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ENGINEERING ECONOMIC ANALYSIS TOOLS FOR PAVEMENT MANAGEMENT

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ABSTRACT

A pavement management system consists of a series of decision-support tools for the acquisition and management of the pavement component of the highway infrastructure. Life cycle cost analysis techniques are commonly used for supporting project level pavement management decisions. They are also increasingly used for need analysis, prioritization, optimization, and impact analysis at the network level. The use of engineering economic principles is a must if an asset management approach is to be adopted.

The paper reviews existing economic analysis tools for pavement management. These include tools for analyzing tradeoffs for sustaining a pavement through its service life, and for evaluating alternative maintenance and rehabilitation policies such as capital improvements, preventive maintenance, and corrective maintenance. Many promising technologies and methodologies to enhance and facilitate the development of more effective decision support tools are also reviewed and the functionality required for the tools to be easily integrated into existing agency procedures and management systems are discussed.

KEY WORDS: pavement management system (PMS), life-cycle cost analysis (LCCA), economic analysis, project selection, prioritization, asset management.