Delay Analysis at a Signalized T Intersection Using VISSIM Software

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Abstract

Traffic signal delay is one of the major problem people face in urban areas. Though the traffic signals sometimes create a delay itself, they are needed for the safety of the junction to prevent collision between several vehicle movements. Delay is a component related with time which is more precious. A proper traffic signal arrangement has to be implemented which can optimize the delay for all vehicle moments through the junction. Apart from signal timing arrangement, other factors such as geometry also influence the delay at an intersection, which should be considered when analyzing the delay.

The aim of the research is to analyze and find the parameters influencing the delay at a signalized intersection and get an optimize condition which can reduce the delay. Katubedda Junctions which is a T intersection has been selected for the case study. The traffic simulation software VISSIM has been used for the analysis. The geometrical arrangement, signal timing and traffic flow data was collected through a video survey. Driving behavior parameters is the key to calibrate the software model to Sri Lankan conditions. This was achieved by changing the driving behavior parameters of the model and matching the propagated queue length in model with actual queue length.

Some geometrical and signal timing changes were categorized into three different alternatives which were modeled in VISSIM with the existing condition as the base case. The results show that changes in signal timing arrangement and changes in the geometrical arrangement has to be done to reduce the delay at the selected location.

Key words: Delay, Queue length

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