
The Study on Saturation Flow at Signalized Intersection

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Abstract

Signalized intersections are an essential part of a road network in urban areas where the traffic congestion has been a major problem. In the design of signalized intersections, capacity is the key factor and the saturation flow rate plays an important role in determining the capacity. Therefore, saturation flow can be considered as an important parameter which is used for the planning, designing and controlling a signalized intersection. Accurate saturation flow values are a fundamental criterion in the management of efficient and effective traffic signal control and intersection design. Many countries had executed researches regarding the saturation flow rates to suit their traffic conditions and identified the major factors which affect the saturation flow which might be not suited for our local traffic conditions. Therefore, the objective of this study was to collect a large sample of field measurements and identify the way of pattern of varying the saturation flow with the different factors which directly affected.

Sri Lanka is a developing country and cities are undergoing rapid urbanization. As a result, there is rapid growth in the road traffic. Traffic movement is very complex due to the heterogeneous traffic stream sharing the same carriageway. With this study, it can be identified that this heterogeneous traffic condition is one of the major factors which affect the variation of the saturation flow. A large number of motorcycles and three-wheelers can be seen at the signalized intersections and they increase the capacity and heavy vehicles reduce the capacity as well. By considering all those facts it should be corrected the saturation flow rates which are using for the traffic signal timing calculations as suit for the traffic conditions.

Keywords: Signalized intersection, Saturation flow, Capacity, Mixed traffic

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