

## Effects of Non-Motorized Vehicles on a Selected Intersection in Dhaka City for Non Lane Based Heterogeneous Traffic Using VISSIM 5.3

**Authors :** A. C. Dey, H. M. Ahsan

**Abstract :** Heterogeneous traffic composed of both motorized and non-motorized vehicles that are a common feature of urban Bangladeshi roads. Popular non-motorized vehicles include rickshaws, rickshaw-van, and bicycle. These modes performed an important role in moving people and goods in the absence of a dependable mass transport system. However, rickshaws play a major role in meeting the demand for door-to-door public transport services to the city dwellers. But there is no separate lane for non-motorized vehicles in this city. Non-motorized vehicles generally occupy the outermost or curb-side lanes, however, at intersections non-motorized vehicles get mixed with the motorized vehicles. That's why the conventional models fail to analyze the situation completely. Microscopic traffic simulation software VISSIM 5.3, itself a lane base software but default behavioral parameters [such as driving behavior, lateral distances, overtaking tendency, CCO=0.4m, CC1=1.5s] are modified for calibrating a model to analyze the effects of non-motorized traffic at an intersection (Mirpur-10) in a non-lane based mixed traffic condition. It is seen from field data that NMV occupies an average 20% of the total number of vehicles almost all the link roads. Due to the large share of non-motorized vehicles, capacity significantly drop. After analyzing simulation raw data, significant variation is noticed. Such as the average vehicular speed is reduced by 25% and the number of vehicles decreased by 30% only for the presence of NMV. Also the variation of lateral occupancy and queue delay time increase by 2.37% and 33.75% respectively. Thus results clearly show the negative effects of non-motorized vehicles on capacity at an intersection. So special management technics or restriction of NMV at major intersections may be an effective solution to improve this existing critical condition.

**Keywords :** lateral occupancy, non lane based intersection, nmv, queue delay time, VISSIM 5.3

**Conference Title :** ICTE 2019 : International Conference on Transport and Environment

**Conference Location :** Rome, Italy

**Conference Dates :** January 17-18, 2019