

## **AN INTELLIGENT DATABASE SYSTEM FOR ROAD CONDITION ASSESSMENT**

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### **SUMMARY**

Highway engineers have addressed the problem of pavement maintenance by developing structural assessment methods based on computer simulations of pavements tested in the field by various non-destructive testing devices. The methodologies followed have been unable to provide accurate solutions without undue reliance on engineering expertise. Furthermore, there has been no attempt to provide a system which would conduct a staged assessment on the basis of the type, quantity and quality of data collected from in-service roads. Consequently, research work is being carried out to develop such a system in which the strength of the pavements is assessed with respect to a number of data types such as measured elastic deflections, cracking, rutting and other visual observations. The higher the quality of data collected, the higher the level of confidence achieved in the evaluation process.

This paper presents the work accomplished to date to implement this system which, it is hoped, will ultimately lead to an automatic remedial treatment selection and prioritization method for a tested road network. As far as the facilities provided by the system are concerned, the system deals with automatic collection and storage of the appropriate data types and also enables efficient manipulation of these data incorporating engineering knowledge usually expressed as "rules of thumb". The computational approach being followed utilizes primarily Relational Database Management Systems in connection with other ancillary programs such as finite elements. The efficacy of the above process appears to be promising.