



## Assessment of existing composite bridges in New Zealand

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### Abstract

Historically, numerous shear connector types other than headed stud connectors have been used in steel-concrete composite bridges within New Zealand. This paper presents interim results from a two year research programme that is developing new design and load assessment criteria for existing composite road bridges. The research consists of an investigation of as-built records and an evaluation of historical material strengths, prior to new design rules being developed that will be validated against existing test data to ensure that the required margins of safety are being maintained. It is hoped that the resulting design and assessment guidance will lead to improved load capacities for existing bridges, which will significantly increase the efficiency of the existing highway network, thereby opening it up to heavier 50MAX and high productivity motor vehicles (HMPV).

**Keywords:** performance of existing structures; composite bridges; shear connection; channel shear connectors; push tests

### 1 Introduction

Since the early 1920's steel-concrete composite bridges have been used on New Zealand's State

Highway Network. Unfortunately, many shear connector types that have been used are not supported by current design rules within the standards referenced in the Transport Agency's