

ABSTRACT

Flexible pavement applied on intersection approaches traversed by heavy traffic often suffer earlier damage than that on the straight segments of the road. This is due to the increased traffic loading time which softens pavement's stiffness modulus. To deal with this problem, flexible pavement on intersection approaches is often replaced with rigid pavement structure.

This study presents Jointed Plain Concrete Pavement (JPCP) design for eastern approach of UPN Intersection – Padjajaran Highway at Sleman, Yogyakarta. The Indonesian Pd T-14-2003 design code for Cement Concrete Pavement Design was used to calculate thickness and joint design requirements. Subsequently, the effects of low construction quality were studied. Reduced concrete quality (K300 and K350) and thickness (23, 22, 21, and 20 cm) were related to slab maximum stresses, maximum corner deflections, cracking index, and reduced design life. The analysis was conducted using mechanistic-empirical approach with KENSLABS software.

Based on the code, concrete slab qualifies as K400 with a thickness of 24 cm passed the fatigue and erosion criteria for 20-year design life and hence proposed. After doing the study of various data parameter, the results of the analysis on the kenslab show that the increase in cracking index does not occur significantly on the value 0 % to 20 %. An increase in cracking index happening by significant on the value 20 % to 100 %. While reduction life design occurring significantly in reduction in the value of 100 % to 20 %. As for reduction life design not happening by significant at reduction in the value of 20 % to 0 %.

Keywords: *Rigid Pavement, KENSLABS, Pavement Performance, Cracking Index, Design Life*