



1-3 User connecting to the system and various components of the monitoring system.

REMOTE STRUCTURAL RESPONSE MONITORING

Opus International Consultants for NZ Transport Agency

Project Location: Canterbury



In 2010, Russell Kean and Mike Lusby at Opus Research, Petone, and Jeremy Waldin of Opus Christchurch contemplated a challenge being faced by the New Zealand Transport Agency. The Agency planned to open the whole of State Highway 1 (SH1) in the South Island to High Productivity Motor Vehicles (HPMVs) but had concerns that older bridges on SH1 – the Rakaia River Bridge and Rangitata River Bridges – might not have the structural integrity to cope with HPMV (greater than 55 tonnes) traffic. The Agency was potentially facing an extremely expensive bridge strengthening programme. There were also time constraints to consider, since the Agency was preparing to open up the entire route to HPMV traffic on 1 July 2015.

This challenge led to Opus providing an ambitious long-term monitoring solution; originally with pre-existing technology and subsequently with Opus Research-developed equipment. This technology allows the provision of meaningful structural response data. Not only is this provided at a very low cost; in its current form the real-time monitoring is the first of its kind in New Zealand, as confirmed in the appended letter of support from John Reynolds, Principal Structures Engineer at NZ Transport Agency. Aside from low cost and the real time information, other benefits of this technology include the reduction in size of monitoring equipment and the ability to use solar energy to power it.

Ultimately, as stated by Mr Reynolds in his letter “the system will almost certainly become a prototype for the monitoring of other bridges in the future”.

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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