Crown Infrastructure Partners

Hanga Ngātahi • Building Together

Te Tari Taiwhenua Internal Affairs

QUARTERLY 3 WATERS INFRASTRUCTURE FUNDING UPDATE

Q4: to 31 DECEMBER 2022

CONTENTS

Cover: Hamilton City Council - Upsize of stormwater reticulation at Te Wetini Drive, Avalon, Hamilton

Central Otago District Council - Clyde Falling main water pipe replacements

3 WATERS INFRASTRUCTURE INVESTMENT OVERVIEW

THE 3 WATERS STIMULUS INVESTMENT IS AN INITIATIVE BY THE GOVERNMENT TO STIMULATE RECOVERY AND HELP REFORM UNDER PRESSURE WATER SERVICES TO A MORE SUSTAINABLE FOOTING.

The Government has funded $523.1 million to 67* local authorities to invest in the improvement of drinking water, wastewater treatment network renewals, and storm water networks. A number of local authorities have contributed additional funding totalling $159.1 million. The Government's funding priorities are for investment into drinking water and wastewater infrastructure first, and then storm water.

Each local authority selected the 3 Waters infrastructure investment most needed in their areas and managed the delivery of the programme.

Nationally 40% was spent on water supply, 35% on wastewater, 5% on stormwater and 20% on projects common to all three such as management systems.

The programme was made up of 470 programmes of similar work from the Far North to the Deep South and east as far as the Chatham Islands.

The Department of Internal Affairs (DIA) appointed Crown Infrastructure Partners (CIP) to monitor the delivery of the infrastructure investment, identify any opportunities for economies of scale, monitor potential regional or national shortages and assist where issues arise. CIP provided quarterly reports to DIA and recommended funding claims by local authorities to DIA.

TOTAL COMBINED SPEND BY INFRASTRUCTURE TYPE

NATIONAL MAJOR INFRASTRUCTURE COMPLETED

291km
DRINKING WATER PIPE UPGRADES

160km
WASTE WATER PIPE UPGRADES

101
DRINKING WATER TREATMENT PLANT (WTP) UPGRADES

128
WASTE WATER TREATMENT PLANT (WWTP) UPGRADES

OVERALL FUNDING 3 WATER INFRASTRUCTURE

GOVERNMENT FUNDING
$523m

CO-FUNDING
$159m

TOTAL FUNDING
$682m

* Auckland City was not included in the programme, Greater Wellington Regional Council was included.

AT PROGRAMME COMPLETION

MAJOR INFRASTRUCTURE TYPES

291km
drinking water pipes
113% of projected 261km

160km
wastewater pipes
106% of projected 150km

101
WTP upgrades
90% of projected
112 upgrades

128
WWTP upgrades
112% of projected
114 upgrades

431
wastewater pump stations
187% of projected 230

FUNDING

$523.1m
Government spend
100% of projected

$159.1m*
Co-funded spend
156% of projected $101.8m

$682.2m
Total spend
109% of projected $624.9m

WORKERS (Full Time Equivalent)

AT COMPLETION:
1,925

PROJECTED:
1,925

PROGRESS ACHEIVED OF PROJECTED: 100%

ASSET TOTAL FUNDED

$301.4m
Drinking water

$242.1m
Waste water

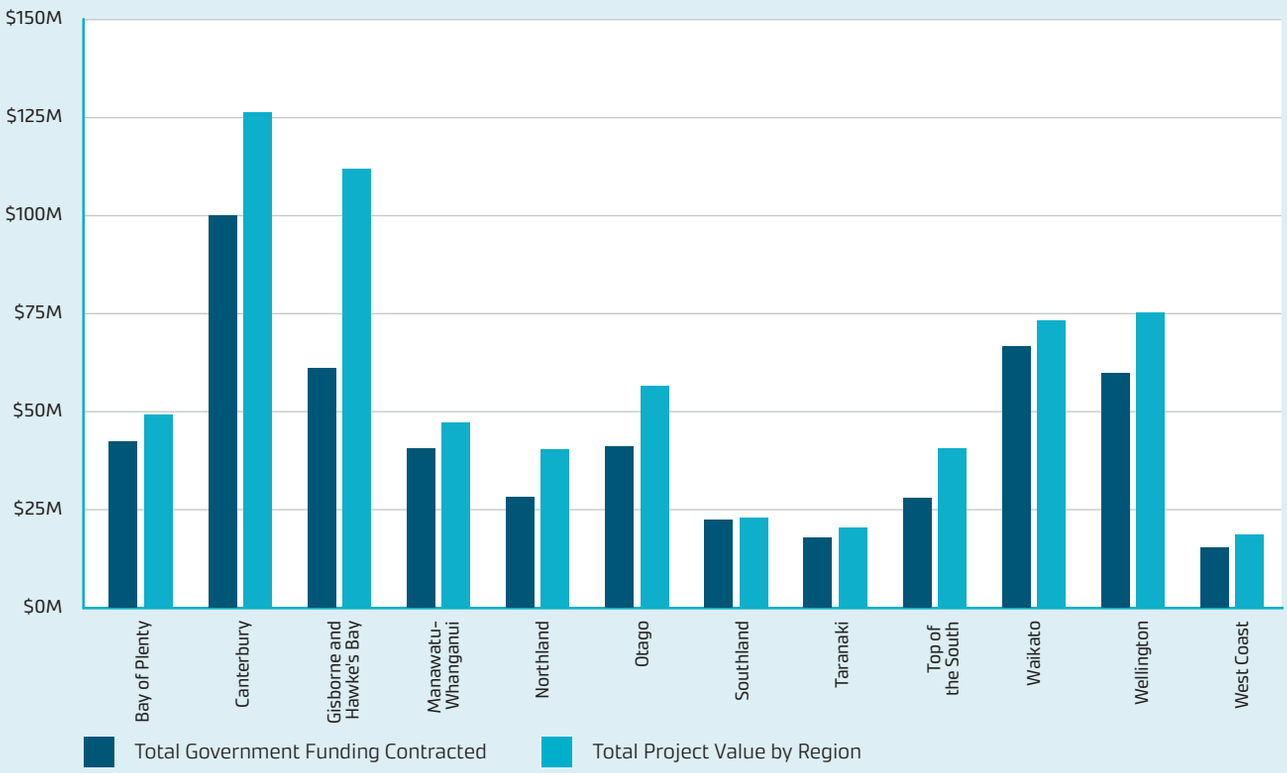
$27.1m
Stormwater

$111.6m
Tech and Design Work

* Performance to projected was what was projected in the first quarter of the programme.

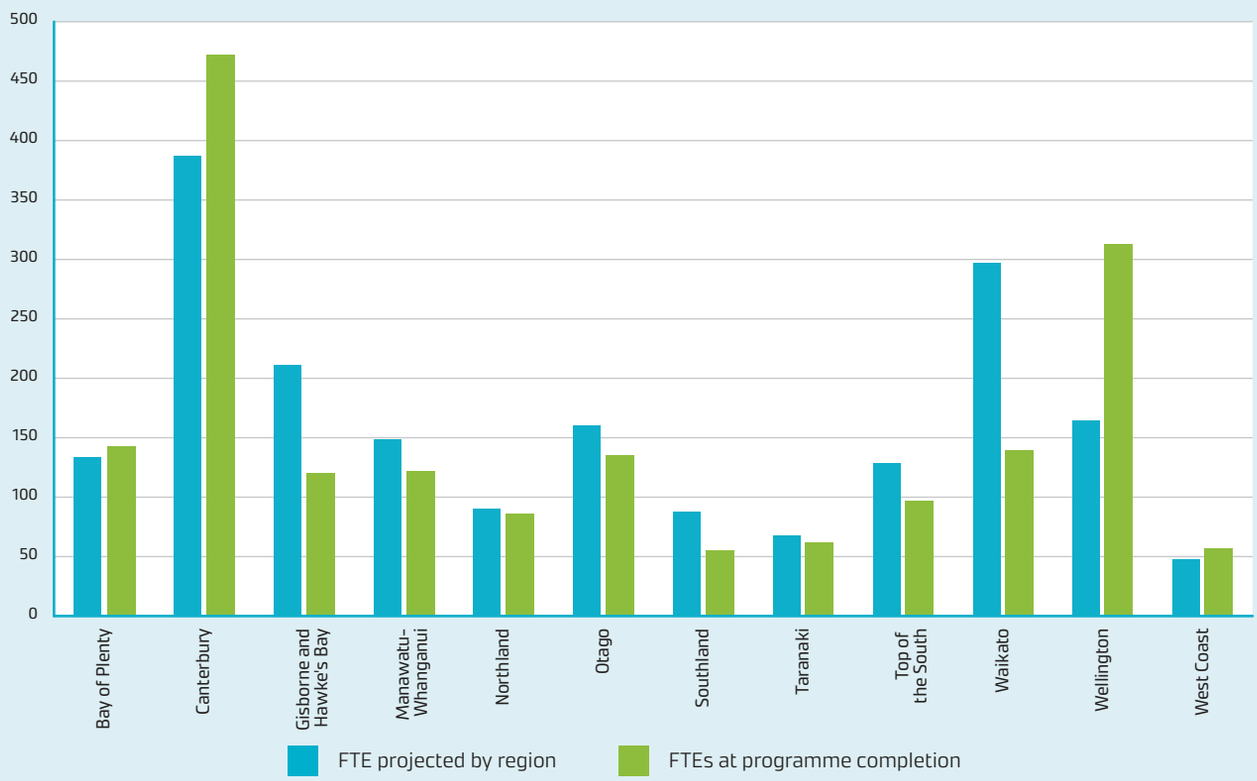
REGIONAL SUMMARY

TOTAL GOVERNMENT FUNDING CONTRACTED AND TOTAL PROJECT VALUE



Total project value is deemed on the same basis therefor is total value of contracted projects

WORKER FTE PROJECTED AND AT PROGRAMME COMPLETION



UPDATE BY REGION

Weld –string for the Waikouaiti Watermain replacement, East Otago, Dunedin City Council

NORTHLAND

Far North District Council
Te Kaunihera o Tai Tokerau ki te Raki

Kaipara te Oranganui
KAIPARA DISTRICT

Whangarei District Council

INFRASTRUCTURE TYPE	**2** New water sources added	**10** Water Treatment Plant upgrades	**15.4km** Potable water mains/pipes upgraded	**1.6km** Wastewater pipes upgraded	**16** WWTP upgrades
FUNDING	**$28.3m** Government spend at completion	**$9.7m** Co-funded spend at completion	**$37.9m** Total project spend at completion		
LOCAL WORKERS FTE	Progress to projected: **86.2**	Projected: **90**			

NORTHLAND GALLERY

FAR NORTH DISTRICT COUNCIL

Kaitāia Bores: Groundwater being drawn from two bores at Sweetwater, north of Kaitāia, are part of the council's $15.3 million Kaitāia Water Project, involving bore heads, a new bore, and a 14km pipeline linking the Aupōuri aquifer to the council's water treatment plant.

Taipa Wastewater: Expanding the wetland remediation for other de-sludging has added real benefit to our communities with improvements to the discharge quality from wastewater treatment plants.

Far North: Kaitaia - Bores

Far North: Taipa wastewater after desludging

KAIPARA DISTRICT COUNCIL

Kaipara District Council successfully delivered a $4.6m package of works on top of ongoing asset renewal programmes such as Kaiwaka and Dargaville wastewater renewals. A substantial investment into Kaipara district has increased resilience of the three waters service provision, improved safety, and quality of water services, reduced unbudgeted emergency works, and reduced the renewals backlog."

Kaipara: Dargaville wastewater renewal

Kaipara: Kaiwaka wastewater renewal

WAIKATO

INFRASTRUCTURE TYPE

5.1km	10	22.3km	7,973	93%
Wastewater pipes upgraded	Sludge removal from ponds	Potable water mains / pipes upgraded	Water meters installed	Strategy Study or report

FUNDING

$66.6m	$6.3m	$72.9m
Government spend at completion	Co-funded spend at completion	Total project spend at completion

LOCAL WORKERS FTE

Progress to projected:	Projected:
139.9	296.9

WAIKATO GALLERY

HAURAKI DISTRICT COUNCIL

Waihi rising main bridge crossing: The Waihi rising main joint projects will deliver one of the biggest benefits to council and its community. It has reduced a longstanding issue of wastewater reticulation capacity, end of life and poor condition assets and will reduce the likelihood of wastewater overflows in the future. The new pipework will also enable the system to cope with higher intensity and duration rainfall events being experienced due to climate change as well as enabling growth capacity for Waihi which has been restricted by the wastewater network capacity.

Hauraki: Waihi rising main bridge crossing

WAIPA DISTRICT COUNCIL

Leak detection via drone contributing to identifying floodable properties to inform affected property owners and WDC's catchment management plan and stormwater discharge consents.

Waipa - Leak detection via drone

WAITOMO DISTRICT COUNCIL

Treatment Plant improvements have provided much improved operating systems at Mokau. The significant upgrade at Mokau gives capacity for summer influx and any future growth while ensuring compliance is not compromised. Extensive reticulation renewals were able to be completed for Mokau, vastly accelerating the upgrading of ageing pipework prone to leakages creating a much more reliable water supply in this remote location.

Mokau backwash treatment

Mokau Water Treatment Plant upgrade design and install

BAY OF PLENTY

Tauranga City
Ōpōtiki District Council
Kawerau District Council
Western Bay of Plenty District Council
Rotorua Lakes Council
Whakatāne District Council

INFRASTRUCTURE TYPE

21.0km	25	5	0.4km	19.5km
Wastewater pipes upgraded	WWTP upgrades	Water Treatment Plant upgrades	Stormwater pipes upgraded	Potable water mains/pipes upgraded

FUNDING

$42.3m	$6.5m	$48.7m
Government spend at completion	Co-funded spend at completion	Total project spend at completion

LOCAL WORKERS FTE

Progress to projected:	Projected:
142.9	134.0

BAY OF PLENTY GALLERY

OPOTIKI DISTRICT COUNCIL

Hukuwai Beach: Smaller packages of works in the 3 waters stimulus funding included the Hukuwai Beach wastewater disposal field. Usage of the Hukuwai Beach toilet by both day visitors and overnight freedom campers has steadily increased over recent years. This is placing increased pressure on the limited facilities at the site. The site has a basic toilet block and car park. The toilet block is connected to a septic tank with a disposal field with limited capacity. Use of the site is very seasonal, with minimal numbers over the cooler months but high peaks around summer public holidays.

The upgrade of wastewater treatment and disposal field has mitigated the risk of effluent reaching the Hukuwai Beach and contaminating the land.

Opotiki - Hukuwai Beach

ROTORUA LAKES COUNCIL

The Linton Park detention dam was constructed due to the existing detention dam not meeting the current building standards and being assessed as a risk to the community. The new dam will provide increased flood mitigation in a present day flood 100 year event, provide flood mitigation and a future 100 year flood event and allow for future development within the catchment.

Rotorua - Linton Park dam

WHAKATANE DISTRICT COUNCIL

Headworks Paul Road: The headworks on Paul Road aimed to provide resilience for the Otumahi water supply. The project has seen the headworks for the second bore installed together with integrated control systems between the new and existing bore to enable a duty/standby operation and uninterrupted flow if one bore is out of action due to a fault, maintenance, or unforeseen issues. The new treatment plant incorporates UV treatment reducing the risk of possible protozoa infection. The project was progressed to not only improve the resilience of Paul Road water supply but to also align the network with possible long-term option of supplying water to the Whakatāne township.

Whakatane - Headworks Paul Road

Matata Pumps Station Replacement/Upgrade: The Matata Pumps Station Replacement/Upgrade provides resilience to the Matata water supply which was known to experience water shortages over the summer months due to increased demand with Matata being a popular spot for holidaymakers. The upgrade incorporated disinfection and pH correction to enable compliance with the NZ Drinking Water Standards. Treating the acidity of the water supply also addressed staining issues and reduced the corrosiveness for consumers.

Whakatane - Matatā Pumps Station Replacement Upgrade

GISBORNE & HAWKE'S BAY

HASTINGS DISTRICT COUNCIL
Te Kaunihera o Heretaunga

NAPIER CITY COUNCIL
Te Kaunihera o Ahuriri

WAIROA DISTRICT COUNCIL

Te Kaunihera o Te Tairawhiti
GISBORNE DISTRICT COUNCIL

CENTRAL HAWKE'S BAY DISTRICT COUNCIL

INFRASTRUCTURE TYPE	**13** WWTP upgrades	**13.2km** Potable water mains / pipes upgraded	**9.5km** Wastewater pipes upgraded	**3** WT Plant upgrades
FUNDING	**$61.0m** Government spend at completion	**$44.4m** Co-funded spend at completion	**$105.4m** Total project spend at completion	
LOCAL WORKERS FTE	Progress to projected: **120.7**	Projected: **211**		

GISBORNE & HAWKE'S BAY GALLERY

GISBORNE DISTRICT COUNCIL

The Muriwai pipeline completes its crossing of the Waipaoa Rail Bridge - Iwi, community representatives, contractors and Council staff gather to mark this key milestone.

Muriwai Pipeline - Waipaoa Rail Bridge

WAIROA DISTRICT COUNCIL

Achilles St Watermain replacement: A major water pumping main on Achilles St / State Highway 2 was replaced; a project that has been waiting completion for several years. This particular water main required constant maintenance and was regularly the subject of late-night callouts to repair leaks. The valve covers in the road wheel tracks caused disruption to neighboring residents. Enabling the completion of this water main project was hailed a success.

Wairoa_Achilles St watermain replacement

TARANAKI

Te Kaunihera-ā-Rohe o Ngāmotu
New Plymouth District Council

South Taranaki District Council

Te Kaunihera a Rohe o Whakaahurangi
Stratford District Council

INFRASTRUCTURE TYPE	**16.1km** Drinking Water pipes upgraded	**6** Waste pump station upgrades	**1** Sludge removal from ponds	**1** Bore upgrade	**6** WWTP upgrades
FUNDING	**$17.9m** Government spend at completion	**$1.7m** Co-funded spend at completion	**$19.5m** Total project spend at completion		
LOCAL WORKERS FTE	Progress to projected: **62.1**	Projected: **68**			

TARANAKI GALLERY

NEW PLYMOUTH DISTRICT COUNCIL

New Plymouth Wastewater Treatment Plant - Biofilter

The new biofilter built in at New Plymouth Wastewater Treatment Plant treats foul air from dewatering plants.

New Plymouth Wastewater Treatment Plant - Geobags

The Geo-bags for dewatering sludge from a large lagoon at New Plymouth Wastewater Treatment Plant.

SOUTH TARANAKI DISTRICT COUNCIL

Eltham Generator: The Eltham wastewater treatment plant generator will allow continuous operation of the Eltham wastewater plant, substantially reducing likelihood of objectionable odours and ensuring adequate treatment and disposal of the substantial volumes of trade waste generated by the town.

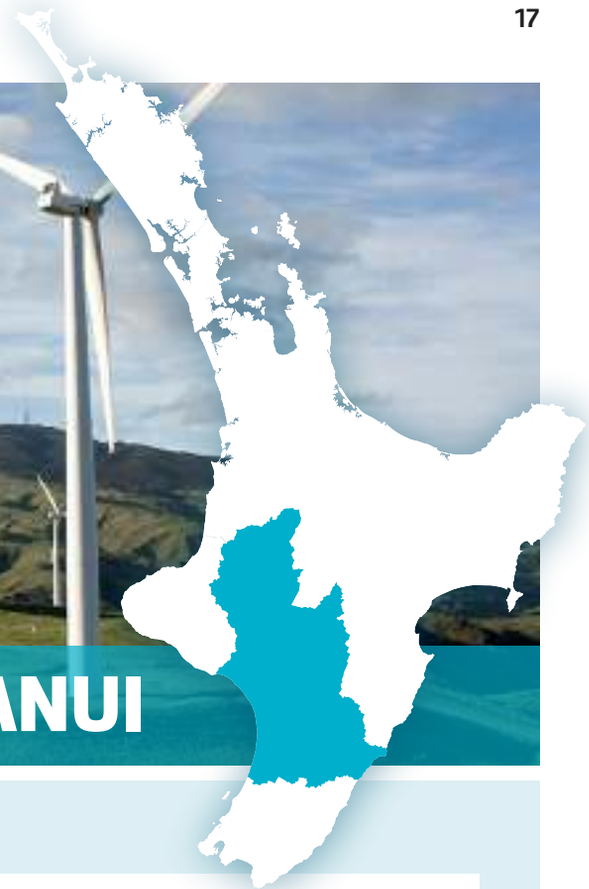
Patea Bore: The Patea Bore improved the resilience of the water supply for the Patea community.

Waimate West Watermains - Rama Rd: The renewal of the watermains in Waimate West improved the resilience of the water supply infrastructure. Some mains were upsized to enhance the water capacity where required.

South Taranaki - Eltham Generator building nearly complete

South Taranaki - Patea water supply bore

South Taranaki - Waimate West Watermains, Rama Rd



MANAWATŪ-WHANGANUI

PALMY
WHANGANUI DISTRICT COUNCIL
Horowhenua DISTRICT COUNCIL
TARARUA DISTRICT COUNCIL
RANGITIKEI DISTRICT COUNCIL
MANAWATU DISTRICT COUNCIL

INFRASTRUCTURE TYPE	**28.7km** Wastewater pipes upgraded	**9** Water Treatment Plant upgrades	**17** WWTP upgrades	**0.7km** Stormwater pipes upgraded	**11.8km** Drinking water pipes upgraded
FUNDING	**$40.5m** Government spend at completion	**$6.3m** Co-funded spend at completion	**$46.8m** Total project spend at completion		
LOCAL WORKERS FTE	Progress to projected: **121.6**	Projected: **148.4**			

MANAWATŪ-WHANGANUI GALLERY

TARARUA DISTRICT COUNCIL

The below projects show the Water Treatment Plant (WTP) sites in the Tararua region to be upgraded. The first to be upgraded is Dannevirke WTP, followed by Woodville WTP and finally Eketahuna WTP.

Tararua - Dannevirke WTP

Tararua - Eketahuna WTP

Tararua - Woodville WTP

WHANGANUI DISTRICT COUNCIL

Heads Road - Stormwater storage: The Stormwater Storage in Heads Road Industrial Area has reduced wet weather flows in Whanganui's wastewater system, reduces the risk of flooding and is key to meeting climate change and environmental objectives. The new pipes will accommodate current and anticipated growth.

Airport Directional Drilling (TD) - Airport Water Upgrade: 800m of new 250mm PE pipe connecting the 250mm water main in Taupo Quay across the Cobham Bridge to the 150mm water main along Wikitoria Road. This has ensured adequate supply and improved resilience in the Airport Water Zone and specifically for critical assets including the Whanganui wastewater treatment plant and the airport. The connection across Cobham Bridge has also increased resilience to the southern part of the Whanganui East zone.

Whanganui Airport Pipeline across Cobham Bridge 228

Whanganui Stormwater Storage - Heads Road Industrial Area

Whanganui Airport TD Drilling - Cobham bridge - Airport Side

WELLINGTON

Absolutely Positively Wellington City Council
Me Heke Ki Pōneke

Greater Wellington
Te Pane Matua Taiao

Te Kaunihera o Te Awa Kairangi ki Uta
Upper Hutt City Council

Kāpiti Coast District Council

South Wairarapa District Council

Hutt City

poriruacity

Masterton District Council

Carterton District Council

INFRASTRUCTURE TYPE

3 Water Treatment Plant upgrades	**2km** Capital renewals	**9.4km** Asset condition assessments	**22.9km** Maintenance (all waters)	**100%** Data and technology projects

FUNDING

$59.8m Government spend at completion	**$15.3m** Co-funded spend at completion	**$75.1m** Total project spend at completion

LOCAL WORKERS FTE

Progress to projected: **312.6**	Projected: **164.7**

Note: Wellington Water delivered the infrastructure programme of works on behalf of Wellington City, Hutt City, Porirua City, Upper Hutt City, South Wairarapa District Council, and the Greater Wellington Regional Council (who own the Wellington Regional bulk supply network).

WELLINGTON GALLERY

WELLINGTON WATER LTD.

On behalf of Greater Wellington Regional Council, Hutt City Council, Porirua City Council, South Wairarapa District Council, Upper Hutt City Council and Wellington City Council

New technology was purchased that increases resilience in the water network and reduces risk of supply disruptions. This has contributed to completing a large programme of capital renewals of aging pipes including the capital renewals at Titahi Bay. This will lead to fewer breaks and better environmental performance.

Capital Renewals – Titahi Bay pipe lining

Capital Renewals – Titahi Bay laterals

Capital Renewals – Titahi Bay laterals

TOP OF THE SOUTH

Nelson City Council Te Kaunihera o Whakatū

tasman district council | Te Kaunihera o te tai o Aorere

MARLBOROUGH DISTRICT COUNCIL

INFRASTRUCTURE TYPE	**7.1km** Drinking water pipes upgraded	**1** Waste pump station upgrade	**8.1km** Wastewater pipes upgraded	**1** Water Treatment Plant upgrades
FUNDING	**$27.2m** Government spend at completion	**$12.6m** Co-funded spend at completion	**$39.8m** Total project spend at completion	
LOCAL WORKERS FTE	Progress to projected: **96.7**	Projected: **128.6**		

TOP OF THE SOUTH GALLERY

TASMAN DISTRICT COUNCIL

Emergency overflow tank: The emergency overflow storage tanks at wastewater pump stations are under construction, and installed, throughout the District.

Pomona Road Water Reservoir: The completed Pomona Road water reservoir near Mapua have accelerated renewal, improved water security, and accommodates growth.

Tasman District - Emergency overflow storage tanks

Tasman District - Pomona Road Water Resevoir

Tasman District - Pomona Road Water Resevoir

WEST COAST

INFRASTRUCTURE TYPE	**14.2km** Drinking water pipes upgraded	**1,900m³** Treated water storage	**2.7km** Wastewater pipe inspections	**2.0km** Wastewater pipes upgraded	**8** Water Treatment Plant upgrades
FUNDING	**$15.2m** Government spend at completion	**$2.2m** Co-funded spend at completion	**$17.5m** Total project spend at completion		
LOCAL WORKERS FTE	Progress to projected: **56.8**	Projected: **48**			

WEST COAST GALLERY

BULLER DISTRICT COUNCIL

The successful completion of the 3 waters infrastructure projects has greatly improved the security of the water supply and resilience for the Council's water supply within the Punakaiki and the Westport Township.

In particular for the Westport Water supply (Terrace & Town) projects, they have helped Council go a long way to replace the existing trunk main which is at the end of its useful life, exceeding their design life and serviceability thresholds. The situation prior to renewal was posing risks in terms of resilience and compliance, and the ability to ensure a safe, reliable and adequate water supply for those in the Westport community.

Buller - Punakaiki Trunk Main

Buller - Westport Terrace Section Trunk Watermain

WESTLAND DISTRICT COUNCIL

Westland District Council increased community resilience by installing generators, increasing water storage capacity, renewing, and upgrading aged infrastructure which included the Blue Spur and Franz Josef Raw Water Reservoirs.

Westland - Blue Spur Reservoir concrete pour

Westland - Blue Spur Reservoir

CANTERBURY

Christchurch City Council · Waimate District Council · Waimakariri District Council · Timaru District Council · Chatham Islands Council · Ashburton District Council · Hurunui District Council · Selwyn District Council · Kaikōura District Council

INFRASTRUCTURE TYPE	**72.1km** Wastewater pipes upgraded	**117.8km** Drinking water pipes upgraded	**10** Water Treatment Plant upgrades	**334** Waste pump station upgrades	**374** Water meters installed
FUNDING	**$100.0m** Government spend at completion	**$26.2m** Co-funded spend at completion	**$126.2m** Total project spend at completion		
LOCAL WORKERS FTE	Progress to projected: **472.2**	Projected: **387.6**			

CANTERBURY GALLERY

KAIKOURA DISTRICT COUNCIL

Kaikoura Urban Treatment Site and ultraviolet light reactors: The townships main water supply and treatment site proceeded as planned, which included replacement of pipework in corrosion resistant and resilient fully welded plastic, addition of a second ultraviolet light reactor and provision of a fixed standby generator. The package resulted in a substantial improvement to seismic resilience that will allow this critical site to ride out future events, including an AF8 earthquake, and remain operational.

Kaikoura – Ultraviolet light reactors

Kaikoura – Water Treatment site

MACKENZIE DISTRICT COUNCIL

Sludge dredge operating at Takāpo Waste Water Treatment Plant to desludge the ponds.

Takāpo – Sludge dredge

OTAGO

DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti

CENTRAL OTAGO DISTRICT COUNCIL

Clutha District Council

QUEENSTOWN LAKES DISTRICT COUNCIL

Waitaki DISTRICT COUNCIL

INFRASTRUCTURE TYPE	**39.3km** Drinking water pipes upgraded	**25** Water Treatment Plant upgrades	**23** WWTP upgrade	**4,000m³** Treated water storage	**4.8km** Wastewater pipes upgraded
FUNDING	**$41.2m** Government spend at completion	**$15.3m** Co-funded spend at completion	**$56.5m** Total project spend at completion		
LOCAL WORKERS FTE	Progress to projected: **135.3**	Projected: **160**			

OTAGO GALLERY

CENTRAL OTAGO DISTRICT COUNCIL

Naseby Clarifier: In the past few years, a few significant rainfall events have had a significant impact on water supplies in towns such as Naseby. The upgrades at Naseby Water Treatment Plant will improve its resilience and reduce the chances of boil water notices to the community.

Cromwell wastewater pump stations: Storage capacity upgrades at Alexandra and Cromwell wastewater pump stations at key locations at risk of overflows into waterways, were completed as part of the stimulus program of work. Further work on pump stations will continue under the long-term plan to significantly reduce the likelihood of overflows to waterways. This reduces the environmental impact of Central Otago's wastewater system for the community now and into the future.

Central Otago - Cromwell Pumpstation Upgrade Alpha St tank install

Central Otago - Naseby Clarifier

Clutha - New fluoride dosing system

CLUTHA DISTRICT COUNCIL

New fluoride dosing systems in Clutha have provided improved DWSNZ compliance and compliance with resource consents, on the path to reduced Inflow and infiltration, improved H&S compliance with various water treatment plants and wastewater treatment plants as well as fluoride dosing for 4 communities.

QUEENSTOWN LAKE DISTRICT COUNCIL

Hawea Wastewater Treatment Plant Upgrades: An upgraded facility that will enable the treatment plant to meet the conditions of its discharge consent and create capacity to support future population growth until a permanent solution is implemented.

Queenstown Lake - Hawea Waste Water Treatment Plant upgrades

SOUTHLAND

Invercargill City Council

Southland District Council

Gore District Council

INFRASTRUCTURE TYPE	**19.3km** Drinking water pipes upgraded	**3.2km** Wastewater pipes upgraded	**3** WWT Plant upgrades	**65.4km** Wastewater pipe inspections	**2.2km** Stormwater pipes upgraded
FUNDING	**$22.3m** Government spend at completion	**$0.5m** Co-funded spend at completion	**$22.8m** Total project spend at completion		
LOCAL WORKERS FTE	Progress to projected: **55**	Projected: **88**			

SOUTHLAND GALLERY

Invercargill - Tiwai Repeater - site

Invercargill - Renfew St Water Flow and Pressure Meter

WATER PRODUCTION BORE

The Invercargill City Council has only one water source for Invercargill and Bluff residents. The Council long term plan highlighted the need for an alternative water source and from investigation located a potential site in the Awarua area of Southland mid-way between Invercargill and Bluff. Two (piezo and production) bore were installed approximately 200m apart and down to a depth of 210m, flow and quality testing were carried out that indicated a potential good alternative source of water for Invercargill. Further work is required to determine how this alternative source well be developed.

WATER FLOW AND PRESSURE METERS

The Invercargill City water system is a low pressure system and operates from two main reservoir and pumping station in the City. Knowledge of the operating system has been limited to hydrant testing but with the installation of these new flow and pressure meters around the city, we are able to understand the network better. This information is recorded on to the SCADA system that will be used to understand the demand on the network, calibrate the water model and assist in water loss reporting.

TIWAI POINT REPEATER

The Tiwai repeater has been essential in providing SCADA data from areas in Bluff that were not possible to obtain from previously, due to the geographical problems. This repeater has allowed for the installation of a new water pressure system and more reliable data transfer from the eastern end of Bluff. This has only been possible because of the support of South Port that allowed Council to erect the repeater on to one of their navigation light structures.

Invercargill - Production bore rig

GLOSSARY

INFRASTRUCTURE TYPE

Drinking Water: Drinking water (sometimes also referred to as potable water) projects include improvements to any of the components that are used to convey water from the source, make it safe to drink and deliver it to customers. This includes treatment plants, reservoirs, pumps, pipes and instruments.

Wastewater: Wastewater projects include improvements to any of the components that collect sewage and industrial wastewater, treatment to remove harmful contaminants and return the water to the environment. It includes pipes (sewers), pumps, treatment plants, instruments, and outfalls.

Stormwater: Stormwater projects include improvements to the dams and pipes which convey rainwater safely to streams, rivers, and the sea.

SCADA: Supervisory, Control and Data Acquisition systems are electronic networks which enable remote control and monitoring of unmanned network facilities.

Bore: A drilled hole or excavation to provide access to ground water.

Raw Water: Water that is taken from the environment and treated to produce water safe for drinking.

Hydraulic Models: Hydraulic models are computer programmes which mimic the flow and pressure of water, wastewater and stormwater in piped networks.

Potable water: Potable water contains no disease causing organisms nor harmful chemicals and is safe to drink.

Treatment plant: A facility to treat raw water to make it safe for drinking, as per the requirements of the Drinking water Standards of New Zealand.

WTP: Water Treatment Plant. This is a facility/equipment that takes in raw water and treats it through a variety of means (filters, chemical dosing, ultra-violet light) so it is safe and fit for human consumption.

WWTP: Wastewater Treatment Plant. There are many different ways to treat wastewater. A waterwater treatment plant typically consists of a number of different processes (screening, biological processes and sometimes disinfection) to remove solids and treat effluent before it is piped to land, river or sea or used for irrigation use.

FTE Definitions:

Projected FTE is the number of estimated workers that would be supported by a particular project. Established during the planning and due diligence process.

Progress to Projected FTE is the equivalent number of full-time equivalent workers that were employed over the main construction phase of a project or programme of work. For example, in the early stages of a project or programme the number of workers (FTE) can be low, but rapidly increases as a project enters the main construction phase; this is the appropriate number to compare against the project projected.