 2030 (consent renewal)	- Identify sludge reduction options (treat and reduce at source). - Identify and allocate funding for onsite treatment or removal to secure acceptable locations for disposal
Wastewater	Capacity of parts of the wastewater network are insufficient to meet growth projections with current I&I and will cause overflows	- Network optimisation programmes - Hydraulic modelling and planning - Contingency planning and monitoring - Network upgrade design, funding and implementation
Wastewater	Streams, rivers and harbours contain coliforms	- Wastewater network hydraulic modelling and optimisation - Network upgrade planning and funding - Contingency planning and work e.g., detention areas - Stormwater discharge treatment options, planning and implementation

6.6 Building resilience

Resilience within Council is built on aspects such as response and recovery planning, financial capacity, crisis leadership organisational preparedness i.e. robust risk management, emergency response plans and business continuity plans developed and understood by staff. Infrastructure resilience includes the physical robustness of assets, the level of redundancy (contingencies and backups) and the management of the consequences of interdependencies between assets and organisations.

6. Risk management and resilience (cont.)

6.7 Three Waters headline challenges – 2024+

The headline challenges for water



Porirua City Council and the region face pressing issues for three waters

- ***Water assets are ageing at a faster rate than renewals.*** Historic underinvestment has resulted in aged infrastructure increasingly prone to failure
- We are facing ***acute water shortages***, with demand increasing while supply is becoming more vulnerable
- The extent and speed of ***urban growth is putting pressure on existing and future three waters infrastructure and services***, increasing the likelihood and consequences of network disruption and failing to meet performance expectations
- The ***quality of water in the environment must be improved*** to meet community expectations and regulations, but leaking, blocked or directly discharging stormwater and wastewater networks risk returning unsafe, contaminated water to the environment
- Risks from ***natural hazards and climate change are leaving communities and water assets vulnerable*** to disruption and economic loss

Source – 221. PCC stage 1 advice – pre-circulation material

6.8 Other localised issues and risks

6.8.1 Reducing flood risk
Challenge: Flooding is one of the costliest natural hazards and can be severe and long lasting for many households and communities. Flooding risk in our cities is increasing due to changing land use, forms of building construction, climate change and growth. Minimising the impacts of flooding on people’s lives is an important focus for the region, as climate change is likely to aggravate the frequency and severity of flooding events. Benefit to addressing the challenge: Level of flood risk to homes and businesses is known and managed. Investment advice: Managing urban flood hazards involves an integrated combination of infrastructure, urban planning, community preparedness and emergency response. To avoid costly damage in extreme rainfall, our cities have relied on overland flow paths and buildings with elevated floor levels, though buildings have been constructed in these flow paths. To supplement this, WWL will continue to perform catchment modelling to understand the extent of flood risk and develop appropriate responses, such as flood water storage and the upgrade of pipes or pump stations to address known risks. For PCC, WWL identified stormwater upgrades in the CBD and Takapuwahia to protect residents and businesses from repeated flooding through attenuation, up-sizing pipes and improving overland flow.

6.8.2 Seismic resilience
Challenge: Wellington Water networks cross several fault lines, including the Ohariu and Wellington faults, which makes them particularly vulnerable to seismic events. Our wastewater pipelines also cross fault lines, with many pipelines sitting within landslide or liquefaction zones. Benefit to addressing the challenge: Provide 80 percent of our customers, within 30 days of a reasonable seismic event, with at least 80 percent of their water supply needs (80-30-80 strategy). Aim to improve resilience of wastewater and stormwater services through personal (customer) resilience, operational readiness, and long-term infrastructure improvements. Investment advice: Through asset assessments, WWL has identified assets requiring strengthening and sequence upgrades based on priority. While not funded, WWL identified reservoir seismic strengthening at Kahu Road as a significant project. If funding is allocated, completion would improve the reservoir’s ability to withstand a major Wellington Fault earthquake. Porirua High Level reservoir has received funding, but not Aotea Reservoir. This presents significant risk of loss of supply under certain events if work is not undertaken. WWL will also continue educating customers on opportunities to improve household resilience.

6.8.3 Firefighting water supply
Challenge: The protection of people’s lives and property from fire is dependent on an adequate supply of water for fire protection and firefighting. The design of water supply networks must have adequate water pressure and flows for in-property fire protection systems and for use by Fire and Emergency NZ personnel. Sufficient water storage is also critical, should supply to networks become unavailable. Our water supply networks are generally adequate for firefighting purposes. However, there are localised areas where water pressure and available flows could be improved. Benefit to addressing the challenge: Firefighting water supply is sufficient. Investment advice: Firefighting is a critical service that must be available to all our communities within the region. Most firefighting upgrade funding has been deferred, instead being targeted at renewals. When funded, improvements will be based on improved knowledge of network performance and through dialogue with Fire and Emergency NZ. To support these efforts, Wellington Waters Zone Implementation Plans (ZMPs) provide the basis for understanding the extent of fire risk due to inadequate water supply and pressure and develop appropriate responses, such as water storage or the upgrade of pipes/pump stations to address known risks. For PCC, WWL identified upgrades at Kenepuru to assist fire flows and improve security of the water supply near the hospital. We are also considering fire flow requirements as a key design criterion for new reservoirs, such as Aotea Reservoir.

7. How we deliver Three Waters services (Lifecycle Management Plans)

7.1 Strategic Priorities

As the Three Waters Service Provider Wellington Water has developed strategic priorities that aim to look after existing assets, support growth and meet levels of service and customer expectations.

Priority 1. Looking after existing infrastructure
(renewals, operations, maintenance and critical services)

Looking after existing assets is foundational to a sound risk management approach – it reduces incidents that usually cost more and has less negative effects when work is planned.

Priority 2. Supporting growth

Growth is inevitable and must be managed to ensure it does not add to existing issues for the three waters network.

Priority 3. Sustainable water supply and demand

We are near capacity for water supply

Priority 4. Improving env. water quality

Community expects better water quality than we have now

Priority 5. Net carbon zero 2050

Carbon emissions are a key contributor to climate change

Localised issues

- Reducing flood risk
- Seismic resilience
- Firefighting water supply

Individual activities associated with localised risks will be progressed as funding allows

System-wide issues that need addressed over the next 30 years

Source : WWL PCC Part 3

These strategic priorities and specific challenges and impacts are addressed through the following lifecycle management sections of the AMP.

7.2 Three Waters Service Delivery Overview

The Three Waters service delivery arrangements are summarised in the table below:

Task	Planning	Delivery
Operations and Maintenance	WWL	WWL-Contractors
Capital	WWL	Contractor
Renewals	WWL	Contractor
Compliance	WWL	WWL

7.2.1 Strategic Priority and Service Delivery Linkages

Task	O&M	Renewal	Capital
Priority 1: Looking after Infrastructure	○	○	
Priority 2: Supporting Growth			○
Priority 3: Sustainable Water Supply and demand	○		○
Priority 4: Improving Environ. Water quality	○	○	
Priority 5: Net Carbon Zero 2050	○	○	○

7.3 Overview of Key Lifecycle Management Issues

	Water	Wastewater	Stormwater
Compliance Issues	Meeting drinking water standards	Meeting wastewater discharge standards	Meeting stormwater quality standards
Priority tasks and activities	Operations: Routine maintenance and monitoring performance and compliance Capital: Treatment upgrades and improvements		
Meeting Growth and Demand	Supplying sufficient volume and quality water	Providing treatment and discharge capacity	Providing adequate stormwater drainage capacity
Priority tasks and activities	Operations: Efficient network mgt., water loss mgt. Capital: Source augmentation, Storage improvement, network extensions	Operations: Efficient treatment monitoring and mgt. Capital: WWTP upgrades and improvements , network extensions	Operations: Efficient network mgt., Stormwater modelling, Discharge monitoring Capital: Network capacity upgrades and improvements, network extensions
Renewal of Ageing Infra-structure	Addressing renewal requirements to maintain LoS		
Priority tasks and activities	Operations: Collection and review of faults data, Reactive maintenance Capital: Renewals prioritising, planning and delivery		

7.4 Operations and maintenance plan

7.4.1 Operations and maintenance requirements

Operational and maintenance strategies address Strategic Priority 1- Looking After Existing Infrastructure.

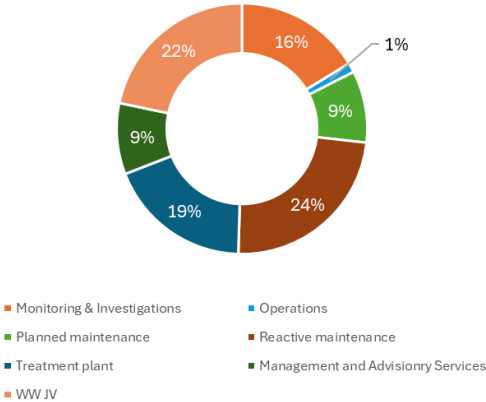
The operational and maintenance activities cover the practices for optimising operation and maintenance activities of the Three Waters facilities and infrastructure to ensure:

- Reliable supply of safe water
- Achieve the optimum use of the asset at the agreed service levels
- Keeps the Three Waters facilities suitable, accessible, safe and well maintained
- Minimise total maintenance costs
- Levels of service are achieved across Three Waters
- Compliance requirements are met

Council outsources the Three Waters service delivery to Wellington Water.

The diagram below outlines the broad Operations and maintenance planning processes:

Operations Budget Allocation



7.4.2 Operational processes and asset maintenance

Operation and maintenance involves the two key types of activities:

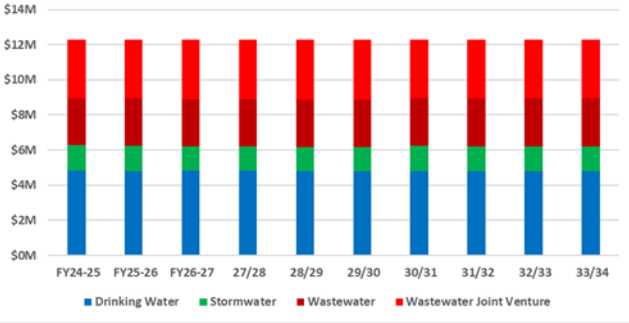
- **Proactive maintenance** – proactive/scheduled inspections and maintenance works planned to prevent asset failure
- **Reactive maintenance** – reactive activities in response to unexpected asset malfunctions and failures, on an as-required basis (i.e. emergency repairs)

The optimal maintenance mix is a balance of planned and reactive maintenance activities. Maintenance also includes minor repairs that cannot be capitalised.

Operations and maintenance activities cover both the Three Waters networks (including pipelines and pump stations) and Plants and disposal facilities (including Water Treatment Plants, Wastewater Treatment Plants and outfalls).

Operational activities also include monitoring and reporting on resource consent conditions and drinking water quality assurance rules.

Three Waters 10 Year Operations Investment Forecast



Total Three Waters Opex 10 Year Budget: \$ \$123.0 M

Budget Source: WWL Final Council OPEX LTP 2024-25

7.4.3 Operations and maintenance plan

The operation and maintenance activities of Three Waters infrastructure are categorised into the following key operational areas:

- **Reactive Response**
 - Unplanned operations
 - Leak detection
 - Response to blockages and flooding
- **Preventative Response**
 - Planned operations (day-to-day operations)
 - Peak period operations
 - SCADA operation and maintenance
 - Resource consents
 - Ongoing monitoring
 - Water meter reading
 - Backflow prevention
 - Water treatment plant/Filter Station audits
 - Pump Station/Reservoir audits
 - Valve/Hydrant audits
 - Condition Surveys
 - Trade waste monitoring
 - Wastewater treatment plant/disposal facilities audits
 - Manhole audits
 - Pre storm and seasonal readiness
 - Stormwater Pump Stations/Detention Ponds Audits
- **Emergency Response**
 - Emergency Response Planning
 - Business continuity
- **Compliance**
 - Monitoring and reporting
- **Contract Management**
- **H&S**
 - Systems and processes
 - Monitoring and reporting
- **SOPs**
 - Establishment
 - Training
 - Monitoring and update

7.5 Renewals plan

7.5.1 Renewals planning

Renewals Planning also falls within Strategic Priority 1: Asset renewal is the process of restoring the level of service delivered by an asset to its original design level, by upgrading or replacing the degraded components. The purpose of the renewal strategy is to maintain the levels of service by identifying the most cost-effective time to renew individual or groups of assets. Despite an uplift in renewals expenditure, the average age of the asset base continues to increase and there remains a significant amount of assets needing renewal over the short to medium term and there is a focus on undertaking asset condition assessments to confirm the extent and timing of asset renewal requirement.

Renewal Approach

7.5.2 Confirming the renewals extent

To improve network reliability, Wellington Water recommends renewing and upgrading the network based on **performance and criticality**, as well as improving service performance and capacity.

Capturing better data will improve the quality of decisions and enable more prioritised and targeted investment. We are proposing an investment strategy to improve performance by reducing the backlog (and risk) in renewals over the next 30 years. Specific renewals budgets are proposed aimed at achieving a sustainable asset base that is renewed at a pace that matches deterioration. These budgets have been built from:

- Requirements for treatment plants, reservoirs and storage, pump stations and pipe networks
- Looking at forward requirements over the lifecycle of the asset base
- Retain a level of budget for reactive renewals (based on history) to ensure that failed items can be replaced immediately

To note:

- Renewals needs are heavily dominated by pipe networks. That does not mean very high criticality facilities including pumpstations should receive necessary funding as well
- The recommended programme has been prioritised to achieve a balance between critical and non-critical assets

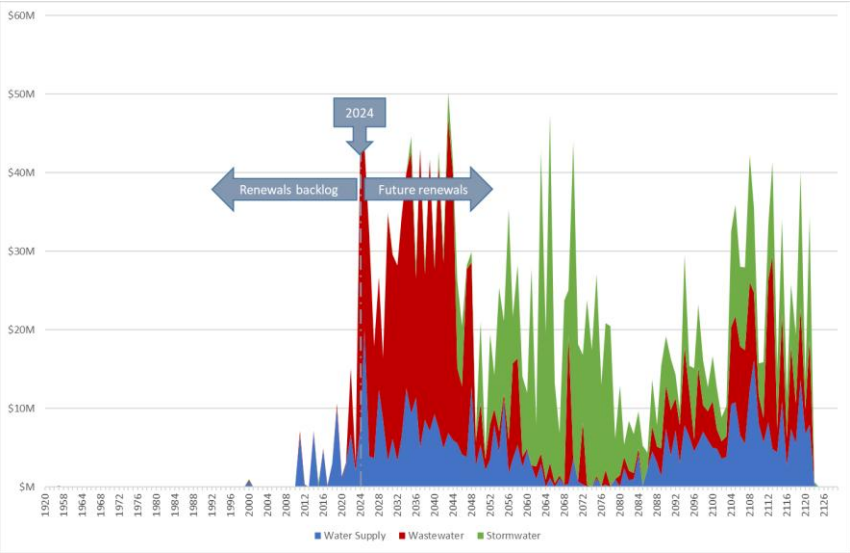
Deferral of renewal projects is resulting in increased service failures. These are observed by the customers as interrupted water supply (no water), increasing pipe leakage and bursts, unplanned overflows from wastewater pipes. Across all failure modes, there is a resulting elevated health and safety risks e.g., contaminated water, collapsed roads, paths. Further there are consequential increases in unplanned (reactive) maintenance costs.

The extent of the PCC Three Waters pipe renewals challenge is provided in the figure adjacent.

WWL renewals planning approach is criticality and risk based where highest criticality and risk rated assets have the highest renewals priority.

Ongoing condition assessments are used to confirm that actual work is required (condition evidence), rather than relying on theoretical aged based renewals alone.

Source : WWL Pipe Network Renewals Profiles 2024

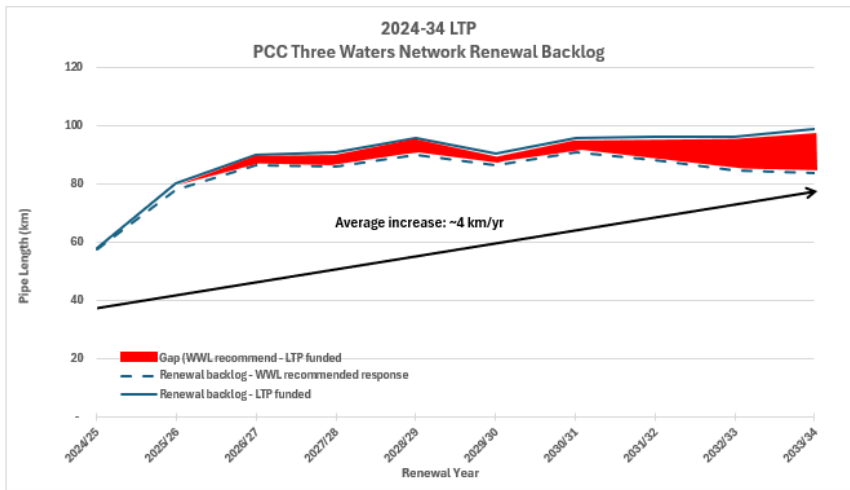


The 3Waters network backlog and funding (kilometres of network pipe) profile are provided in the adjacent figure.

There is a significant and increasing gap between funded and calculated network renewals.

The network renewal backlog, based on asset age and end of typical life values, provides a strong indication of the gap between assets which have reached the end of their typical life and those funded for renewal by PCC.

Network renewal is confirmed through techniques including visual inspection.



7.5 Renewals plan (cont.)

7.5.3 Renewals approach - Long term stewardship

Wellington Water's approach to asset renewal focuses on long-term stewardship of the asset, which means planning for renewals at a pace that meets asset deterioration over time, according to the lifecycle of the asset. Based on this key principle, a renewal profile was developed using the following approach:

- Determine expected life of an asset based on age and material for every pipe
- Identify current backlog of pipes past their expected life
- Provide consistent regional approach to estimating replacement costs based on valuation data (assuming like-for-like replacement)

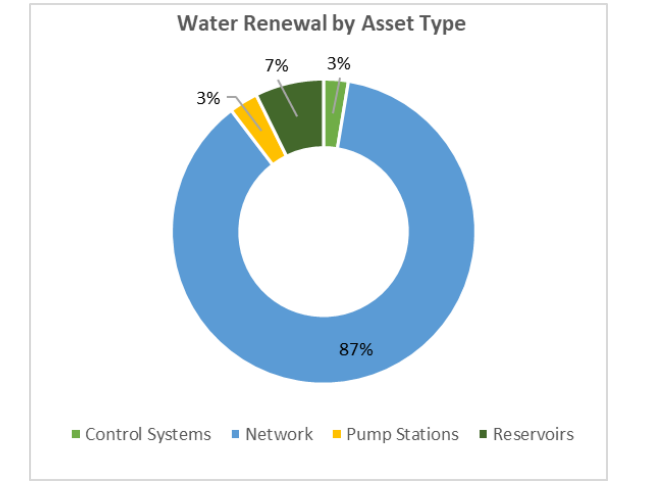
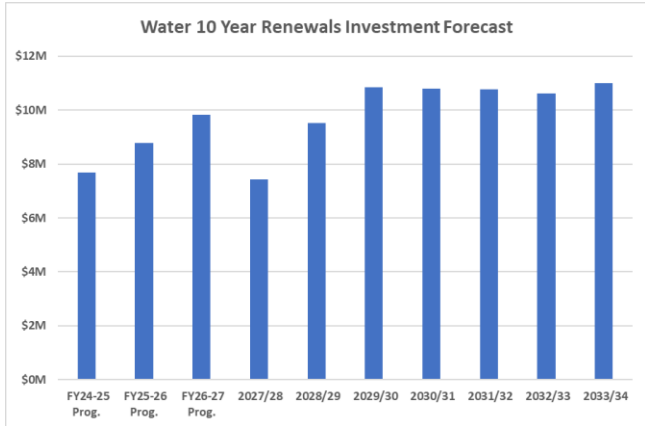
The asset renewal raw data produces a complex spend profile that is difficult for councils to manage and fully afford. To address this, the required spend was simplified using the following philosophy:

- A sustainable level of investment over 30 years; if extended, the backlog could not be addressed
- Year 1-2 spend (21/22 & 22/23) is at the same level as forecasted in the 2018 LTP, which focuses on "no regrets" capex projects
- From year 3, programme spend is increased over two LTP cycles to reach a steady state by year 7
- A renewed focus on condition assessments (increased opex spend the next 3-5 years) to provide better field data to determine the most critical projects going forward
- A reduction in reactive maintenance costs is not expected until years 8-10

There is a level of cost estimation risk (excludes contingency or risk uplift) concerning the renewal profile based on the latest valuation data, as actual costs could be different from those modelled.

Water supply

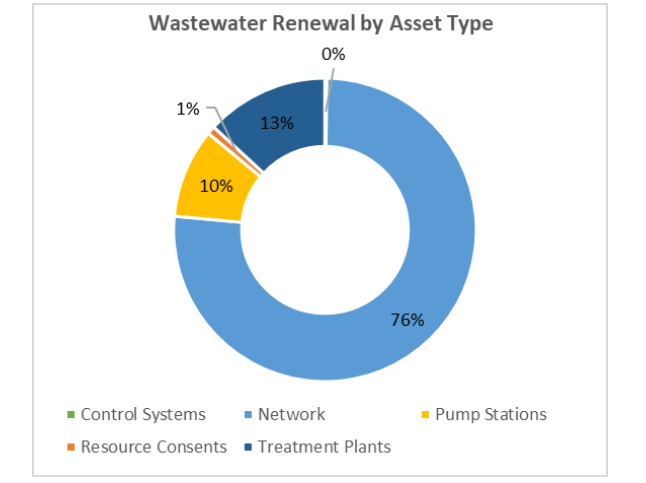
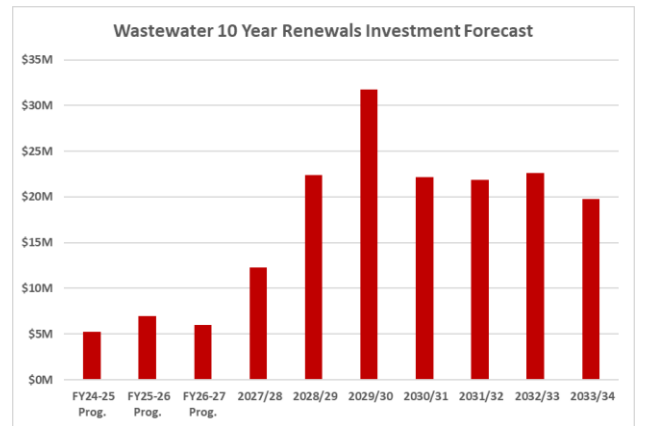
The charts below show the proposed 10 Year Water Supply renewals investment forecast:



The network renewals makes up the majority of the renewals programme followed by reservoir storage and then pump stations and control systems renewals.

Wastewater

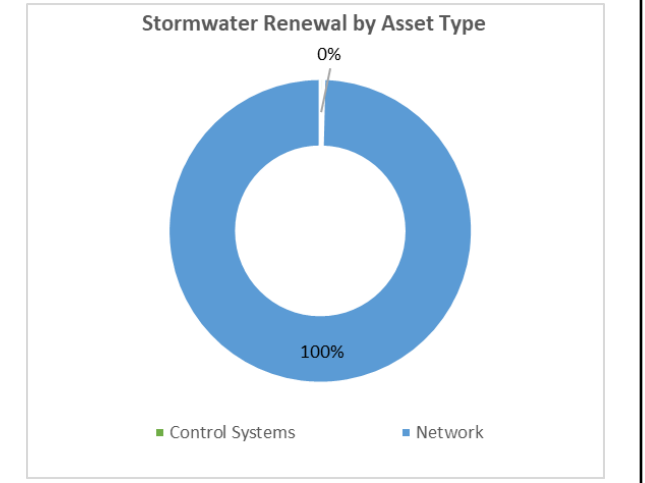
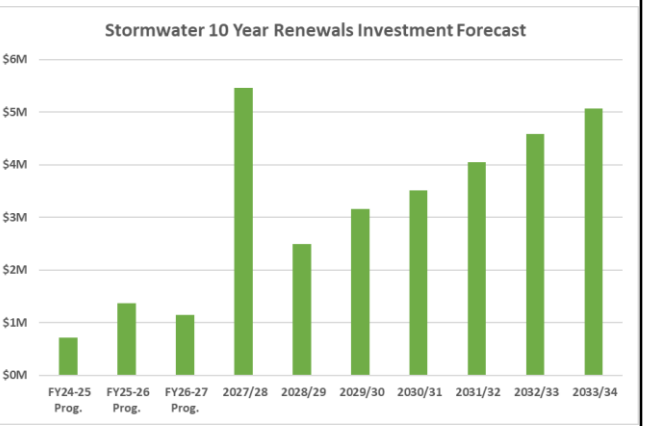
The charts below show the proposed 10 Year wastewater renewals investment forecast:



The network renewals makes up the majority of the renewals programme followed treatment plants, pump stations renewals, resource consents and control systems.

Stormwater

The charts below show the proposed 10 Year stormwater renewals investment forecast:



The network renewals makes up the majority of the renewals programme followed by control systems renewals.

7.6 Capital plan

7.6.1 Capital works drivers
Asset creation is the process driven by consumer growth or levels of service and most importantly water safety drivers. New capital investment involves the design and construction of new assets that will increase the capacity and/or performance of the Three Waters networks. Key Asset Creation Drivers Are: • To meet legislative compliance including DWSNZ where possible • To meet the demands of growth by supplying water to Council’s customers through efficient utilisation of natural resources • To meet the levels of service with respect to safe and effective supply of water in every town where applicable Capital planning priorities are highlighted below: Three Waters • Asset condition assessments • Asset data updated based on assessments • Improvement of asset data quality and completeness • Improvement and further development of renewals planning and programme development • Review of Capital delivery framework • Responding to legislative and compliance requirements Water • Resource consent review and improvement programme to ensure all consent conditions are met on time • Ongoing Drinking Water Safety infrastructure upgrade programme implementation • Drinking water standards compliance • Investigate and develop additional water sources • Investigations and master planning for water supply expansion in the district Wastewater • Resource consent review and improvement programme to ensure all consent conditions are met on time • Treatment plant upgrade planning and budgeting in response to performance and emerging changes to discharge quality standards • Investigations and master planning for wastewater expansion in the district Stormwater • Resource consent review and improvement programme to ensure all consent conditions are met in the required timeframes • Stormwater scheme planning and upgrade in response to current and emerging issues particularly climate change impacts • Ensure compliance with comprehensive stormwater discharge consent It is important to note that investment in growth is a Council-led decision, as it needs coordination with district planning, funding policies and the balanced needs of the community and developers.

7.6.2 2024 LTP capital programme planning
WWL has worked iteratively with PCC since August 2023 to develop the LTP and provided regular updates to Council officers and Council elected members during the process. The Council’s Long-Term Plan, adopted on 27 June 2024, was an updated version of the final LTP programme WWL provided to the Council on 27 May 2024, incorporating the following changes: As part of final LTP programme advice, WWL committed to providing Council with a final advice pack with the agreed CAPEX and OPEX LTP programme, active risk register and level of service projections. WWL has noted it will separately provide an investment snapshot document within the next few weeks, which summarises key investment outcomes and decisions. The final capital programme, provided to the Council on 27 May 2024, was an updated version of Council’s draft LTP programme used in consultation process that incorporated additional corporate cost previously not accounted for, and other changes to the programme. The final programme was designed within the capital investment envelope, used for Council consultation. The final capital programme provided by WWL did not include any inflation. Council has subsequently applied 3.4% inflation to its Year 1 capital programme. Additional \$2.6 million funding included in FY24-25 CAPEX budget because of including 3.4% inflation. Additional operational funding of approximately \$1.44 million included for drinking water from year 2 to year 10 of the LTP, because of resolution from the Council meeting on 4 June 2024. PCCs confirmed and adopted LTP Capex and Opex programme, which includes the updated changes summarised in para 10 Appendix A of their adopted and published LTP 2024-2034. Source : WWL PCC Part 3

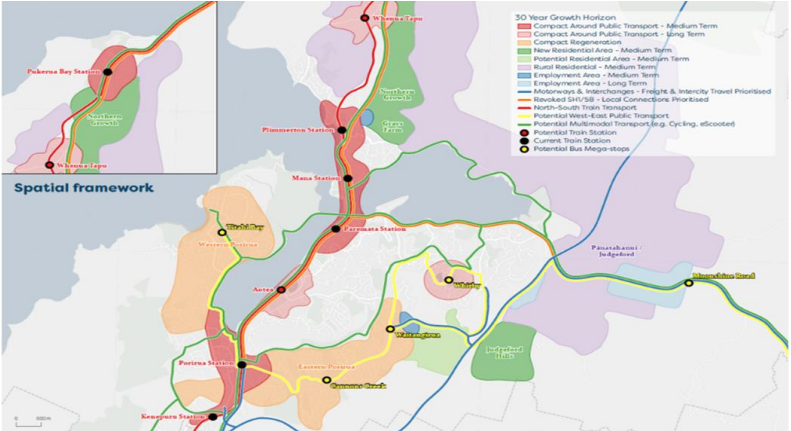
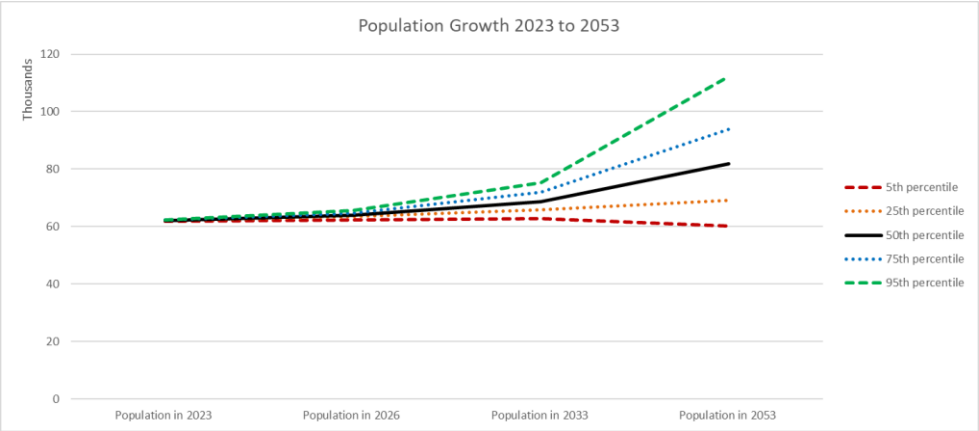
7.6 Capital plan cont.

7.6.2 Capital Plan Priorities

Strategic Priority 2 - Supporting growth

Challenge: The region is experiencing and forecasting high growth, which impacts Porirua due to its proximity to Wellington for commuters and potential for greenfield development. Porirua is expecting significant growth in the short and medium term (see Figure below), which puts extra pressure on three waters infrastructure. Some of this is already identified through the Porirua District Plan, and some will be identified in future revisions. Significant investment is needed, especially in the wastewater network to enable growth to occur. Current Porirua forecasts indicate 24% population growth over the next 30 years (50th percentile, 19,700 people).

Investment advice: Wellington Water recently completed a series of growth catchment studies (see Figure below) to improve our understanding of where the Porirua networks can accommodate further growth and where they need to be upgraded (e.g., new pipes, pump stations and treatment plants). These studies provided direction on infrastructure needs that will be supported through tracking and documenting day-to-day maintenance.



To accomplish this, PCC’s LTP must include provisions for infrastructure to support growth. We will establish long term catchment plans and work with PCC to change regional and local policies and plans (such as ensuring floor levels of houses are built above flood levels), as well as ensure service levels do not deteriorate over time as population increases (3-30 years). For example, we have proposed a wastewater network improvement plan to undertake a suite of upgrades to wastewater infrastructure starting with the central wastewater storage tank project (currently in the design and consenting phase). Other proposed improvements include pump station and pipeline upgrades that will progressively roll out over the next 30 years to improve network capacity and reduce overflows to meet the growing population and address existing constraints.

Wastewater Treatment and Compliance

The Porirua Wastewater Treatment Plant (PCC WWTP) was constructed in 1989 under joint venture (JV) by Porirua and Wellington City Councils. It has an average inflow of c.25,000 cu.m. per day and discharges through a short coastal outfall at Rukutane point. Dewatered sludge is disposed of to landfill.

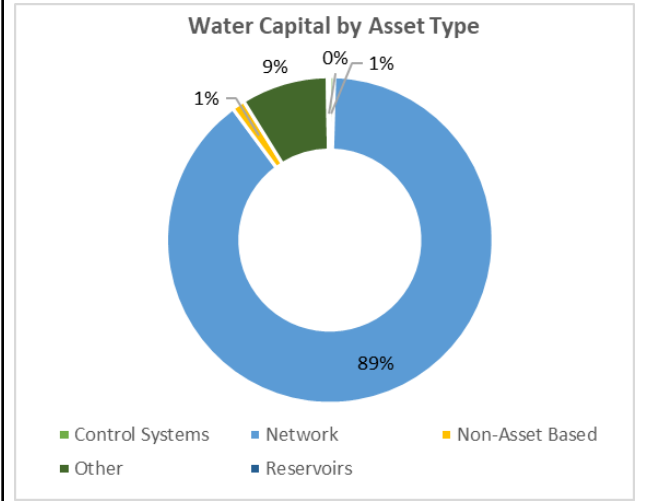
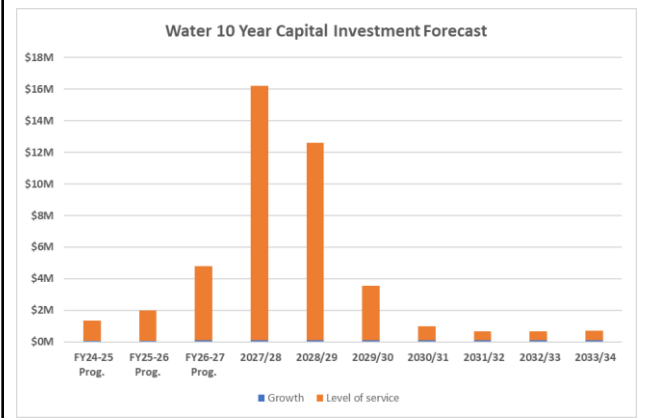
While the PCC WWTP is compliant against its consent conditions ammonia system modification is expected to start 2031/32 based on current growth projections. Funding for modifications are not within the LTP. There is a current consent requirement to review ammonia annually using the treatment process model and carry out regular monitoring. Ammonia is currently within consent limits. There is a potential that if the ammonia exceeds consent limits funding may need to be re-prioritised to meet growth. Potential for growth to be constrained, with either connections being declined or coming at a high cost.

There is complete reliance on landfill acceptance of sludge from wastewater treatment plants. Waste minimisation initiatives could lead to the landfill not having capacity to receive the de-watered sludge. There is an uncertainty around the renewal of Spicer Landfill resource consent. PCC is currently in the process of exploring options.

7.6.3 Capital investment forecasting

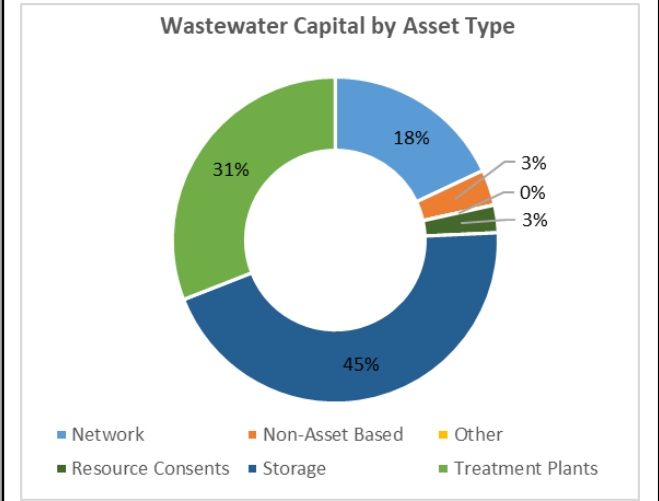
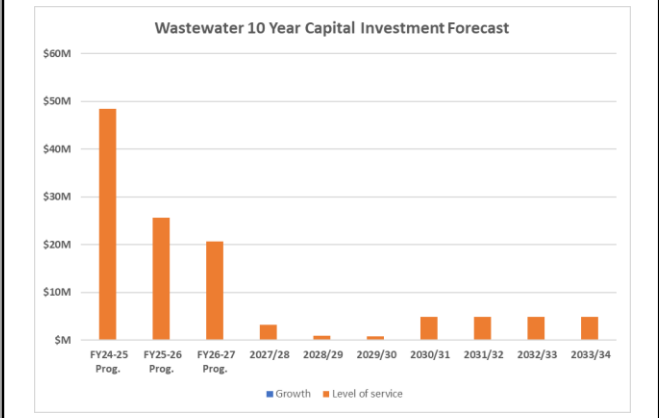
Water supply

The charts below show the proposed 10 Year Water Supply capital investment forecast:



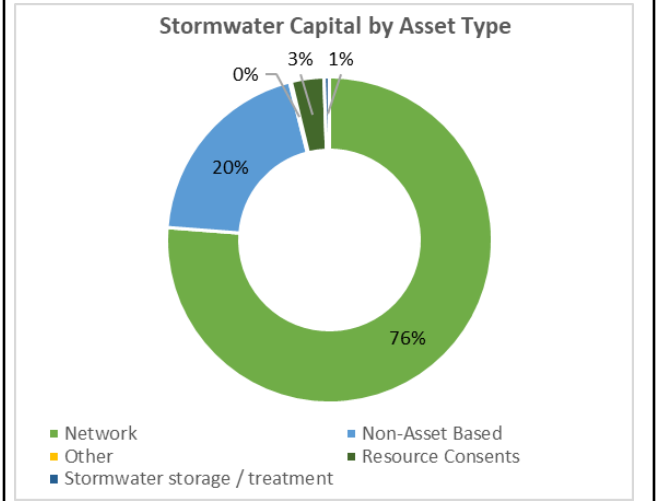
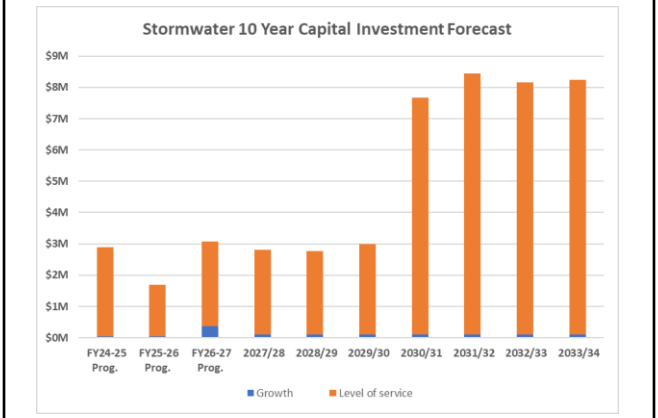
Wastewater

The charts below show the proposed 10 Year Wastewater supply capital investment forecast:



Stormwater

The charts below show the proposed 10 Year Wastewater supply capital investment forecast:



7.7 Asset disposal plan

7.7.1 Asset Disposals

Disposal is the retirement or sale of assets whether surplus or replaced by new or improved systems. Assets may need to be disposed of for a number of reasons, particularly if they fall under some criteria, including those identified below:

- Under utilisation
- Obsolescence
- Cost inefficiency
- Policy change
- Provision exceeds required Levels of Service
- Service provided by other means (e.g. private sector involvement)
- Potential risk of ownership (financial, environmental, legal, social)

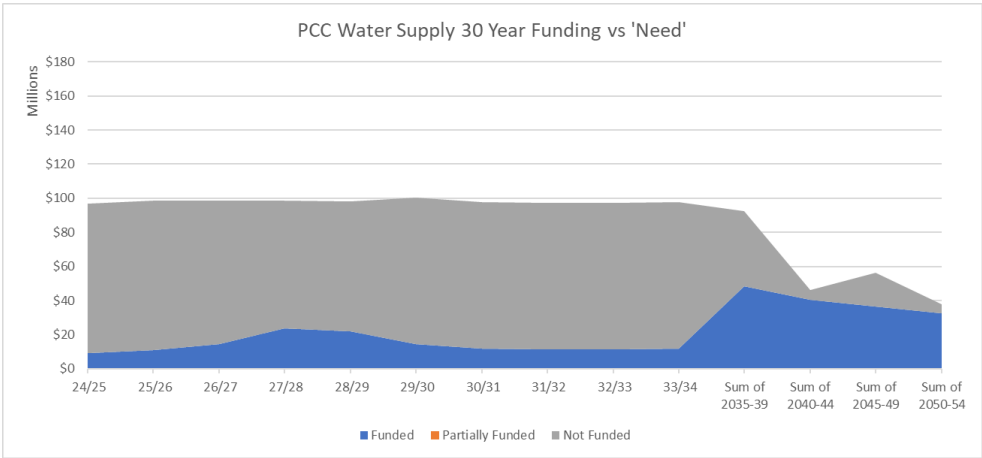
As part of the lifecycle asset management process, Council considers the costs of asset disposal in the long-term financial forecasts. These costs are generally incorporated in the capital cost of level of service increases or asset renewals. While there are assets that fit under one or more of the above criteria, the Local Government Act provides clear instances when assets can be disposed of.

Council has no plans to dispose of any Three Waters assets other than those that become obsolete because of renewal or upgrading works.

8.1 The funding challenge

There are several major capital investment drivers such as aging infrastructure, regulatory compliance and growth and demand. This creates tension between funding demand (need) and funding ability, Prudent assessment, prioritisation and risk management practices are required to ensure that allocated funds are invested in the highest priority locations/places.

Water Supply



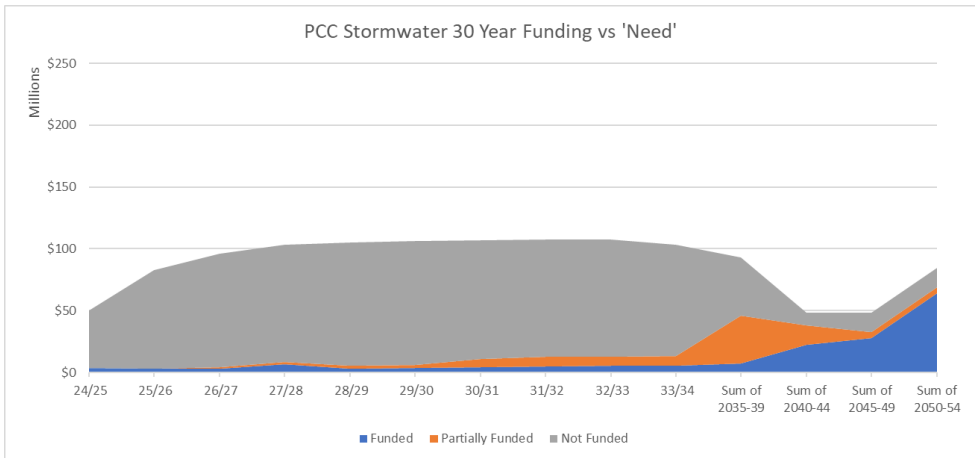
The water supply capital forecast (refer adjacent figure) covers all investment categories i.e., growth, levels of service, renewals.

Investment Projections. Funded and partially funded values [blue and orange bands] are taken directly from the Shareholder Councils adopted LTP 2024/2034. The 'need' funding profile [grey band], is based on the submission to the National Transition Unit (for Entity C) of June/July 2023 and covers all assets including networks, reservoirs, pumpstations and control systems.

Risks to achieving Levels of Service. The gap between funded and partially funded investment and the investment 'need' maybe observed by customers through increased water supply network leakage and possible water contamination events at reservoirs. Further risks are identified in the Risk section of this document.

Note: figure supplied by WWL.

Stormwater



The stormwater service capital forecast (refer adjacent figure) covers all investment categories i.e., growth, levels of service, renewals.

Investment Projections. Funded and partially funded values [blue and orange bands] are taken directly from the Shareholder Councils adopted LTP 2024/2034. The 'need' funding profile [grey band], is based on the submission to the National Transition Unit (for Entity C) of June/July 2023 and covers all assets including networks, pumpstations and control systems.

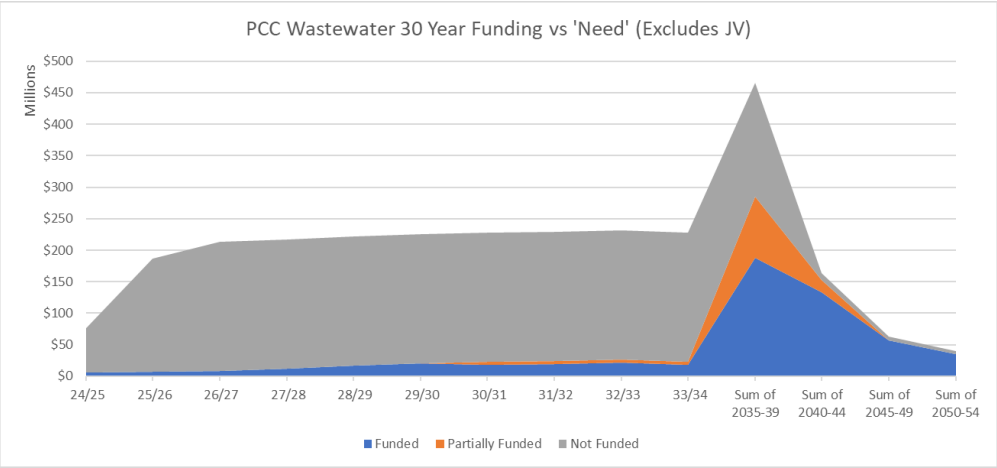
Risks to achieving Levels of Service. The gap between funded and partially funded investment and the investment 'need' maybe observed by customers through increased extent of flooding (additional to current known flood prone areas). In specific locations this may exacerbate waterway and coastal contamination events where overflow into poorly performing (poor condition) wastewater network renewals results in overflows. Further risks are identified in the Risk section of this document.

Note: figure supplied by WWL.

8.1 The Funding Challenge

There are several major capital investment drivers such as aging infrastructure, regulatory compliance and growth and demand. This creates tension between funding demand and funding ability, that is managed though careful assessment, prioritisation and risk management. This will continue to be closely managed.

Wastewater

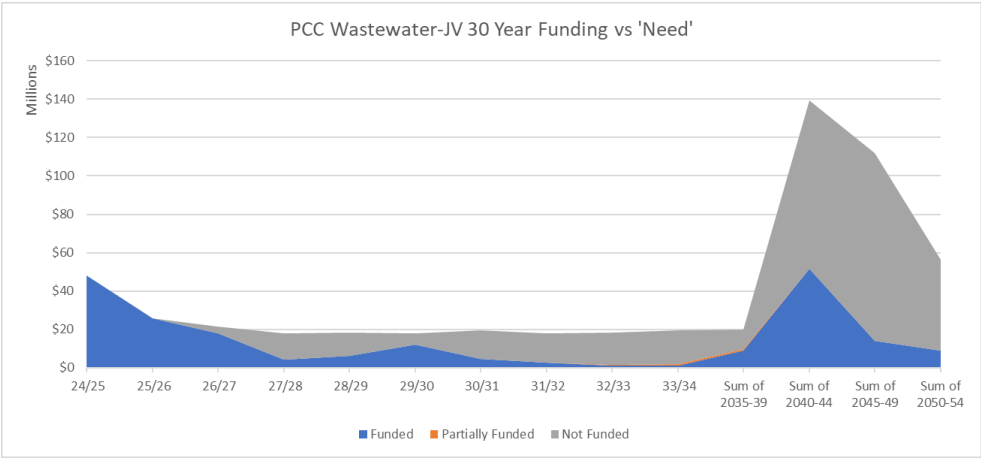


The wastewater service capital forecast (refer adjacent figure) covers all investment categories i.e., growth, levels of service, renewals.

Investment Projections. Funded and partially funded values [blue and orange bands] are taken directly from the Shareholder Councils adopted LTP 2024/2034. The ‘need’ funding profile [grey band], is based on the submission to the National Transition Unit (for Entity C) of June/July 2023 and covers all assets including networks, pumpstations and control systems.

Risks to achieving Levels of Service. The gap between funded and partially funded investment and investment ‘need’ maybe observed by customers through increased wastewater network overflows into streets and waterways along with surface water contamination events. The impact on communities and the partnership with mana whenua may be negatively impacted. Further risks are identified in the Risk section of this document.

Note: figures supplied by WWL.



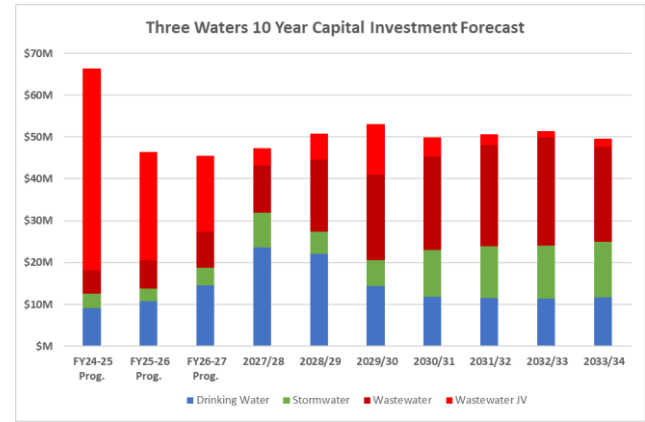
8. 10-Year Three Waters investment forecast

8.2 Total 10-Year Capital Investment

This section provides an overview of the 2024 Three Waters LTP Capital Programme investment forecast.

- The Capital investment is spread across
- Renewals - to replace existing assets at the end of design life
 - Additional Capacity - to provide for growth
 - Levels of Service - improvement to meet standards and regulations

The Three Waters Capital Programme - has been refined and prioritised though the 2024 LTP programme and related deliberations, and is summarised in the chart below:

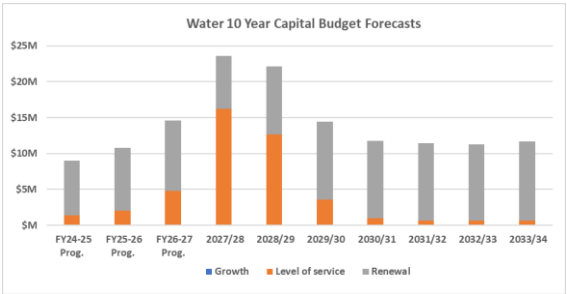


10 Year Capital Total (includes renewals): \$510.9 M

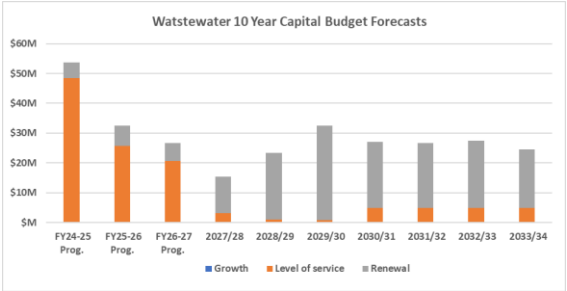
8.3 10- Year Capital Investment by Water Activity

The figures below estimate the Capital investment by water activity. The major projects include:

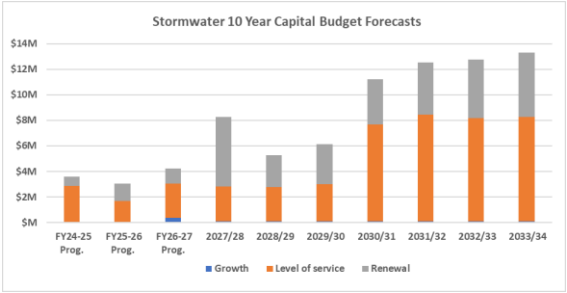
- Extending services to provide for growth and serviced areas
- Increasing capacity and treatment quality of wastewater treatment plants
- Renewing assets at the end of their service lives to maintain current performance



Total Water 10 Year Budget: \$140.8M



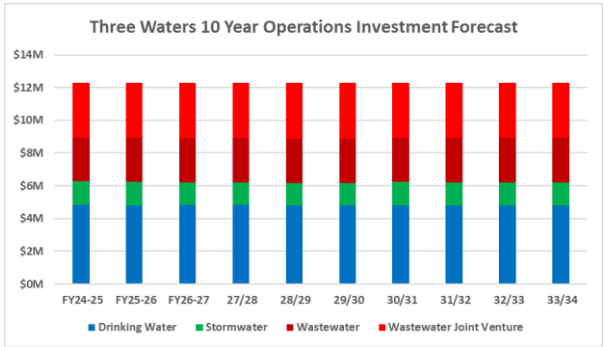
Total Wastewater 10 Year Budget: \$289.8M



Total Stormwater 10 Year Budget: \$80.3M

8.4 Total 10-Year Operational Investment

The figures below present the break-down of operational investment for the Three Waters activities. Future increases in Opex costs are anticipated due to increasing regulatory requirements and future maintenance contract costs. The operational needs expenditure is broken down to approximately \$48.0 million (39%) on water supply, \$60.9 million (49%) on wastewater (includes \$33.8 million for Wastewater joint venture) and \$14.1 million (12%) on stormwater.



Total Three Waters Opex 10 Year Budget: \$123.0 M

Budget Source: WWL Final Council OPEX LTP 2024-25

8.5 10-Year Three Waters capital programme forecast

8.5.1 Water Supply Projects

The 10 Year LTP Water Supply capital works budget forecasts are detailed in the table below:

	FY24-25 Prog.	FY25-26 Prog.	FY26-27 Prog.	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	TOTAL LTP
⊟ Growth	51,175	51,750	103,500	100,000	100,000	100,000	100,000	100,000	100,000	100,000	906,425
PCC Reactive Growth Development Projects - Drinking Water	51,175	51,750	103,500	100,000	100,000	100,000	100,000	100,000	100,000	100,000	906,425
⊟ Level of service	1,298,927	1,949,240	4,675,875	16,091,599	12,521,000	3,463,000	882,000	552,000	573,000	595,000	42,601,641
(SWS) PCC PW Pressure Management	230,288	258,750	517,500	500,000	500,000	500,000	350,000				2,856,538
PCC Capital Carbon Modelling - Drinking Water	10,235	10,350	10,350	10,000	10,000	10,000	10,000	10,000	10,000	10,000	100,935
PCC DMA Meter Fleet New Installs	-	-	159,732	23,599							183,331
PCC Drinking Water Network Modelling	51,750	51,750	51,750	50,000	50,000	350,000	50,000	50,000	50,000	50,000	805,250
PCC Management of Fire Hydrant Use	-	-	477,239								477,239
PCC New Smart Services - Drinking Water	20,470	20,700	20,700	20,000	20,000	20,000	20,000	20,000	20,000	20,000	201,870
PCC Security Locks Reservoirs	20,000	20,000	20,000	20,000	20,000						100,000
PCC Universal Residential Smart Metering	710,309	1,209,915	3,024,270	15,071,000	11,506,000	2,150,000					33,671,494
PCC Water Hydraulic model update	-	51,750	51,750	50,000	50,000	50,000	50,000	50,000	50,000	50,000	453,500
PCC Water Loss Level of Service Improvements	255,875	326,025	342,585	347,000	365,000	383,000	402,000	422,000	443,000	465,000	3,751,485
⊟ Renewal	7,683,379	8,778,910	9,817,186	7,422,285	9,521,633	10,853,726	10,802,730	10,777,483	10,615,712	10,992,262	97,265,306
Awarua St Watermain Renewals	149,999	-	-								149,999
Buried Reservoirs Integrity Improvements	-	155,250	1,000,000	-							1,155,250
PCC Commercial Meter Renewals	-	42,011	48,159	46,530							136,699
PCC District Meter Area Renewals	183,788	253,703	264,039	269,536	253,908	270,381	253,172	272,523	46,538		2,067,588
PCC DW Control Systems Renewals	30,705	31,050	31,050	50,000	30,000	50,000	30,000	30,000	30,000	30,000	342,805
PCC Pipe Network Planned Renewals - Drinking Water	-	322,100	500,000	500,000	500,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	6,822,101
PCC Pipe Network Reactive Renewals - Drinking Water	1,215,918	1,549,271	1,951,958	2,376,000	2,994,750	3,772,890	3,753,980	3,989,500	4,046,770	4,508,950	30,159,987
PCC Pressure Reducing Valve (PRV/PCV) Renewals	46,058	49,680	51,750								147,488
PCC Reservoir Renewals	726,685	990,167	786,893	303,153	291,295	308,775	313,898	333,780	340,724	301,632	4,697,002
PCC VHCA Reservoir Water Quality Renewals	209,423	503,195	525,708								1,238,326
PCC Water Pump Station Renewals	150,178	1,632,733	156,989	151,680	151,680	151,680	151,680	151,680	151,680	151,680	3,001,660
PCC Water Service Connection Renewals	-	300,000	300,000	300,000	300,000	300,000	300,000				1,800,000
Prosser Street Watermain Renewals	767,625	-	-								767,625
Titahi Bay Trunk Main Renewal	4,203,000	2,949,750	-								7,152,750
Titahi Bay WM Renewals Packages 1	-	Budget Source	4,206,641	1,872,886							6,073,527
Titahi Bay WM Renewals Packages 2 & 3	-	-	-	1,552,500	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	31,552,500
Grand Total	9,033,481	10,779,900	14,596,561	23,613,884	22,142,633	14,416,726	11,784,730	11,429,483	11,288,712	11,687,262	140,773,372

8.5 10-Year Three Waters Capital Programme Forecasts (cont.)

8.5.2 Wastewater Projects

The 10 Year LTP Wastewater capital works budget forecasts are detailed in the table below:

	FY24-25 Prog.	FY25-26 Prog.	FY26-27 Prog.	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	TOTAL LTP
Wastewater	5,461,395	6,747,406	8,630,361	11,397,571	17,116,562	20,453,942	22,348,280	24,187,704	25,933,320	22,617,320	164,893,861
Growth	51,175	51,750	103,500	100,000	100,000	100,000	100,000	100,000	100,000	100,000	906,425
PCC Reactive Growth Development Projects - Wastewater	51,175	51,750	103,500	100,000	100,000	100,000	100,000	100,000	100,000	100,000	906,425
Level of service	1,650,135	1,666,350	4,002,725	710,000	760,000	460,000	4,670,000	4,670,000	4,670,000	4,670,000	27,929,210
Bothamley Park Sewer Upgrade	102,350	103,500	103,500	100,000							409,350
NDP: Resource consent for dry weather overflows	307,050	310,500	310,500								928,050
NDP: Resource consent for wet weather overflows	767,625	776,250	776,250								2,320,125
NDP: ww overflows universal measures	102,350	103,500	103,500	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,009,350
NDP: WWNO subcatchment reduction plan - Porirua A	-	-	-		150,000	150,000	4,360,000	4,360,000	4,360,000	4,360,000	17,740,000
NDP: WWNO subcatchment reduction plan - Taupo	153,525	155,250	2,000,000								2,308,775
PCC - Odour modelling	-	-	25,875								25,875
PCC Capital Carbon Modelling - Wastewater	10,235	10,350	10,350	10,000	10,000	10,000	10,000	10,000	10,000	10,000	100,935
PCC Wastewater Network Modelling	207,000	207,000	672,750	500,000	500,000	200,000	200,000	200,000	200,000	200,000	3,086,750
Renewal	3,760,085	5,029,306	4,524,136	10,587,571	16,256,562	19,893,942	17,578,280	19,417,704	21,163,320	17,847,320	136,058,226
Mana Esplanade Pipeline cross connection stage2	481,045	-	-								481,045
Navigation Drive WW renewal	-	-	-		2,671,270						2,671,270
Omapere Street WW renewals	-	207,000	-		4,000,000	4,283,261					8,490,261
PCC Pipe Network Planned Renewals - Wastewater	-	766,058	1,000,000	29,400	1,732	9,162,714	11,014,080	12,397,344	9,326,560	9,279,760	52,977,649
PCC Pipe Network Reactive Renewals - Wastewater	1,813,151	2,277,000	2,836,728	3,423,040	4,282,080	5,363,680	5,227,120	5,245,200	5,309,440	5,436,320	41,213,759
PCC WW Control Systems Renewals	30,705	31,050	31,050	50,000	30,000	50,000	30,000	30,000	30,000	30,000	342,805
PCC WW Drainage Investigations Water Quality Renewals	511,750	569,250	532,944	722,800	758,160	796,640	836,160	877,760	921,440	968,240	7,495,144
PCC WW Pump Stations Renewals	923,434	971,948	123,413	605,320	4,413,320	226,760	470,920	867,400	5,575,880	2,133,000	16,311,396
Titahi Bay South Beach access WW Network Renewals	-	207,000	-	5,757,011	100,000	10,887					6,074,898
Wastewater JV	48,252,750	25,785,801	18,018,000	4,075,000	6,219,690	12,009,646	4,625,000	2,475,000	1,475,000	1,975,000	124,910,887
Level of service	46,763,975	23,877,950	16,517,250	2,350,000	50,000	150,000	50,000	50,000	50,000	50,000	89,909,175
Porirua Central City Wastewater Storage tank	37,174,000	16,000,000	-								53,174,000
Porirua WWTP JV Backup Power Supply	307,050	-	-								307,050
Porirua WWTP JV Odour Treatment	6,643,250	1,607,300	-								8,250,550
Porirua WWTP JV Process Model Development	51,175	51,750	51,750	50,000	50,000	150,000	50,000	50,000	50,000	50,000	604,675
Porirua WWTP JV Solids Handling Upgrade	2,588,500	6,218,900	16,465,500	2,300,000							27,572,900
Renewal	1,488,775	1,907,851	1,500,750	1,725,000	6,169,690	11,859,646	4,575,000	2,425,000	1,425,000	1,925,000	35,001,712
Consent renewal - Porirua WWTP land occupation by outfall structure (exp. 2034)	-	-	-						500,000	1,000,000	1,500,000
Porirua WWTP JV Aeration Diffuser Renewal	-	-	-		200,000	1,500,000	1,500,000	1,500,000			4,700,000
Porirua WWTP JV Centrifuge Replacement	-	307,050	-								307,050
Porirua WWTP JV Critical Spares	-	103,500	-								103,500
Porirua WWTP JV Effluent Outfall Renewal	-	-	-				2,000,000				2,000,000
Porirua WWTP JV General Instrumentation Renewal	-	-	-			150,000	150,000				300,000
Porirua WWTP JV Planned Renewals	716,450	724,500	724,500	700,000	700,000	700,000	700,000	700,000	700,000	700,000	7,065,450
Porirua WWTP JV Reactive Renewals	260,575	465,750	465,750	425,000	225,000	225,000	225,000	225,000	225,000	225,000	2,967,075
Porirua WWTP JV Site Service and Building Renewal	-	307,050	310,500		100,000						717,550
Porirua WWTP JV UV TAK Renewal	511,750	-	-	600,000	1,400,000	1,800,000					4,311,750
Whitehouse Road (Titahi Bay) Wastewater Renewals - stages 3 and 4	-	-	-		3,544,690	7,484,646					11,029,336
Grand Total	53,714,145	32,533,207	26,648,361	15,472,571	23,336,252	32,463,588	26,973,280	26,662,704	27,408,320	24,592,320	289,804,748

8.5 10-Year Three Waters Capital Programme Forecasts (cont.)

8.5.3 Stormwater Projects

The 10 Year LTP Stormwater capital works budget forecasts are detailed in the table below:

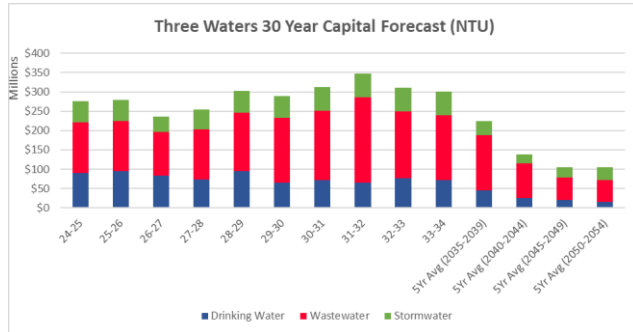
	FY24-25 Prog.	FY25-26 Prog.	FY26-27 Prog.	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	TOTAL LTP
⊟ Growth	51,175	51,750	362,250	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,165,175
PCC Reactive Growth Development Projects - Stormwater	51,175	51,750	103,500	100,000	100,000	100,000	100,000	100,000	100,000	100,000	906,425
Takapuwahia Stormwater Pipe Upgrade	-	-	258,750					-			258,750
⊟ Level of service	2,832,745	1,643,825	2,704,700	2,710,000	2,677,000	2,887,000	7,580,000	8,350,000	8,050,000	8,150,000	47,585,270
Acheron Park SW Detention	-	207,000	-	690,000							897,000
Eskdale Conclusion Stormwater Upgrades Phase 2	767,625	-	-								767,625
Hongoeka SW Catchment	-	-	258,750								258,750
Karehana SW Catchment	918,800	-	-								918,800
NDP: Resource consent for stormwater discharges	511,750	517,500	517,500								1,546,750
NDP: SMS workstream 1 implementation for water quality (modelling)	102,350	103,500	103,500	250,000	907,000	977,000	1,500,000	1,200,000	900,000	1,000,000	7,043,350
NDP: SW Subcatchment Asset Management Plan - Porirua A	-	-	-			140,000	140,000	1,210,000	1,210,000	1,210,000	3,910,000
NDP: SW Subcatchment Asset Management Plan - Taupo	143,290	144,900	1,252,350	1,210,000	1,210,000	1,210,000	5,380,000	5,380,000	5,380,000	5,380,000	26,690,540
PCC Capital Carbon Modelling - Stormwater	10,235	10,350	10,350	10,000	10,000	10,000	10,000	10,000	10,000	10,000	100,935
PCC Climate Resilience Model	-	77,625	-								77,625
PCC Global consent for operations and maintenance works in streams	20,470	20,700	-								41,170
PCC Stormwater Network Modelling	255,875	258,750	258,750	250,000	250,000	250,000	250,000	250,000	250,000	250,000	2,523,375
PCC SW Drainage Improvement Projects	102,350	303,500	303,500	300,000	300,000	300,000	300,000	300,000	300,000	300,000	2,809,350
⊟ Renewal	719,111	1,367,493	1,150,290	5,463,200	2,497,560	3,162,420	3,510,220	4,056,320	4,590,040	5,071,660	31,588,314
PCC Pipe Network Planned Renewals - Stormwater	-	257,062	27,315	800,000	806,800	1,047,400	1,351,800	1,736,800	2,224,000	2,839,800	11,090,977
PCC Pipe Network Reactive Renewals - Stormwater	708,876	893,081	1,112,625	1,343,200	1,680,760	2,105,020	2,138,420	2,309,520	2,356,040	2,221,860	16,869,402
PCC SW Control Systems Renewals	10,235	10,350	10,350	20,000	10,000	10,000	20,000	10,000	10,000	10,000	120,935
VHCA - Bernie Wood Turf SW Renewal	-	207,000	-	3,300,000							3,507,000
Grand Total	3,603,031	3,063,068	4,217,240	8,273,200	5,274,560	6,149,420	11,190,220	12,506,320	12,740,040	13,321,660	80,338,759

9. 30 Year Three Waters investment forecasts

9.1 Total 30-Year capital investment forecast (NTU)

This section provides an overview of the uninflated 30-Year capital investment forecast. It is based on the data submitted to the National Transition Unit (NTU Entity C) in June/July 2023 as part of 30-year capital investment requirements. Taking an unconstrained funding approach, it covers all assets including networks, reservoirs, pumpstations and control systems.

The NTU Three Waters Capital Programme is summarised in the chart below:

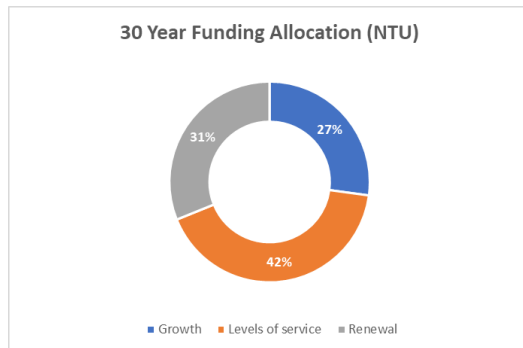


The NTU's 30 Year total capital investment (including renewals) is projected to be \$3.48 Billion.

Capital investment is spread across:

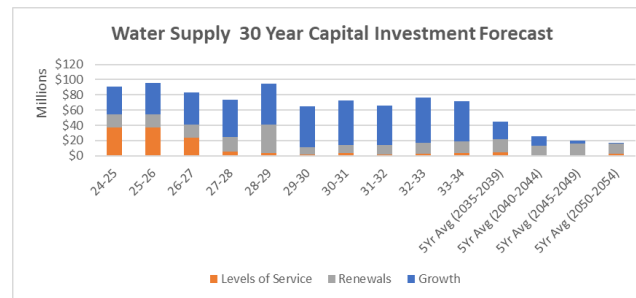
- Renewals - to replace existing assets at the end of design life
- Additional Capacity - to provide for growth
- Levels of Service - improvement to meet standards and regulations

The distribution is provided in the figure below.

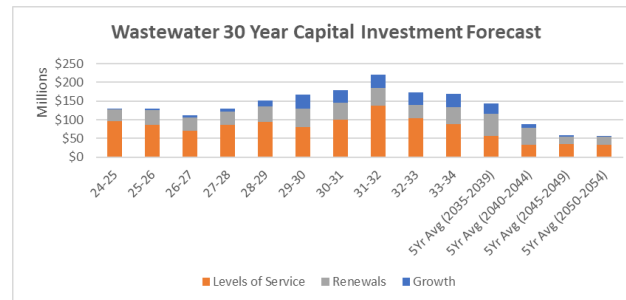


9.2 30-Year capital investment by water activity forecast

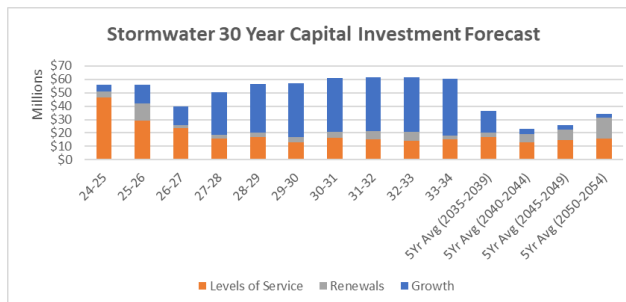
The water supply 30 Year capital forecast (total) is: \$0.89 B – see figure below.



The wastewater 30 Year capital forecast (total) is: \$1.91 B – see figure below.

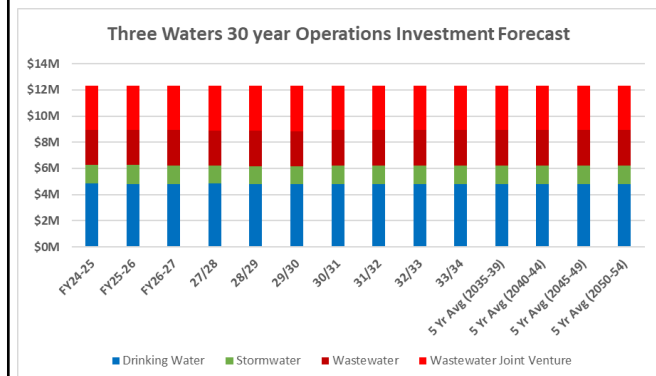


The stormwater 30 Year capital forecast (total) is: \$0.68 B – see figure below.



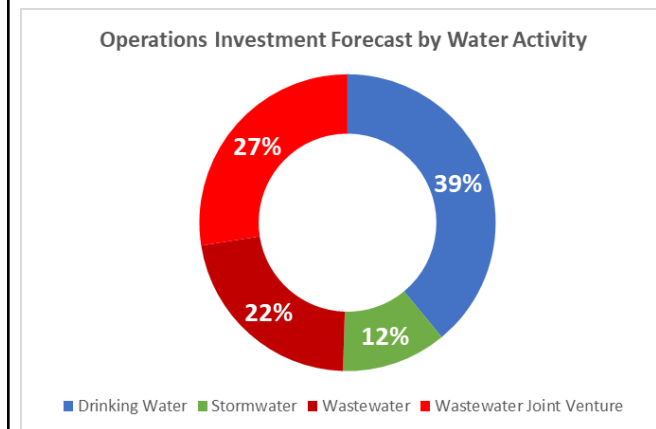
9.3 Total 30 Year operational investment

The Draft Three Waters 30 year operational budget forecast is summarised in the chart below:



Total 30 Year Budget: \$369.0M

Note: Year 11 to 30 budgets are extrapolated from the Year 10 budget (base) and have not been inflated.



The operational needs expenditure is broken down to approximately \$144.0M (39%) on water supply, \$182.7M (49%) on wastewater and \$42.3M (12%) on stormwater.

Source: 30 Years CAPEX Budget-All Councils upload IR data - Nov 24

10. Continual asset management improvement

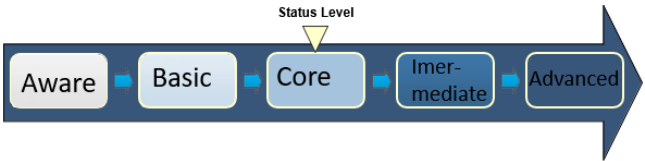
10.1 Asset Management Maturity

WWL is committed to continually improve asset management practices, processes, and tools. This is essential to ensure the asset system and services are effectively managed and delivered over the long term.

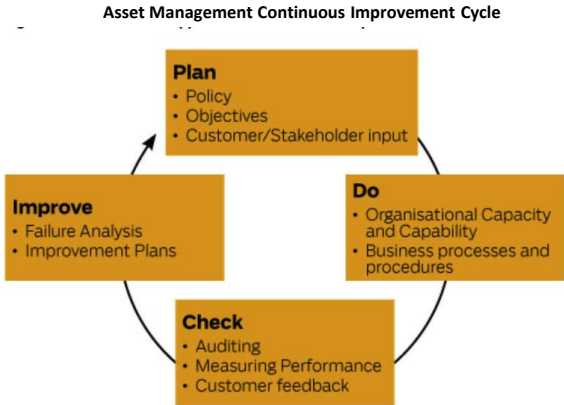
Asset Management practice is being developed in keeping with the NAMS guidelines as presented in their suite of asset management publications including the 2015 IIMM. Council is committed to delivering the most appropriate levels of service balanced with affordability and good industry practice.

Core and Advanced Asset Management

The Asset Management Policy states that Council is committed to meeting at least core asset management status for all activities. This is the most appropriate status for the scale, value and risk appetite of Council. The appropriate asset management status level will be reviewed periodically.



The last Three Waters asset management maturity assessment was conducted in 2021. The diagram below summarises the findings:



10.2 Asset Management Improvement Plan

The key improvement actions items include:

- Continue to respond and adapt to the ongoing Three Waters reform programme ‘Local Water Done Well’
- Continue to review and improve asset management systems and processes
- Continue to build core asset management capability
- Carry out asset data cleansing and verify asset condition information
- Continue to improve the confidence and accuracy in locational asset data
- Continue to assess the asset condition of below ground assets
- Carry out asset criticality assessment and ratings
- Continue to develop and implement condition-based reticulation renewals strategy
- Continue capital investment in water assets to ensure consent compliance and operational efficiencies

The following key improvement items have been identified in the recently completed Water Services viability assessment:

- Further assessment of the adequacy, planning and programming of the Three Waters Renewals Programme
- Further assessment of the future Three Waters resource consenting requirements and related planning and budgeting for this area of work
- Further assessment of the resources and procedures required to ensure the delivery of the proposed up scaled capital works programme
- Further assessment and Opex budget provision for the increasing regulatory requirements (proposed in the Water Reform programme), and possible increases in future maintenance contact costs

10.3 Asset Management Improvement Monitoring Procedures

The Improvement Plan activities and priorities will be regularly reviewed, and progress reported on to ensure that a programme of continuous asset management improvement is achieved.