Estimation of Equivalency Units of Vehicle Types for Road Geometry

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Abstract

Capacity plays an important role while planning and designing of any roadway. The features of geometric of a roadway like the grade and curve radius will govern the capacity of a roadway. Passenger car unit (PCU) is used to estimate the capacity of the roadway. The passenger car unit values of a vehicle type alter concerning to speed. The speed of the vehicle is governed by geometric features of a roadway. This work objective is to learn the effect of geometric of the roadway such as grade, curve, and straight sections on PCU values of heterogeneous traffic conditions on a two-way four-lane national highway. Geometric and traffic data collected at 7 sections on NH-16. PCU value's estimation of the vehicle types of mixed traffic is difficult as compared with the homogeneous traffic conditions. PCU values are estimated by using speed–area ratio (dynamic PCU) method. Dynamic PCU (speed–area ratio) approach considers the vehicle average speed. The outputs had revealed that the capacity of the roadway declines as the percentage of downgrade increases. With an increase in the percentage of upgrade, the capacity of the road increases. The capacity of the roadway increased at the quick curve in contrast with mild curve and straight roads.

Keywords

Passenger car unit Geometry Capacity Grade Curved Dynamic PCU

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