

## Developing Prioritization Indexes for Provincial Road Networks Using AHP

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### Abstract

In pavement management, Prioritization involves ranking the pavement sections with respect to the identified set of factors by using subjective judgment or adopting quantitative methods. In view of the complexity involved in the decision making process, subjective evaluation based on expert's judgments is unavoidable.

This study identifies priority factors that affect the pavement maintenance planning and it developed prioritization indexes for formulation of the maintenance strategy in the provincial road agencies. Priority factors were identified by the opinion survey and through a comprehensive literature survey. Sample consists of the Engineers of provincial road agencies and sample is selected as random sampling techniques. Based on the opinion survey and literature survey, five main priority factors were finalized namely pavement condition, traffic volume, connectivity to local road network, land use pattern and importance to community. Those factors were relevant to local context in ranking pavement sections for maintenance. In order to quantify the importance to community factor it was spitted into four sub factors namely, civic centers, cultural events, produces in area and alternative roads during maintenance.

In this study Analytical Hierarchy Process (AHP) was used as the prioritization approach. AHP is one of the most important methods for prioritizing road maintenance factors since alternatives are very high in ranking process. AHP is used to make decisions in a more rational way and to make them more transparent and better understandable.

It was found that a higher weight was given to importance to community factor followed by pavement condition, traffic volume, connectivity to road network and land use pattern. Under the importance to community, Civic centers have the highest priority. Cultural events also have the significance priority since the study was done for provincial road network.

Key words: Prioritization, AHP, Pavement management, Provincial roads

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