

# **ULTIMATE BEHAVIOR OF RIGID PAVEMENTS UNDER DIFFERENT SOIL EROSION SCENARIOS USING FE APPROACH**

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## **ABSTRACT**

The concrete pavement design procedures evaluate a candidate pavement design with respect to two potential failure modes: fatigue and erosion. Damage of the pavement is mostly caused by soil erosion beneath the pavement. Moisture trapped in the soil typically reduces subgrade strength and causes loss of slab support due to subbase and subgrade erosion and pumping, which results in pavement settling, faulting at joints and corner breaks. The main objective of this research is to investigate the influence of several parameters such as different scenarios and percentage numbers of soil erosion, slab dimension and slab thickness on the structural behavior of slab pavements. Furthermore, a comparison between the pavement responses resulted from the analysis in this study and the pavement responses resulted from the AASHTO design procedure was conducted. The analysis of the results showed that there is a significant effect of these parameters in the ultimate behavior of the rigid pavements under different soil erosion scenarios.