

The Effect of Proper Drainage on the Cost of Building and Repairing Roads

Authors : Seyed Abbas Tabatabaei, Saeid Amini, Hamid Reza Ghafouri

Abstract : One of the most important factors in flexible pavement failure is the lack of proper drainage along the roads. Water on the Paving Systems is one of the main parameters of pavement failure. Though, if water is discharged without delay and prior to discharge in order to prevent damaging the pavement the lifetime of the pavement will be considerably increased. In this study, duration of water stay and materials properties in pavement systems and the effects of aggregate gradation, and hydraulic conductivity of the drainage rate and Effects of subsurface drainage systems, drainage and reduction in the lifetime of the pavement have been studied. The study conducted in accordance with the terms offered can be concluded as under. The more hydraulic conductivity the less drainage time and the use of sub-surface drainage system causes two to three times of the pavement lifetime. In this research it has been tried by study and calculate the drained and undrained pavements lifetime by considering the effectiveness of water and drainage coefficient on flexible materials modulus and by using KENLAYER software to compare the present value cost of these pavements has been paid for a 20 year lifetime design. In this study, 14 pavement sections have been considered, of which 7 sections have been drained and 7 other not. Results show that drained pavements have more initial costs but the failure severity is so little in them and have longer lifetime for a 20 year lifetime design, the drained pavements seem so economic.

Keywords : drainage, base and sub-base, elasticity modulus, aggregation

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