The Roles of Accelerated Pavement Testing in Pavement Sustainability

A Link of Full-Scale Accelerated Pavement Testing to Long-Term Pavement Performance Study in the Western Cape Province of South Africa

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ABSTRACT

The development of a new mechanistic-empirical pavement design method by the South African National Roads Agency Ltd (SANRAL) is at its finalization stage. The new design method, referred to as the South African pavement design method (SAPDM) will heavily rely on Long-Term Pavement Performance (LTPP) and Accelerated Pavement Testing (APT) data to calibrate performance models for cracking and rutting. This paper discusses more than 10 years APT and LTPP data established from LTPP sections in the Western Cape province of South Africa. In addition, the paper presents updated field results of an expanded LTPP program that links both field and laboratory data to pavement performance. In comparison, the rut data from the LTPP section are similar to or higher than the HVS rut data depending on the type of pavement (i.e. surfacing material, layer materials, layer thickness and so forth). Similarly, deflection data could be similar or varied for different pavement types. Based on the conclusions from this paper, it is envisaged that the LTPP and APT data will provide the basis for the calibration of cracking and rutting models for the SAPDM. This would require in some cases, an introduction of shift factors to adjust APT data to LTPP (real life) data.