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Safety Effect of Smart Right-Turn Design at Intersections

Authors : Upal Barua

Abstract : The risk of severe crashes at high-speed right-turns at intersections is a major safety concern these days. The application of a smart right-turn at an intersection is increasing day by day to address is an issue. The design, 'Smart Right-turn' consists of a narrow-angle of channelization at approximately 70°. This design increases the cone of vision of the right-tuning drivers towards the crossing pedestrians as well as traffic on the cross-road. As part of the Safety Improvement Program in Austin Transportation Department, several smart right-turns were constructed at high crash intersections where high-speed right-turns were found to be a contributing factor. This paper features the state of the art techniques applied in planning, engineering, designing and construction of this smart right-turn, key factors driving the success, and lessons learned in the process. This paper also presents the significant crash reductions achieved from the application of this smart right-turn design using Empirical Bayes method. The result showed that smart right-turns can reduce overall right-turn crashes by 43% and severe right-turn crashes by 70%.

Keywords : smart right-turn, intersection, cone of vision, empirical Bayes method
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