

Estimation of equivalency units for vehicle types under mixed traffic conditions: Multiple non-linear regression approach

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Abstrak

The accuracy of measured traffic flow on a roadway largely depends on the correctness of the PCU factors used for converting traffic counts. PCU is the number of passenger cars that are displaced by a single heavy vehicle of a particular type under prevailing roadway, traffic and control conditions. The aim of the present study is to develop more appropriate models for estimating the equivalency units of different vehicle types on multilane highways, considering the limitations of available methods. Estimation of equivalency units for vehicle types is described by developing speed models based on multiple non-linear regression approaches. The equivalency units estimated by using models are found to be realistic and logical under heterogeneous traffic flow conditions. The PCU values estimated by the multiple non-linear regression method are compared with and found to be relatively higher values than the values obtained by the dynamic PCU. The accuracy of the models is checked by comparing the observed values of speed with estimated speeds. The multiple non-linear regression approach is also used for estimating the equivalency units on six-lane divided highways. Results indicate that the proposed methodology can be used for estimation of equivalency units for vehicle types under mixed traffic conditions.