Abstract

Premature distress in unbound basecourses has occurred regularly in New Zealand. In 2008, the New Zealand Transport Agency (NZTA) commissioned the assembly of an inventory of problem basecourses and subbases. Study of the inventory found that the long-term degree of saturation of basecourse was highly significant in the case histories of premature distress, ie the pavements failed through shear instability (shoving) in the basecourses. A common feature in basecourses with a high degree of saturation was gap grading in the sand fraction.

Existing basecourse specifications limit gap grading through grading shape control requirements but the case histories demonstrate that tighter control is required.

The basecourse inventory was used to establish regression equations for predicting the in situ long-term degree of saturation of a basecourse. This approach appears to be very promising. Timely decisions can now be made on acceptance or the need for corrective measures prior to sealing.

The above considerations have been used for preparing revised drafts of the NZTA basecourse specification, subbase specification notes as well as a set of recommendations for the compaction specification and the *New Zealand supplement to the document, Pavement design – a guide to the structural design of road pavements (Austroads 2004)* (Transit NZ 2007a) to implement practical solutions to premature distress in unbound basecourses.

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