



1 Auckland Light Rail visualisation. 2 Utilities chamber. 3 Telecom chamber.

AUCKLAND LIGHT RAIL UTILITIES CLASH DETECTION

Arup for Auckland Transport

Project Location: Auckland



Auckland Transport is investigating the introduction of light rail as a way to address some of the key transport issues facing the city – congestion and growth. Arup and Jacobs Joint Venture (AJJV) was commissioned to create the reference design for the proposed 29km Auckland Light Rail (ALR) route including 24 stations, overhead wire (OHV) pole installations, depot and related infrastructure, and road realignment. As with any infrastructure project in a built-up area, underground utility interfaces are a construction risk with respect to cost, programme and safety.

This major construction project is located in a heavily congested corridor containing multiple major utilities; including gas, water and electricity, which provide essential services to the operation of Auckland City. As a result, it was critical to understand how the proposed route alignment may impact on the location of underground utilities.

Traditionally, the utilities clash process would have been completed by a team of engineers comparing the alignment with horizontal and vertical vertices, with an alignment change requiring large amounts of re-work and, dependent on the severity of the changes, requiring complete reassessment of the entire alignment. This costly manual assessment to detect or uncover the in-ground utilities was previously the only acceptable option.

With the Utilities Clash Detection Interactive Model, we have created an entirely new automatic system to detect the clashes. This also consolidated existing utilities' asset information into a federated asset information model. We then applied a machine learning algorithm to further reduce any manual assessments.

5183 clashes were reduced to 443, saving approximately 790 hours engineering - a staggering saving.

Judging & Copyright Statement

This project is an entrant in the 2016 INNOVATE NZ Awards of Excellence competition. The winners will be celebrated at our Awards Gala Dinner on Saturday, 12th August 2017 in Taupo.

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