

Three waters report and outlook

For the quarter ending 30 June 2017



Our water, our future.



Front page picture

A dawn blessing was held for the harbour bores barge and drilling rig before it was towed to site in Wellington Harbour.

In the news

<http://www.stuff.co.nz/national/health/91957456/earthquake-damage-a-possible-source-of-ecoli-in-lower-hutt-water>

<http://www.stuff.co.nz/environment/92132386/whats-polluting-our-urban-harbours-and-streams>

<http://www.stuff.co.nz/national/health/92182391/expert-wants-details-of-ecoli-in-lower-hutts-aquifer-made-public>

<http://www.radionz.co.nz/news/national/330086/lower-hutt-water-likely-to-be-permanently-chlorinated>

<http://www.radionz.co.nz/news/national/330521/drilling-to-begin-to-access-wellingtons-undersea-freshwater>

<https://www.tvnz.co.nz/one-news/new-zealand/wellingtonians-could-soon-drinking-water-beneath-harbour>

<https://www.stuff.co.nz/dominion-post/news/94106831/government-6m-to-part-fund-emergency-water-supplies-in-the-wellington-region>

PN 4/2017

Our operating conditions

The after effects of the November 2016 earthquake have dropped away but are still having an impact on our business. Operationally we are still seeing a higher number of leaks in our networks, particularly in areas where our network is seismically vulnerable. We also continue to have higher levels of infiltration in certain parts of our wastewater network, particularly in the Wellington CBD. We are still investigating the sources but it is believed this is partly related to earthquake damaged pipes.

Our head office in Petone has some questions around its building strength and we are working on understanding what this may mean for us as a frontline infrastructure company in the future.

The construction labour market remains tight. Our contractors are telling us that finding and retaining key staff is tricky. The construction industry needs an additional 30,000 workers by 2019. One in five new jobs created between 2016 and 2019 would be in construction, according to Ministry of Business, Innovation and Employment forecasts. A labour crunch in construction was also highlighted by Statistics NZ which showed that almost 80 per cent of construction firms reported vacancies last year. Around 3,600 out of roughly 4,600 construction businesses represented in the survey had needed staff, and nearly 60 per cent said they had hard-to-fill vacancies. Trade-related skills, management or supervisory skills, and professional or technical skills were the hardest skills to find in job applicants.

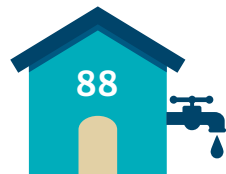
Wellingtonians could soon be drinking water from beneath the harbour



New connection applications

Four cities

Previous quarter



This quarter



Year to date: 169

This quarter, last year: 100

Year to date, last year: 211

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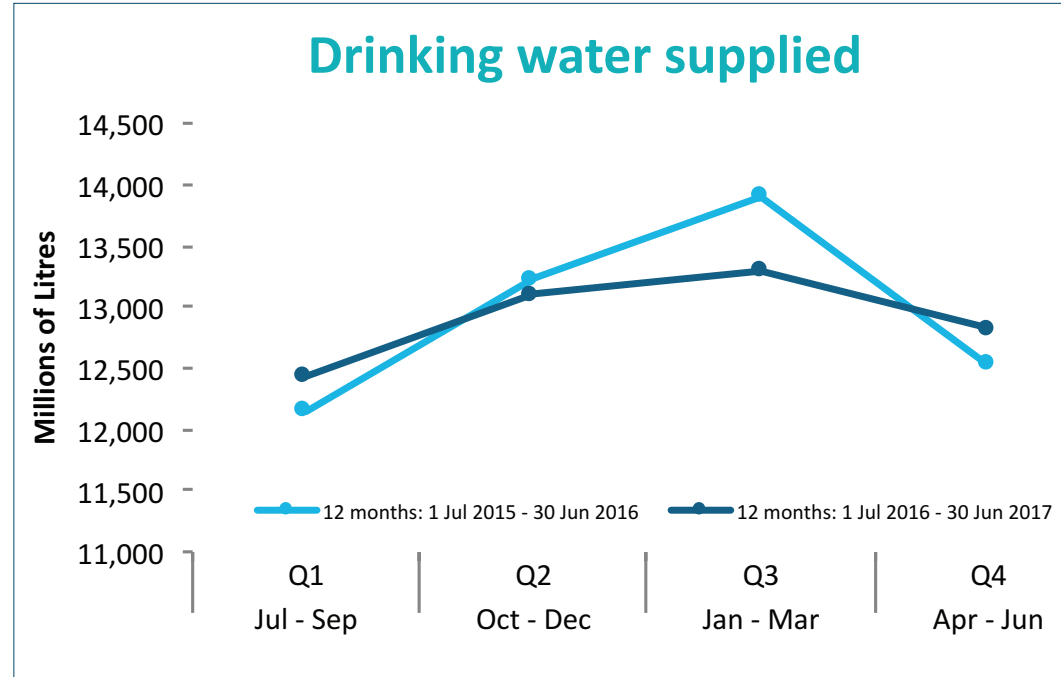
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Treatment installed for Lower Hutt water supply

Our investigations into the possible causes and consequences of the recent detection of bacteria in aquifer water concluded in July, without identifying a specific source of the bacteria. This means we have to act on the assumption the same thing could happen again, and as a result, we continued to chlorinate the water supply to the Hutt Valley. We are also fast-tracking a project to install ultraviolet treatment at the Waterloo Treatment plant, in time for summer.

Investigations into possible sources of contamination in the wider aquifer are continuing, led by a team from the Greater Wellington Regional Council.

We delivered **12,825 million litres** of safe drinking water to 144,000 connections during this quarter. In the same quarter last year (April – June 2016), we delivered 12,537 million litres.



		YTD	Q1	Q2	Q3	Q4
Safe and Healthy Water	We provide safe and healthy drinking water	Stay the same				
	We operate and manage assets that are safe for our suppliers, people and customers	Stay the same				
	We provide an appropriate region-wide fire-fighting water supply to maintain public safety	Stay the same				
	We minimise public health risks associated with wastewater and stormwater	Stay the same				

Water supply issues:

Temporary removal of Waiwhetu Aquifer bores from service

We temporarily removed four of the eight Waiwhetu Aquifer bores from service due to increased levels of bacterial activity at these particular bores. The current level of water demand is able to be met by the remaining four bores, and the Gear Island Water Treatment Plant has returned to service following damage from the earthquake and thorough checks for bacterial contamination. Once demand begins to pick up in spring and summer we will need to reinstate the other bores in order to meet the expected summer demand for water.

With this in mind, we've begun work to install an interim UV unit at Waterloo Water Treatment Plant. This is expected to be installed and operational by September. The installation of this unit and the continued chlorination will give us confidence that the bacterial and protozoa risk is removed. This first interim UV unit has enough capacity to cover the winter demand for water; we're looking at adding an additional two UV units so that we can cover the expected summer demand.

Macaskill Lakes – filter replacement project under way

We have replaced and commissioned the first of the six filters at the Te Marua Water Treatment Plant with a new material that will reduce the risk of taste and odour problems, as well as reducing the risk of toxins from algae. We are expecting this work to be completed by November 2017.

Return to service of the Gear Island Water Treatment Plant

The Gear Island Water Treatment Plant has returned to service following damage from the earthquake and thorough checks for bacterial contamination.

Buick Street public aquifer taps reopened to public

The Buick Street public taps were reopened to the public on 26 June. The fountain was closed in mid-April due to the bacterial activity in the aquifer.

We installed a small UV unit that treats the source water before it comes out of the tap. At the flow-rate of water from the public taps, the UV unit provides effective barriers against contaminants such as giardia, cryptosporidium, campylobacter and E.coli, and complies with the Drinking Water Standards of New Zealand. UV treatment is a non-chemical treatment option that doesn't affect the taste of the water.

The public taps at Dowse Square on Laings Road were re-opened in early August.



Lower Hutt's mayor Ray Wallace looks on as Wainuiomata resident Irving Caldwell fills bottles from the Buick Street public taps.

Outcome
2

Outcome 2 – Respectful of the environment

Setting limits and objectives for fresh water

As an entity which discharges contaminants through our stormwater and wastewater network into freshwater bodies and also as the supplier of the region’s bulk water, Wellington Water will be required to meet objectives and limits set by the Greater Wellington Regional Council through its Natural Resources Plan.

A freshwater objective describes intended environmental outcome(s) - for example, to either improve or maintain the current state of a freshwater body (stream or river).

A limit is the maximum amount of resource use available that allows a freshwater objective to be met. For water quality, a limit is the total allowable amount of contaminants at one point within a catchment. For water quantity, a limit is the allowable take of water within a water body (including groundwater).

Whaitua committees

Whaitua committees are Greater Wellington’s Regional Council’s response to the requirement for regional councils to collaborate with the wider community and iwi to set objectives and limits for freshwater quality and quantity.

A whaitua is an area or catchment. A whaitua committee is a group of representatives from Iwi, territorial authorities and community representatives who develop policy for a whole-of-catchment approach to improving water quality.

Te Awarua o Porirua Whaitua Committee was established in December 2014, and is working to produce a Whaitua Implementation Programme (WIP) which will be presented to Greater Wellington Regional Council in 2017.

If you would like to get more involved in the whaitua process, or get along to a Te Awarua o Porirua Whaitua Committee please don’t hesitate to contact Kara Dentice - Senior Advisor Whaitua Relationships.

Consent compliance 1 April – 30 June 2017 (snapshot covering these activities)		
Nature of work	Target	Status
Extracting water	Full compliance	✓
Discharging water	Full compliance	✓
Wastewater – dry weather overflows	Full compliance	✓
Wastewater – wet weather overflows	Full compliance	✓
Stormwater discharges	Full compliance	✓
How we carry out our work	Full compliance	✓

on track
 some cause for concern
 not complying

		YTD	Q1	Q2	Q3	Q4	
Respectful of the environment	We manage the use of resources in a sustainable way	Improve	🟡	🟢	🟡	🔴	🟡
	We will enhance the health of our waterways and the ocean	Improve	🟡	🟡	🟡	🔴	🟡
	We influence people’s behaviour so they are respectful of the environment	Improve	🟡	🟡	🟡	🟡	🟡
	We ensure the impact of water services is for the good of the natural and built environment*	Improve	🟢	🟢	🟢	🟢	🟢

Outcome
2

Outcome 2 – Respectful of the environment

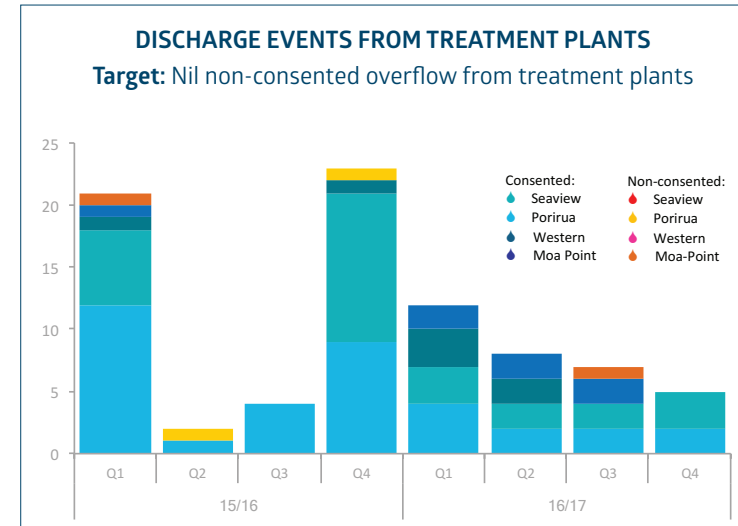
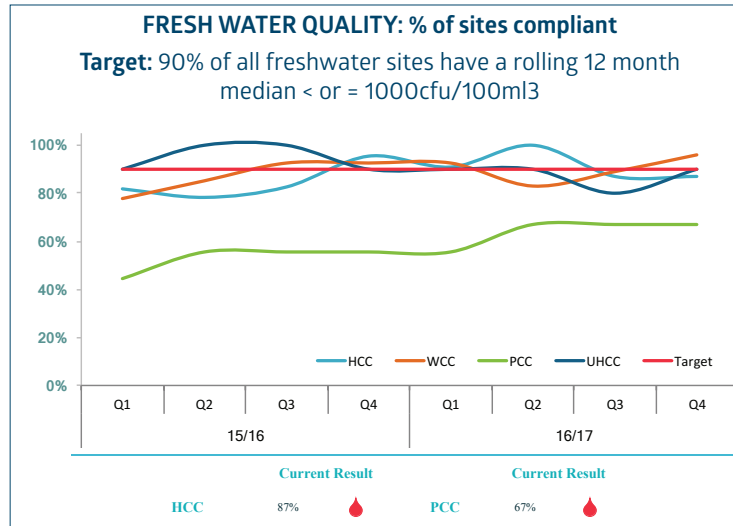
Overflows and blockages remain a challenge

We managed around 611 incidents this quarter (up from 433 in the same quarter last year) covering blockages, overflows, leaks and faults.

No enforcement orders, infringement notices, abatement notices or formal warnings were received. This is largely as a result of proactive communication and reporting to Greater Wellington Regional Council rather than an improvement in the frequency and quality of discharges to the receiving environment. We continue to work closely with GWRC to address known issues in our infrastructure systems and we are seeing good progress.

We see community education as an important part of improving network performance as well. This is because behaviour such as flushing wipes and pouring fat down the sink causes blockages that have environmental consequences.

The fat monster that lives in your pipes has been developed to remind people not to pour fats down the sink and to dispose of them in the rubbish instead.



Ministers in hunt for community water supply

In June, Local Government Minister Anne Tolley and Civil Defence Minister Nathan Guy announced the Government's \$6 million co-funding of a programme to establish emergency water supplies throughout the region.

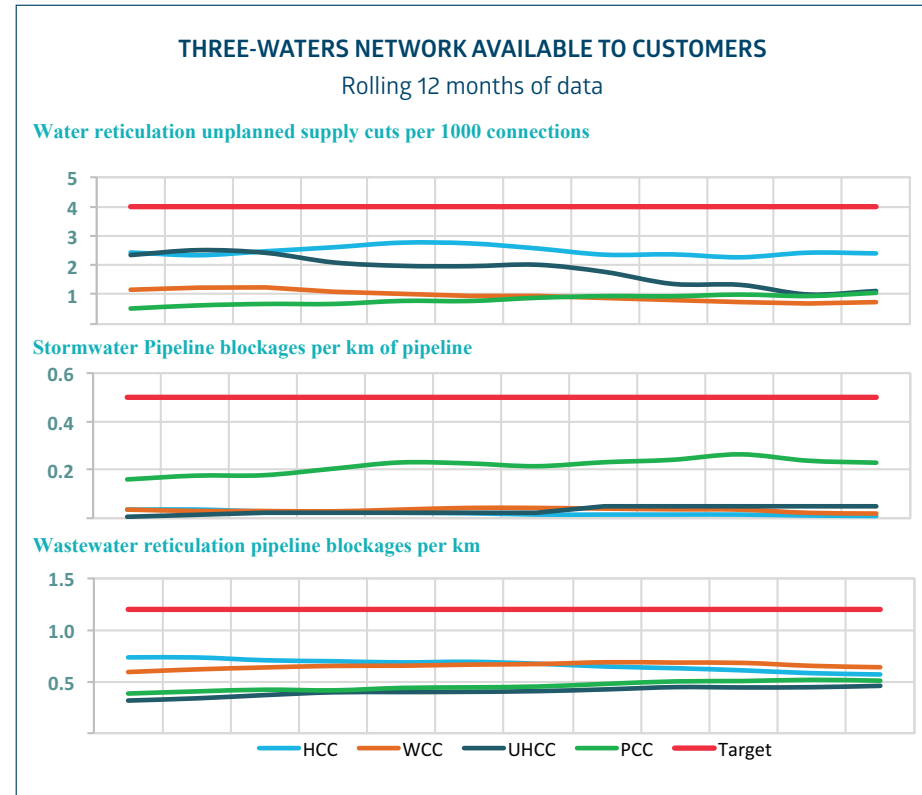
The funding will help establish 22 new community water stations throughout the four cities. These new community water stations will consist of either a local bore or stream-fed emergency water. More than 300 water bladders will also be purchased for storage and supply and at water stations that can be set up within communities as needed.

Bores have been drilled at Newtown, Kenepuru Hospital, Johnsonville and Nairnville Park in Wellington, and Postgate Park in Porirua. All told, it's planned that there will be 11 bores, and 11 streams tapped for emergency water supply.

The sites that have sufficient water will be further tested for quantity and quality of the water before the bores are fully developed.



Ministers Anne Tolley and Nathan Guy inspect a 200L emergency water storage tank at the Truscott Avenue, Johnsonville site where an emergency well was being drilled.



Resilient networks support our economy

Looking for drinking water under the harbour floor

All four city councils and the Greater Wellington Regional Council are investing significantly in enhancing water supply resilience in urban Wellington, so the region can get back on its feet as quickly as possible after a major event such as an earthquake.

A range of projects is under way that will reduce the amount of time it takes to restore bulk water supply from as much as 100 days to 30 days, in all parts of the region.

To help with this, as well as major bulk water projects prioritised for the next five to 10 years to build storage capacity, we need to find an alternative emergency water supply for Wellington.

Exploratory drilling is now under way beneath the harbour floor to see if we can access a new water supply from the Waiwhetū Aquifer. The Waiwhetū Aquifer is believed to extend from Lower Hutt to as far as the harbour entrance, and if successful, these harbour bores could provide up to 30 million litres of water a day, or around 20 per cent of the city's needs.

Weather permitting, the exploratory bores are due to be completed in August 2017, after which we'll carry out tests of water quality, quantity and flow.

This exploratory bore project also provides an important opportunity for NIWA and GNS Science to gather data about the seafloor and aquifer so we can better understand this water source and environment.



The barge and drilling rig on the move in Wellington Harbour

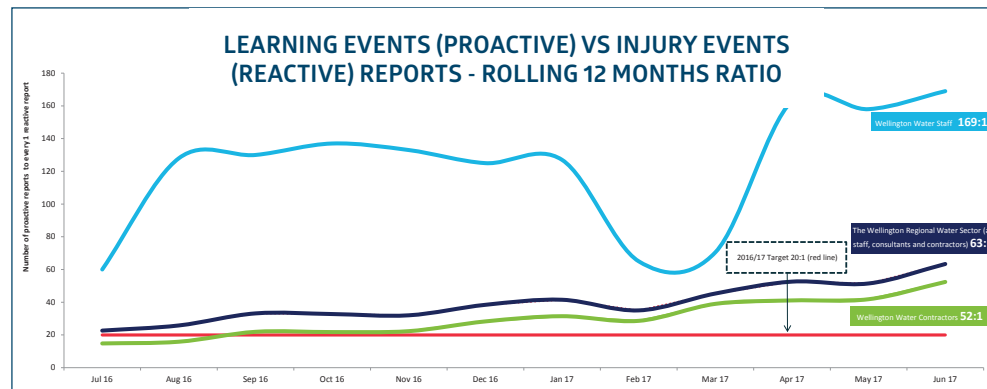
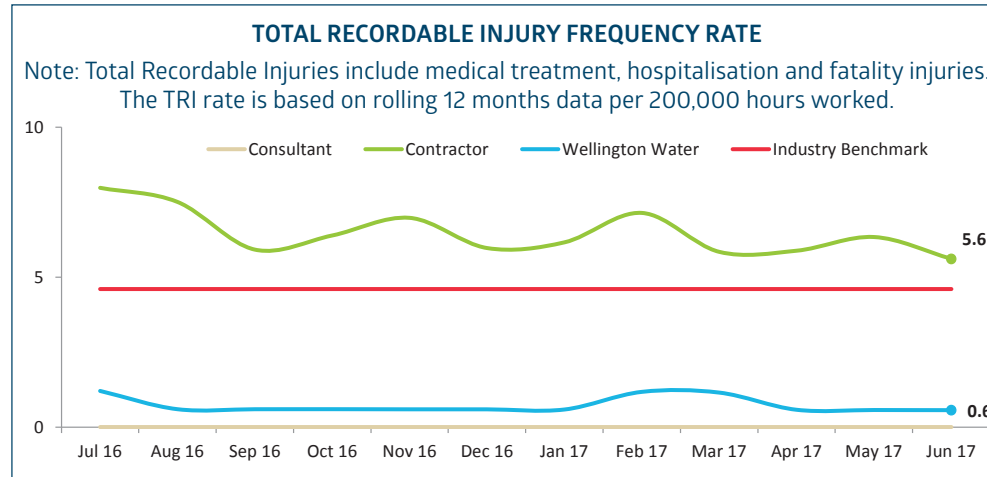
			YTD	Q1	Q2	Q3	Q4	
Resilient networks support our economy*		We minimise the impact of flooding on people's lives and proactively plan for the impacts of climate change	Improve	🔴	🔴	🔴	🔴	🔴
		We provide three water networks that are resilient to shocks and stresses	Improve	🔴	🔴	🔴	🔴	🔴
		We plan to meet future growth and manage demand*	Improve	🟡	🟡	🟡	🟡	🟡
		We provide reliable services to customers	Stay the same	🟢	🟢	🟢	🟢	🟢

Focus on safety for new crew

This quarter we welcomed the transfer of the Porirua Works Unit (PCC) into Wellington Water. Health and safety has been a key focus of their inductions to ensure that we are aligned from a procedural and cultural view. We have held a number of safety seminars, training exercises and tool box chats to help us learn from one another. Overall we are very pleased with the health and safety skills, experience and attitude that the PCC works unit brings to Wellington Water.

Wellington Water and our supply chain remains committed to the ConstructSafe certification that aims to demonstrate a high competence level around work site risk awareness and safety behaviors. Our intention is that by December 2017, access to all work sites will only be granted upon certification being presented. We've committed that all staff who regularly visit sites will be certified, as well as our supply chain (contractors and consultants).

Our Health and Safety vision refresh with our staff and supply chain continues to progress with measures being agreed for each objectives area, specifically Wellness, Improving Performance, Critical Risk and Capability.



Finally, our Wellness Strategy has now been launched that focuses on social, mental and physical wellness. This quarter will focus on men's health, cultural based lunches and mental health (specifically around personal resilience).

Event reporting increases

It's encouraging that our employee, contractors and consultants' safety reporting is increasing again and that there is an overall downward trend in the number of injuries being reported.

The trend in the proactive versus reactive ratio graph is rising as we keep advancing a safety culture that openly "speaks up". Not only are negative events being reported, but many safety success stories or observations are being reported as well. In order to sustain this good momentum, we have established new goals and measures for improving our performance, critical risks, capability, and wellness for the 2017/18 financial year.

In regards to specific incidents, we had one employee requiring medical treatment this quarter for twisting their ankle while they were parking their motorcycle. It was not a serious incident, and they were able to flexibly work from home while recovering.

In addition, we had two near-miss incidents that we deemed were significant. One involved a pillar dropping unexpectedly into a small pit during underpinning work of an old house; and the other involved a loader tipping over on a steep road. We have worked closely with the people involved to understand the cause, and improvement recommendations will be discussed with our supply chain.

Standardising vehicle fleet saves \$120,000

When Wellington Water was formed, we inherited two different vehicle fleet set-ups. One fleet was owned and other had lease agreements. Some of the vehicles in the owned fleet were very old. The vehicles in both fleets were different in model, age and condition and there were issues with servicing and maintenance requirements.

Using the All-of-Government contract, we negotiated savings of approximately \$80,000 on the purchase of six new 4WD utes. The money we saved was redirected to the purchase of four new vehicles which previously had no funding.

We also renegotiated the lease renewal agreement. This resulted in savings of approximately \$40,000 per year.

The standardisation of our vehicle fleet not only saved money, but also means that the vehicle fleet is easier to manage and maintain and the vehicles are fit for purpose.



One of the new utes that contributed to fleet cost savings of \$120,000

Demonstrating value for money

Our priority is to deliver value through smart investment; delivering the right project at the right time means we will deliver the greatest value to our clients.

Included in ongoing work to ensure we're investing where, when and how it counts is:

- work on the Regional Service plan, which is the plan to guide investment in network performance over the next 30 years
- building water and wastewater resilience, which means networks that are more resistant to shocks, and communities that can get back to work more quickly in the event of a major earthquake
- catchment-based approaches to improve fresh and coastal water quality over time
- community education, to help inform everyone of the actions they can take that will reduce network operating and investment costs
- regionalising policies and regulations, to reduce the cost and complexity of doing business when it comes to the three waters

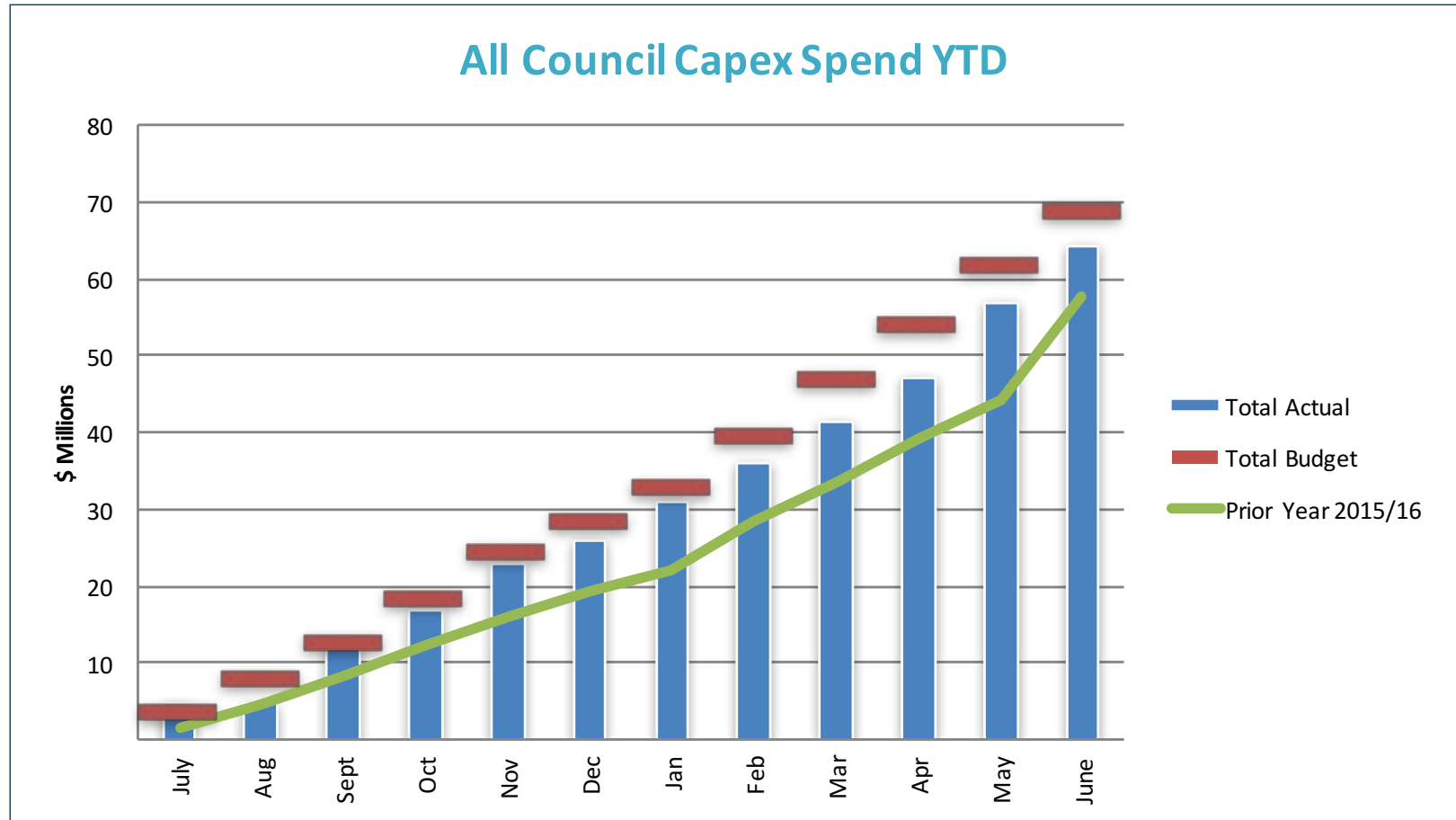
We also know that value comes from innovation in the way we do things. We created a value for money framework that allows Wellington Water staff, consultants and contractors to register good ideas which we collectively instigate and then implement if appropriate. From a sample of these, an independent reviewer concluded that they demonstrated progress towards our desired culture of eliminating waste, continuous improvement and innovation, and that the structure of our value for money financial model was sound in terms of the accuracy of its calculations.

Fifteen initiatives introduced over the past year were found to have provided \$569,000 in net gains in the 2016-17 financial year and \$270,000 in ongoing net gains, or \$839,000 total whole of life gains.

The last quarter of the financial year is always a busy time for our capital works programme as we look to complete work scheduled for the current financial year and begin procuring work for the upcoming year. Procuring work early benefits us, our suppliers, and ultimately delivers value for our customers, and fits in with our aim to move to a rolling three-year works programme.

In addition to our traditional programme outcomes, our 2017/18 programme has some additional outcomes to focus on: water quality and community infrastructure resilience. We have been busy planning these upcoming work streams, through our forward design programme and fast-track development programme.

We had 290 planned projects in our capital expenditure programme this year, worth an estimated \$69 million. The 2016/17 programme was targeted at pipeline renewals and upgrades (\$38 million), structural strengthening and other pump station upgrades and renewals works (\$11 million) and bulk water work (\$5 million). We managed to get through 90% of our programme this year, which was well up on last year, and believe it or not experienced fewer wet weather delays than usual.



Community input guides decision on treatment plant bypass options

Over the last few months, we've been consulting with Lower Hutt residents, iwi and other stakeholders over the re-consenting of the Seaview Wastewater Treatment Plant bypass.

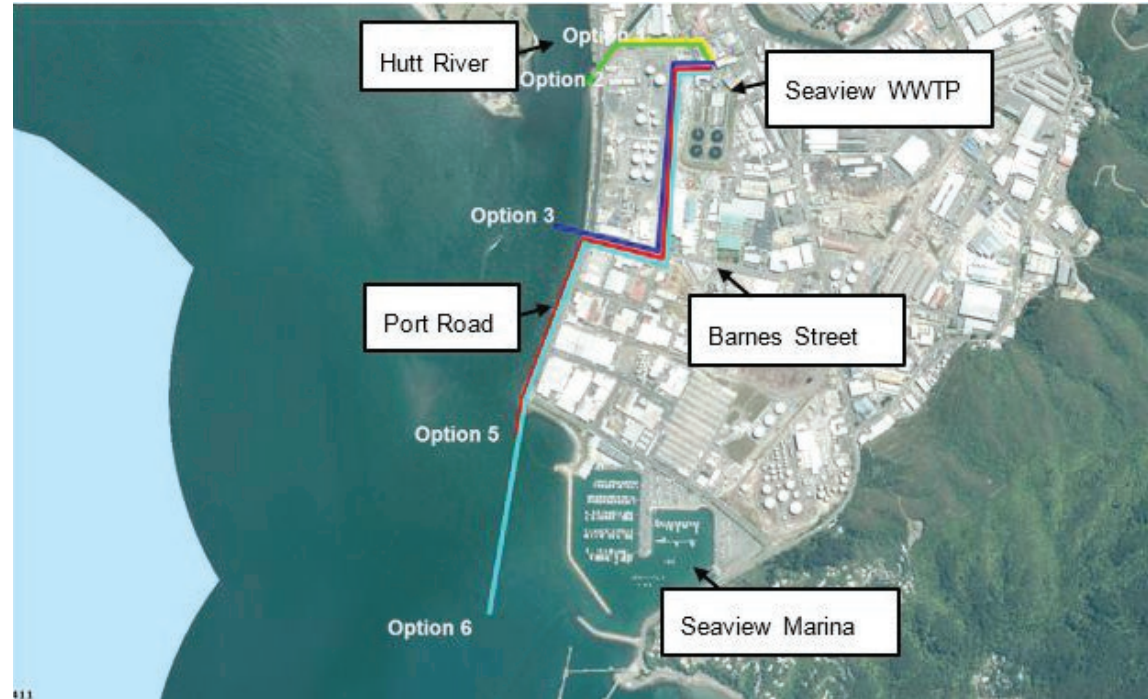
Under normal conditions, the treated wastewater from the Hutt Valley is pumped 18km from Seaview to discharge into the Cook Strait at Bluff Point. During wet weather when the capacity of the main outfall pipeline is exceeded, some treated wastewater is bypassed to the Waiwhetu Stream. This happens about five times a year during storm events. This bypass is also used when maintenance work on the pipeline is needed, such as when a rubber pipe ring needed repair in April this year.

As part of the re-consenting process, a number of potential options for where this treated wastewater is discharged have been explored. The options ranged from "status quo" (discharging through existing pipeline into the Waiwhetu Stream) to building a new discharge pipeline 600 metres off-shore from the Hutt River mouth.

This has been a tricky subject to communicate and get consensus on. The short-listed potential options are all very expensive and many are well beyond the current funding in Hutt City Council's Long Term Plan.

To give us guidance on what the community thought of the short-listed options, we engaged with the consultation group that was set up from the last consent and local iwi. As well, feedback from the community was received through Hutt City Council's Annual Plan consultation in addition to a phone survey of 300 residents. This ensured that a cross-section of customer views were obtained. While the first choice responses from the community ranged across several options, their feedback gave us a good steer on which options were the least preferred.

Our recommendation for the new bypass resource consent is for the "best practicable option". This involves reducing the wet weather overflows through building more storage at the wastewater treatment plant as well as extending the current outfall pipe so that it is moved out of the Waiwhetu Stream and just past the confluence with the Hutt River.



A representation of the different bypass options.

On the national stage

The Havelock North Inquiry Stage 1 report found significant collaboration failings between the Regional Council, District Council and the Drinking Water Assessors. Stage 2 of the Inquiry is looking at the possibility of formalising 'joint working groups' to increase collaboration. As the Inquiry moves to stage two (due to report in December 2017) we expect to see increased likelihood of mandatory treatment, changes in capability expectations for water staff and changes to regulations perhaps relating to drinking water standards and the role of Drinking Water Assessors.

Stage 2 of the Inquiry also asks specific nationwide structural questions including - should there be a dedicated drinking water supply entity or entities and what can be learned from existing water models like Watercare. The Water New Zealand Inquiry submission commented on the fragmented and small size of water departments across the country noting that it leads to a lack of consistent approach between local authorities.

Off the back of the Havelock North Inquiry we have seen more interest in the water sector from central Government. We have seen the launch of the Government's three waters review to determine whether the current regime is 'fit for purpose' and develop long-term improvements to the three waters system. The review is being led by the Minister for Local Government and will be completed mid next year. It will provide an opportunity to develop a solid evidence base on the type of challenges and opportunities in the sector, the development of options for change, and a basis for more ambitious reforms.

The review responds to concerns about the performance and vulnerabilities of the current system and a lack of central government oversight. It's seeking increased collaboration between central and local government and will focus on financial incentives, asset management practices and compliance and monitoring. We are on an informal reference group being coordinated by Water New Zealand to provide input to the review being led by the Department of Internal Affairs.

We are also keeping across the Local Government Act Amendment Bill # 2 as it moves through the House and the Local Government New Zealand Water Project 2050.

Looking for water heroes

Getting people to think about how they'd cope without a working water and wastewater network after a major earthquake was the aim of our recent resilience campaign. Research has showed that most people don't have enough emergency water stored to last more than a day or so. Our aim is to get people to store enough water for their family or flatmates for seven days as well as having a plan for what to do with their wastewater.

Working closely with WREMO, we used humour to get people thinking about the need to be prepared (without scaring them off), and then directed them to how to get prepared once we had their attention.

Our imagery was all about being a "hero". For most households and businesses, there's usually one person who takes it upon themselves to sort things out. These people were the heroes of our campaign – they're the ones looking after their family, flatmates or colleagues. We're empowering these individuals to take action.

