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ESTIMATION OF PASSENGER CAR UNIT FACTORS FOR URBAN ARTERIALS UNDER MIXED TRAFFIC CONDITIONS

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Abstract

In India, highway traffic is of heterogeneous in nature and hence it is imperative to identify the relative effect of different types of vehicles on the traffic flow in comparison with passenger car. The study is intended to develop PCU factors, speed-flow curves, and capacity for urban arterials. Mathematical equation as suggested in earlier studies is modified to obtain PCU factors by replacing the width and time headway with area and longitudinal gap. To develop PCU factors average speeds of each class under different sets of prevailing conditions, average length and width of each vehicle class, and average longitudinal gap between a particular class of vehicle were considered. Speed- flow curves were developed and compared for all locations using PCU values suggested by IRC and to that of the developed mathematical equation. Capacities for these curves are estimated by fitting the speed flow data to second degree polynomial equation. The results of the study, provides an insight into the complexity of the vehicular interaction in heterogeneous traffic. The PCU estimates, made for different types of vehicles of heterogeneous traffic, for a wide range of traffic volume and roadway conditions indicate that the PCU value of a vehicle significantly changes with change in traffic volume and width of roadway. A four midblock section on a busy corridor of an urban arterial of Hyderabad City is considered for the study.

Keywords : Heterogeneous traffic, PCU, Polynomial equation, Speed-flow