EVALUATION OF LABORATORY AND FIELD WARM MIX ASPHALT MIXTURES WITH HIGH CONTENTS OF RECLAIMED ASPHALT PAVEMENT

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ABSTRACT
Rutting and moisture-induced damage are considered two of the main distress that impact the performance of the asphalt mixtures. The main objective of this paper is to evaluate the moisture susceptibility of the Polyethylene (PE)-Wax based Warm Mix Asphalt (WMA) with high contents of reclaimed asphalt pavement (RAP) in comparison with Hot Mix Asphalt (HMA), both in the laboratory and the field. Based on the Hamburg Wheel-Track (HWT) test results, the moisture susceptibility of both HMA and WMA mixtures improved as the RAP amount was increased. Although WMA mixtures did not perform as well as HMA mixtures with RAP contents of 30%, 40% and 50%, it performed as well as HMA when the RAP content was increased to 75%. The specially designed WMA additive improved the moisture susceptibility of both laboratory and field WMA mixtures with high RAP contents. The average densities of the HMA and WMA test sections in Iowa were 94.3%, and 93.9%, respectively and those of the HMA, and WMA test sections in Ohio were 94.6%, and 95.2% respectively, all of which met the target density of 94%.