NCHRP Synthesis of Highway Practice 325: Significant Findings from Full-Scale Accelerated Pavement Testing

During the production process for this report a paragraph was inadvertently dropped from page 60, column one. The missing material is provided here.

ELASTO-PLASTIC BEHAVIOR OF UNBOUND MATERIALS

A unique application of HVS data is the work done by Wolff (1992). He used the South African HVS data to develop a mechanistic model for use in a design model for granular pavement materials. His aim was to simulate the actual behavior of granular materials under APT. In his analysis, he assumed the material to be in a stress state well below the yield stress condition, which is the situation in a functional pavement. His method is akin to methods employed by Kenis (1978) and Yandell and Behzadi (1999) in which the permanent strain that takes place during each load cycle is taken into account. The nonlinear elasto-plastic behavior of the unbound granular material is modeled in two phases. In the first phase, he uses the nonlinear elastic finite-element program MICHPAVE (Chatti et al. 1999) for backcalculating material parameters from measured deflections. In the second phase, the elasto-plasticity of the material is modeled by a function that relates an invariant of backcalculated stress induced by the HVS wheel loads to the plastic strain measured relative to repetitions of wheel loads.