A Study of Red Light Cameras in Kansas City, MO

Kansas City, Missouri Police Department

May 2012

This report will analyze the effectiveness of red light cameras and general crash data for the 29 red light cameras located in 17 intersections in Kansas City, MO. The first camera went online at 39th and Southwest Trafficway on January 21, 2009 with a 30-day warning period and the last camera that came online was the second camera at I-435 and East 23rd on August 1, 2009. The data collection for this project involved writing a computer program to generate the case report numbers for each intersection, printing the reports from two different report systems, reading each report to extract the data and then collating the data. There were more than 2500 reports dating back to one year prior to the first camera activation. This paper will examine the crashes in one-year increments based on when the camera came online. It will examine one year prior to activation and two years after activation. The report was prepared by the Special Operations Division of the Kansas City, Missouri Police Department. American Traffic Solutions also provided and verified some information for this report.

As this report discusses and analyzes data related to the red light intersections, it therefore does not provide a comparison or analysis of red light camera intersections with other, non-red light intersections in the City. Further, it should be noted that red light cameras are not located at every approach at every intersection; some intersections have only one camera and some have as many as three.

As used in this report, year one is defined as the period of time as the first 12 months of each camera's operation, and year two includes the second 12 months of operation.

Red light cameras are intended to modify driver behavior in reducing the number of red light running violations and as a result lower the probability of accidents caused by red light running.

Accidents. Accidents caused by red light running, which are usually the most dangerous and result in the most injuries, were down significantly in the two years after red light cameras were installed in Kansas City. The number of accidents involving red light signal violations declined by 65% in the first year and 54% in the second year compared to the year before cameras were installed.

Seven intersections reported no accidents at all due to red light running in the first year. And in the first year, 14 of the 17 intersections reported a decrease in accidents caused by red light running, with another two staying the same. In the second year, 11 of the 17 intersections reported a decrease and another two stayed steady. Five intersections reported no crashes caused by red light running.

The dangerous right angle (or "T-bone") crashes were also reduced in both years. At nine intersections, accidents caused by red light signal violations were down in both years, one intersection reported no change and seven intersections had mixed results.

Fatalities. There were no fatalities reported at the monitored intersections in the first two years after installation of cameras.

Injuries. To accurately determine the cause of injury accidents, we conducted an in-depth review of the intersection of 55th Street and U.S. Highway 71. We choose this intersection because it recorded the largest number of injury crashes in the second year after camera installation and also the largest increase in injury crashes after cameras were installed. There are six approaches at that large intersection and two of them have monitored approaches. In our analysis, we determined that the year before the camera installation, there were nine accidents caused by red light runners, with four of them resulting in injuries. In the first year after cameras, there were no accidents nor injuries caused by red light running. In the second year, there was one accident and it resulted in an injury.

In summary, accidents caused by red light running went from nine to zero to one (100% reduction in first year and 90% in the second year). Accidents caused by red light runners that resulted in an injury went from four to zero to one over two years (100% in the first year and 75% reduction in the second year).

Citations Issued. The number of citations issued has significantly dropped. Comparing the first full year (August 2009 to July 2010) to second full year (August 2010 to July 2011), citations issued dropped from 68,777 to 45,793, or 33%. Since the program was fully deployed in August 2009 through February 2012, every month has had fewer citations issued than the same month of the previous year.

Ninety-two percent (92%) of drivers receiving a citation only did so once. Ninety nine percent (99%) only received two or fewer citations based on license plates. This indicates a low rate of repeat offenders.

The intersection with the most violations issued is 39th and Southwest Trafficway with 22,418, or 7,400 per camera. As the first camera installed, this is not unexpected. The lowest total was at 19th and Walnut with 707 violations.

Rear End Accidents. The most common type of accident are rear end collisions, which totaled 788 (56%) for all intersections for the 3 year period. The number of rear end crashes remained the same in the first year and increased the second year.

Rear end accidents are caused by several factors with the most common being distracted or inattention. In our in-depth study of 55th St. and 71 Highway, such reasons included, “looked down at her drink”, “driver looked down to get his cell phone” and “driver stated he was eating peanut butter and crackers to help keep him awake". Rear end accidents also happened when the lead car stopped or slowed for a red light and a surprising number when the light turns

green and the first car doesn't move as expected. While there were other factors - generally weather related, such as wet pavement or ice – most rear end accidents appear to be caused by the inattention of drivers.

Video Evidence. On at least 60 occasions, the Kansas City Missouri Police Department has requested video from the red light cameras to assist in their investigations. They have been utilized in simple accident reconstructions as well as in more serious investigations of robberies and homicides. These videos have proven to be an effective tool.

Weather information was obtained from the National Weather Service website. All three years had very similar weather totals for the three year period. Weather is a factor in accidents on roadways, but no one year seems to be out of the ordinary with any other year.

Running the red light on right turn violations are not distinguished by the system from running the red light on a left turn or going straight. They are all illegal and are cited using the same ordinance. A check with American Traffic Solutions (ATS), the vendor for the cameras, verified the system does not distinguish between left, straight, or right direction violations. A sample was collected by the Red Light Camera (RLC) Officers and it revealed that 29% of the violations during the sample period were running the red light on a right turn. RLC Officers used their discretion when reviewing violations and issued citations to 71% of those running the red light on a right turn. Overall, RLC Officers issued citations on 80% of the violations they reviewed and rejected 20% of all possible violations. Some violations are rejected due to weather related issues. Another reason can be because of the inability to read or the lack of a license plate.

Unlicensed drivers. Information regarding unlicensed drivers was not included in this report because of the difficulty with obtaining a driver's status at the time of the accident. We would have to check each involved driver with DOR and determine their status at the time of the accident.

Conclusion. Red light cameras appear to have accomplished their intended purpose by modifying driver behavior to reduce the number of red light running violations and, as a result, lower the probability of accidents and injuries caused by red light running. The numbers of accidents, injuries and the number of motorists running the red light at these intersections are down. Finally, we are using the video from the cameras to educate the public about safety at intersections controlled by red lights. Crash and near crash videos are being posted on the department website (www.kcpd.org) to provide a visual reminder for drivers.