Experience from automated crack detection

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ABSTRACT

One of the major distresses on pavements is cracking. Cracking may appear in many shapes and the extent and type of cracking is an important distress parameter when doing maintenance planning. One of the major reasons for crack detection is that once the pavement has cracking water can precipitate through the pavement down to unbound layers. Unbound layers with high moisture content is weak and during winter and the high water content may lead to extensive frost heave problems, resulting in accelerated cracking. Cracks in the asphalt pavement are also the initiation to potholes and similar surface damages.

Crack detection is traditionally made through visual inspections. On larger road networks automated and mobile methods have been used for several years to get a better and faster coverage, objective data and improved traffic safety. The automated systems for crack data collection often consist of two main parts 1/a light source and 2/a camera system. The type of camera and light system can vary but the majority of the systems rely on collection of road surface images. However, the analysis of the crack data is still to a large part done by individual persons and thus it results in a subjective and less repeatable analysis. This paper describes the experience from Ramboll RST doing both automated data collection and automated analysis on larger road networks. The experiences are drawn from more than 100 000 km of survey in multiple countries and analysis using the PAVUE and AIES systems.

The paper will describe the experience from a system that enables data analysis at the same speed the survey is carried out. The analysis is totally objective and free from human intervention. The paper will point out the benefit from using different analysis settings for different pavement types, where the switch between various pavements is done from texture measurements using laser sensor. The paper will also discuss the importance from quality in the collected surface images and to what extent an automated analysis could be used.

THEME: Pavement Surface Texture, Automated Pavement Condition Survey