

# INCLUSION OF ENVIRONMENTAL EFFECTS IN THE PERFORMANCE-RELATED SPECIFICATIONS FOR FLEXIBLE PAVEMENTS

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## Abstract

Recently, many highway agencies have moved toward the development of Performance-Related Specifications (PRS) to calculate the payment to the contractor. In this method of specifications, the pay factor is determined by comparing the anticipated performance of the as-constructed pavement to the corresponding as-designed pavement through an acceptance plan. The anticipated performance mainly influenced by the measurable quality characteristics such as resilient modulus of pavement layers, California Bearing Ration (CBR) of subgrade soil and layers thickness. These variables can be controlled by the contractor and can be also selected in a manner to satisfy the specifications. On the other hand, the environmental parameters affect on the variation of pavement materials properties. Consequently, these changes affect on the anticipated performance and the payment to the contractor. Therefore, the objective of this paper is to develop a procedure considering the environmental effects in establishing the PRS and payment schedule for flexible pavements. The key parameter that was selected to reflect the environmental effects is the layer elastic modulus, which changes with surrounding environment parameters, such as: temperature (for asphalt bound layers) and moisture (for unbound materials). The effect on the elastic modulus or modulus of resilience value of a pavement layer may be represented by a multiplying factor, called "Seasonal Adjustment Factor". Finally, a framework has been established for the PRS including the environmental effects.

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