ASTM E-17

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Kummer Lecture

Topic

Quantifying the Impact of Jointed Concrete Pavement Curling and Warping on Pavement Roughness

Abstract

Curling and warping of Jointed Concrete Pavement (JCP) are well-known phenomena. Furthermore, it is a common belief that this behavior may impact pavement roughness, and thus driver comfort. This relationship has been difficult to quantify in the past due to lack of adequate field measurements and appropriate analysis techniques. To address this issue, the US Department of Transportation Federal Highway Administration initiated a project, Inertial Profile Data for Pavement Performance Analysis. This is arguably the most extensive study on JCP curling and warping conducted by this agency to date. The resulting products from this study included a new technique termed the Second Generation Curvature Index (2GCI) that quantifies the magnitude of JCP curling and warping. A new system termed Rasmussen-Chang-Karamihas (RoCK) Diagram was also developed to assess the influence of diurnal and seasonal changes on JCP curvature, and to pavement roughness. The resulting system is anticipated to change how measurements of JCP roughness should be made, and how JCP-related roughness criteria should be specified. Thus, the products from this study would serve both owner-agencies and practitioners alike as powerful tools for to better manage their concrete pavement projects.

Presenter

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