THE DEVELOPMENT OF A PAVEMENT MAINTENANCE MANAGEMENT SYSTEM FOR MINOR ROADS

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SUMMARY

Pavement Maintenance Management System (PMMS) is a term that has become increasingly used by highway engineers over the last twenty years. It is defined in this study as a tool to assist decision-makers in finding optimum maintenance strategies for pavements to remain in a serviceable condition over a given period of time.

Since the whole credibility of a management system is based on the information it gives, the determination of the data and the degree of accuracy required is a vital step in designing the system. In this study, three types of data have been collected and stored in the database: road inventory, traffic information and pavement condition. Pavement condition here involves four main components: visual defects; riding quality; skid resistance; and structural capacity.

As a pavement ages, its serviceability continues to fall until a maintenance treatment is necessary. Although it might be presupposed that pavement conditions change linearly within a slice of time, a non-linear relationship is believed to be more likely to exist over a long-term period. Since pavement age is very difficult to determine, a time-independent approach has been developed at the University of Hertfordshire in the UK.

In order to select the best maintenance strategy for a section of road, economic analysis has been used to compare the cost-effectiveness of feasible alternatives. Since maintenance funding is never sufficient to correct all defective lengths of road network, a priority index approach has been used in this study. A computerised management system (PC based) is under development at the University for the cost effective maintenance of minor roads in the UK.