

NETWORK-LEVEL PAVEMENT LIFE-CYCLE ASSESSMENT TOOL

J. Cirilovic

IMS Institute, Belgrade, Serbia

G. Mladenovic & C.A. Queiroz

University of Belgrade, Belgrade, Serbia

ABSTRACT

In addition to their attempt to keep overall maintenance costs low while keeping their road networks in the appropriate condition, road agencies are facing even more demanding challenges as they incorporate effects on global climate change and other environmental impacts into their decision-making process. Many studies and research initiatives have shown the impact of pavement condition on vehicle fuel consumption and maintenance costs, indicating that maintaining the pavement network at the lowest roughness level would lower fuel and parts consumption, which is beneficial for the environment. On the other hand, the more intensive pavement maintenance, which is required to keep roads as smooth as possible, is accompanied significant emissions and negative environmental impacts. The objective of this paper is to find an optimal maintenance plan at network level that minimizes the environmental impact during the entire pavement life-cycle, which includes both traffic and maintenance works.