The Modelling Factory - Production Line to the Future

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ABSTRACT

Watercare has embarked on a journey to transform our infrastructure delivery in order that we can provide better, more sustainable outcomes for our customers.

Our capital works programme is constantly being reprioritised to optimise our budget. The COVID-19 Pandemic and drought related issues have added new challenges which require smarter use of our data to support effective decision making going forward.

A natural extension of our transformation involves creating a "nerve centre" where a "digital twin" will increasingly be used to inform decisions and deliver outcomes. To have a digital twin of our water and wastewater networks allows a greater understanding of network issues, better understanding of the impact of developers and tradewaste customers and greater overall holistic strategy of how our systems should work in the future. This "digital twin" connects data from our physical network to hydraulic model performance scenarios using GIS and will enable bi-directional flow of information and results. The aim is to provide the most up to date information ("single source of truth") to the business so we can optimise our network asset performance.

To help aid these insights we have looked to change our procurement model for outsourced monitoring and modelling services. Procurement of these enabling services is currently managed on a project-by-project basis and suppliers are engaged directly by Watercare. The current engagement process is cumbersome, repetitive, and creates administrative burdens for Operations, Planning and suppliers. Capacity restraints within the industry have meant multiple supplier engagements have been needed to meet Watercare requirements. Terminology changes signal a refreshed approach to intended outcomes and the contract will now also include enabling services such as asset surveys, CCTV surveys, flushing of pipelines, traffic and safety management, and coordination of utility approvals.

Included among these services are functions performed under the broad category of **Network Performance Measurement and Modelling (NP2M),** Water and Wastewater. The intention of this procurement is that work packages will be funnelled into a "factory" that will efficiently deliver the required outputs to a consistent standard. It is envisaged that in addition to delivering stated outcomes, the NP2M Partners (lead by Mott MacDonald but also includes HAL, Stantec and GHD) will also contribute to Watercare's vision of system innovation. This is particularly in relation to the digitisation of data and integration with Te Puna Wai (System Performance Portal).

NP2M is dedicated to working collaboratively, agile, and innovative to streamline the measurement and modelling process. Requirements will be funnelled into a streamlined “factory” with a fluid programme that will undertake the enabling, measurement and modelling process from start to finish.

By working collaboratively, we can ensure that the desired outcomes are consistent and of a high quality and are suitable to make key infrastructure decisions. Collaboration will also be key in the development of possible system integration/innovation – particularly in relation to the digitisation of data.