



Hunua 4

Innovations

Auckland's Watercare called for ideas and innovation to soften the impact on communities of its massive infrastructure building projects. Story supplied by Watercare.

With the scene for many of projects now set in the built urban environment, Watercare is expecting contractors to go quickly and go 'gently'.

Those who meet the challenge can share in a big works pie: A \$4.9 billion investment programme in upgrading and expanding infrastructure over 10 years that was announced in July.

As an Auckland Council-controlled organisation, Watercare is under pressure to deliver dozens of projects for significant housing intensification while at the same time minimising the cost and effects of construction on its owners – the community.

One of its key projects for Auckland's future water supply is the construction of the \$400 million Hunua 4, a pipeline 1.6 metres to 2.0 metres in diameter that travels for 32 kilometres between Watercare's reservoirs in Redoubt Road, Manukau to those in Khyber Pass, Auckland City.

The project – which has been in construction since 2008 – achieved a significant milestone in July when works in Campbell Road, One Tree Hill were completed, enabling Watercare to bring 26 kilometres of the pipeline into service.

The next 2.5 kilometres around One Tree Hill has been installed and is being tested before entering service in October. This will establish a high volume connection between Watercare's southern and Epsom reservoirs, helping to service growth and provide redundancy for the Hunua 3.

Already, the Hunua 4 has provided redundancy to large parts of the water infrastructure in Auckland and reduced the reliance on the existing infrastructure supplying the city. It has also created additional capacity in high-growth areas such as Manukau, East Tamaki, Auckland airport and its surrounding industrial precincts.

Hunua 4's final section – from Market Road, Epsom to Khyber Pass, Grafton – will bring the pipe length to 32



The Hunua 4 pipe bridge is installed on State Highway 20 in December 2013.



Watercare chief executive Raveen Jaduram.



Laying the pipe at Puhinui, Manurewa. Contractors have tackled a variety of engineering challenges along the way, from the changing ground material – peaty silt in Mangere and basalt in Onehunga – to heavy traffic areas and crossings of major arterial routes.

kilometres. Construction is forecast to start in early 2018 and finish in 2020.

It will be in one of the city's oldest and most populous districts, with heavily congested roads, the City Rail Link construction underway and a need for hard rock tunnelling on some of the section.

The potential for disruption to traffic and business led to a departure to the way Watercare engages with contracts.

Rather than going out to market with a confirmed design, Watercare produced a specimen design and asked potential contractors to submit alternative proposals. The proposals were then developed through an interactive tendering process that has included workshops with Watercare engineers.

"We wanted the contractors to tell us how they would best build it and minimise disruption," says Hunua 4 project manager David Moore.

"It will be a design and build procurement – the key for us is to deliver the least disruption for the best price."

Watercare chief executive Raveen Jaduram says it is more a collaborative approach to the estimated \$60 million job

ENGINEERING CHALLENGES

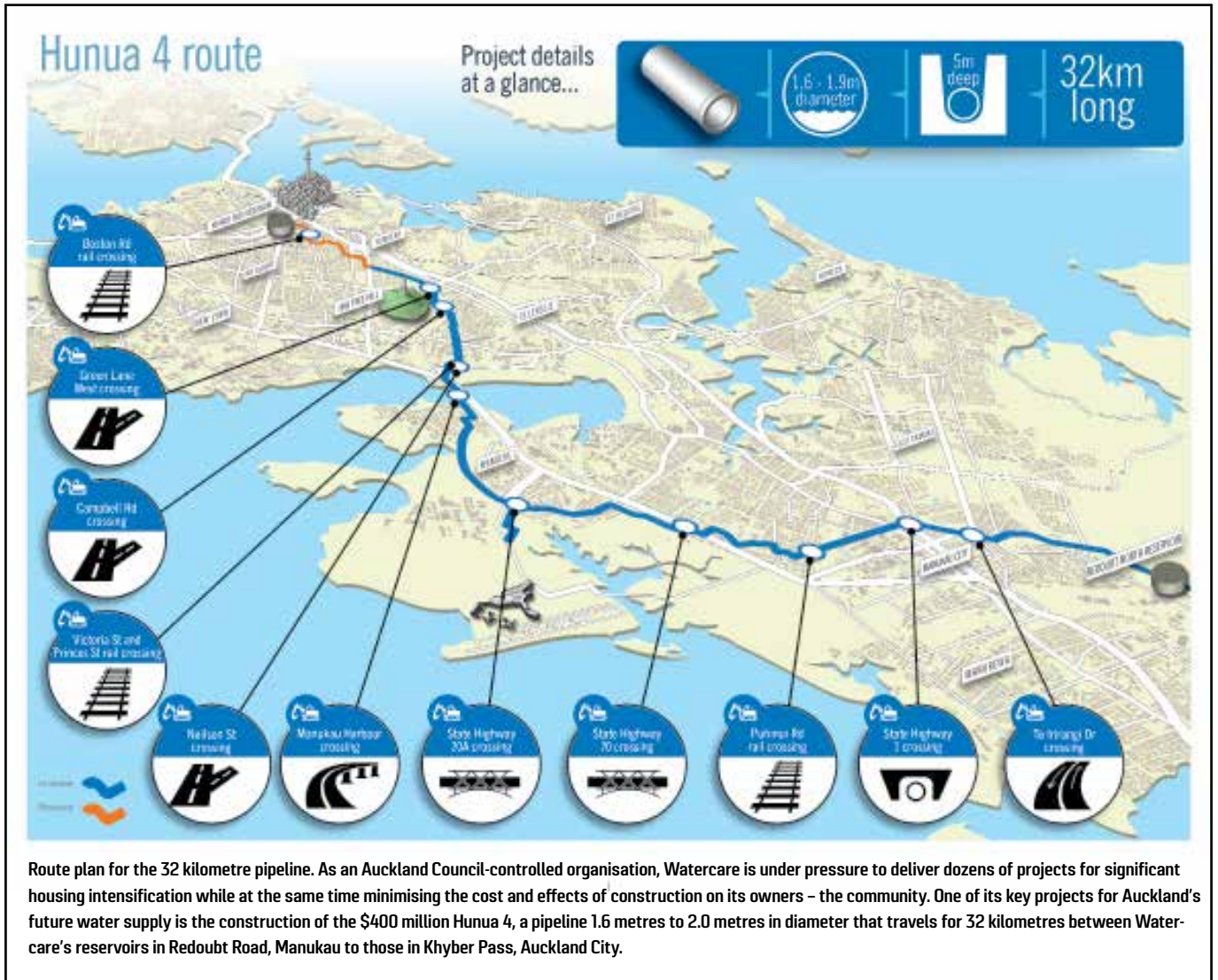
The majority of Hunua 4 has been constructed by the Fulton Hogan John Holland Joint Venture and their main subcontractors, March Cato and Taranaki Engineering.

At its height more than 120 people were working on the construction at any one time.

These contractors have tackled a variety of engineering challenges along the way, from the changing ground material – peaty silt in Mangere and basalt in Onehunga – to heavy traffic areas and crossings of major arterial routes.

In order to minimise disruption, major crossings of Te Irirangi Drive, Neilson Street and Green Lane West took place during holiday periods.

Other highlights of the project include the construction of the tunnel under Stage Highway 1 at the Manukau Sports Bowl and the pipeline's installation on a bridge over the South Western Motorway.



but leaves the necessary commercial tension and incentive for the market to give competitive pricing.

“The feedback from contractors is that they can add to the solution.”

He says there is a lot of work around but contractors’

investment in Watercare as a client promises a return for a long period, because most of the upcoming jobs will be in a similar category – in the built environment.

Watercare is currently reviewing the final proposals and plans to award the contract in coming months. **WNZ**

KEEPING COMMUNITIES INFORMED

Until late 2014, the project had a low profile but that changed when the big diggers rolled into Mangere to install 1.9-metre diameter pipes in the road.

A community began to question the disruption to their commuter and school run and blocked driveways.

While contractor Fulton Hogan John Holland Joint Venture had stakeholder liaison managers, a dedicated project email and a 24-hour helpline to give up-to-date information, it became clear this was not enough.

Watercare project manager David Moore says as the trenching moved to the busy roads of Onehunga and One Tree Hill and more disruption to people’s daily lives was anticipated, the project rolled out a beefed-up communications strategy supported by a traffic

management plan – warning commuters to steer clear of road closures and suggesting detours. It was a success.

A project ambassador was appointed to help residents, who were without driveway access, to bring in their shopping and young children from the car. She puts out residents’ rubbish bins and delivers Meals on Wheels.

In schools, Watercare has used a trained teacher to delivered lessons on Auckland’s water supply and the Hunua 4 project.

The company’s contractors also sponsored a photography competition, helped out with gardening and invited a group of pupils to tour the site. The pupils created posters describing the diggers’ scoops, claws and rock hammers. And the “brave men” building the pipeline.