

Effect of geogrid reinforcement location in paved road improvement

ABSTRACT

A series of two-dimensional finite element simulations are carried out to evaluate the benefits of integrating a high modulus geogrid in a paved road. This paper describes the behavior of reinforced asphalt concrete (AC) pavement under plane strain conditions and subjected to monotonic loading. The results of improvement of paved track using geogrids are presented. Geogrid reinforcement into paved road in most cases will improve the performance of the transportation support. Analytical results for three different most possibilities of geogrid reinforcement in the paved road layers have been evaluated. The optimum position was decided based upon the tension stress absorption value, deformation reduce rate and tension cut-off point location. Three types of reinforcing model and one type of unreinforced model of paved road were selected. The results showed that tension stress absorption increases with shifting the geogrid towards the top of the pavement and attains the highest values when the geogrid is placed between asphalt layer and base layer in model.

Keyword: Paved road; Geogrid; Optimal location; Tension stress absorption