

Public Abstract

First Name:Pavani

Middle Name:

Last Name:Boddapati

Adviser's First Name:Mark

Adviser's Last Name:Virkler

Co-Adviser's First Name:

Co-Adviser's Last Name:

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Title:Comparative study of Type 2 Crossovers and Median U-Turns

Many states use rural expressway median crossovers to manage the direct left turn movements between the expressways and cross roads. These crossovers provide for separation between the two opposing traffic lanes and allow the movement for the turning and crossing traffic. As the volume increases on the major road, the traffic from the crossroad faces difficulty in finding a gap to enter the other side of the driveway. As a result these drivers will experience long travel and delay times. Sometimes the storage length provided for the expressway vehicles to make a left turn at the median crossover may get occupied completely. This may lead to a dangerous situation where the vehicles will extend back onto the expressway, obstructing the through movement traffic. The research describes the comparative study of type 2 median crossovers and Median U-Turns and estimates where the rural expressway type 2 median crossover fails in its operation. The Highway Capacity Software and VISSIM, the simulation tool, were used to obtain the performance characteristics of the median crossover based on operational parameters including travel time, delay time and Level of service. A design tool was developed that helps to make a decision on the distance required to be provided between the cross road and the Median U-Turn. This design tool is based on the volume combinations of the crossroad and the major road. Various combinations of traffic volumes have been assumed based on which, the extent to which the conventional design option, the Median U-Turn with unsignalized condition and signalized condition will work were determined from the performance measures obtained in VISSIM. Cost estimates that include the construction costs and user costs have been made for all the three design options.