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Predicting the Bearing Capacity of Road Flexible Pavements using GPR

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Most of the damage in road-flexible pavements occur where stiffness of the asphalt and load-bearing layers is low. To this extent, an effective assessment of the strength and deformation properties of these layers can help to identify the most critical sections [1].

This work proposes an experimental-based model [2] for the assessment of the bearing capacity of road-flexible pavements using ground-penetrating radar (GPR – 2 GHz horn antenna) and the Curviameter [3] non-destructive testing (NDT) methods. It is known that the identification of early decay and loss of bearing capacity is a major challenge for effective maintenance of roads and the implementation of pavement management systems (PMSs). To this effect, a time-efficient methodology based on a quantitative modelling of road bearing capacity is developed in this study. The viability of using a GPR system in combination with the Curviameter NDT equipment is also proven.

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