

# **Determination of the Optimal U-turn Design Using Simulation**

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## **Abstract**

The number of U-turns slots is increasing all over Metro Manila. This is due to the fact that it is being utilized by the Metro Manila Development Authority as an alternative system for the traditional stop light intersections. Therefore, it is a must to determine the best system to be implemented for future construction of U-turns. This research therefore focused on the identification of the optimal design of the different U-turn designs by comparing each in terms of the time a vehicle used a U-turn. Simulation was used to create different types of scenarios, and was used to evaluate multiple U-turn designs. Validation of the simulation model was done to determine the validity of the simulated model by comparing the observed time of the vehicles using the U-turn slot and the simulated time generated by the model. Results show that there is no significant difference between the simulated model and the current system. The simulation model was then modified to model the different U-turn designs, and based on the vehicle use time, an optimal design was determined.