

Analysis of Operating Speed on Four-Lane Divided Highways under Mixed Traffic Conditions

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Abstract : The present study demonstrates the procedure to analyse speed data collected on various four-lane divided sections in India. Field data for the study was collected at different straight and curved sections on rural highways with the help of radar speed gun and video camera. The data collected at the sections were analysed and parameters pertain to speed distributions were estimated. The different statistical distribution was analysed on vehicle type speed data and for mixed traffic speed data. It was found that vehicle type speed data was either follows the normal distribution or Log-normal distribution, whereas the mixed traffic speed data follows more than one type of statistical distribution. The most common fit observed on mixed traffic speed data were Beta distribution and Weibull distribution. The separate operating speed model based on traffic and roadway geometric parameters were proposed in the present study. The operating speed model with traffic parameters and curve geometry parameters were established. Two different operating speed models were proposed with variables $1/R$ and $\ln(R)$ and were found to be realistic with a different range of curve radius. The models developed in the present study are simple and realistic and can be used for forecasting operating speed on four-lane highways.

Keywords : highway, mixed traffic flow, modeling, operating speed

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