Two way left turn lanes (TWLTL) and raised medians are common median treatments on roadways. This research focused on evaluating the safety effectiveness of conversion of TWLTLs into raised medians using Before-After and Cross Sectional Studies. In the Before-After Studies, we evaluated the effect of this treatment using the Nave, Before-After with Comparison Group (CG), and Before-After with Empirical Bayes (EB) Methods. In order to apply these methods, a total of 33 segments of a treated group and 109 segments of a comparison group have been collected. Also, safety performance functions (SPFs) have been developed using the negative binomial model in order to calibrate crash modification factors (CMFs) using the Before-After with Empirical Bayes Method. This research also evaluated the safety effectiveness of this treatment on four and six lane roads using Before-After with CG and Before-After with EB. The type of raised medians was further evaluated using Before-After with CG and EB.

In sum, the results from this study show that applying the before-After and Cross Sectional studies have proved that the conversion from a TWLTL to a raised median helped to reduce total, fatal and injury, head on, angle, and left turn crashes. It significantly reduces crashes for head-on and left turn crashes, by restricting turning maneuvers. Also, this study has proved that the treatment is more effective on four rather than six lane roads. Furthermore, two types of raised medians, concrete and lawn curb, were evaluated after the conversion from TWLTLs. It was found that both medians have similar effects due to the conversion, and both median types helped in reducing the number of crashes.

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Approved for distribution by Mohamed Abdel-Aty, Committee Chair, on February 24, 2014.

The public is welcome to attend.