

## Developing Pavement Maintenance Management System (PMMS) for Small Cities, Aswan City Case Study

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**Abstract :** A pavement maintenance management system (PMMS) was developed for the city of Aswan as a model of a small city to provide the road maintenance department in Aswan city with the capabilities for comprehensive planning of the maintenance activities needed to put the internal pavement network into desired physical condition in view of maintenance budget constraints. The developed system consists of three main stages. First is the inventory & condition survey stage where the internal pavement network of Aswan city was inventoried and its actual conditions were rated in segments of 100 meters length. Second is the analysis stage where pavement condition index (PCI) was calculated and the most appropriate maintenance actions were assigned for each segment. The total maintenance budget was also estimated and a parameter based ranking criteria were developed to prioritize maintenance activities when the available maintenance budget is not sufficient. Finally comes the packaging stage where approved maintenance budget is packed into maintenance projects for field implementation. System results indicate that, the system output maintenance budget is very reasonable and the system output maintenance programs agree to a great extent with the actual maintenance needs of the network. Condition survey of Aswan city road network showed that roughness is the most dominate distress. In general, the road network can be considered in a fairly reasonable condition, however, the developed PMMS needs to be officially adapted to maintain the road network in a desirable condition and to prevent further deterioration.

**Keywords :** pavement, maintenance, management, system, distresses, survey, ranking

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