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MULTI CRITERIA DECISION MAKING MODEL FOR PREDICTING DETERIORATION FOR URBAN ROAD NETWORK

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Abstract

Predicting the distress is one of the essential processes of identifying various factors to be taken into account while ranking distress severity for decision making. The present study focuses on developing multi-criteria decision making models to predict the severity of different types of distress. The Analytical Hierarchy Process (AHP) is a multi-criteria decision making tool and is used to quantify risk encountered in Severity ranking. The data required for this study was collected from greater Hyderabad Municipal Corporation. The data was analysed using the Criterium Decision plus (CDP) Software based on the AHP. The case study of LB Nagar network was taken and the common distress types on this network were selected and the ranking was done based on the severity levels. In Hyderabad, huge investments have been made in constructing a large network. Goal of this research is to develop a Multi Criteria Decision Making Model and to find the severity of the distresses on some sections of Hyderabad urban road network. This model allows pavement authorities to predict the deterioration of the pavements and consequently determine the maintenance needs and activities, for preserving the performance of the network. Throughout the study, the most common types of pavement distress on sections of Hyderabad Urban Road Network have been identified. Nine urban main pavement distresses have been found and the distress model has been developed using the software Criterium Decision Plus Software based on Analytical Hierarchy Process. The data is employed to generate prediction of pavement distress for the selected stretch of Hyderabad Urban Road Network.

Keywords: Pavement distress, Analytical Hierarchy Process, distress severity, urban road network