

**Statement before the District of
Columbia Public Roundtable on
Automated Enforcement**

**Automated Red Light and Speed
Camera Enforcement**

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The Insurance Institute for Highway Safety is a nonprofit research and communications organization that identifies ways to reduce the deaths, injuries, and property damage on our nation's highways. We are supported by the nation's automobile insurers. I am submitting for the record information from the Institute about the use of red light cameras and photo radar to reduce crashes in urban areas.

Red Light Running

The deliberate running of red lights is a common — and a serious — violation. A study conducted over several months at five busy intersections in Fairfax, Virginia, indicates that motorists frequently run red lights. On average, a motorist ran a red light every 20 minutes.¹ During peak travel times, red light running was more frequent.

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.² 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 ran red lights were responsible for more than 200,000 crashes in 2003, which resulted in nearly 176,000 injuries and 934 deaths.³

Red Light Cameras

Red light cameras 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.^{1,4} 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 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.⁵ Injury crashes at intersections with traffic signals were reduced by 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 by 32 percent overall, and front-into-side crashes involving inju-

ries 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.

Institute research based on a review of the international literature provides further evidence that red light cameras can significantly reduce violations and related injury crashes.⁶ A detailed assessment of international studies of camera effectiveness indicates that red light camera enforcement generally reduces violations by an estimated 40-50 percent and reduces overall injury crashes by 25-30 percent.

A recent study sponsored by the Federal Highway Administration evaluated red light camera programs in seven cities.^{7,8} The study found that, overall, right-angle crashes decreased by 25 percent while rear-end collisions increased by 15 percent. Because the types of crashes prevented by red light cameras tend to be more severe than the additional rear-end crashes that can occur, results showed a positive aggregate economic benefit of more than \$14 million over approximately 370 site-years, which translates into a crash reduction benefit of approximately \$38,000 per site-year. The authors concluded that the increase in rear-end crash frequency does not negate the decrease in right-angle crashes targeted by red light cameras.

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 the 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 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.⁹ Similar public opinion surveys in Europe and Canada revealed that the majority of drivers support red light cameras.¹⁰

Speeds Are Increasing

Speed limits are higher on many U.S. roads than they used to be, and motorists are going faster — in many cases a lot faster than the newly posted limits. Institute surveys of vehicle speeds in six states, including Maryland, in 2003 found a significant number of motorists traveling faster than the posted limit.¹¹ In Maryland, with a posted rural interstate speed limit of 65 mph, 17 percent of vehicles were traveling faster than 70 mph. Similar speeds were observed on urban interstates. In the Washington, D.C. area, with a posted speed limit of 55 mph, 31 percent of vehicles were traveling faster than 70 mph.

New Ways Needed to Reduce Speeding on High-Risk Roads

The perception of the risk of getting a speeding ticket strongly influences motorists' speed choices. Traditional police enforcement can be an effective method of apprehending motorists who travel at excessive speeds. But the numbers of drivers and vehicle miles traveled have risen faster than the availability of officers whose routine duties include traffic law enforcement.¹² Other police priorities such as apprehension of violent criminals and, more recently, anti-terrorism efforts can limit resources available for traffic enforcement. In addition, on multi-lane roads with heavy traffic moving in both directions it often is dangerous for police to make traditional traffic stops.

Speeding Poses Multiple Risks to Everyone on the Road

Speeding is one of the most prevalent factors contributing to motor vehicle crashes.¹³ It contributes to both crash frequency and severity.¹⁴ Speed increases frequency because at higher speeds motorists have less time to react and stopping distances are longer. Even more important is that the probability of severe injury in crashes increases sharply with the impact speeds of the vehicles, reflecting the laws of physics.

The risk to pedestrians — the most vulnerable people on the road — is even greater when speed limits are violated. Researchers have documented the relationship between vehicle speeds and pedestrian crash severity.¹⁵ They estimate about 5 percent of pedestrians would die when struck by a vehicle traveling 20 mph; about 40 percent would die when struck at 30 mph; and about 80 percent would die when struck at 40 mph. Urban areas are prime candidates for effective speed enforcement because, on a national basis, approximately 26 percent of all crashes occur on streets with speed limits of 30 mph or less.¹⁶

How to Reduce Speeding on High-Risk Roads

The challenge is to find better methods of controlling speeds, and speed cameras can help. They photograph motor vehicles going a specified amount above the posted speed limit, and violators are ticketed by mail. Camera systems typically consist of a radar unit to measure speeds and a camera to photograph the vehicles that are violating the speed limit. The time, date, location, and speed of the vehicle are recorded on the film. And to increase the deterrent value, prominently posted signs should be used to alert motorists that cameras are being used.

Research from British Columbia demonstrates that this method of speed control is effective. Evaluating a program that involved 30 cameras, researchers found a 7 percent decline in crashes and up to 20 percent fewer deaths the first year cameras were used. The proportion of speeding vehicles at camera sites declined from 66 percent in 1996 to fewer than 40 percent a year later.¹⁷ Researchers also attributed a 10 percent decline in daytime injuries to speed cameras.

The Transportation Research Board¹⁸ and others have reported the following examples of the successful use of speed cameras:

- Victoria, Australia, launched a speed camera program in 1989. A little more than a year later, 54 cameras were operating. The frequency of crashes involving injuries or deaths decreased by about 30 percent.¹⁴
- On a stretch of Autobahn A3 between Cologne and Frankfurt, Germany, where speed cameras were deployed, total crashes dropped from about 300 per year to fewer than 30. Injury crashes decreased by a factor of 20.¹⁴
- Speed cameras were deployed on 64 roads in Norway, producing an overall 20 percent reduction in injury crashes compared with before the program. The largest reduction was 26 percent, and the smallest was 5 percent.¹⁴
- A detailed evaluation of 62 fixed speed cameras on 30 mph roads in the United Kingdom found the average effect was a 25 percent reduction in injury crashes.¹⁹

About 75 countries use cameras to supplement conventional police enforcement of speed limits, especially on high-risk roads. But this technology is used in only about a dozen U.S. communities. In 2002 the Institute evaluated the effect of a city-wide speed camera program begun in 2001 by the District of Columbia. The program involved 5 vehicles equipped with cameras rotated among 60 enforcement zones throughout the city. Institute researchers measured travel speeds on 7 neighborhood streets before cameras were deployed and again at the same sites 6

months after deployment. At all of the sites, the proportion of motorists going fast enough to warrant a ticket (more than 10 mph above the speed limit) went down dramatically. Reductions ranged from 38 to 89 percent. Institute researchers also measured travel speeds in Baltimore, Maryland, a nearby city that does not use speed cameras. At the same time D.C. was experiencing a decrease in travel speeds because of the speed camera enforcement program, the proportion of motorists going more than 10 mph above the speed limit at 8 sites in Baltimore stayed about the same or increased slightly.²⁰

Similar results were found in a pilot speed camera program in Beaverton and Portland, Oregon.²¹ Engineers compared vehicle speeds before and after implementation of speed cameras. In Beaverton the percentage of vehicles exceeding the posted limit by more than 5 mph decreased 28 percent on streets with speed cameras and increased 16 percent on streets without cameras. Likewise, in Portland the percentage of vehicles exceeding the posted limit by more than 10 mph decreased by 27 percent on streets with speed cameras and increased by 12 percent on streets without photo radar.

One reason cameras are not used more in this country is that many elected officials believe there is an absence of public support. Concerns have been expressed about privacy, with opponents invoking the “big brother” issue. However, a nationwide telephone survey conducted in 1995 found that 57 percent of U.S. residents favor using cameras to enforce speed limit laws, and such laws have attracted strong public support in countries where they have been used. A recent Institute survey in Washington, D.C., after the speed camera enforcement program began, found a majority (51 percent) supported the program and only a third of respondents opposed it.²² An evaluation of the speed camera program in Beaverton and Portland, Oregon, found strong public support for the use of cameras in school zones (88-89 percent) and neighborhoods (74-78 percent).

Research conclusively demonstrates the effectiveness of automated enforcement in reducing red light violations and related serious injury crashes. It also shows that photo radar can reduce vehicle speeds and crashes. The citizens of D.C. are benefiting from the implementation of these programs.

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