

**Statement before the New Jersey
Assembly Committee on
Transportation, Public Works and
Independent Authorities**

Red Light Camera Research

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The Insurance Institute for Highway Safety is a nonprofit research and communications organization that identifies ways to reduce deaths, injuries, and property damage on our nation's highways. We are supported by auto insurers. Thank you for the opportunity to share research findings about the use of automated enforcement to address red light running violations.

A high likelihood of apprehension is what convinces motorists to comply with traffic laws, but many enforcement agencies have insufficient personnel to mount effective enforcement programs using traditional police patrols. Automated traffic enforcement can supplement traditional methods, especially at times of day and on roads where traditional enforcement can be difficult if not hazardous.

The only relevant question about the use of automated enforcement is whether it reduces crashes — and it does. A wealth of research in US communities and elsewhere indicates it reduces crashes and associated deaths, injuries, and property damage by reducing illegal and dangerous driver behavior.

Red light running

The deliberate running of red lights is a common — and a serious — violation. An Institute study conducted at 5 busy intersections in Fairfax, Virginia, indicated that, on average, a motorist ran a red light every 20 minutes,¹ and at peak travel times the violations became more frequent. In another Institute study conducted in Arlington, Virginia, red light runners were compared with drivers who had an opportunity to run a red light but did not.² As a group, the violators were younger, less likely to use safety belts, and had poorer driving records. Red light runners were more than 3 times as likely to have multiple speeding convictions on their driver records.

Traffic signal violations may seem trivial to the violators, but the safety consequences are considerable. An Institute study of urban crashes found that running red lights and other traffic controls was the most common cause of all crashes (22 percent). Injuries occurred in 39 percent of crashes in which motorists ran traffic controls. This was the highest proportion found for any crash type.³

On a national basis in 2010, drivers who ran red lights were responsible for an estimated 122,000 crashes involving 673 deaths.⁴ About half of the deaths in red light running crashes are pedestrians, bicyclists and occupants in other vehicles who are hit by the red light runners.

Cameras reduce signal violations: Red light cameras are effective in modifying driver behavior. Violation rates in Oxnard, California, and Fairfax, Virginia, decreased about 40 percent during the first year of camera enforcement.^{1,5} Increases in driver compliance with signals were not limited to camera-equipped sites but spilled over to intersections without cameras.

It is sometimes claimed that proper timing of yellow signals can eliminate red light running. While adequate timing is important and can reduce signal violations, longer yellow timing alone does not

eliminate the benefits of red light cameras. An Institute study conducted in Philadelphia evaluated the incremental effects on red light running of first lengthening yellow signals and then introducing red light camera enforcement.⁶ Extending yellow lights reduced violations by 36 percent, and camera enforcement further reduced the remaining violations by 96 percent beyond the levels that had been achieved by the longer yellow intervals.

Cameras reduce intersection crashes: The key question is whether red light camera enforcement improves safety. Findings from Institute research indicate it does. In 2010, researchers looked at the 14 cities that had cameras during 2004-08 and found that the combined per capita rate of fatal red light running crashes fell 35 percent, compared with 1992-96. The rate also fell in the 48 cities without camera programs in either period, but only by 14 percent. Based on that comparison, the researchers concluded that the rate of fatal red light running crashes in cities with cameras in 2004-08 was 24 percent lower than it would have been without cameras. That adds up to 74 fewer fatal red light running crashes or, given the average number of fatalities per red light running crash, approximately 83 lives saved.⁷

Significant citywide crash reductions followed the introduction of cameras in Oxnard, California.⁸ Injury crashes at intersections with traffic signals were reduced 29 percent. Front-into-side collisions — the crash type most closely associated with red light running — were reduced 32 percent, and front-into-side crashes involving injuries were reduced 68 percent. Crashes declined throughout Oxnard, even though cameras were installed at only 11 of the city's 125 intersections with traffic signals.

A review of the international literature concluded that red light camera enforcement reduces violations an estimated 40-50 percent. It reduces injury crashes 25-30 percent.⁹

Some studies have reported that, even as red light cameras reduce front-into-side collisions and overall injury crashes, they can increase rear-end crashes in the initial period following camera installation. A 2005 study sponsored by the Federal Highway Administration evaluated red light camera programs in 7 communities, finding a 25 percent reduction in right-angle crashes while rear-end collisions increased 15 percent.¹⁰ But because the types of crashes that are prevented by red light cameras tend to be more severe and more costly than the additional rear-end crashes that can occur, the study estimated a positive societal benefit of more than \$18.5 million in the 7 communities.

Not all studies have reported increases in rear-end crashes. In 2005 the Cochrane Collaboration, an international nonprofit organization that conducts systematic reviews of the scientific literature on public health issues, reviewed 10 controlled before-and-after studies of red light camera effectiveness in Australia, Singapore, and the United States.¹¹ These studies showed a 16 percent reduction

in all types of injury crashes and a 24 percent reduction in right-angle crashes. The review did not find a statistically significant change in rear-end crashes.

Some studies have purported to find overall crash increases following camera enforcement,^{12,13} but careful review indicates the researchers failed to incorporate appropriate comparison sites. The result is that the expected number of crashes at intersections where cameras were installed could not be properly estimated,^{14,15} so the effects of the enforcement on crashes could not be determined.

Another option: A good way to reduce crashes is to convert traditional intersections to roundabouts, which eliminate the need for traffic signals as well as cameras. Where roundabouts have been installed, crashes have declined about 40 percent. Crashes involving injuries have declined about 80 percent.¹⁶ Still, many intersections will continue to be controlled by traffic lights, so red light cameras will continue to be useful.

Public support

Like other government policies and programs, camera enforcement requires acceptance and support among the public as well as elected leaders. Some opponents of automated enforcement raise the “big brother” issue to stir up disapproval, but acceptance of cameras always has been strong. A 2011 Institute survey found that two thirds of drivers in 14 big cities with longstanding camera programs support their use.¹⁷ An earlier Institute survey conducted in 10 US cities, 5 with red light cameras and 5 without, found more than 75 percent of drivers supported the cameras.¹⁸ A nationwide survey sponsored by the National Highway Traffic Safety Administration also found favor among 75 percent of drivers.¹⁹ In a survey by the Virginia Transportation Research Council at 5 locations in the state, almost 2 of 3 respondents supported red light cameras.²⁰

Summary and conclusions

Automated traffic enforcement is not a panacea, but it is a proven way to reduce traffic violations and prevent crashes, especially serious crashes that result in injury and death. Opponents often criticize the revenue-generating aspects of camera programs, but a plus is that such programs can be financially self-sufficient. Once cameras have been in place long enough that residents know they will be ticketed for flouting the law, violations and revenues decline.

In tallying the costs and benefits of camera enforcement, communities should factor in the considerable social and economic benefits of successfully reducing crashes. Besides foregone medical costs, car repair bills, and lost income, citizens in communities with cameras experience direct savings in terms of reduced police time to investigate and report crashes, lessened need for emergency response service, and lower roadway cleanup costs.

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