

Capacity Loss at Midblock Sections of Urban Arterials Due to Pedestrian Crossings

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Abstract : Pedestrian crossings at grade in India are very common and pedestrian cross the carriageway at undesignated locations where they found the path to access the residential and commercial areas. Present paper aims to determine capacity loss on 4-lane urban arterials due to such crossings. Base capacity which is defined as the capacity without any influencing factor is determined on 4-lane roads by collecting speed-flow data in the field. It is observed that base capacity is varying from 1636 pcu/hr/lane to 2043 pcu/hr/lane which is attributed to the different operating conditions at different sections. The variation in base capacity is related with the operating speed on the road sections. Free flow speed of standard car is measured in the field and 85th percentile of this speed is reported as operating speed. Capacity of the 4-lane road sections with different pedestrian cross-flow is also determined and compared with the capacity of base section. The difference in capacity values is reported as capacity loss due to the average number of pedestrian crossings in one hour. It has been observed that capacity of 4-lane road section reduces from 18 to 30 percent with pedestrian cross-flow of 800 to 1550 peds/hr. A model is proposed between capacity loss and pedestrian cross-flow from the observed data.

Keywords : capacity, free flow speed, pedestrian, urban arterial, transport

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