

LOCAL CALIBRATION OF THE INTERNATIONAL ROUGHNESS INDEX AASHTO MEPDG MODEL

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ABSTRACT

The roughness of road surfaces has been long recognized as an important measure of its performance. Roughness has a direct influence on ride comfort, safety, and vehicle wear, by dynamic excitation of the vehicle. The term "roughness," as used here, means the variations in surface elevation along a road which excite vibrations in traversing vehicles [1].

Today, roughness is typically quantified using some form of either present serviceability rating (PSR), International Roughness Index (IRI). IRI has become the standard scale on which road roughness information is reported both here in the United States [2] and in many countries of the world.

The first objective of the paper was to compare the IRI values from the Arizona State Hot Mix Asphalt (HMA) sections to the predicted IRI values from the American Association of State Highway and Transportation Officials (AASHTO) model. The second objective was to perform a local calibration of the latest AASHTO IRI prediction model in order to fit the measured field IRI values in Arizona. After the local calibration was completed, the IRI model showed a significant prediction improvement. This study provides detailed descriptions of input parameters and the calibration process which will serve as a framework to similar highway agencies and help ensure the successful implementation of the AASHTO design guide.

KEY WORDS: Roughness, Mechanistic, Empirical, Calibration, Design Guide.