COMPARISON OF MECHANISTIC-EMPIRICAL AND EMPIRICAL FLEXIBLE PAVEMENT DESIGN PROCEDURES OF AASHTO: A CASE STUDY

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ABSTRACT
Currently, the most current method for pavement design is AASHTO (1993) method which is an empirical method. However limitations of the empirical approach are becoming increasingly apparent with developments and increased knowledge in the fields of pavement mechanics and material science. Mechanistic-empirical pavement design Guide (MEPDG) is an effort to address these limitations. Mechanistic-empirical pavement design Guide is a new method proposed under NCHRP Project 1-37A and 1-40D which is based on numerical models. The objective of this paper is to compare the design and performance between the empirical AASHTO and the MEPDG method using highest level of data accuracy. Five previously constructed pavement sections designed by empirical AASHTO method have been used in this study. An analysis has been made on the sections using MEPDG and new pavement sections have also been designed and the differences have been illustrated. The results show that using MEPDG results in thinner AC sections, but the amount of difference is dependent to performance criteria chosen. For almost all section used, fatigue cracking is controlling criteria.

KEY WORDS: Flexible pavements design, MEPDG, AASHTO empirical design