

**Statement before the Virginia
House of Delegates
Militia, Police, and Public
Safety Committee**

**Red light violations
and red light cameras**

Stephen L. Oesch

February 1, 2002

**INSURANCE INSTITUTE
FOR HIGHWAY SAFETY**

1005 NORTH GLEBE ROAD ARLINGTON, VA 22201

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

<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 Virginia 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 3 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 60 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 additional Virginia 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 Virginia 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 Kyrychenko, S.Y. 2002. Reductions in injury crashes associated with red light camera enforcement in Oxnard, California. *American Journal of Public Health*, in press.
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.