Defining level of service criteria of urban streets in Indian context

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Abstract

Speed ranges of Level of Service (LOS) categories of urban streets are not well defined for highly heterogeneous traffic flow condition on urban streets in Indian context. In this respect, a study was carried out in the city of Mumbai, India and the result was tested on two major corridors in Kolkata City. Average travel speed on street segments is used as the measure of effectiveness, which in this case has been derived from second by second speed data collected using Global Positioning System (GPS) receiver fitted on mobile vehicles. Hierarchical Agglomerative Clustering (HAC) is applied on average travel speeds to define the speed ranges of urban street and LOS categories. Applying this methodology it is found that urban street speed-ranges of LOS categories valid in Indian context are different from that values specified in HCM (2000). The application of this procedure is that in a simple manner with the application of GPS it can be applied in the evaluation of level of service of urban streets in different environment.

Keywords: Level of service; Urban streets; Hierarchical agglomerative clustering; GPS; Heterogeneous traffic flow.

1. Introduction

The Highway Capacity Manual (HCM 2000) designates six levels of service for each type of facility, from A to F, with LOS “A” representing the best operating conditions and LOS “F” the worst. It uses distinct values as boundaries for the various levels of service, each of which represents a range of operating conditions. The classification of urban streets into number of street classes and speeds into different levels of service categories is well defined in HCM 2000 are well applicable in homogenous traffic flow condition. Hence, in this study it has been attempted to classify urban streets and speeds into number of categories that is applicable in the prevailing context of heterogeneous

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