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Pipe Renewals Guidance Programme Update

This is a general update to keep interested parties abreast of progress with the Pipe Renewals Guidance Programme. The aim is to provide these regularly: feel free to circulate as necessary.

The steering committee will met early in December to review progress and consider future priorities. The following reflects progress and decisions to date.

Pipe Renewals Programme, Implementation of New Zealand Metadata Standards and the National Pipe Data Portal

Much discussion has happened recently about the implementation of the NZ Metadata Standards for 3 Waters. Five water authorities (CCC, Wellington Water, Watercare, Western Bay and Queenstown – the coalition of the willing!) are coming together to investigate what implementation might mean including the potential costs and benefits. This will be facilitated by the creation of the National Pipe Data Portal. The Portal is being developed at the Quake Centre and the first stages are now underway. This involve data sharing from five TAs and NZTA, who also have a significant interest in pipes and Metadata Standards.

Step 1 has been agreed, which is the creation of the portal and the mapping of the TAs' data into a limited range of attributes selected from Volume 1 of the Metadata Standards. This first step will begin to identify issues to be resolved before undertaking Step 2. Step 2 will be mapping of all attributes in Volume 1. Step 3 will begin to look at mapping a very limited number of attributes related to Volume 2. This is a much more difficult task as many aspects of Volume 2 need to be resolved from an asset management perspective.

Fortunately the Quake Centre has recently been successful in a partnership grant bid with MBIE. Some of the funding can be used to leverage partner funding to assist in the research and development required to undertake steps 1, 2 and 3. There will be an update on this programme early in 2019.

Step 1 is expected to be completed by Easter 2018.

Work streams

There are a number of pieces of work that are drawing to a close over the coming months. These will form the first useful outputs from the *Evidenced-based Investment Decision Making for 3 Waters Networks* project. These are:

- Resilience of Three Water Networks to Natural Hazards
- Implementation Framework for Improved Renewals Planning
- Update of New Zealand Pipe Inspection Manual

Resilience of Three Water Networks to Natural Hazards

This piece of work, contracted to Beca and Marcus Gibson and Melanie Liu, covers the following scope:

- Identify spatial understanding of hazards, anticipated damage and network consequences.
- Identify key facilities in the network and whether satisfactory service is anticipated.
- Provide prioritisation of assets within the network to inform asset renewal selection.
- Identify network zones at risk, requiring network strategy review and physical improvement.
- Quantify and monitor network resilience over time.
- Provide a basis for a potential NZ Metadata Standards Resilience Schema rating.

This work is being funded by the Quake Centre partners. And should be published in the first quarter of 2018.

Implementation Framework for Improved Renewals Planning

This piece of work is at the centre of the Pipe Renewals project. The initial scope is aimed at developing the 30-year infrastructure plans in the context of both a large and a small water authority. The project develops a renewals framework in the form of a guidance document to improve renewals planning for gravity wastewater pipelines through evidence-based decision-making. The framework:

- is scalable in terms of both network size and maturity of data management practices,
- identifies areas where further research is required, highlighting those areas that have greatest impact on decision-making,
- allows provision for incorporating future data improvements and planning processes,
- initially focuses on gravity sewer pipes but is envisaged to have significant overlap with other pipelines.

This project has been sponsored by Watercare and is being run by Philip McFarlane at Opus.

The scale and diversity of Watercare's wastewater networks has allowed the framework to be developed on a range of different ages, scales, conditions, etc. The Quake Centre is funding the application of the framework to Kaikoura District Council's wastewater network to assist KDC in its future planning.

Update of New Zealand Pipe Inspection Manual

The Water Services Managers Group Water NZ has agreed to fund this update and the contract has been awarded to ProjectMax and Citycare to deliver the first draft of the NZPIM sometime in the middle of 2018. The update will take into account changes in technology since the last update in 2006 and also address integration with the NZ Metadata Standards. There will also be a name change to reflect its application only to gravity pipes.

Other projects

Lidar/Pipe Damage correlations for pipes at risk from liquefaction

With the assistance of EQC, the Quake Centre has a project being carried out by a team at Tonkin and Taylor to correlate the pipe damage in the Christchurch Earthquakes with LIDAR data. A workshop was recently held at UC with academics and practitioners. The preliminary outputs look very promising and the Industry participants provided a very important steer as to how this could operate in practice and also created links to additional data. The final output will be tool for pre and post disaster planning and evaluation of risk to pipes in liquefiable ground.

Standards specifications

Che Hedges from Tauranga is leading a piece of work to investigate the barriers and opportunities afforded by the development of national specifications. The initial focus is on manholes. This work has been facilitated by Hynds and was identified as a priority as part of the Hynds National Forum. It is hoped that this piece of work will fall into the Pipe Renewals Framework and published as part of the overall programme of work.

Further information on any of the above can be downloaded from the Quake Centre Resource portal here: http://resources.quakecentre.co.nz/3-waters/