Using Red-Light Cameras to Reduce Red-Light Running (RLR)

Red-Light Running Problem

Crash data from the National Highway Traffic Safety Administration indicates that in the year 2002, there were **921** fatalities and **178,000** injuries resulting from **207,000** crashes attributable to motorists running red lights at signalized intersections. The number of fatal motor vehicle crashes at traffic signals is rising faster than any other type of fatal crash nationwide.

Putting It in Perspective

- Red-light running accidents cost the nation an estimated $7 billion per year.

- Motorists are more likely to be injured in crashes involving RLR than in other types of crashes. Occupant injuries occurred in 45 percent of the RLR crashes compared to 30 percent in other crash types.

- According to a survey conducted by the U.S. Department of Transportation and American Trauma Society, 63 percent of Americans witness a RLR incident more than once a week. One in three Americans knows someone who has been injured or killed because of a red-light runner.

When does RLR occur?

RLR occurs when a driver enters an intersection after the traffic signal has turned red. The reasons that motorists run red lights are varied and are both intentional ("in a hurry and didn't want to wait") and unintentional ("my vision to the signal was blocked"). According to survey research, drivers believe RLR is often an intentional act with few legal consequences. The traditional way of enforcing this violation is to station a patrol vehicle near an intersection. This method is dangerous for the officer, expensive to localities and drains valuable police resources.

> Crashes resulting from red-light running are much more likely to cause an injury or fatality than other intersection crashes.

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Solution: Red-light camera technology can make intersections safer.

The solution to the RLR problem involves a combination of engineering, education and enforcement measures. Research suggests that "intentional" red-light runners, who account for a significant percentage of red-light runners, are most affected by enforcement countermeasures.

What are red-light cameras?

Red-light cameras encompass a system that allows for automated enforcement of RLR. It includes embedded vehicle detectors wired to signal controllers that can detect if a vehicle has entered the intersection when the signal is red. Some systems also record the speed of the vehicles as they approach and enter the intersection. Roadside mounted cameras record images (either film or digital) of the violation. Depending upon the camera placement and agency's policy, front or rear images of the vehicle are processed. The images are reviewed at a central location and if the violation is confirmed by law enforcement, then a citation is issued to the owner of the vehicle. In some jurisdictions, the owner can challenge the citation if he or she was not the driver.
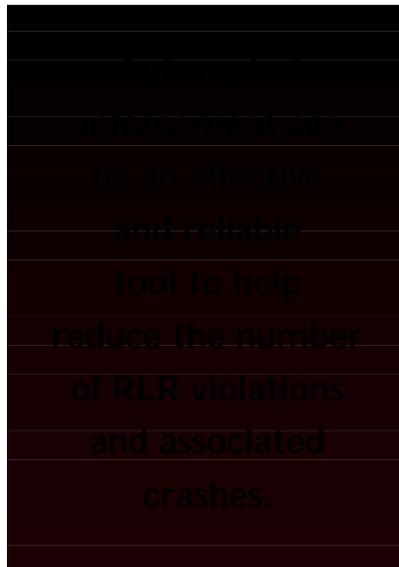
The usage of automated RLR enforcement is increasing with more than 90 jurisdictions in 15 states deploying one or more camera systems.

Successful applications: Research demonstrates crash reductions

Based on a literature review and jurisdiction survey reported in the National Cooperative Highway Research Program Synthesis 310, *Impact of Red Light Camera Enforcement on Crash Experience*, a majority of jurisdictions reported downward trends in RLR-related violations and crashes, especially the more severe kind, because of red-light cameras. For example:

- ✦ In Fairfax, VA, violations were reduced by 41 percent after the first year of camera enforcement;
- ✦ San Francisco and Los Angeles, CA realized a 68- and 92-percent reduction in violations, respectively;
- ✦ In Charlotte, NC, RLR violations were reduced by more than 70 percent during the first year of operation; and
- ✦ In Oxnard, CA, the number of crashes at all signalized intersections was reduced by 7 percent and the number of injury crashes was reduced by 29 percent.

> Automated enforcement can be an effective and reliable tool to help reduce the number of RLR violations and associated crashes.

Proper Implementation of RLR Cameras

The primary purpose of RLR cameras is to reduce RLR violations and thereby reduce RLR-related crashes. RLR-camera programs should not be implemented to increase revenue from citations. According to the Federal Highway Administration's *Guidance for Using Red-Light Cameras*, the following critical elements should be considered while installing red-light camera systems:

- ✦ Conduct an engineering study before considering camera installation;
- ✦ Evaluate effective engineering and education alternatives before considering photo-enforcement;
- ✦ Make sure the red-light camera program is engineered and installed properly;
- ✦ Measure, document and make safety results available;
- ✦ Ensure complete oversight and supervision by public agencies;
- ✦ Avoid compensating vendors based on number of citations; and
- ✦ Include an ongoing photo-enforcement public education program.

Resources

1. *Engineering Countermeasures to Reduce Red-Light Running.* Washington, DC: ITE, 2003. http://safety.fhwa.dot.gov/rlr/rlrreport/RLRbook.pdf

2. *Guidance for Using Red Light Cameras.* This FHWA publication provides information to state and local agencies on how to initiate and operate an appropriate red light camera program. Call 202-366-5915 to order Publications No. FHWA-SA-03-018, or visit http://www.nhtsa.dot.gov/people/injury/enforce/guidance03/Guidancereport.pdf

3. *Impact of Red Light Camera Enforcement on Crash Experience.* This NCHRP synthesis examines what impact camera enforcement has had on crashes and crash severity, based on published literature and information from jurisdictions. http://gulliver.trb.org/publications/nchrp/nchrp_syn_310.pdf