MEASURING SPEED VARIATION BASED ON VEHICLE MOVEMENT MECHANISM AT SIGNALIZED INTERSECTION BY PROBE VEHICLE DATA UNDER HETEROGENEOUS TRAFFIC CONDITION: A CASE STUDY IN SURAT CITY

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Abstract : Intersection is an important point in a road network and there are numbers of intersection in Surat city. The prime objective of traffic signal control is to minimize vehicular conflict and delay. Speed is inversely proportional to the delay and it is observed that there is a reduction in speed which is causing delay, which affects travel time. Variation of delay at an intersection has a significant effect on travel time reliability. Measurement of delay depends upon various factors such as signal cycle, saturation flow, arrival and departure of vehicles, types of intersection, amount of traffic volume, composition of vehicles and type of traffic control system, etc. Intersection in most of the Indian cities are fixed time signalized intersection. Generally, we consider total travel time for a trip which includes a delay that might be due to traffic or signalized intersection or pedestrian or any other unavoided circumstances. The aim of the paper is to measure the delay variability and to find out what amount of delay accounts to signalized intersection in total travel time. Delay variability helps in predicting total travel time variability and helps in estimating accurate travel time. From the analysis, it is observed that the 3W has higher average speed in conflict area compare to 4W and lower speed at the mid-block zone. From the analysis we can conclude that the speed reduction is more than 50% at a signalized intersection.

IndexTerms **- Vehicle Movement Mechanism, Signalized Intersection, Delay, V-box, Travel time reliability, Heterogeneous traffic**