

**Porirua City Council  
2021-31 Long Term Plan  
and three waters  
investment options**

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## Today Wellington Water is presenting options on investing in Porirua City Councils three waters assets to improve performance and reduce the risk of failure

Today's presentation provides context on three waters issues, investment options to meet these challenges and seeks direction for Porirua City Councils 21-31 LTP on:

1. Which investment options to take for looking after existing infrastructure?
2. What level and pace of growth investment to include?
3. How many and which regional priorities to begin to address over the next 10 years?
  - Reducing Water Consumption
  - Improving Environmental Water Quality
  - Reducing Carbon Emissions

# The context for three waters issues: LTP approach, and progress of the LTP process



Aging water assets are a national issue.

In Porirua , around 60% of three waters assets are due to be replaced in the next 30 years (based on age), and they are getting older.

This poses a steadily increasing risk to core three water services and healthy growing communities

At the same time, community expectations are increasing, and so are national standards: water regulator, freshwater management

Growth, reducing water consumption, improving water quality and climate change are all additional challenges facing three waters asset owners

# A staged process of advice and options for the 21-31 long term plan



To support engagement with Porirua City Councils communities based on a full understanding of local, regional and national issues, Wellington Water prepared a summary of the state of the three waters assets, and the work required to maintain and renew them to meet customer and regulatory standards.

This second stage today presents options for an achievable pathway to address the need to increase maintenance and get on top of overdue renewals.

It prioritises investment in existing assets, which is prudent asset management practice, and describes what increased investment would provide.

It also presents possible activities in the agreed priority area of Growth, reducing water consumption, improving water quality and climate change

LTP advice stages

Stage 1

Early Signals

Current  
Stage →

Stage 2

Investment  
Options

Stage 3

Optimised  
three water  
programme  
the 21-31 LTP

# International review confirms a step change is needed – but we can't do everything



The internationally recognised water industry regulator, the **Water Industry Commission for Scotland** (WICS), has reviewed all our advice to owner councils, based on experience with multiple water entities.

Wellington Water early signals investment estimate, using capex as a proxy for annual investment for the region, was that an annual regional investment of \$240 million is required, compared to \$140m in 2020.

WICS concluded a higher level of \$300M-\$350M in capex annually was required.

Wellington Water recognises that this is desirable, but not affordable – clearly councils must prioritise, especially in view of the economic impact of covid-19

**Today's advice is intended to assist Porirua City Council to make choices within this context**

# Priorities for three waters investment



Looking after existing infrastructure

Looking after existing assets is foundational to a sound risk management approach. It reduces the risk of surprises that usually cost more, and have greater negative effects, than planned work does.

Growth

Growth is inevitable and must be managed in a way that ensures it doesn't add to existing challenges for the three waters network

Reducing water consumption

The other priorities are system wide issues that need addressing over the next 30 year:

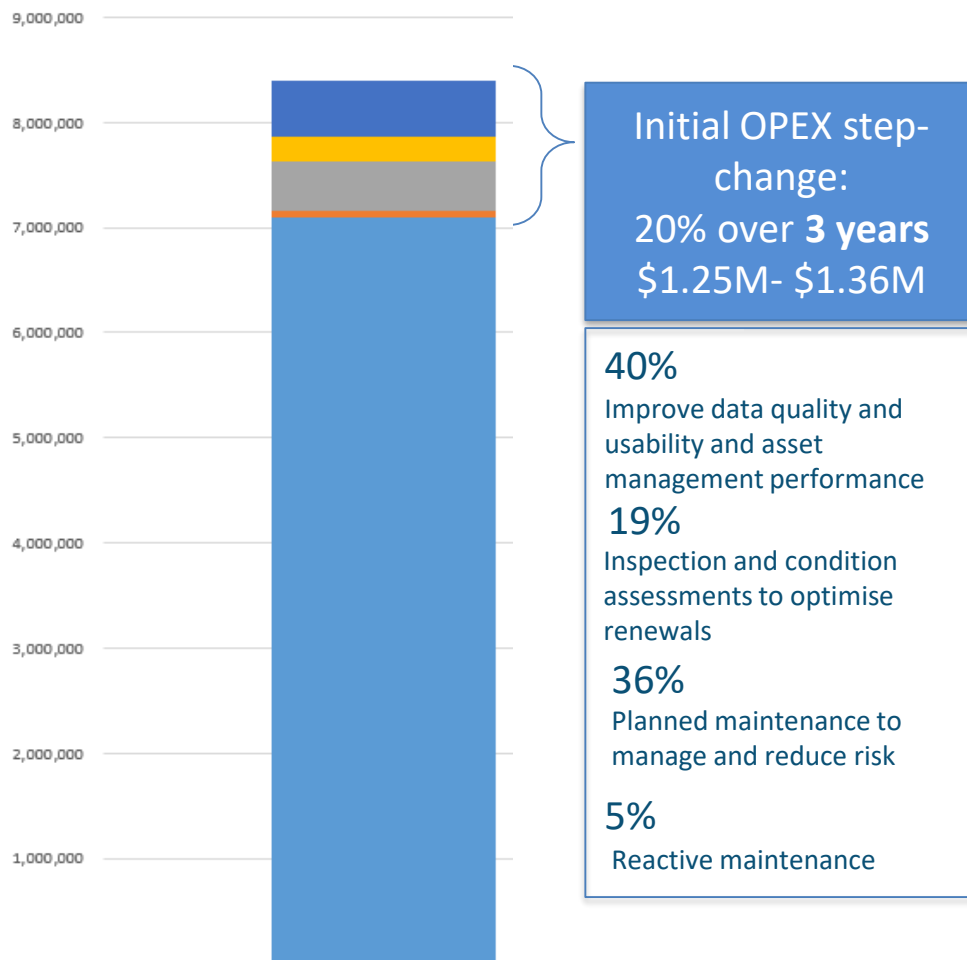
- The region is near capacity for water supply
- Communities expect better environmental water quality than we have now
- Carbon emissions are a key contributor to climate change

Improving environmental water quality

Reducing carbon emissions

NOTE - Individual activities associated with localised risks will still be progressed

# Investing in OPEX to maintain services and improve asset knowledge



OPEX modelling shows an uplift of 32% is needed by year three. By year ten, 44% is needed.

**Given the current economic environment a lower, 20% increase on current levels, achieved over three years would allow for the start of the programmes identified in the step change.**

20/21 OPEX \$7.1M, Excludes 20/21 Bulk Water Levy \$4.37M  
Costs based on 2020 NZD and increases are indicative

Looking after existing infrastructure

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## Investing to maintain services and improve asset knowledge

### Option analysis and risk assessment



	Current State OPEX investment	Step change OPEX increase over 3 years
Characteristics	<ul style="list-style-type: none"> <li>• Network levels of service trending down</li> <li>• Renewals backlog increasing year on year</li> <li>• Very limited planned maintenance</li> <li>• Limited condition assessment activity</li> <li>• Limitations in asset data and information constraining good asset management practices</li> </ul>	<ul style="list-style-type: none"> <li>• Starts to address backlog</li> <li>• High priority planned maintenance commences</li> <li>• Asset data quality and asset management improvements can be made</li> </ul>
Impacts and Risks	<ul style="list-style-type: none"> <li>• Unplanned services interruptions increase</li> <li>• Customer satisfaction decreases</li> <li>• Risk of high criticality asset failure increases</li> <li>• Greater step change for operating costs is inevitable in later years</li> <li>• Higher levels of carbon are used</li> </ul>	<ul style="list-style-type: none"> <li>• Manageable response times for unplanned service disruptions</li> <li>• Customer satisfaction increases</li> <li>• Risk of further increases in operating costs in later years remains pending increased condition understanding</li> <li>• Asset failure risk better understood, but remains pending renewals investment</li> </ul>
		<b>RECOMMENDED APPROACH – SEE NEXT SLIDE FOR OPTIONS TO STAGE INCREASE</b>

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## Options for staging step change opex increase over 3 years

	Option A	Option B	Stimulus Option
Increase year 1	10%	6.5%	3%
Increase year 2	5%	6.5%	3%
Increase year 3	5%	6.5%	6%
Commentary	Builds necessary asset and asset management knowledge and capability to mitigate risk profile.	Gradually builds knowledge and capability, risk profile remains higher for longer than other options.	Recommended option if stimulus funding is approved to bridge the capability gap in 20/21 and 21-31 LTP year 1.

Looking after existing infrastructure

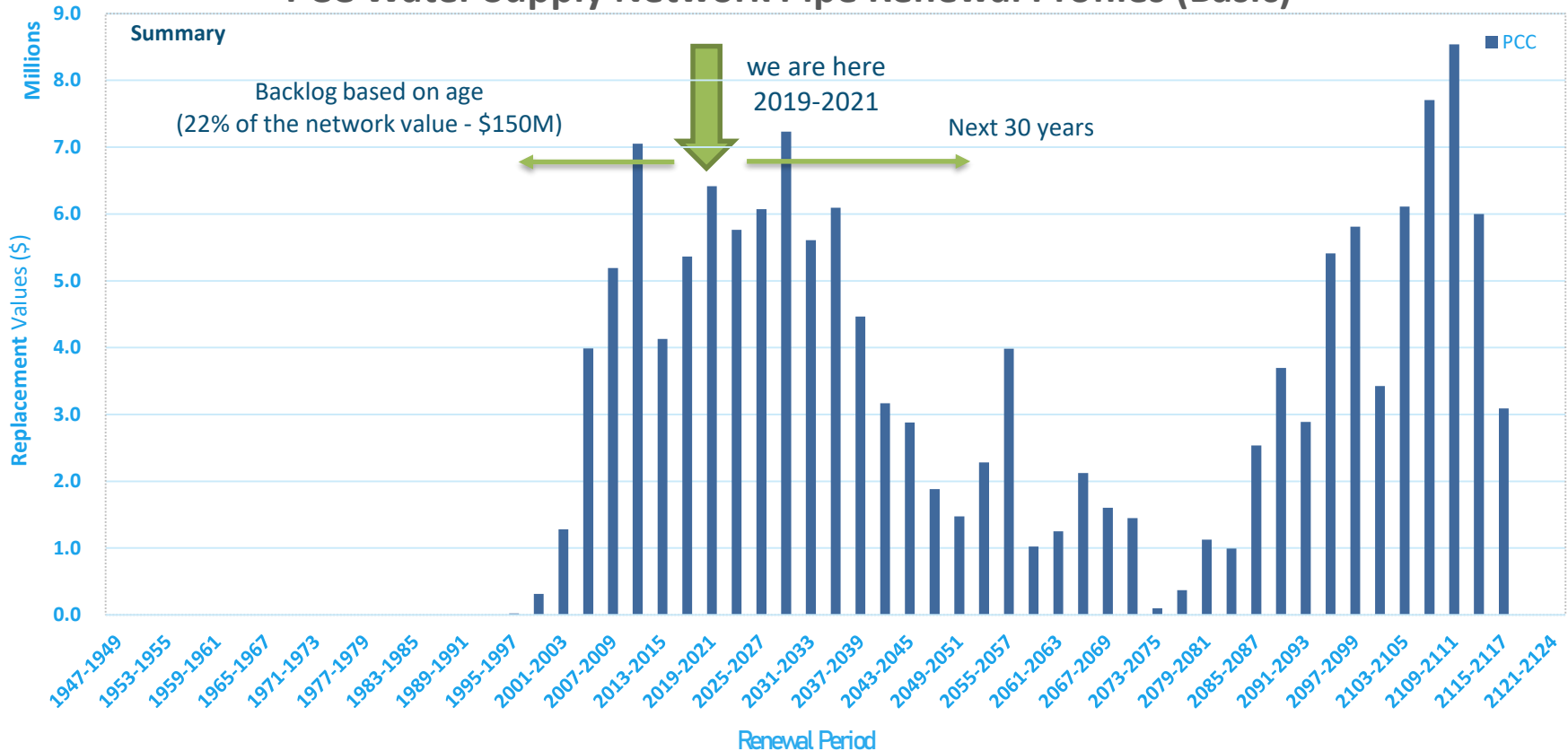
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# The Renewals Backlog Challenge



This graph shows the pending investment and backlog investment for the council's water network based on the age profile of the pipes (this data only relates to pipes not pump stations and reservoirs):

## PCC Water Supply Network Pipe Renewal Profiles (Basic)



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# Investing to meet the renewals backlog

## Options analysis and risk assessment



	Lower range renewals CAPEX	Step change renewals CAPEX increase
Characteristics	<ul style="list-style-type: none"> <li>Assumes current spend plus necessary optimised projects to keep the network running, such as regulatory requirements, safe drinking water, compliance, treatment plant</li> </ul>	<ul style="list-style-type: none"> <li>Investment renewals in to reduce backlog plus necessary optimised projects to keep the network running</li> </ul>
Impacts and Risks	<ul style="list-style-type: none"> <li>Backlog will increase further</li> <li>Compounding year on year decrease in service levels</li> <li>Inherent risk of service failure grows</li> <li>Increased operational response and corresponding compounding costs</li> </ul>	<ul style="list-style-type: none"> <li>Network reliability improves gradually over 30 years, number of service interruptions stabilises and starts to trend down</li> <li>Inherent risk of high criticality asset failure still exists but closes over 30 years</li> <li>Emissions from operations trends down</li> </ul>
		<b>RECOMMENDED APPROACH – SEE NEXT SLIDE FOR FUNDING RANGE OPTIONS</b>

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## Options for level of CAPEX funding for renewals



There is a relationship between renewal investment and operational costs.

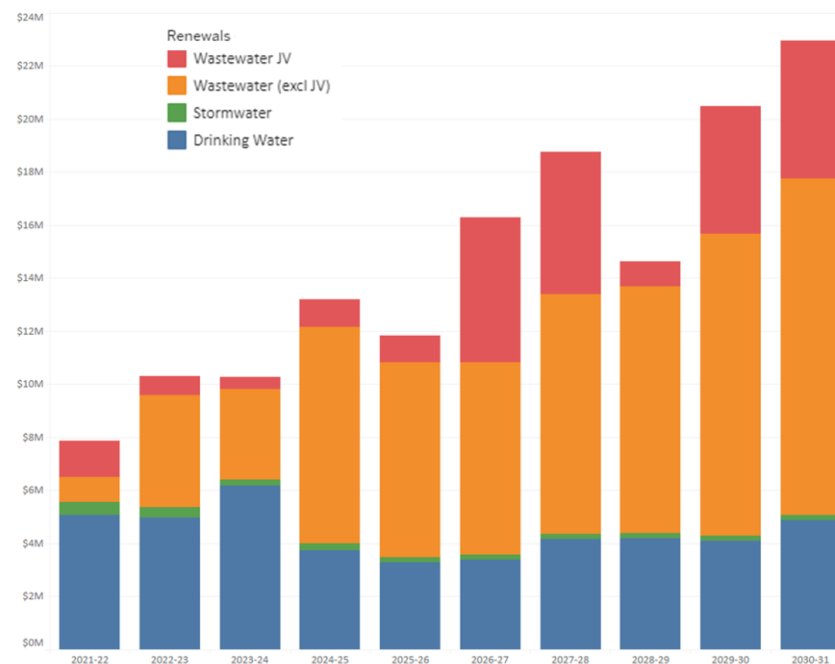
It is important to provide for renewals at a pace that meets the life cycle of the asset and deterioration over time to reduce the requirement for higher cost reactive renewals and prevent compounding operational costs.

Condition assessments are important to inform increased evidence-based renewals planning.

	Lower range renewals CAPEX (\$ M)	Step change renewals CAPEX increase \$(M)
10 year TOTAL	40	150 (Includes \$34M for Eastern Porirua)
Drinking water	12	45
Stormwater	1	5
Wastewater (excl JV)	18	73
Wastewater JV	9	27

*For project budget estimates, Wellington Water have used a 95 percentile figure. Costs are based on 2020 NZD and may vary as more detailed planning is completed*

PCC 10 year renewals investment profile 21-31 LTP



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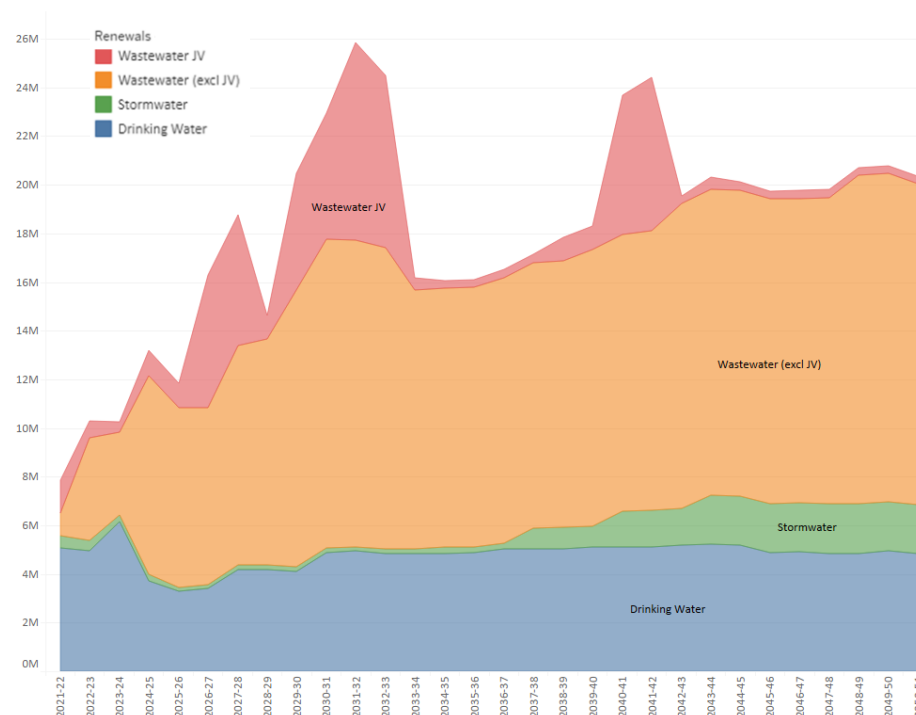
# Options for level of CAPEX funding for renewals



	Step change renewals CAPEX increase \$(M)
<b>30 year TOTAL</b>	520 - 570 (Includes \$139M for Eastern Porirua based on age profile)
Drinking water	138 - 150
Stormwater	26 - 28
Wastewater (excl JV)	300 - 330
Wastewater JV	56 - 62

Porirua City Council jointly owns the Wastewater Treatment Plant and the mains and pump stations that supply it (with WCC). The spikes are linked to large gravity and rising main renewals.

*For project budget estimates, Wellington Water have used a 95 percentile figure. Costs are based on 2020 NZD and may vary as more detailed planning is completed*



30 year view of identified renewal investment

Looking after existing  
infrastructure

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# Growth is coming; but it cannot be at the expense of the environment



Planning completed to date across the city's seven growth areas has identified capacity constraints.

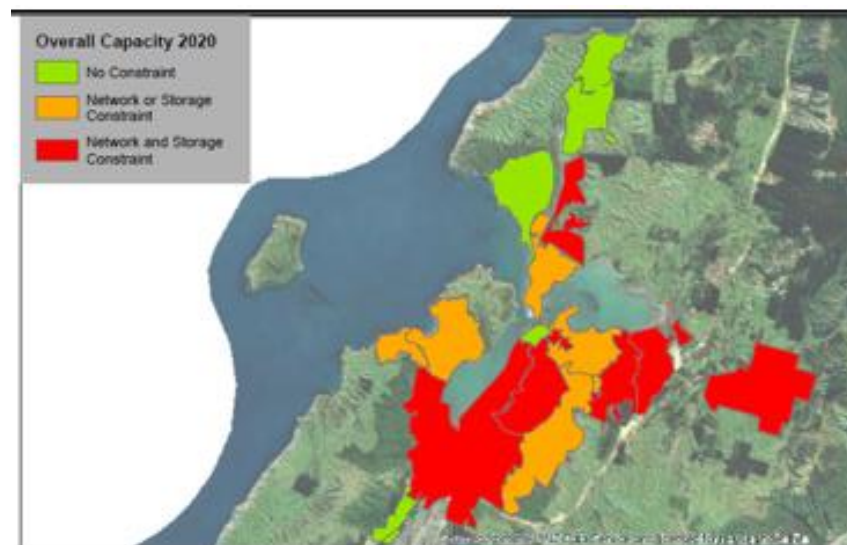
Significant investment will be needed, particularly in the wastewater network, to enable this growth to occur.

It is important to include funding for growth especially as development is already underway

How much growth can Porirua City fund alongside the city's other three water investment priorities?

**Forecast 50% population growth over the next 30 years (10,500 new homes)**

Funding	2018-28 LTP	LTP 2021-31	30 year spend
*Capex (strategic city-wide projects included)	6.1m	\$379m (\$182m)	\$825m (\$395m)
Note: A level of funding needs to be included as a placeholder for three water investment in Eastern Porirua until Kainga Ora funding is confirmed.			
Opex		\$12m	\$26m



Water Supply Networks at capacity now

Growth

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# Growth – Porirua City Council policies can help reduce its impacts

Three Waters outcomes can be achieved by improving and developing the network. There are also significant opportunities to improve long term outcomes through smart policy, including District Plan provisions, councils' policies and bylaws and Wellington Water policies, standards and guidelines.

Growth pays for growth

Sequence growth in line with existing infrastructure upgrades / renewals

Revise and refine your Development Contributions Policy to ensure existing ratepayers are not paying for the cost of new developments

Using policy levers to reduce or defer investment and achieve better environmental outcomes

Requirements for water sensitive design and green infrastructure in District Plan provisions

Requiring the repair or replacement of leaking private wastewater and water pipes

Policies and incentives to support water efficiency (i.e. codes of practice and in building consent process, optional tariffs that reward low usage, etc.)

## Three system-wide issues have been agreed which need addressing over multiple LTP cycles



### Reducing water consumption

Reducing the amount of water we consume to enhance environmental outcomes and defer future capital expenditure in new storage.

This a year 5-10 issue. We are close to fully allocating all water supplies in the height of summer (increasing risk of loss of reliability)

### Improving environmental water quality

Removing e-coli from our streams, rivers and harbours.

Our wastewater network leaks and overflows, polluting our natural environment. Communities are very dissatisfied with this.

This is a 20 year issue. NPSFW targets swimmable water bodies by 2040.

### Reducing carbon emissions

Aiming to be net carbon zero as a country by 2050.

We are a significant emitter of carbon . While baselines are being set we are yet to make any meaningful reduction in carbon emissions.

Issues like flooding and seismic resilience will be addressed on a project by project basis

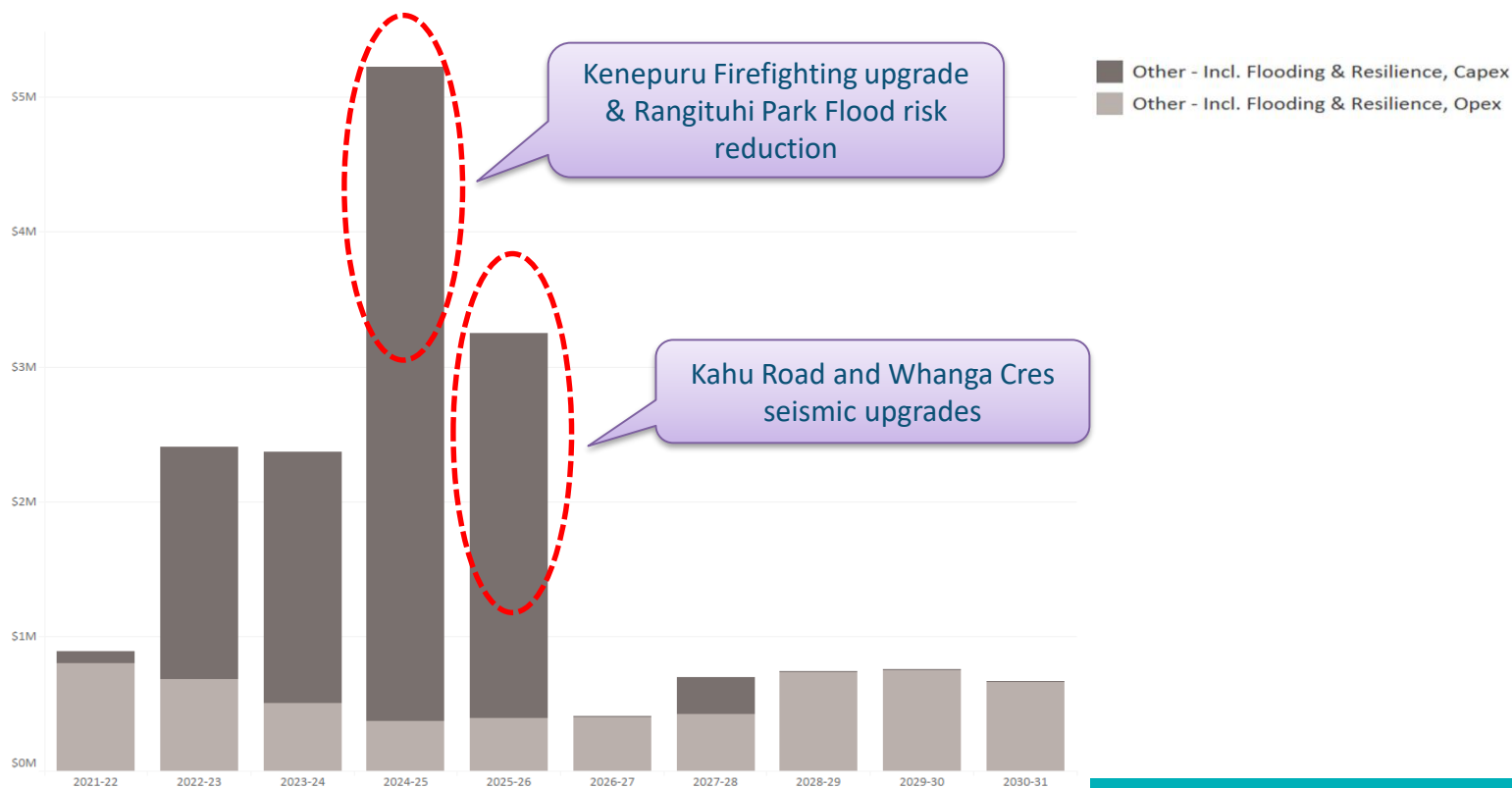


# Other CAPEX Projects



There are a few additional projects which need to be included in the 21-31 LTP to either address specific, localised risks or complete projects which are already underway.

## Other (incl. Flooding and Resilience) , PCC 10-yr Capex and Opex



# Reducing water consumption

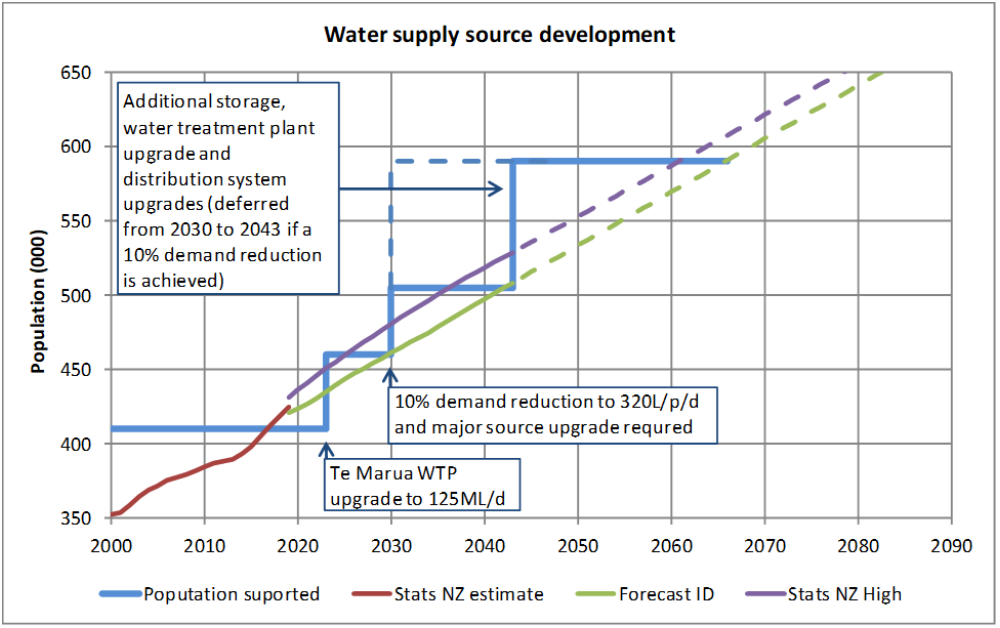


After a period of declining water consumption, demand is again on the rise. Regionally, we're close to full allocation of current drinking water supplies

We have high levels of leaks – but we don't have great information on where they're occurring, leaving us in a highly reactive and less efficient state of network management. More meters – any meters – will give us better information on usage.

Our policy position is to “conserve” water, not build new supplies so we need to invest in reducing consumption and leaks.

The risk of doing too little is increased service interruptions (watering restrictions) and the cost of a new facility is brought forward



Reducing water consumption	10 year spend	30 year spend
Capex	\$18m	\$22m
Opex	\$15m	\$46m



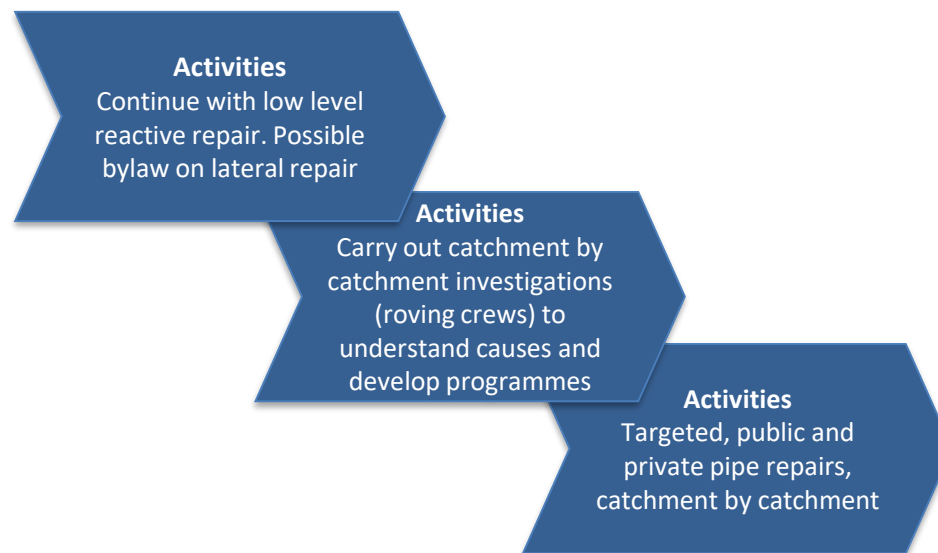
Note: Opex and capex figures in this slide are additional to the numbers shown earlier in this presentation and based on 2020 NZD and knowns at time of presentation.

## Improving environmental water quality



Community expectations supported by national standards are increasing pressure on city councils to stop urban water pollution. The target of C level water quality for urban streams will take investment in both public and private pipes.

It has taken a long time for streams to degrade and will take a long time to restore them. The risk of underinvesting in this work now is that compliance with standards or meeting community expectations will not be possible in the target timelines.



Improving Environmental water quality	10 year spend	30 year spend
Capex	\$27m	\$69m
Opex	\$17m	\$49m

*Note: Opex and capex figures in this slide are additional to the numbers shown earlier in this presentation and based on 2020 NZD and knowns at time of presentation.*



# Reducing carbon emissions

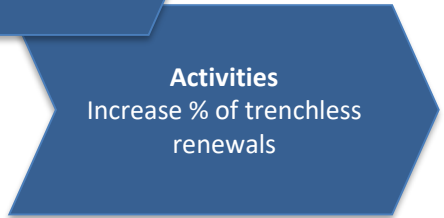
Driving down carbon emissions usually comes with reducing cost. However, there are a number of activities to undertake first, to ensure we align investment.

Activities where we can reduce carbon emissions in the three waters:

Opex	Baseline opex-based emissions	Sludge decomposition – emission
		Water Treatment Chemicals
		Electricity
		Opex activities generally
		Wellington Water Carbon emission management



Capex	Benchmark by Dec 2022	Renewals – use trenchless technology
		General Capex activities – carbon reduction in design
	New Asset	Sludge treatment facility



Climate change	10 year spend	30 year spend
Capex	\$15m	\$15m
Opex	\$2m	\$6m

Note: Opex and capex figures in this slide are additional to the numbers shown earlier in this presentation and based on 2020 NZD and knowns at time of presentation.

# Addressing water consumption is the top priority

The Wellington region has identified and agreed to three priorities which require a long-term, whole of system approach to address.

## Reducing water consumption 2030

Progress towards this priority needs to be made in the next 3 years if the region is to defer investment in a new water source

## Improving environmental water quality 2040

Understanding which activities to progress to meet swimmable water quality targets starts with understanding first.

## Reducing carbon emissions 2050

Understanding which activities to progress to meet the Zero Carbon Act 2019 targets starts with understanding first.

# Key Recommendations



Wellington Water recommends investment to look after existing infrastructure as a priority and recognising the existing economic environment, a lower level of activity for regional priorities.

Fund an additional \$1.3m OPEX over 3 years, supporting a step change increase in operational costs to look after existing infrastructure.

Fund \$150m CAPEX over 10 years for renewals to look after existing infrastructure.

Fund up to the growth investment level of \$379m CAPEX and \$12m OPEX over 10 years.

A placeholder is included pending Kainga Ora funding approval.

Council complements growth investments with enabling policies.

Fund \$15m OPEX and \$18m CAPEX over 10 years in activities that Reduce Water Consumption to defer investment in a new water source.

Fund \$17m OPEX and \$27m CAPEX over 10 years to Improving Environmental Water Quality gradually over time.

Fund \$2m OPEX and \$15M CAPEX over 10 years to Reduce Carbon Emissions,

Note: These recommendations exceed the proposed PCC fiscal envelope for the three waters.

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# Indicative outcomes for additional investment



		Reduce service interruptions	Lower risk of critical asset failure	Increase customer satisfaction	Defer future investment	Reduce water consumption	Improve environmental water quality	Reduce CO <sub>2</sub> emissions
	Fund \$1.3M OPEX*	✓	✓	✓	part	part	part	part
	Fund \$150m CAPEX Renewal	✓	✓	✓	✓	✓	✓	part
	Fund Growth \$379m CAPEX and \$12m OPEX plus placeholder	✓	✓	✓		✓	✓	✓
	Fund \$15m OPEX and \$18m CAPEX				✓	✓		
	Fund \$17m OPEX and \$27m CAPEX						✓	
	Fund \$2m OPEX and \$15M CAPEX							✓

\* Three year funding increase, all others based on a 10 year view.

# Direction setting



1. Which investment options to take for looking after existing infrastructure?
2. What level and pace of growth investment to include?
3. How many and which regional priorities to begin to address over the next 10 years?
  - Reducing Water Consumption
  - Improving Environmental Water Quality
  - Reducing Carbon Emissions