Three Waters Investment Options

Mayoral Task Force

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In confidence

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Wellington Water

Our water, our future.

Priorities for three waters investment

Wellington Water

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 and emits more carbon.

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

Improving environmental water quality

Reducing carbon emissions

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

NOTE - Individual activities associated with localised risks are still considered

Key Recommendations

Wellington Water recommends Wellington City invests in looking after existing infrastructure as a priority and recognising the existing economic environment, a lower level of activity for regional priorities.

	Fund $56.6m over 3 years that equates to an additional $6.6m OPEX over 3 years, supporting a step change increase in operational costs to look after existing infrastructure.
	Fund $578m CAPEX over 10 years for renewals to look after existing infrastructure (compared with $250M set out in 2018-28 LTP)
	Fund up to the growth investment level of $659m CAPEX and $27m OPEX. Council complements this with enabling policies.
	Consider funding $41m OPEX and $32m CAPEX over 10 years in activities that Reduce Water Consumption to defer investment in a new water source.
	Consider funding $36m OPEX and $8m CAPEX over 10 years to Improve Environmental Water Quality gradually over time.
	Consider funding $97m* CAPEX and $5m OPEX over 10 years to Reduce Carbon Emissions
	Fund $157m CAPEX and $18m OPEX over 10 years on other critical projects

*Note: SMURF is currently being scoped and costs may vary significantly once a preferred option is determined.

Indicative Outcomes for 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_2 emissions
	Fund $56.6m OPEX*	Y	Y	Y	part	part	part	part
	Fund $578m CAPEX Renewal	Y	Y	Y	Y	Y	Y	part
	Fund Growth $659m CAPEX and $27m OPEX plus placeholder	Y	Y	Y		Y	Y	Y
	Fund $41m OPEX and $32m CAPEX				Y	Y		
	Fund $36m OPEX and $8m CAPEX						Y	
	Fund $5m OPEX and $27m* CAPEX							Y

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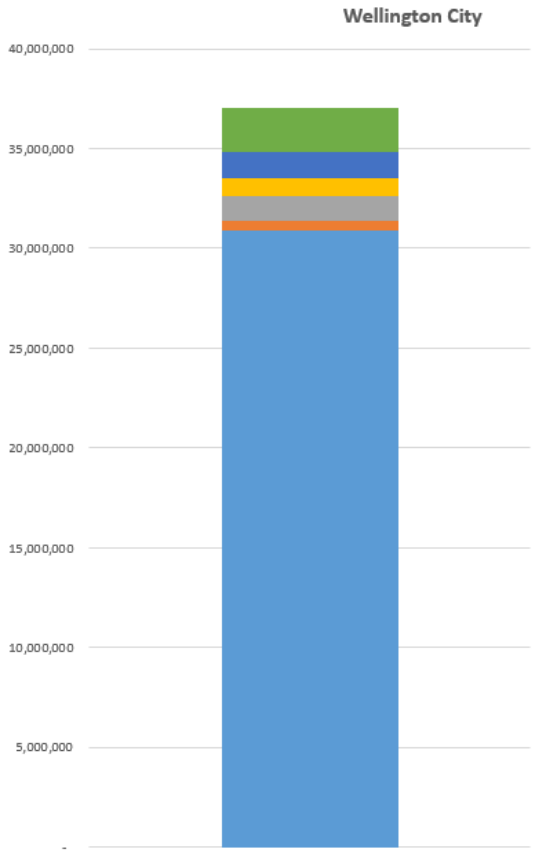
Supporting information

Investing to maintain services and improve asset knowledge



Initial step-change: 20% over 3 years $6.3-6.9M

33%
Wastewater treatment plant operations

21%
Improve data quality and usability and asset management performance

18%
Inspection and condition assessments to optimise renewals

21%
Planned maintenance to manage and reduce risk

7%
Reactive maintenance

Modelling shows an uplift of 40% is needed by year three.

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 $31.1M
Excludes 20/21 Bulk Water Levy $19M
Costs based on 2020 NZD and increases are indicative

Looking after existing infrastructure

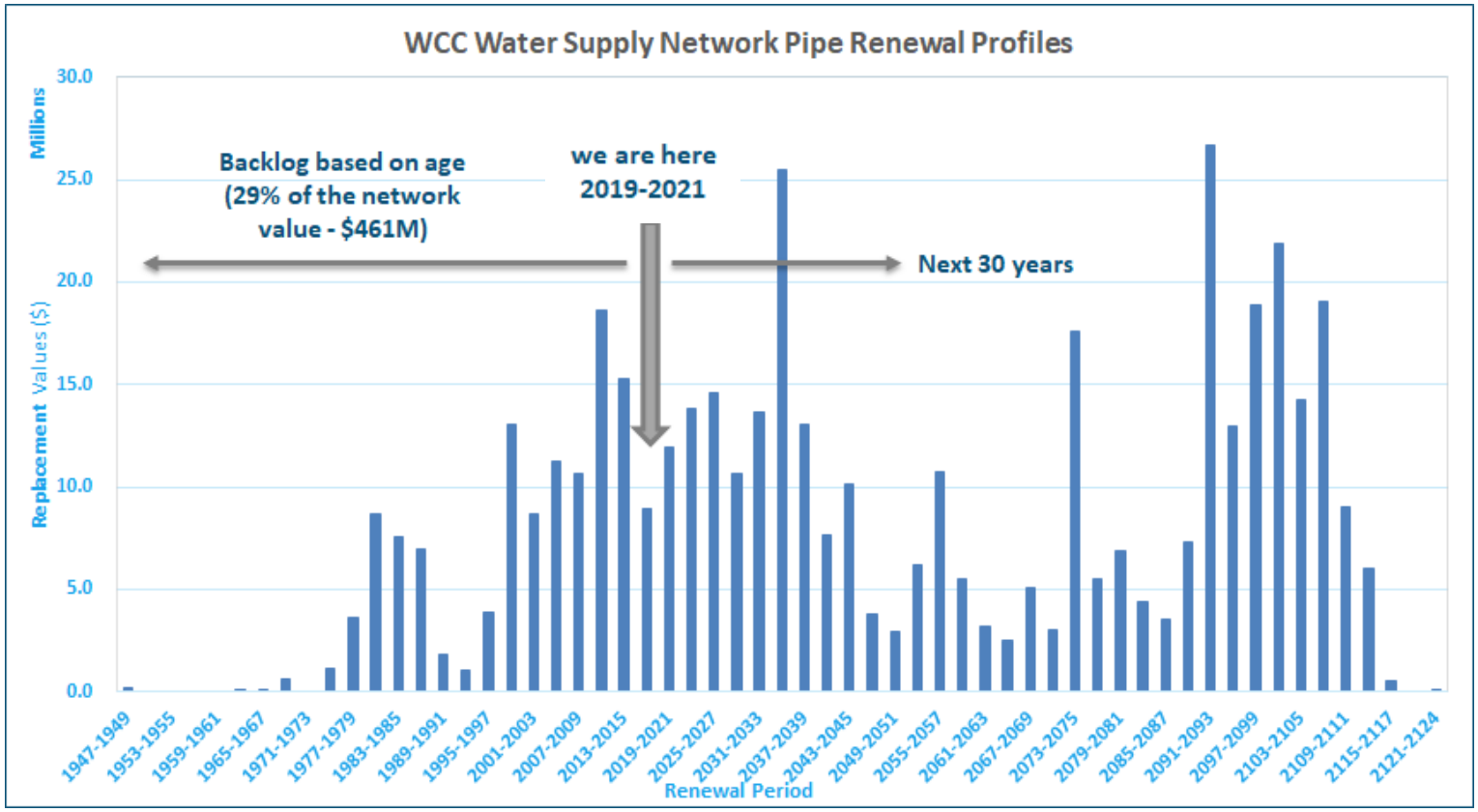
Investing to maintain services and improve asset knowledge

Option analysis and Risk Assessment

	Current State OPEX investment	Step change OPEX increase over 3 years
Characteristics	• Network levels of service trending down • Renewals backlog increasing year on year • Very limited planned maintenance • Limited condition assessment activity • Limitations in asset data and information constrain good asset management practices	• Starts to address backlog • High priority planned maintenance commences • Asset data quality and asset management improvements can be made
Impacts and Risks	• Unplanned services interruptions increase • Customer satisfaction decreases • Risk of high criticality asset failure increases • Greater step change for operating costs is inevitable in later years • Higher levels of carbon are used.	• Manageable response times for unplanned service disruptions • Customer satisfaction increases • Risk of further increases in operating costs in later years remains pending increased condition understanding • Asset failure risk better understood, but remains pending renewals investment

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 plants):



Looking after existing infrastructure

The Renewals Backlog Challenge

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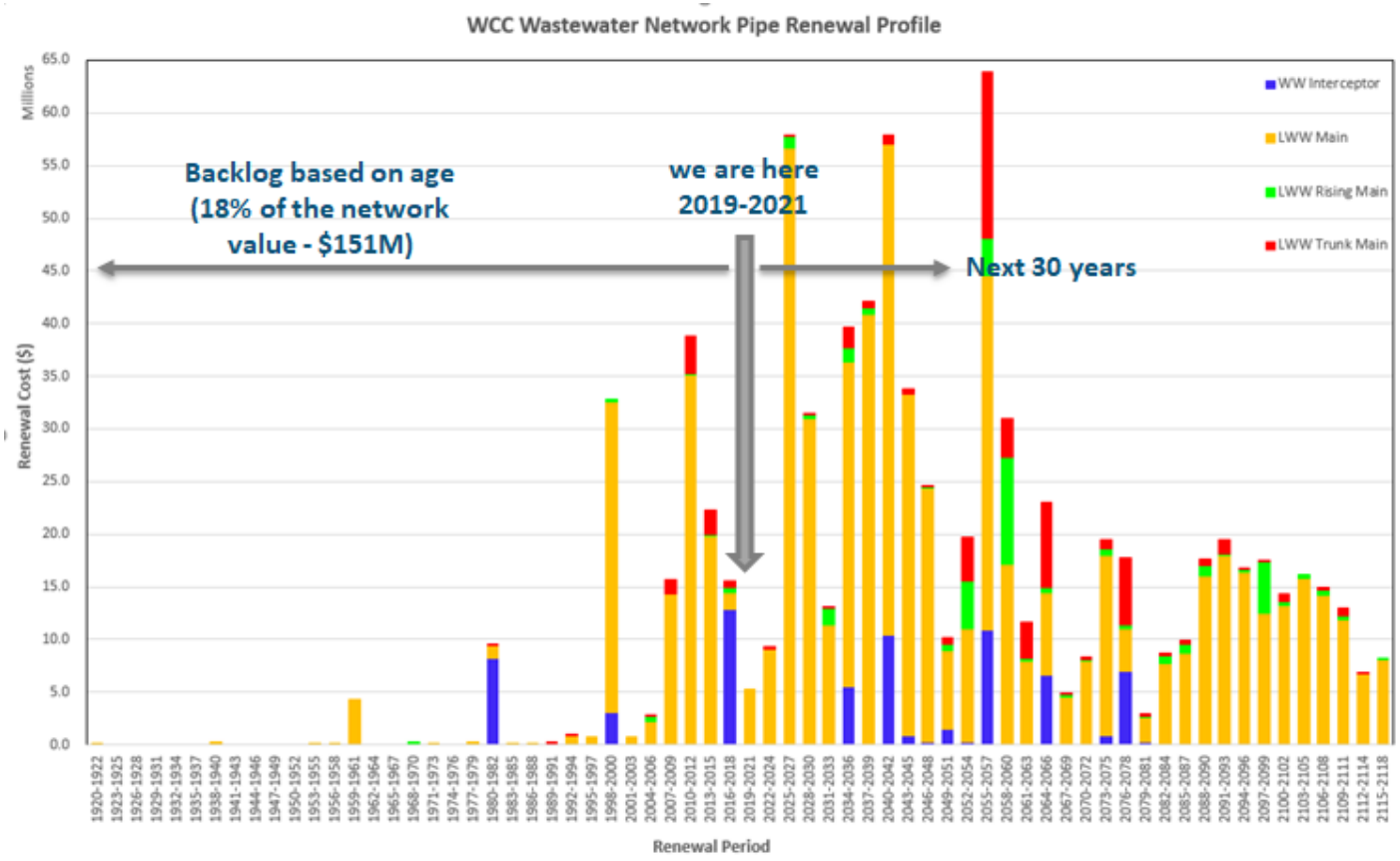

Looking after existing infrastructure

Note:

Based on current knowledge actual asset condition is considered worse than what is indicated by this age profile.

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Investing to meet the renewals backlog
Options analysis and risk assessment

	Lower range renewals CAPEX	Step change CAPEX increase
Characteristics	• Assumes current spend plus necessary optimised projects to keep the network running, such as regulatory requirements, safe drinking water, compliance, treatment plant	• Investment in renewals to reduce backlog plus necessary optimised projects to keep the network running
Impacts and Risks	• Backlog will increase further • Compounding year on year decrease in service levels • Inherent risk of service failure grows • Increased operational response and corresponding compounding costs	• Network reliability improves gradually over 30 years, number of service interruptions stabilises and starts to trend down • Inherent risk of high criticality asset failure still exists but closes over 30 years • Emissions from operations trends down.
		RECOMMENDED APPROACH – SEE NEXT SLIDE FOR FUNDING RANGE OPTIONS

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.

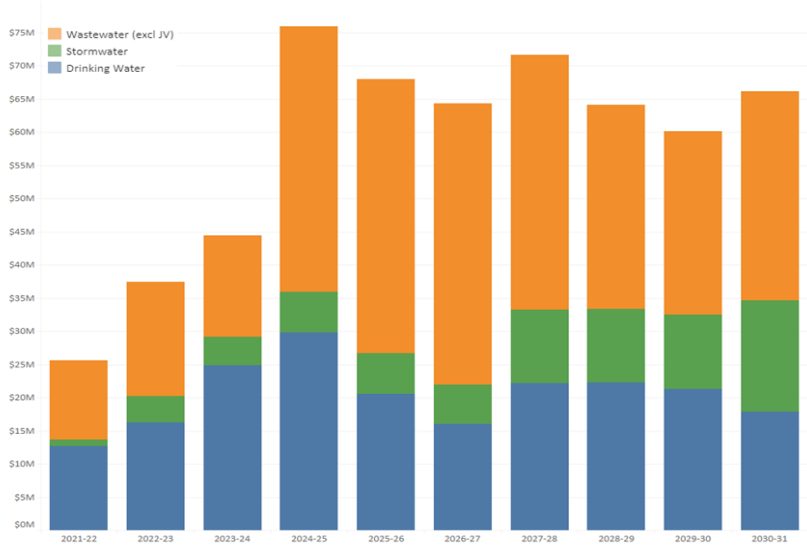
	Lower range renewals CAPEX ($M)	Step change renewals CAPEX ($M)
10 year TOTAL	$284M*	$578M*
Drinking water	$139M	$204M
Storm water	$45M	$78M
Waste water**	$100M	$296M

* compared with $250M set out in 2018-28 LTP

** excluding JV which is OPEX

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

WCC 10 year renewals step change profile 21-31 LTP



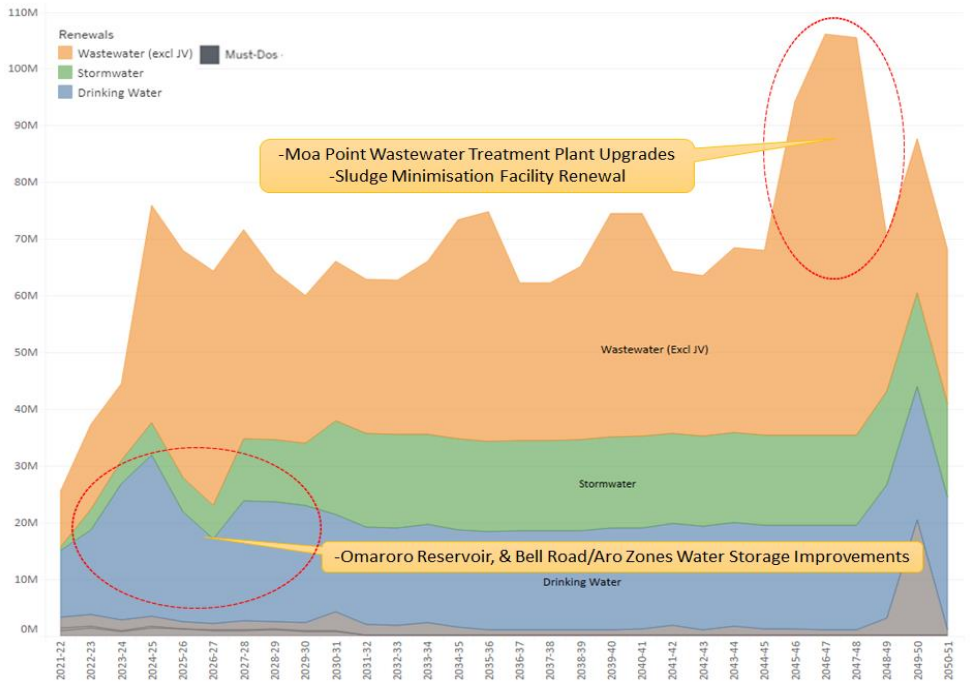
Looking after existing infrastructure

Options for level of CAPEX funding for renewals

	Step change renewals CAPEX increase $(M)
30 year TOTAL	$2,050M
Drinking water	$579M
Stormwater	$400M
Wastewater (excl JV)	$1,073M

Wellington City Council also owns approximately 27% of the Porirua's Wastewater Treatment Plant, and the trunks mains and pump stations that supply it. (PCC owns the balance)

The cost of operating, maintaining renewing and upgrading these assets appears as an Opex charge to Wellington City Council.



30 year view of identified renewal investment

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

Looking after existing infrastructure

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

Initial growth planning completed to date across the city has identified capacity constraints.

For the next 10 years, investment for growth has been prioritised for intensification in the CBD and alongside known transport routes. This will involve investment in new water supply and wastewater network storage and upgrades to the local wastewater network and wastewater treatment plant.

It is important to include funding for growth especially as development is already underway. Further investigation is also needed to strategically plan for growth and understand investment requirements and phasing.

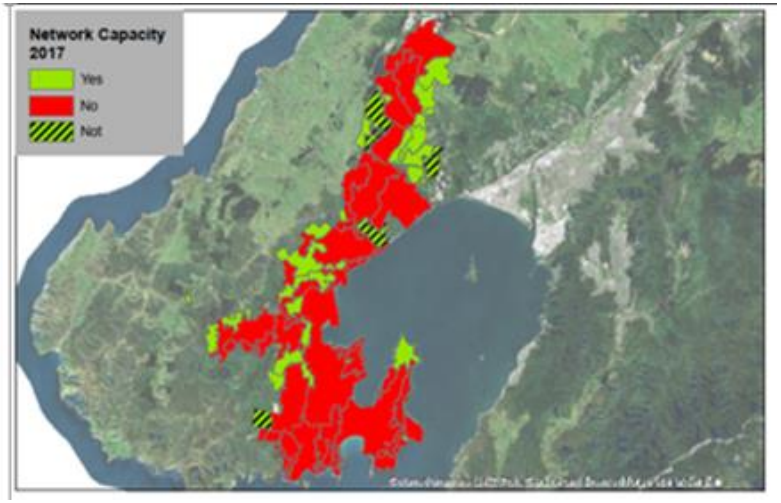
How much growth can Wellington fund alongside the city's other three water investment priorities?

Forecast *25% - *$40% population growth over next 30 years

(* From WCC's Urban Growth Plan 2014-2043 and development of their Spatial Plan)

Funding	2018-28 LTP	LTP 2021-31	30 year spend
*Capex	$62M	$659M	$1,955M
Opex		$27M	$47M

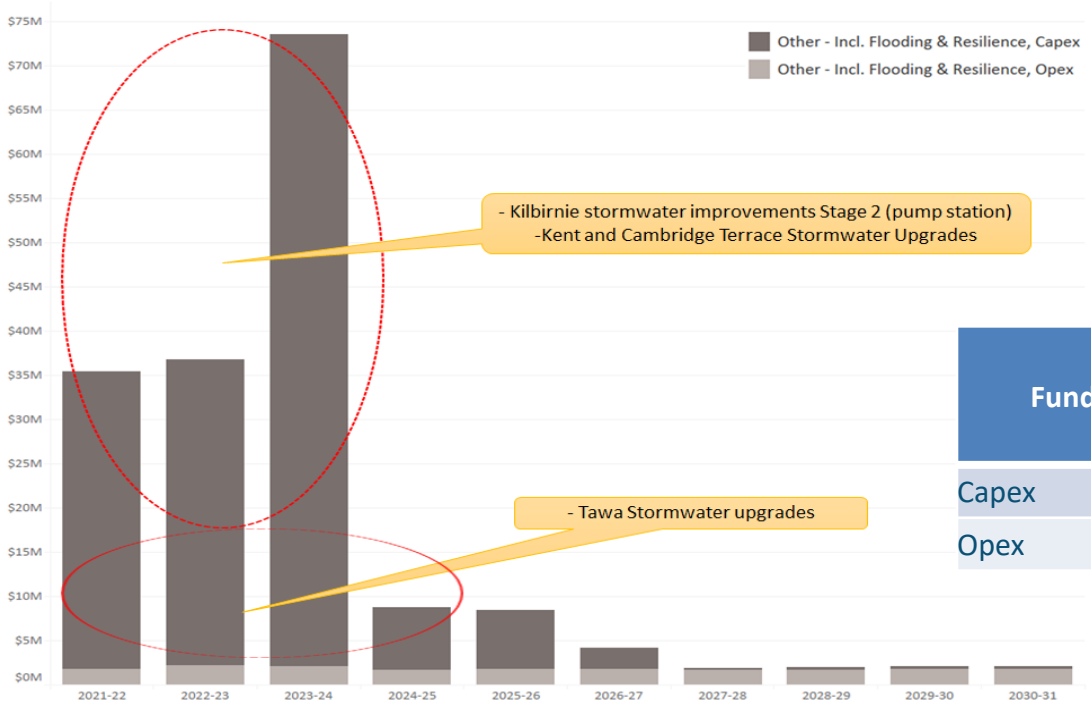
- Based on the initial growth planning done to date for WCC's spatial plan
- *Note: Opex and capex figures in this slide are additional to the numbers shown earlier in this presentation and based on 2020 NZD and knowns at time of presentation.*



Water Supply networks at or approaching capacity now

Other CAPEX Projects

There are some 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.



Funding	10 year spend	30 year spend
Capex	$157M	$163M
Opex	$18M	$54M

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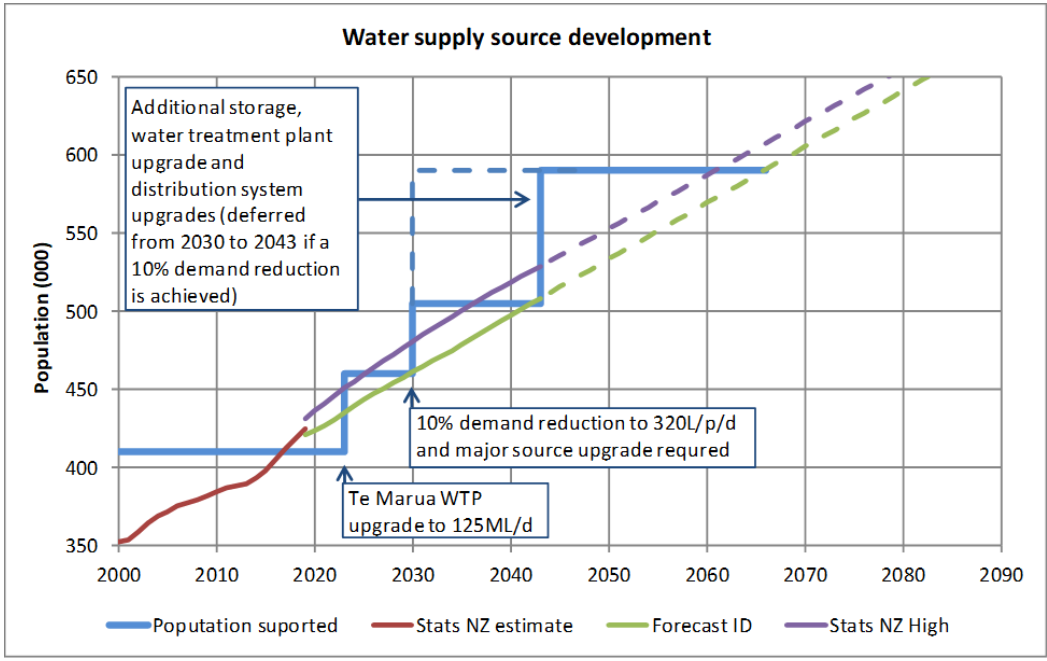
Reducing water consumption

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.

There is high levels of leaks – but not great information on where they're occurring, creating a highly reactive and less efficient state of network management. More meters – any meters – will give us better information on usage.

The regional policy position is to "conserve" water, not build new supplies. Investment is needed to reducing both network and private 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	$32M	$41M
Opex	$41M	$138M

Activities

Continue with low level education and reactive repair

Activities

Begin area metering programmes to build network knowledge; increase awareness, detection and repair services

Activities

Comprehensive area metering and /or private meters to detect private leaks

Aim

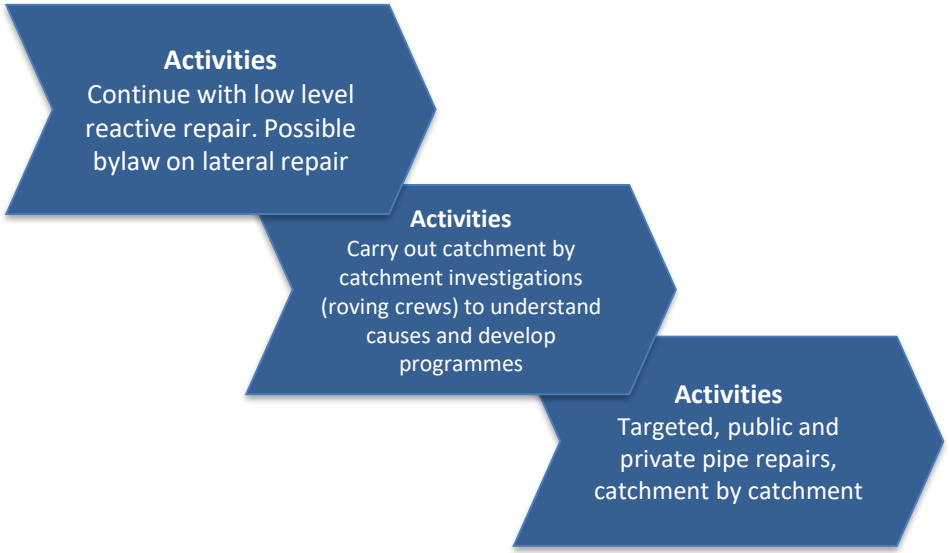
Defer $200m-$400m storage facility (excluded from above table – impact is on bulk water levy)

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	$8M	$18M
Opex	$36M	$110M

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 investment is aligned.

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

Opex	Baseline opex-based emissions	Sludge decomposition – emission
		Moa Point WWTP sludge management
		Water Treatment Chemicals
		Electricity
		Opex activities generally
		Wellington Water Carbon emission management
Capex	Benchmark by Dec 2022	Moa Point WWTP Sludge, Minimisation, Utilisation and Reclamation Facility (SMURF)
		Renewals – use trenchless technology
		General Capex activities – carbon reduction in design

Activities
Sludge minimisation studies

SMURF Implementation

Activities
Increase % of trenchless renewals

Climate change	10 year spend	30 year spend
Capex	$97M*	$97M*
Opex	$5M	$15M

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