

**Statement before the US House
of Representatives Committee on
Transportation and Infrastructure,
Subcommittee on Highways
and Transit**

**Hearing on Utilization and Impacts
of Automated Traffic Enforcement**

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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 both red light running violations and speeding 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 2008, drivers who ran red lights were responsible for an estimated 170,400 crashes involving 137,000 estimated injuries and 762 deaths.⁴ Fifty-six percent of the deaths were law-abiding pedestrians, motorcyclists, bicyclists, and people in vehicles hit by 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. Significant citywide crash reductions followed the introduction of cameras in Oxnard, California.⁷ 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 subsequent 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.⁸

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.⁹ 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.¹⁰ 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.

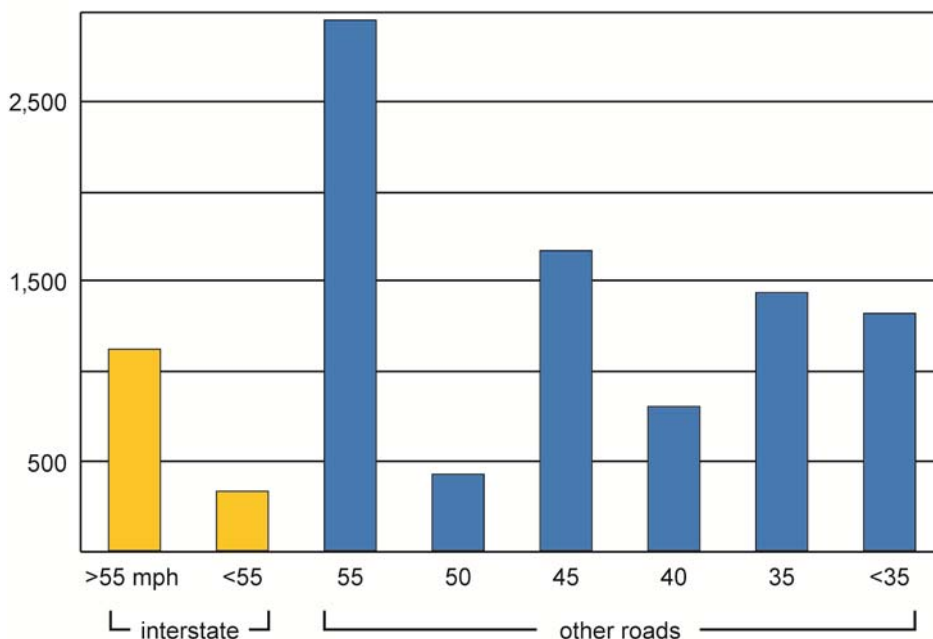
Some studies have purported to find overall crash increases following camera enforcement,^{11,12} but careful review indicates the researchers failed to incorporate appropriate comparison sites. The result is that the expected number of crashes at intersections where cameras were installed could not be properly estimated,^{13,14} 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.¹⁵ Still, many intersections will continue to be controlled by traffic lights, so red light cameras will continue to be useful.

Speeding

Traveling at excessive speed contributes to both the frequency and severity of crashes.¹⁶ Speeding is a primary factor in crashes, especially serious ones,¹⁷ and it was a factor in about 31 percent of crash deaths (about 12,000 deaths) in 2008.¹⁸ Although speeding often is associated with interstate highways and other high-speed roads, 88 percent of speeding-related deaths occur on roads other than interstates. Twenty-four percent of all speeding-related deaths in 2008 occurred on streets with speed limits of 35 mph or lower.

Speeding-related crash deaths in the United States by speed limit, 2008



Pedestrians are at special risk. Researchers estimate that fatality risk for a pedestrian struck by a vehicle is about 5 percent when the vehicle is going 20 mph, about 40 percent when it is going 30 mph, and about 80 percent when it is going 40 mph.¹⁹ Urban areas are prime locations for speed enforcement because 72 percent of pedestrian deaths in 2008 occurred on urban streets.²⁰

Cameras reduce speed limit violations: Institute researchers have evaluated the effects of speed cameras in 3 communities, finding significant declines in the proportions of drivers going more than 10 mph faster than posted limits. In Montgomery County, Maryland, speed cameras were installed on residential roads with speed limits of 35 mph or lower and in school zones. Six months after camera enforcement began, the proportion of vehicles going more than 10 mph faster than posted limits fell 70 percent on roads where cameras were operational. The proportion fell 39 percent on roads where signs warned motorists about enforcement but cameras were not yet in place.²¹

In Scottsdale, Arizona, speed cameras were used to enforce the 65 mph speed limit on Loop 101, a 6-lane freeway that encircles the Phoenix metropolitan area. Comparing Loop 101 speeds with those observed on nearby freeways without cameras, researchers concluded that the program in Scottsdale was associated with a decrease of as much as 95 percent in the odds that a driver would surpass 75 mph.²²

In the District of Columbia, 5 vehicles equipped with speed cameras were rotated among 60 zones of enforcement across the city. At sites on 7 neighborhood streets, reductions in the proportions of motorists going more than 10 mph faster than posted limits ranged from 38 to 89 percent after camera deployment. At the same time, the proportion of motorists speeding by the same amount in Baltimore (where cameras were not used) stayed about the same or increased slightly.²³

Cameras reduce crashes involving speeding: A number of studies have evaluated the effects of camera enforcement on crashes, and the results are summarized in 2 systematic reviews of the international literature. A 2005 review of data collected from 14 studies found 5-69 percent reductions in crashes (all severities) in the immediate vicinities of camera sites. Reductions in injury crashes were 12-65 percent, while fatal crashes were reduced 17-71 percent.²⁴ A 2006 review published by the Cochrane Collaboration analyzed data from 21 studies and found reductions of 14-72 percent (all crashes), 8-46 percent (injury crashes), and 40-45 percent (crashes with deaths and serious injury).²⁵

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. An 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.²⁶ A nationwide survey sponsored by the National Highway Traffic Safety Administration also found favor among 75 percent of drivers.²⁷ In a survey by the Virginia Transportation Research Council at 5 locations in the state, almost 2 of 3 respondents

supported red light cameras.²⁸ A national survey conducted in 2006 by the Insurance Research Council found 60 percent of US residents in favor of using cameras to enforce speed limits.²⁹ An Institute survey conducted after speed cameras were introduced in the District of Columbia showed 51 percent of drivers in favor.³⁰ A survey of Montgomery County, Maryland, residents found 62 percent supported speed cameras,²¹ and 77 percent of drivers in Scottsdale, Arizona, supported them, too.²²

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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