

## Materials strength characteristics using multiple test criteria

The best intentions of the Design and Construct (D&C) procurement model to drive innovation and better value for money did not always live up to expectations. Multiple large projects within the North Island developed premature pavement failures and did not deliver the expected outcomes. It was alleged that the D&C procurement model led to the award of the lowest cost and highest risk option. NZTA identified the main concerns were related to pavement design, construction - and materials quality. Improved client/independent supervision during construction and materials production quality on-site were implemented to mitigate client risk. Client involvement and governance increased with renewed focus on construction/materials quality, which included method-based construction and performance based/specified testing. The presentation will focus on a case study whereby the following performance based construction and materials testing were completed for two unique subgrade materials (Papa and Conglomerate):

- BB deflections
- NDM (back-scatter vs direct transmission)
- Plate load
- Light Weight Deflectometer (LWD)
- Soaked CBR (at various depths)
- Scala penetrometer
- Continuous Compaction Control (CCC) roller

The purpose of the various test criteria are to describe the unique behaviour of the two different subgrade materials and identify relationships between various test methods. Ultimately the goal is to identify the most appropriate and useful tests to ensure consistent quality outcomes.