Assessment of existing concrete bridges by load testing

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ABSTRACT

As our bridge stock is aging, the task of assessing these bridges becomes increasingly important. Appropriate methods for the task are required. One of these methods is to subject the bridge to a load test. Engineers have used bridge load testing as a method to assess existing bridges for over a century. As engineers are faced with an increasing assessment task, the interest in bridge load testing has increased. Improvements in the field of diagnostic load testing are related to the use of numerical models. Improvement in the field of proof load testing focus on safety of the execution of the test as well as the required load in the test. What is still lacking is a reflection of these recent advances in the codes and guidelines used for load testing of bridges.

Two approaches are being used to address this lack. The first approach attempts to answer fundamental questions with regard to bridge load testing, and in particular proof load testing of concrete bridges through research. The second approach is to coordinate efforts, and facilitate collaboration and exchange of ideas internationally through the creation of the IABMAS Technical Committee on Bridge Load Testing.

The outcome of these efforts is a renewed research interest in the use of bridge load testing for assessment of concrete bridges, which balances both the fundamental aspects of concrete mechanics as well as an ongoing conversation with industry and the government members internationally to develop practical recommendations. In conclusion, it is expected that these efforts will lie at the basis of improved recommendations for the assessment of concrete bridges by load testing to be included in codes and guidelines and to serve the community of engineers faced with the increased task of assessing ageing infrastructure.