Title: Incorporating road safety concerns into pavement maintenance management

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Author keywords: Road safety, Accident frequency prediction models, Pavement performance prediction models, Pavement quality, Skid resistance, Macrotexture

Worldwide, more than 1.25 million people die annually in road traffic accidents and between 20 and 50 million more are injured. By 2030, highway-related crashes are projected to be the 5th leading cause of death in the world. Road accidents have a number of contributing factors, including roadway conditions, vehicle conditions, and factors related to the road users. While some of these factors have been studied extensively by researchers very few focused on quantifying the relationship between accidents frequency and pavement quality. Before 1990s, due to the lack of pavement data collection technology, it was very difficult to carry out state-wide scale studies relating pavement quality and road safety. However, in the past decades, there has been a huge growth and awareness in the importance of road safety as a public health issue, leading to a significant increase of research in the topic. Researchers started to study other contributing factors to accidents occurrence such as the pavements quality. Nowadays, the management of road pavements is a challenging task. On one hand, the economic crisis imposed a reduction of the available budget and, on the other hand, the demand in terms of quality, comfort and safety is higher than ever before. Therefore, the road agencies are investing more in new techniques, which allow them to find the most effective and cost-efficient solution to the management of the entire network. Moreover, with the development of high-speed friction measurement tools, agencies can now include friction into network level Pavement Management Systems (PMSs). Therefore, incorporating safety concerns is one of the urgent needs of PMSs, not only in order to optimize the management of the resources but also, and above all, towards the reduction of road fatalities and injuries. Despite the fact that there is limited research on the topic, important results were already achieved proving that there is a correlation between the frequency of traffic accidents and variables, which state the condition of the pavement such as macrotexture and skid resistance. This article aims to contribute to the incorporation of road safety concerts into pavement maintenance management. Therefore, the system includes the HDM-4 pavement prediction models and accident prediction models. Moreover, in order to provide alternatives to the decision maker, different scenarios of M&R operations and the corresponding cost analysis, which includes the costs related to road accidents, are performed. Finally, the conclusions and recommendations are presented.