Early Investment Signals for HCC 2021/31 LTP

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Wellington Water

Our water, our future.

At the heart of a thriving city

At the heart of a thriving city is resilient three waters infrastructure that:

- **improves public health**
- **enables sustainable economic and population growth**
- **protects the environment**

We are facing challenges over the next 10-30 years that need to be addressed to enable Hutt City to continue to be a thriving city.

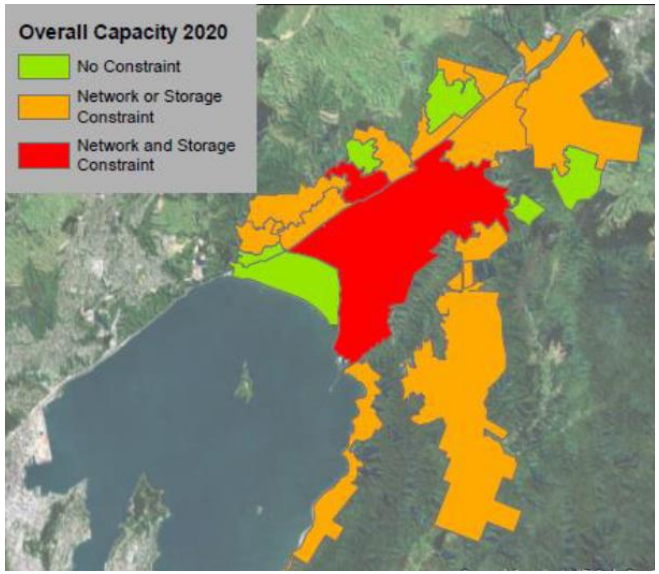
This presentation sets out the nature of those challenges and the scale of investment required.

We are in a critical 30 year period

Wellington Water

Circa 60% of HCC's assets are due for renewal within the next 30 years

Victoria Street, Alicetown – 2018 CCTV



Networks at capacity

Forecast 10-20% population growth over next 30 years

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New and existing challenges

Wellington Water

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Key challenges and priorities

Te Mana o Te Wai

- Looking after our existing infrastructure *(renewals, operations, maintenance and critical service level upgrades)*
- Growth
- Sustainable Water Supply
- Healthy Urban Waters
- Climate Change *(mitigation and adaptation)*

Based on previous discussions with HCC, there was general agreement that these areas are a top priority for your 2021/31 LTP.

However, many of these are new activities or have increasing service requirements going forward. Bringing about meaningful change will require significant investment over the next 10-30 years.

Note:

Seismic resilience and **urban flooding** investment was seen as a lower priority than these five.

Investment timeframes to achieve levels of service

Looking after our existing infrastructure *(renewals, operations, maintenance and critical service level upgrades)*	This is an ongoing task to ensure that the network delivers reliable, best-value services to customers
Growth	Investment is required to ensure service levels don't deteriorate over time as the population increases **(3-30 years)**
Sustainable Water Supply	Investment is required to reduce demand within the next **5-6 years** but ongoing investment is required as growth progresses
Healthy Urban Waters	National and regional policies and plans require us to significantly improve freshwater and harbour quality over the next **30 years**
Climate Change *(mitigation and adaptation)*	The NZ Zero Carbon Act requires us to have plans in place to manage our climate risks over the next **30 years**

Effective management of infrastructure is a long term effort and although we do have isolated high profile failures from time to time, we can adjust investment strategies over time based on improved data, technological developments and rate of change e.g. population growth.

Investment will be required over multiple decades to achieve the outcomes and levels of service associated with these priorities.

This slide illustrates key timeframes to be aware of when making investment decisions about Three Waters infrastructure.

Multiple investment benefits

Investment in one key area benefits other service goal areas. Some examples are provided below:

Looking after our existing infrastructure *(renewals, operations, maintenance and critical service level upgrades)*	Investing in renewals over time improves network resilience, facilitates growth, reduces water loss and leakage of the wastewater into the environment, and helps to reduce operational costs
Growth	Investment in network upgrades to service growth has similar benefits to managing our existing infrastructure
Sustainable Water Supply	Reducing water demand improves environmental and cultural outcomes, reduces long term cost to the customer and reduces carbon emissions
Healthy Urban Waters	Investing in healthy urban waters improves environmental and cultural outcomes and improves network resilience
Climate Change *(mitigation and adaptation)*	Investing in emissions reduction improves environmental and cultural outcomes and reduces long term cost to the customer. Investment in adaptation increases long term community resilience

Smart policy can also drive better community outcomes

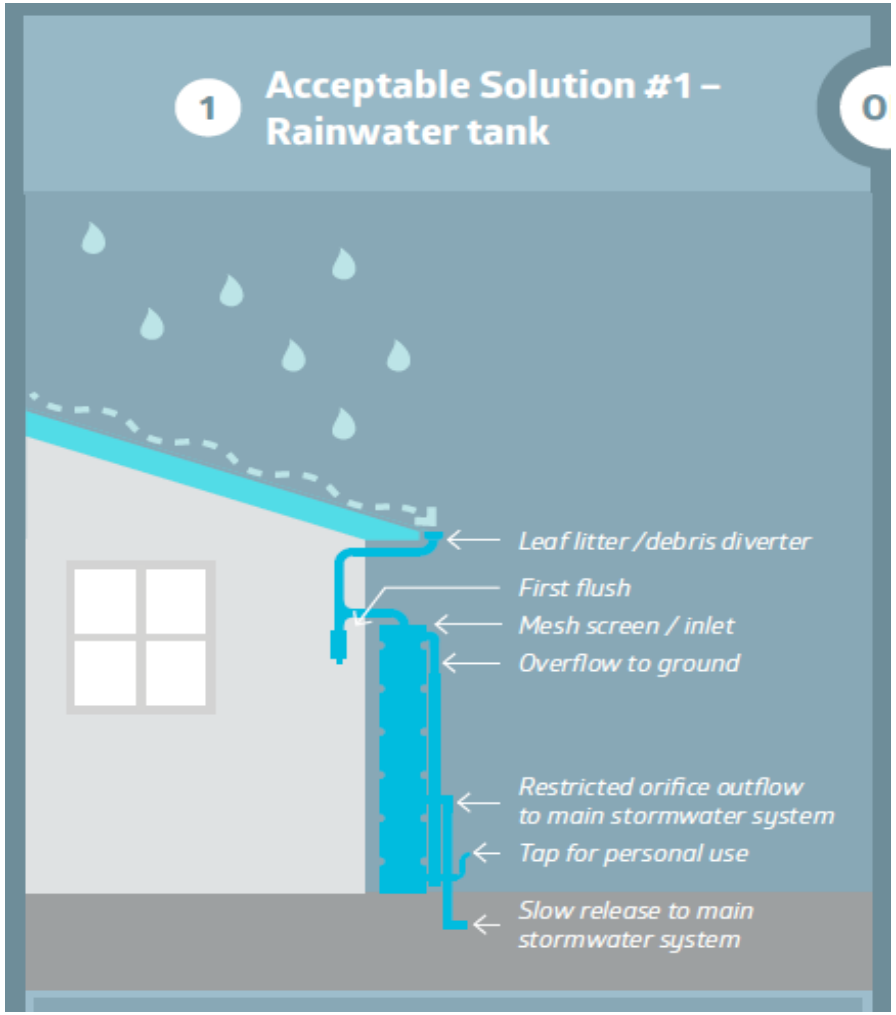
Three Waters outcomes can be achieved by improving and developing the network. There are also significant opportunities to improve long term outcomes through smart policy, including District Plan provisions, councils' policies and bylaws and Wellington Water policies, standards and guidelines.

Examples of what can be achieved through District Plan objectives and policies include:

- Design of water-efficient houses and developments
- Water storage for resilience (i.e. post-earthquake)
- Minimum floor heights for protection from future flooding
- Stormwater neutrality requirements on developments to mitigate flooding downstream and improve water quality

Wellington Water is working with your District Planning teams to ensure that progressive Three Waters objectives are included as plans are reviewed by councils.

This illustration refers to one of Wellington Water's guidelines for achieving stormwater neutrality for one property. This solution also provides some resilient water supply storage for a household.



Council Performance Measures

The table below provides insight on HCC catchment performance

Measure	Target	Quarterly result					
		2018/19				2019/20	
		Q1	Q2	Q3	Q4	Q1	Q2
Drinking water consumption	<345 litres per resident per day	🔴	🔴	🔴	🔴	🔴	🔴
Dry weather sewerage overflows	Zero overflows	🔴	🔴	🟢	🔴	🟢	🔴
Freshwater sites uncontaminated	90% sites <1000 E.coli on rolling 12 month median value	🔴	🔴	🔴	🔴	🔴	🔴
Wastewater blockages	<0.8 blockages per km of pipe	🔴	🔴	🔴	🔴	🔴	🔴
Sewerage complaints	<30 complaints per 1000 connections	🟢	🟢	🟢	🟢	🟢	🟢
Flooded dwellings	Zero habitable floors per 1000 connections	🟢	🟢	🟢	🔴	🟢	🔴

Red = target not achieved
Green = target achieved

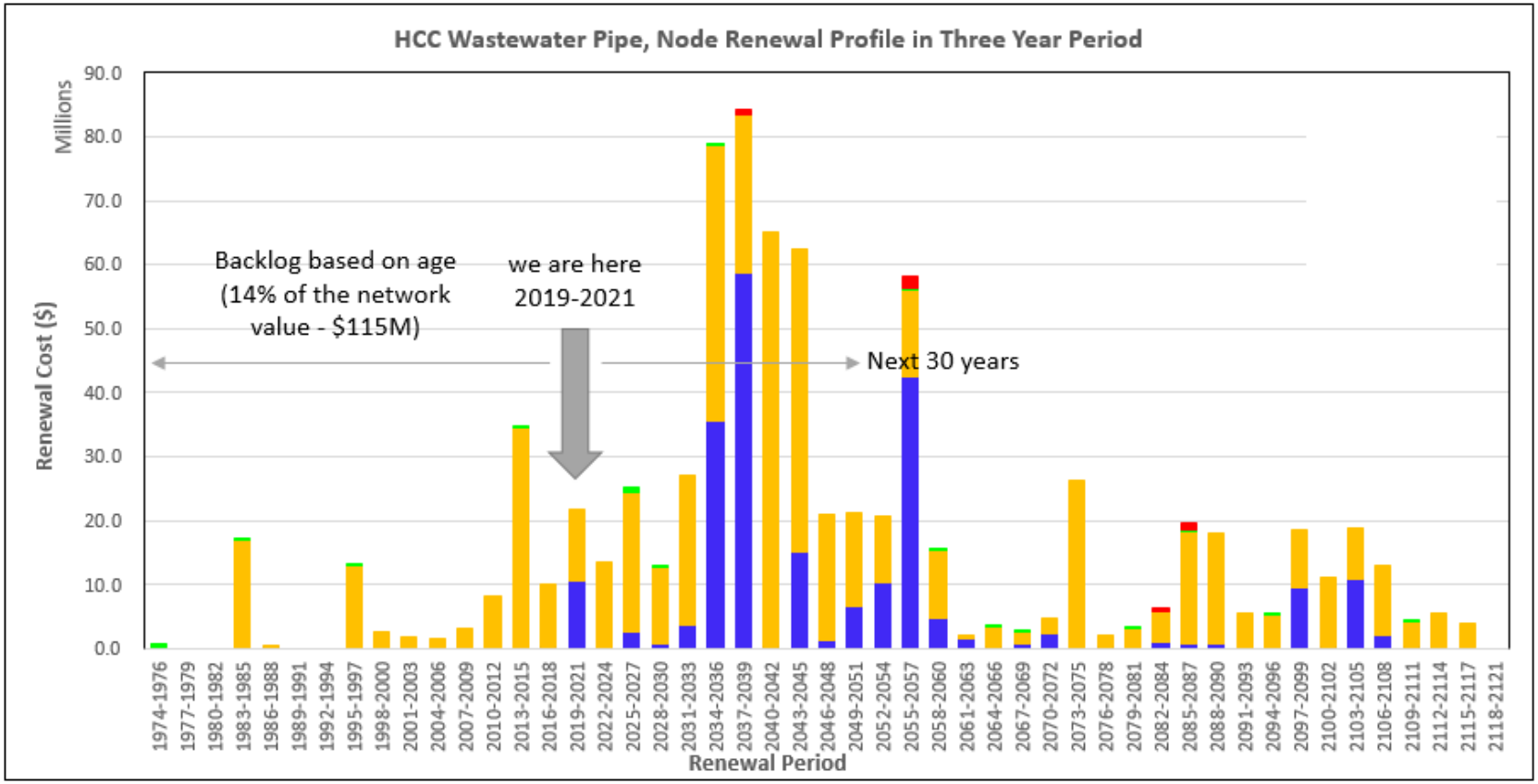
Key challenges and priorities

The following slides set out the nature of the challenges in more detail including examples where appropriate and a summary of the increase in investment required over the next 10 years for consideration as part of your 2021/31 LTP.

Looking After our Infrastructure

Looking After our Infrastructure - Challenge

This graph illustrates the pending and backlog investment for the council's wastewater network based on the age profiles of the pipes (amber coloured graph bars):



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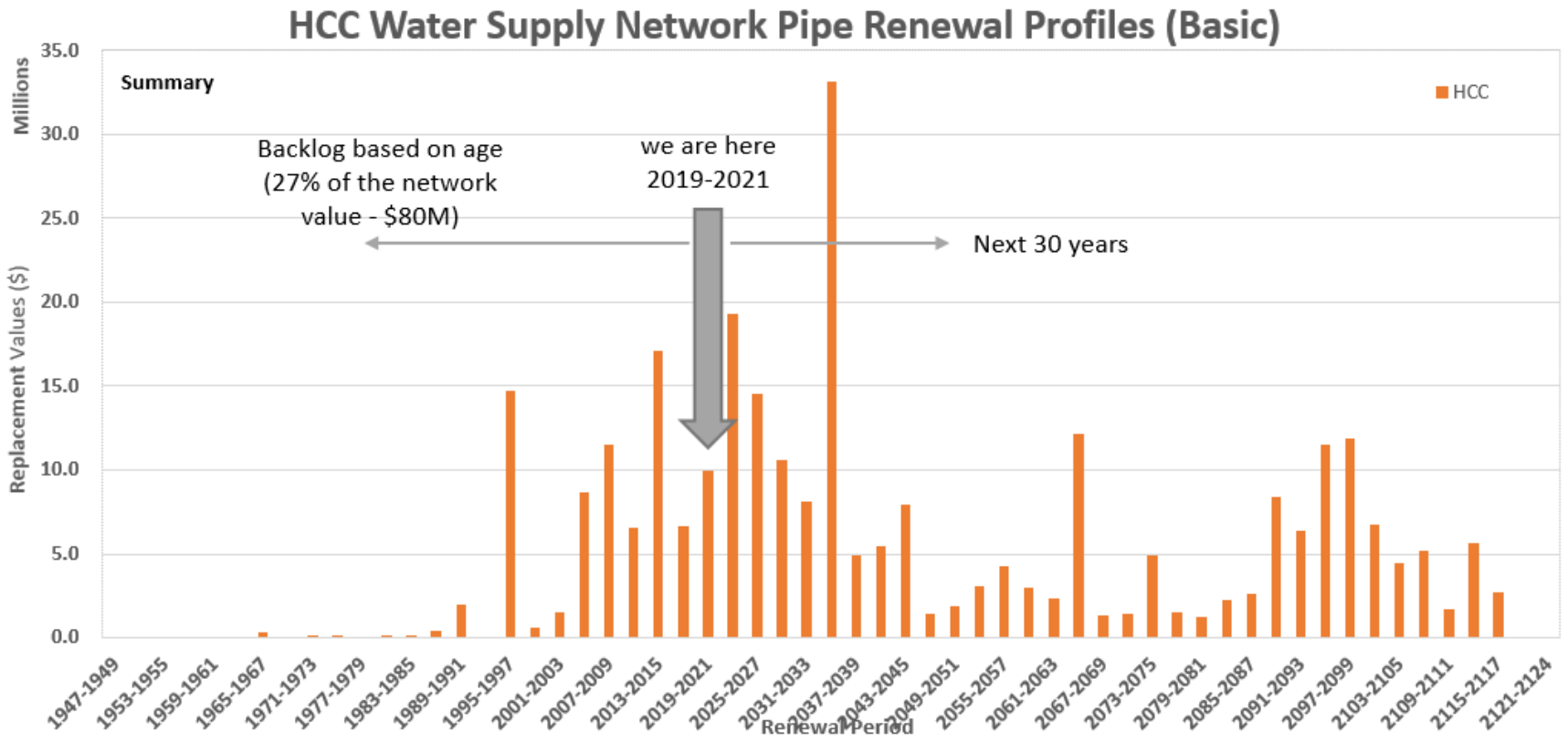
Looking After our Infrastructure - Challenge

This graph shows the pending 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):



Our water, our future.

Funding requirements – OPEX

Permanent 25% Increase in Opex Investment within 3 years

Activities	LTP Years	Result	Link to Strategy & Benefits
Maintenance and operations	1-10+	Reduced water demand, reduced service risks, move from reactive to planned to predictive, detection and proactive fixing of water leaks	Sustainable Water Supply, Looking After Existing Infrastructure, Te Mana o Te Wai
Private network inspections	1-3+	Reduced wastewater overflows, reduced public health risk	Healthy Urban Waters, Te Mana o Te Wai
Investigations, monitoring, planning	1-10+	Better long term value to HCC moving from reactive to planned to predictive, reduced service risks particularly on critical assets	Supports all key priorities

Note:

This 25% increase in Opex is based on making a 5-10% efficiency saving across all operational activities once our service delivery model is fully embedded within the next 3 years.

Funding Requirements – CAPEX Renewals

Wellington Water

$25M annual increase in Renewals within 10 years (over & above 2020/30 average of $10.5M pa)

Activities	Years	Result	Link to Strategy & Benefits
Water supply renewals	1-10+	Reduced water demand, reduced service risks, increase in network resilience	Sustainable Water Supply, Looking After our Existing Infrastructure, resilience, Te Mana o Te Wai
Wastewater renewals	1-10+	Reduced overflows into streams, rivers and harbour, increase in network resilience, reduced service risks	Growth (upsized assets), Healthy Urban Waters, Resilience, Te Mana o Te Wai

Note:

This $25M increase in Renewals is based on draft revised 2020/30 LTP investment budgets

Growth

Growth Opportunity

Planning for future growth will support our ability to:

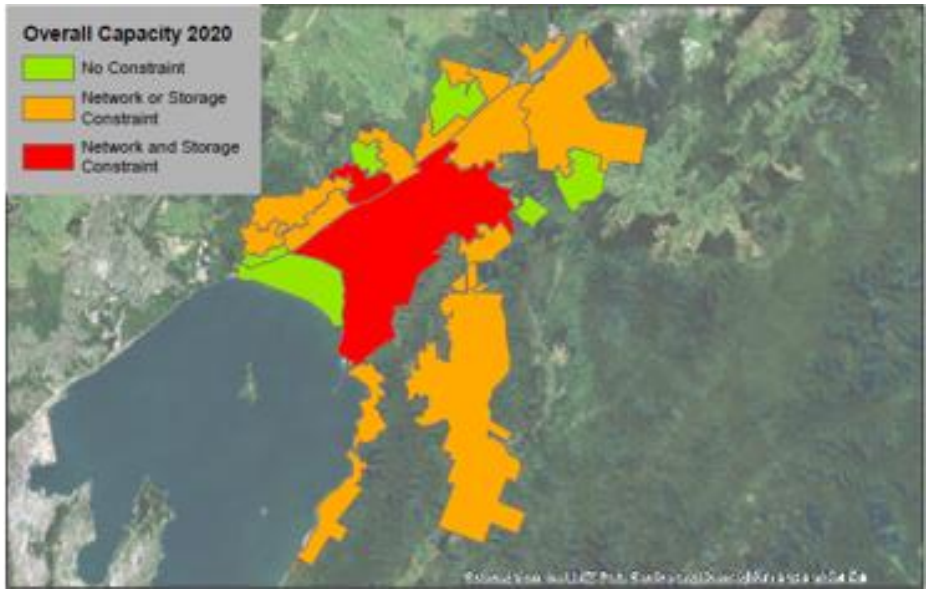
- Strategically plan to meet population growth set out in HCC growth strategies and District Plan
- Develop integrated plans for Three Waters networks to meet growth demands and address existing network constraints e.g. strategic upgrades that have multiple benefits to all our outcomes
- Enable us to identify, monitor, and understand network constraints on an annual basis e.g. rate of development and location of land use demands
- Have evidence based data to assess land use re-zoning and intensification e.g. constraints in the network, growth demand and flooding hazards

Growth Challenge

Wellington Water has assessed water supply capacity for HCC over various time periods based on growth predictions. This is a requirement under the National Policy Statement for Urban Development Capacity (NPS-UDC).

The adjacent map shows network constraints in 2020 based on high level modelling. Detailed models will be completed for all three waters within the next 2 years.

Much of these areas are already development enabled under the District Plan rules.



HCC Water Supply constraints 2020

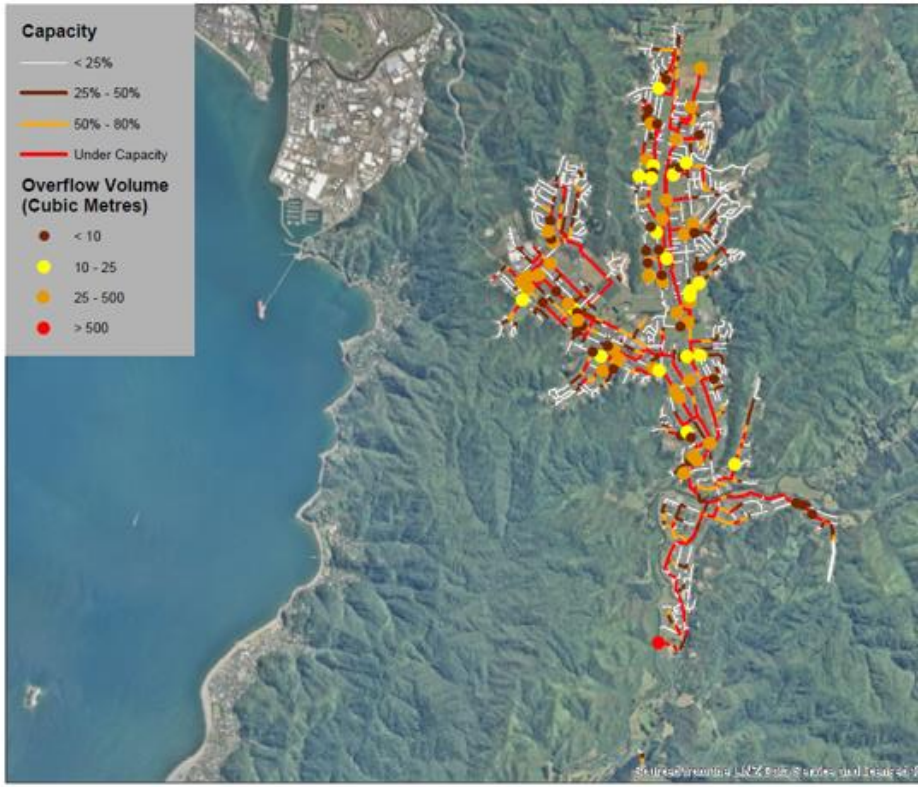
Growth Challenge (Cont'd)

Wellington Water has also assessed wastewater network capacity for HCC over various time periods based on growth predictions.

As an example, the adjacent map shows predicted network constraints in Wainuiomata for year 2047.

The red lines show parts of the piped network that are expected to be under capacity within 30 years. The coloured dots show the extent of predicted wastewater overflow volumes for year 2047.

Refer to 'Healthy Urban Waters' section for current performance example for Wainuiomata.



Wainuiomata wastewater constraints 2047

Increased investment for Growth – Total Costs Unknown

Activities	LTP Years	Result	Link to Strategy & Benefits
Integrated growth planning ($2.5M)	1-3	Infrastructure needs understood for Hutt central, valley floor & Wainuiomata, including wastewater trunk main	Growth, Healthy Urban Waters, Resilience, Flooding, Looking after our existing infrastructure, Te Mana o Te Wai
Build assets in a way that meet future forecast growth demand	3-10+	No deterioration in current levels of service as a result of growth.	

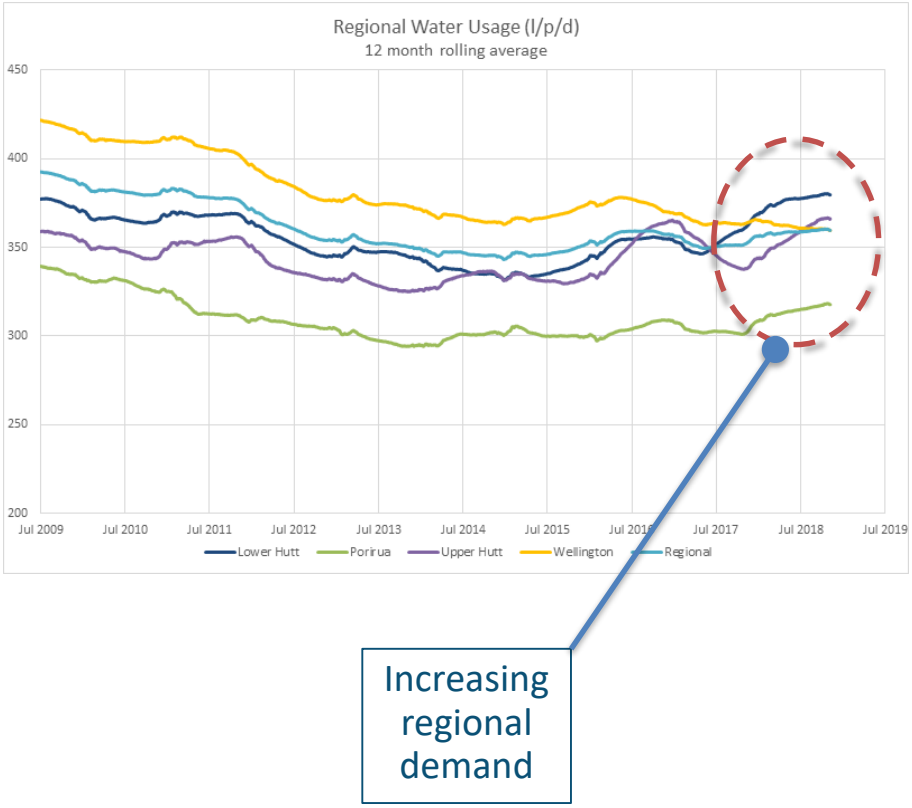
Note:
Growth investment needs are yet to be determined for HCC. Catchment plans and investigations need to be completed to fully understand Three Waters infrastructure investment.

Specific funding provisions for HCC Three Waters growth planning is required.

Sustainable Water Supply

Sustainable Water Supply Challenge

- Gross regional consumption is trending higher and is nearly 90% of system capacity
- Household consumption is high compared to other cities (NZ and internationally)
- At current growth rates this will become unsustainable within the next 5-10 years, resulting in more water shortages
- GWRC's long term plan currently has provision for another large storage lake estimated at $200-$300M +. The four city councils would fund this via the water levy
- During the past 4 years we have seen a dramatic increase in visible network leaks due to the ageing network
- Councils have indicated a preference for conservation over construction



Our water, our future.

Sustainable Water Supply Investment

There are several approaches that can be taken to influence water consumption. Following councils' direction to adopt a conservation approach to our water supply, we are increasing the number of network meters and pressure management devices in the network. The network meters will provide more guidance on how the network is operating and subject to funding, will enable targeted leakage detection and repairs.

However, we are unable to account for where all the water goes because there are no household meters. Kapiti Coast District Council reduced their consumption by 20% following the introduction of household meters. The majority of their private network leakage was occurring in only 2% of their rated properties.

Volumetric charging does not necessarily need to be introduced initially as the meters could be used purely to identify leaks and influence customers on their usage.

Would HCC consider the installation of household water meters within the next 3 years (subject to a business case) to reduce consumption?

*$10-$35M Increase for Sustainable Water Supply

Activities	LTP Years	Result	Link to Strategy & Benefits
Network meters programme *(Associated data analytics, a shared investment across all councils, is included in increasing company capability)*	1-3	Increased understanding of water demand to enable targeted leak detection and water use behaviour activities	Sustainable Water Supply, Te Mana o Te Wai
Pressure management programme	1-3	Reduced network pressure and leakage volumes	
Water Supply network smart controls and sensors	1-10+	Optimised network management	
Household water meters (*circa $25m for HCC)	5-7	Circa 20% reduction in water demand	
Increased operational leakage management and customer engagement (*activities included in increasing company capability)*	1-10+	Circa 10% reduction in water demand	

Healthy Urban Waters

A new focus on the health of our freshwater

***82%** of New Zealanders say that water pollution is their #1 concern*

* Colmar Brunton for Fish & Game NZ, December 2018. WWL customer surveys also highlight this as a priority

Leaks and overflows from ageing assets cause adverse environmental & public health outcomes

Urban growth contributes to a decline in water quality through increased run-off pollutants

Mana whenua exercising their rights as kaitiaki

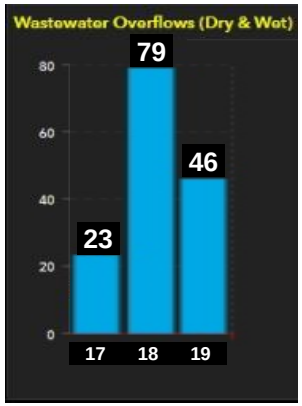
New National Policy Statement and related RMA changes, manifesting at local level through the Natural Resources Plan and associated Whaitua process

Healthy Urban Waters Challenge

- Addressing freshwater quality is one of the most complex issues that we will face over the next 30 years
- National policies require councils to improve water quality outcomes over the long term
- Our community expectations are rising with respect to water quality in the environment, i.e. Whaitua Committees
- Wellington Water, on behalf of HCC, is now responsible for all contaminants discharging from the stormwater network under our Global Stormwater Consent
- Deficient wastewater and stormwater networks and stormwater runoff contribute to high levels of contamination

Healthy Urban Waters (Cont'd)

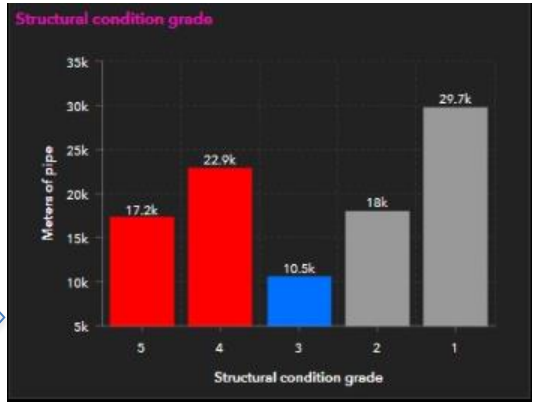
These screenshots illustrate the healthy urban waters challenge in Wainuiomata.



This data shows the number of recorded wastewater overflows in the Wainuiomata area over the past 3 years.

50% of overflow volume originates from private networks (infiltration and inflow of stormwater)

This data shows that around 40% of the wastewater pipes in Wainuiomata are grade 4 or 5 (poor or failing with structural cracking, leaking joints and other defects)



This data shows that recorded E.Coli levels in Black Stream and Wainuiomata Stream are generally in Band E (worst condition).

Porirua Whaitua has set future target in their catchments at ABC level (swimmable)

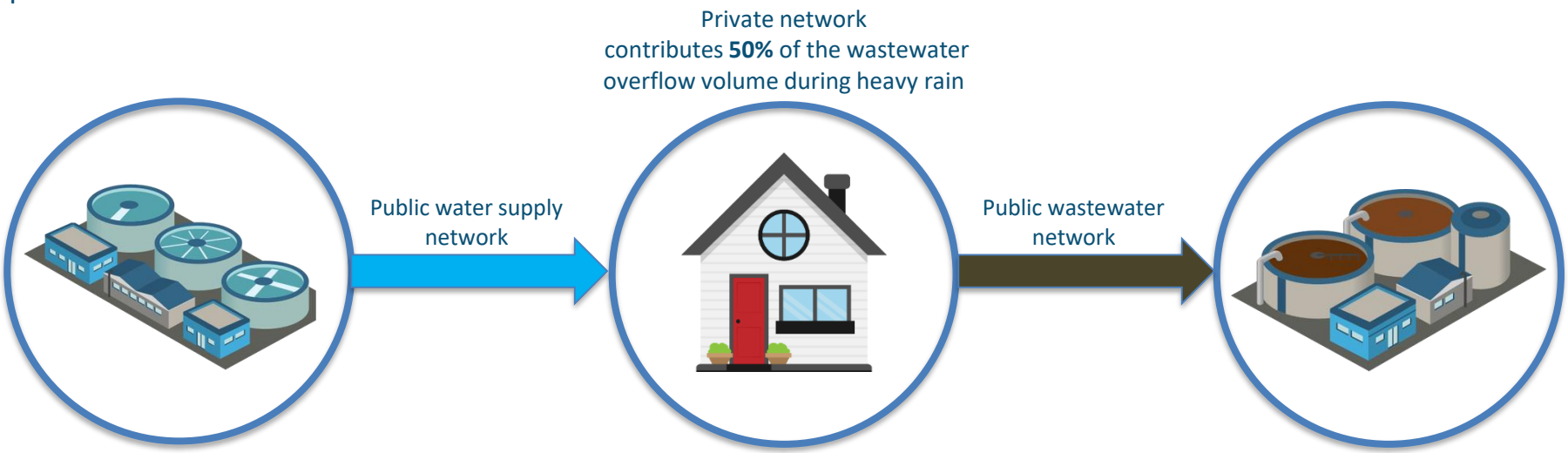
Our water, our future.

Healthy Urban Waters – Private Network Contribution

The illustration below shows a simplified perspective of the water supply and wastewater services entering and leaving a property. **50%** of the wastewater overflow volume that occurs during heavy rain originates from the private property portion of the network as a result of cross-connections and leaks ('inflow and infiltration').

Council could improve its policy to help property owners undertake repairs to reduce wastewater overflows over time. This requires a combination of customer education, bylaw and enforcement, funding strategy and a long term implementation plan (30 years) to ensure that the outcome is achieved.

The wastewater overflows in the network are addressed through investment in renewals, upgrades and targeted repairs.



Healthy Urban Waters Investment

$50 -$70M Increase for Healthy Urban Waters

Activities	LTP Years	Result	Link to Strategy & Benefits
Increase in Three Waters Opex	1-3+	Reduced overflows into streams, rivers and harbour, reduced service risks - Includes private network inspections *(Allowed for under 'looking after our existing infrastructure' – Opex & Capex Renewals)*	Healthy Urban Waters, Te Mana o Te Wai
Increase in wastewater renewals	1-10+		
Wastewater network smart controls and sensors (IIOT)	1-10+	Reduced overflows into streams, rivers and harbour, reduced service risks	
Wastewater network storage *(main contributor to cost)*	1-10	Reduced overflows into streams, rivers and harbour, reduced service risks	
Stormwater Quality Management	1-10+	Capture stormwater contaminants in wetlands, rain gardens and first flush diversions.	

Climate Change

(Adaptation and Carbon Reduction)

Adaptation (Flooding and Sea Level Rise Challenge)

- Many parts of the region will be affected by major flooding events over the next 50-100 years
- The lower lying areas of Hutt City are some of the most vulnerable communities to the predicted impacts of climate change in New Zealand
- Sea level rise and more intense storms will lead to land use adaptation challenges, high infrastructure costs and increasing insurance premiums for the community if not managed effectively
- The image is an extract from GWRC's natural hazard report showing vulnerability of HCC areas

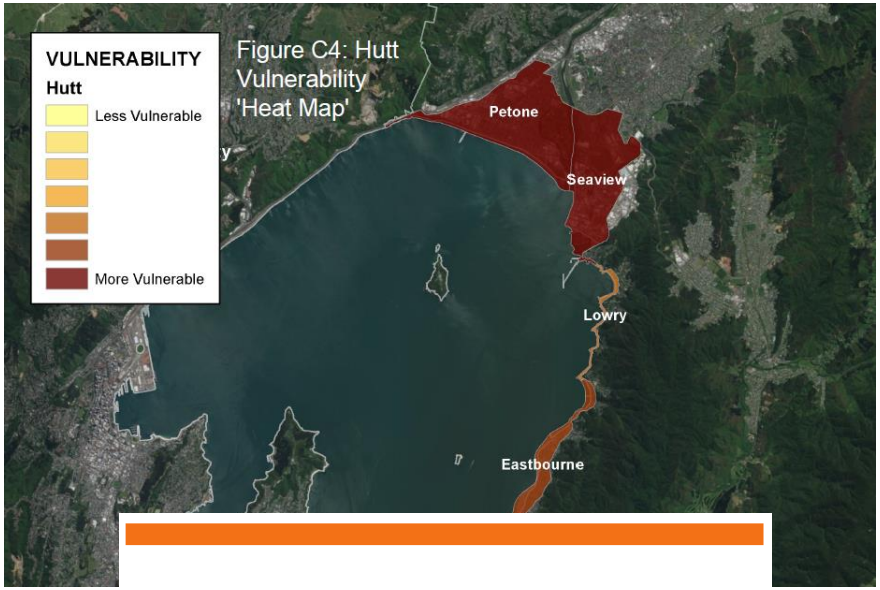


Figure C4: Hutt Vulnerability 'Heat Map'

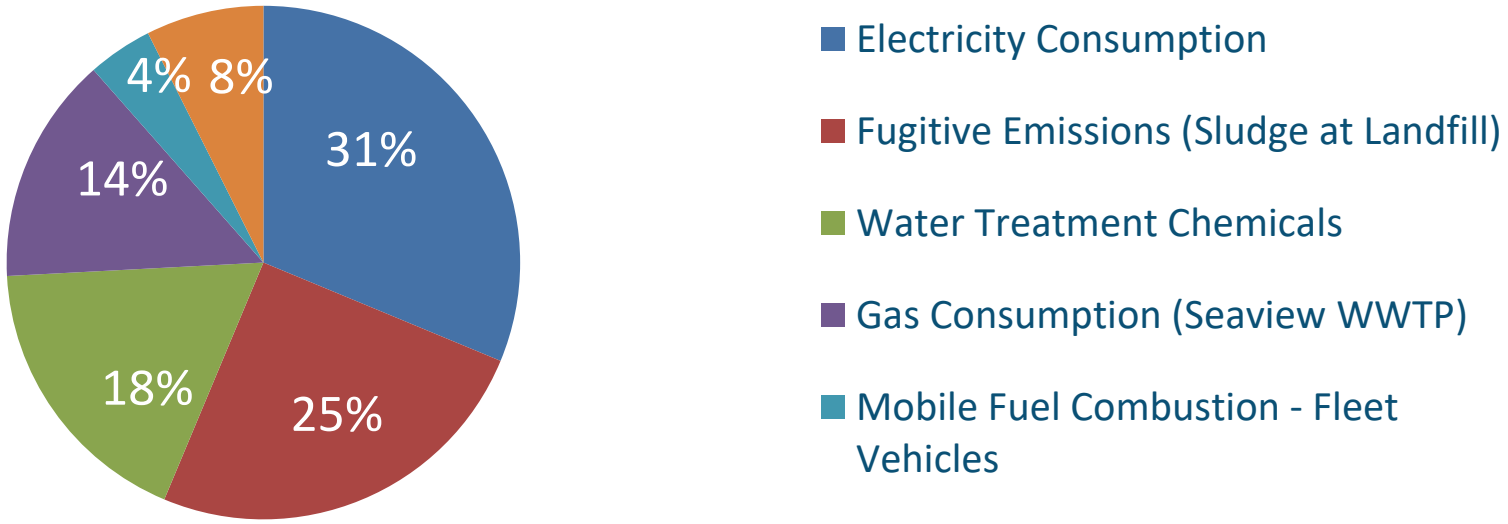
GREATER WELLINGTON

PREPARING COASTAL COMMUNITIES FOR CLIMATE CHANGE

Assessing coastal vulnerability to climate change, sea level rise and natural hazards

Climate Change (Carbon Reduction Challenge)

- Our regional Three Waters activities produce 17,500 tonnes of CO_2 equivalent (financial year 2018/19 data)
- 88% of omissions originate from 4 categories which includes sludge drying at the Seaview wastewater treatment plant



Excludes SWDC data

Climate Change (Carbon Reduction)

*$45M Increase for Carbon Reduction

Activities	LTP years	Result	Link to Strategy & Benefits
Sludge management (*main contributor to $45M)	5-10	Reduced operational carbon emissions from sludge treatment and disposal (including natural gas dryer at Seaview WWTP)	Carbon Reduction
Water treatment options	1-6	Operating carbon reductions *(Undertaken within Greater Wellington opex budget)*	
Electricity usage optimisation	1-6	Operational carbon emission reductions	
Capital carbon reduction processes for all infrastructure projects	1-10+	Reduced carbon emissions from infrastructure development (capex projects)	

Note:
Capital carbon approach to projects is expected to reduce cost of projects and long term operational costs within the next 10 years

Resilience

Resilience Challenge

We are vulnerable to earthquakes due to the proximity of the Wellington Fault line and the fragility of our regional infrastructure. We have made some good progress during the past 5 years with the Community Infrastructure Resilience (CIR) initiative that can provide up to 20 litres per person per day, one week after a major event.

However, progress in other areas requires further investment over multiple decades to improve community resilience.

Water Supply:

Household resilience (only 40% of households have sufficient water to meet the most basic requirement)

Better operational response plan (CIR in place for HCC)

Vulnerable network (long term investment in renewals and upgrades - bulk water and HCC plants and networks)

Wastewater:

Household resilience (less than half of households have a plan for managing wastewater)

Better operational response plan (partially developed but requires further investment to complete)

Vulnerable network (long term investment in renewals and upgrades - HCC plants and networks)

Wellington Water Capability and Capacity

Due to the scale of Three Waters challenges over the next 10-30 years, Wellington Water will need increased capability and capacity to respond to the changing environment. Some examples include:

- Increased focus on long term planning and investigations
- Water regulation response
- Technology and smart network skills
- Closing base asset data gaps
- Building sector capacity & capability

Company Investment

Wellington Water

$10% Increase in Company Capability & Capacity
HCC contribution - $750k per annum

Activities	LTP Years	Result	Link to Strategy & Benefits
Programme delivery of strategic priorities (strategy to action)	1-10+	Ability for company to deliver strategy to action on all significant priorities that have not, historically been a focus for the company (carbon reduction, healthy urban waters, sustainable water supply)	Supports all key priorities
Base data gap closure	1-6	Better long term value to HCC, evidence based investment, for example on growth demands	Supports all key priorities
*Water regulation preparedness	1-10	Strengthened capability, technology and systems	Safe and healthy water confidence

Note:
* Excludes possible contribution required to fund a national three waters regulator

LTP 2021/31 Engagement

Wellington Water will engage with you over the next 6 months to provide investment options in preparation for your 2021/31 LTP. As documented in this presentation, there are multiple challenges that require a sustainable 10-30 year plan, all of which need balancing with council's other priorities.

We anticipate providing three levels of investment as follows:

- **Option 1:** 3 years of increased planning focus and operations investment (25% opex increase) and a moderate increase in capex investment e.g. renewals
- **Option 2:** The scenario shared in this document
- **Option 3:** A scenario that includes Option 2 plus a 'broad brush' allowance for growth related infrastructure (currently unknown)

Indicative Investment Increases for HCC

Wellington Water

LTP years 0-10

Looking after existing Infrastructure: 25% increase in **O**pex - +**$30M** increase over 10 Years

Renewals: >300% increase by 2030 - +**$100M** increase over 10 Years

Increasing Company Capability & Capacity: +$750k per annum increase

Growth Planning: +**$2.5M**

Growth Construction - unknown

Sustainable Water Supply: +**$10M**

Sustainable Water Supply (included)

Sustainable Water Supply
(Household Water Meters): +**$25M**

Carbon Reduction (included)

Carbon Reduction (Sludge solution) - +**$45M**

Healthy Urban Waters - +**$50-$70M**

Opex **Capex**

Indicative Investment Increases for HCC

Wellington Water

LTP year 0-10

Opex Increase – Circa +$30M over 10 years

Capex Increase – Circa +$240M over 10 years

Opex | Capex