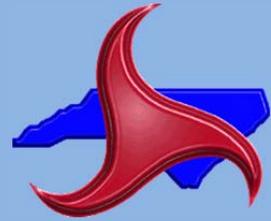


NCDOT Traffic Safety Unit Programs



Dynamic All Red Extension Pilot Project

NCDOT is in the process of testing and evaluating an innovative safety countermeasure for signalized intersections, called a Dynamic All Red Extension (DARE), which is intended to reduce the number of crashes caused by red light running.

Background

DARE works by detecting a vehicle is likely to violate the red signal indication of an approach during the red clearance timing interval of that approach; stopping the signal controller timing in the all-red clearance interval before switching right of way; and allowing the offending vehicle time to clear the intersection before the cross street receives a green indication. Because the system is dynamic, only the detected vehicles deemed as potential red light runners receive the red extension. The estimated costs for the pilot project sites are \$5,000 per approach using inductive loops for vehicle detection.

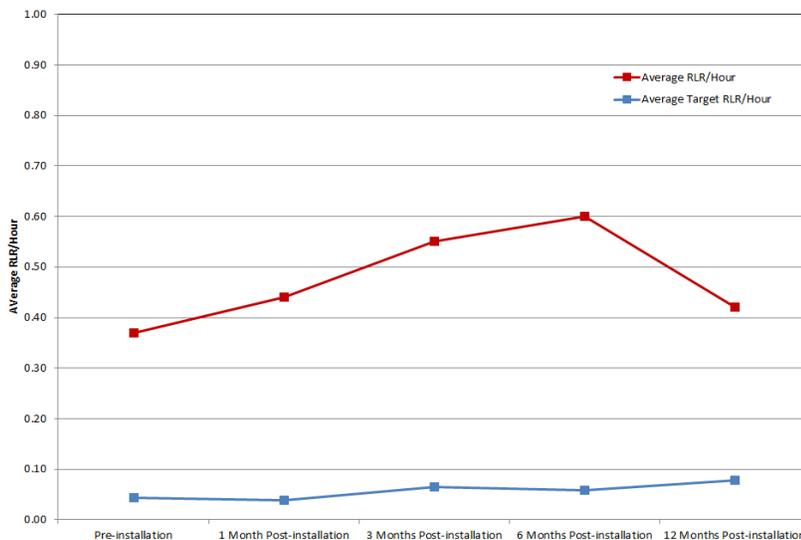


Red light running crash captured at a pilot project site

Results

The project testing involved installing DARE at eight signalized intersections at rural, isolated, high speed locations in 2013. The project evaluation is two pronged. We conducted a driver compliance evaluation, which involved the collection and analysis of over 1,000 hours of observational video data to determine whether significant driver adaptation occurred after installation. We also plan to conduct a final before and after evaluation of crash data once the systems have been in place for at least three years. In the interim, we evaluated the crash data using a naïve before and after analysis with over one year of after period data.

Average Red Light Runner/Hour



As shown at left, the driver compliance study results do not indicate a statistically significant change in average red light runners from before to 1-year post installation, indicating minimal change in driver behavior.

The *preliminary* crash analysis results indicate a 26% Reduction in Target Crashes, which include Angle Crashes involving a red light runner on a treated approach.