

**Statement before the
Senate of Pennsylvania
Transportation Committee**

**Red light violations
and red light cameras**

Richard Retting

June 27, 2001

**INSURANCE INSTITUTE
FOR HIGHWAY SAFETY**

1005 N. GLEBE RD. ARLINGTON, VA 22201-4751

PHONE 703/247-1500 FAX 703/247-1678

website <http://www.highwaysafety.org>

The Insurance Institute for Highway Safety is a nonprofit research and communications organization that identifies ways to reduce motor vehicle crashes and their losses. We are supported by the nation's automobile insurers. At this committee's request, I'm submitting for the record information from the Institute about red light running and technology to reduce this problem.

The purpose of traffic lights is obvious—go on green, stop on red—but this only works to control traffic and prevent intersection crashes if motorists obey the lights. Too often, motorists assume they can step on the accelerator and go through intersections after lights turn red. The fact is, running red lights and other traffic controls is the number one cause of urban crashes.¹ Only a miniscule fraction of offenders are being apprehended. What we need in Pennsylvania and other states are changes—including legislative changes—to apprehend more red light runners and, better still, to deter potential violators before offenses occur.

Red Light Running

The deliberate running of red lights is a common—and a serious—violation. Institute researchers measuring the frequency of this offense during several months at a busy intersection in Arlington County, Virginia, found a red light runner every 12 minutes on average—every 5 minutes during the peak travel time between 8 and 9 a.m.² This adds up to more than 100 chances each day for an unsuspecting motorist or pedestrian to become a crash victim *at just one intersection*.

Such violations may seem trivial to the violators, but the safety consequences are real. An Institute study found that, compared with all other types of urban crashes, those involving signal violations are the most likely to cause injuries. Researchers reviewed police reports of crashes in four urban areas during 1990-91, finding occupant injuries in 45 percent of the crashes involving red light running compared with 30 percent of other types of crashes.¹ The same study found that running red lights and other traffic controls is the most common cause of urban crashes. On a national basis, Institute research found that drivers who run red lights are responsible for an estimated 260,000 crashes each year. About 750 of these are fatal, and the number is rising.³

Red Light Cameras

Running signal lights is a safety problem that demands attention. Fortunately, technology does exist that can help. Red light cameras automatically photograph the license plates of

vehicles driven through red lights. Connected to the traffic signal and to sensors buried in the roadway, these cameras are triggered to photograph vehicles passing over the sensors after a light has been red for a predetermined time, so only unequivocal violations are recorded. The purpose is to detect *deliberate* red light runners—those who pose a threat to pedestrians and traffic in intersections, not drivers who inadvertently enter intersections when the signal is yellow.

Typically, two photographs are taken of vehicles in intersections. The camera records the date, time of day, time elapsed since the light turned red, and speed of a violating vehicle. An electronic flash produces a clear image of the vehicle in virtually all light and weather conditions. Once a photograph is reviewed for accuracy, the license number then is used to identify the vehicle's registered owner so a citation can be sent by mail.

Institute researchers used red light cameras in Arlington, Virginia, for about three years. More than 30,000 violations were recorded, but no citations were issued because the work was conducted for research purposes only.⁴ The camera systems have been extremely accurate and reliable. They have required virtually no maintenance. The same equipment subsequently was installed at two intersections in Howard County, Maryland, to help police and traffic engineers evaluate the extent of red light running and the feasibility of using red light cameras to help enforce traffic laws. Results confirmed that violations are frequent and red light cameras function well.

Red light cameras, when used for enforcement, are effective in modifying driver behavior. Institute evaluations of camera programs in two U.S. cities—Oxnard, California, and Fairfax City, Virginia—found that violation rates decreased by about 40 percent during the first year of enforcement.^{5,6} Increases in driver compliance were not limited to camera-equipped sites but spilled over to nonequipped intersections as well.

The key question is, would wide use of such cameras improve the safety of our urban streets? Findings from recent Institute research indicate they do. Significant citywide crash reductions followed the introduction of red light cameras in Oxnard, California. This is the key finding of the first U.S. research on the effects of camera enforcement on intersection crashes. Injury crashes at intersections with traffic signals were reduced 29 percent after camera enforcement began in Oxnard in 1997. Front-into-side collisions—the crash type that is most closely associated with red light running—were reduced 32 percent overall, and

front-into-side crashes involving injuries were reduced 68 percent. Crashes declined throughout Oxnard even though only 11 of the city's 125 intersections with traffic signals were equipped with cameras. Previous studies of red light running violations in Oxnard and elsewhere found similar spillover effects. That is, the violations dropped in about the same proportions at intersections with and without cameras, attesting to the strong deterrent value of red light cameras and their ability to change driver behavior.⁷

Privacy Issue

Photographing vehicles whose drivers run red lights doesn't violate anyone's protected privacy interest. Most red light cameras record only the rears of vehicles, not vehicle occupants. Besides, driving is a regulated activity on public roads. Neither the law nor common sense suggests that drivers shouldn't be observed on the road or that their violations shouldn't be recorded.

Public Support

Like other government policies and programs, red light camera enforcement requires acceptance and support from the public and elected leaders. Although the "big brother" issue is raised by some opponents of automated enforcement technology, public opinion surveys in the United States and abroad consistently reveal wide acceptance and strong public support for red light cameras. Telephone surveys in many U.S. cities have found more than 75 percent of drivers support red light cameras.⁸ Similar public opinion surveys in Europe and Canada revealed that the majority of drivers support red light cameras.^{9,10}

Need for Change to Use Red Light Cameras

Traditional enforcement requires an officer to observe a red light violation and then chase, stop, and cite the violator. This process can endanger motorists, pedestrians, and officers because, in many cases, the officer would have to run the red light *after* the violator. Such safety consequences plus the sheer volume of violations mean police cannot begin to catch a fraction of red light runners. This is where red light cameras would help—they can photograph *every* violation that occurs at intersections where they're active. More important is the deterrent effect when multiple intersections are equipped for the cameras. Motorists don't know which ones have operating cameras at any given time, so they're less likely to take a chance and run a red light. The goal is no citations at all—the cameras would become such a deterrent that red light running wouldn't be a problem.

Red light cameras already are in use in more than 50 U.S. cities including Denver, New York, Phoenix, San Francisco, and Washington, D.C., and are deployed extensively in other countries including Australia, Belgium, Germany, Israel, the Netherlands, Singapore, South Africa, Switzerland, and the United Kingdom.

The proposed law change would authorize the use of red light cameras in Pennsylvania communities. The result would be detection and punishment of many more violators. Potential violators would be deterred because they know the presence of the cameras greatly increases the odds of getting a ticket. The safety of Pennsylvania residents would be enhanced.

References

1. Retting, R.A.; Williams, A.F.; Preusser, D.F.; and Weinstein, H.B. 1995. Classifying urban crashes for countermeasure development. *Accident Analysis and Prevention* 27:283-94.
2. Insurance Institute for Highway Safety. 1995. Technology being used to help nab red light runners in some communities. *Status Report* 30:10. Arlington, VA: Insurance Institute for Highway Safety.
3. Retting, R.A.; Ulmer, R.G.; and Williams, A.F. 1999. Prevalence and characteristics of red light running crashes in the United States. *Accident Analysis and Prevention* 31:687-94.
4. Retting, R.A.; Williams, A.F.; and Greene, M.A. 1998. Red light running and sensible countermeasures. *Transportation Research Record* 1640:23-26. Washington, DC: Transportation Research Board.
5. Retting, R.A.; Williams, A.F.; Farmer, C.M.; and Feldman, A.F. 1999. Evaluation of red light camera enforcement in Oxnard, California. *Accident Analysis and Prevention* 31:169-74.
6. Retting, R.A.; Williams, A.F.; Farmer, C.M.; and Feldman, A.F. 1999. Evaluation of red light camera enforcement in Fairfax, Virginia. *ITE Journal* 69:30.34.
7. Retting, R.A. and Kyrchenko, S.Y. 2001. Crash reductions associated with red light camera enforcement in Oxnard, California. Arlington, VA: Insurance Institute for Highway Safety.
8. Insurance Institute for Highway Safety. 2001. Public favors cameras but legal barriers impede use. *Status Report* 36:4. Arlington, VA: Insurance Institute for Highway Safety.
9. Muskaug, R. 1993. Driver acceptance of automatic traffic surveillance. *Traffic Engineering and Control* 34:243-46.
10. Zuo, Y. and Cooper, P.J. 1991. Public reaction to police use of automatic cameras. *Proceedings of the Canadian Multidisciplinary Road Safety Conference VII*, 431-40. Vancouver, British Columbia: Transport Canada.

AUTOMATED ENFORCEMENT MYTHS

March 2001

Background

Traditional traffic law enforcement relies exclusively on the presence of an officer to observe violations and identify and cite offenders. Obviously, this limits the effectiveness of traffic law enforcement because police cannot be everywhere. Even when they observe violations, it is not always possible to safely stop the violator because to make the stop, the officer may have to speed or run a red light.

Red light cameras and other photo-enforcement systems are designed to identify traffic law violators without depending on the presence of police officers. Red light camera systems are connected to traffic signals and to sensors buried in the pavement at the crosswalk or stop line. The system continuously monitors the traffic signal and triggers the camera to photograph the tags of vehicles entering the intersection after the light has turned red. In most cases, a second photograph is taken to show the offending vehicle in the intersection. The camera records the date, time, and speed of the vehicle; a clear image of the vehicle is produced under a wide range of light and weather conditions. Images are carefully reviewed, and citations are mailed to the registered owners of the vehicles for which there is unambiguous evidence of a violation.

Although courts have repeatedly upheld photo enforcement, opponents often claim that it violates a variety of constitutional and other legal protections. The following is a list of some of the objections that are most often raised and responses to those objections.

[Myth: Like old-fashioned speed traps, photo enforcement is designed to make money, not protect the public.](#)

[Myth: Photo enforcement allows police to act as "Big Brother," continuously spying on law-abiding citizens.](#)

[Myth: With photo enforcement, owners are guilty until proven innocent.](#)

[Myth: Photo enforcement violates the Fourteenth Amendment because it does not provide immediate notice that an offense is alleged.](#)

[Myth: Photo-enforcement cameras make too many mistakes.](#)

Myth: Like old-fashioned speed traps, photo enforcement is designed to make money, not protect the public.

Each year crashes involving red light running claim the lives of more than 800 people and injure another 200,000 people.¹ More than half of the deaths in red light running crashes are other motorists and pedestrians, so there should be no debate about the fact that red light runners are dangerous drivers who put other road users at risk. A recent Insurance Institute for Highway Safety study in Oxnard, California, showed that red light running violations dropped a total of 42 percent after well publicized photo enforcement was introduced.² Another study in Fairfax, Virginia, showed that violations declined about 40 percent after one year of photo enforcement.³ A key to all effective traffic law enforcement is publicity; without it there is no deterrent effect, and the purpose of red light cameras is deterrence.

Photo enforcement has such a strong deterrent effect precisely because it is *not* like so-called "speed traps." The old image of a speed trap was that of "secret" enforcement at a location where almost every driver speeds. Officers could pick and choose whomever they wished to cite, even drivers who barely exceeded the limit.

The objective of photo enforcement is to deter violations, not to surreptitiously catch violators. The more public the enforcement is, the better. Photo-enforcement cameras are in plain view, not hidden. There typically are signs and publicity campaigns warning drivers that photo enforcement is in use. And unlike speed traps, photo enforcement is fair. The cameras are programmed not to photograph vehicles turning right on red or caught in the intersection when the light changes. Only violators who meet objective criteria specifically designed to omit minor, unintended infractions are photographed. There is no potential for impermissible profiling or discriminatory enforcement where photo enforcement is in use. [back to myths](#)

Myth: Photo enforcement allows police to act as "Big Brother," continuously spying on law-abiding citizens.

Photo-enforcement cameras are not general surveillance cameras that observe everyone within range, but are designed only to capture photographic evidence of traffic law violations. Thus, red light cameras are triggered solely by vehicles that enter an intersection on a red light. They do not photograph vehicles being driven less than minimum speeds (e.g., 15 mph), thereby assuring that drivers executing turns or stopping in intersections on yellow or green signals are not cited. In other words, photo enforcement is designed to collect no more information than is necessary for law enforcement purposes.

The Fourth Amendment to the U.S. Constitution protects our right to privacy from unreasonable intrusion by law-enforcement agents. In 1967, in a landmark case, *Katz v. United States*, the U.S. Supreme Court established that the Fourth Amendment protects our right to privacy in those things that we actually keep private and those which society generally regards as private. "What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection" *Katz v. United States*, 389 U.S. 347, 351 (1967).

A photo-enforcement camera photographs a vehicle, including its rear license tag. In states that require identification of the driver, photo-enforcement cameras photograph the driver as well as the license tag. No one can reasonably argue that a driver or registered owner of a vehicle has a privacy interest in the driver and/or license tag of a vehicle being driven on a public road if the driver has violated the law.

If there were such privacy interests in license tags, it would be violated through traditional enforcement. Every time an officer stops a vehicle, he or she calls in the tag number to verify registration, thereby making a record of when and where the vehicle was seen. Officers routinely request driver's licenses when they conduct stops and visually inspect drivers to see that licenses match the drivers submitting them.

Opponents of photo enforcement raise the privacy issue with the general public, but not in court. This is very likely because the law is well settled that there is no privacy interest in what is routinely and regularly displayed in public. [back to myths](#)

Myth: With photo enforcement, owners are guilty until proven innocent.

Opponents of photo enforcement raise this issue frequently. At first blush, it has strong appeal because the presumption of innocence is one of our most treasured constitutional rights. However, photo enforcement does not violate the presumption of innocence, which attaches at trial, not before. Police and prosecutors are not bound by a presumption of innocence. To the contrary, ethics prevent them from charging a person unless there is sufficient evidence.

Laws authorizing photo enforcement provide that photographic evidence of a violation is sufficient to issue a citation to a registered owner. The citation is merely a summons. Photo-enforcement laws always make it clear that the photographic evidence creates only a rebuttable presumption. The registered owner may present a defense in person or, in Virginia, by mailing in an affidavit stating under oath that he or she was not the driver at the time of the offense.

(Va. Code Ann. § 46.2-833.01(D)). In other states, an owner only has to identify the driver to rebut the presumption. It is difficult to imagine a presumption that is easier to rebut. [back to myths](#)

Myth: Photo enforcement violates the Fourteenth Amendment because it does not provide immediate notice that an offense is alleged.

Opponents of photo enforcement argue that traffic offenders are entitled to immediate notice when they commit offenses. Otherwise, the opponents claim, it is not possible to defend against a charge.

The Fourteenth Amendment of the U.S. Constitution provides that when a state seeks to take action against a person or property, that person or property owner must be given due process of law. Fundamental fairness requires that when a person is charged with an offense, he or she be given notice of exactly what offense is being charged and when and where it was allegedly committed. Statutes of limitations dictate the time within which the notice of the offense must be given. Absent a violation of any statute of limitations, there is absolutely no guarantee that a person will be charged contemporaneously with an offense.

Traditional enforcement methods almost always provide relatively immediate notice of an offense during the stop and citation process, but there is nothing in the law providing traffic law offenders with special rights to notice. Furthermore, in some circumstances traditional enforcement methods do not provide immediate notice. An officer who observes a violation can cite the violator at a later time. In crash situations, citations often are issued after the investigation is completed, days or weeks after the crash. [back to myths](#)

Myth: Photo-enforcement cameras make too many mistakes.

Every technological and every human system can make mistakes. However, photo enforcement has been in use in Europe for more than 20 years and in the United States for more than 10 years and has proven extremely accurate and reliable. Photo-enforcement laws require the cameras to meet specified standards and to be well maintained. Persons defending citations generated by photo enforcement have the same ability to test whether the state has properly used and maintained the equipment as any offender facing any other technological evidence.

The law guarantees persons fair trials. This is no more or less true in traffic than in other cases. All scientific evidence is subject to rigorous testing in court; if it is based on sound scientific principles, it is admissible. An offender always has the right to show the possibility of error, and it is up to the judge to determine whether that possibility is sufficient to create reasonable doubt. [back to myths](#)

References

¹ Retting, R.A.; Ulmer, R.G.; and Williams, A.F. 1999. Prevalence and characteristics of red light running crashes in the United States. *Accident Analysis and Prevention* 31:687-94.

² Retting, R.A.; Williams, A.F.; Farmer, C.M.; and Feldman, A.F. 1999. Evaluation of red light camera enforcement in Oxnard, California. *Accident Analysis and Prevention* 31:169-74.

³ Retting, R.A.; Williams, A.F.; Farmer, C.M.; and Feldman, A.F. 1999. Evaluation of red light camera enforcement in Fairfax, Virginia. *ITE Journal* 69:30-34.



© 2001, Insurance Institute for Highway Safety, Highway Loss Data Institute
Last modified: 14-Mar-2001