

**Statement before the Pennsylvania House
Committee on Transportation**

Research on red light cameras

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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 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 at five busy intersections in Fairfax, Virginia, indicates that, on average, a motorist ran a red light every 20 minutes.¹ During peak travel times, red light running was more frequent.

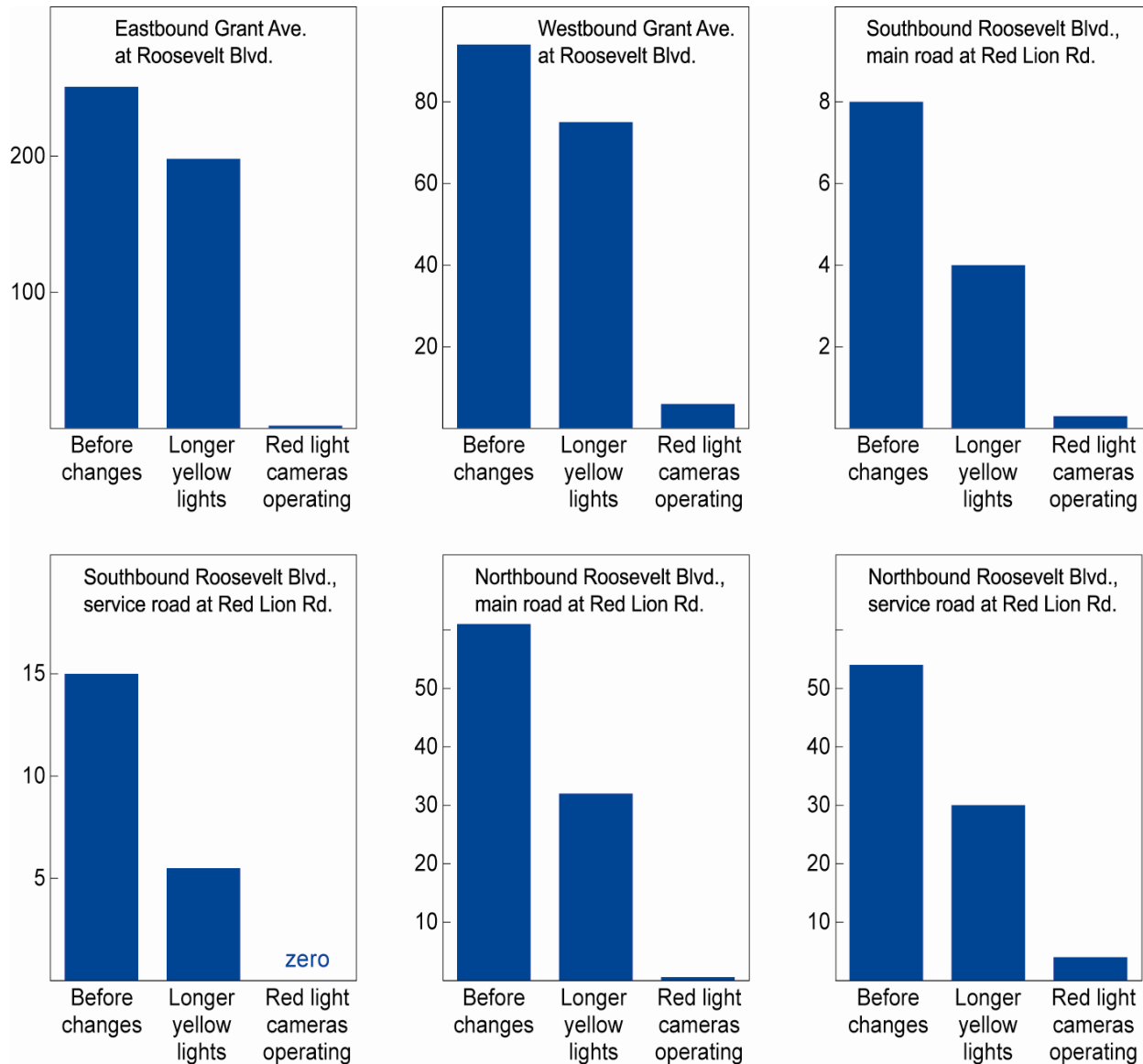
Such violations may seem trivial to the violators, but the safety consequences are real. An Institute study found that, compared with all other types of urban crashes, those involving signal violations are the most likely to cause injuries. Researchers reviewed police reports of crashes in four urban areas during 1990-91, finding that running red lights and other traffic controls is the most common cause of all urban crashes (22 percent) and the leading cause of injury crashes in urban areas (27 percent).² On a national basis, Institute research found that drivers who ran red lights were responsible for almost 200,000 crashes in 2005, resulting in nearly 165,000 injuries and more than 800 deaths.³

Red light cameras

Red light cameras used for enforcement are effective in modifying driver behavior. Institute evaluations of camera programs in two US 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 with signals were not limited to camera-equipped sites but spilled over to nonequipped intersections as well.

In January 2007 the Institute released results of its study on the effectiveness of red light cameras at two intersections on Philadelphia's Roosevelt Boulevard. Institute researchers separated camera effects from the effects of extending the yellow light phase to give approaching motorists more warning that the signals were about to turn red. Sometimes these two measures have been introduced simultaneously, which has caused confusion about their relative benefits. The new study shows that both measures reduce signal violations, but cameras make by far the bigger difference (see figure). Researchers tallied signal violation rates at intersections before and after extension of yellow lights and again after red light camera enforcement had been in effect for about a year. They found that extending the yellow light reduced signal violations by 36 percent and that camera enforcement reduced the remaining violations by 96 percent.

Red light violations per 10,000 vehicles at Philadelphia sites with cameras



The key question is, would wide use of red light 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 major finding of the first US 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 most closely associated with red light running — were reduced by 32 percent, and front-into-side crashes involving injuries were reduced by 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 when introduced on a community-wide basis and their ability to change driver behavior.

An Institute 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 camera effectiveness indicates that red light camera enforcement reduces violations by an estimated 40-50 percent and reduces injury crashes by 25-30 percent.

A 2005 study sponsored by the Federal Highway Administration evaluated red light camera programs in seven communities (El Cajon, San Diego, and San Francisco, California; Howard County, Montgomery County, and Baltimore, Maryland; and Charlotte, North Carolina).⁷ The study found that 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 and more costly than the additional rear-end crashes that can occur, the study found a positive societal benefit of more than \$14 million. The authors concluded that the increase in rear-end crash frequency did not offset the societal benefit resulting from the decrease in right-angle crashes targeted by red light cameras.

A 2003 report conducted for the Ontario Ministry of Transportation evaluated a two-year pilot program using red light cameras in six communities in Ontario.⁸ The study found a 7 percent decrease in fatal and injury collisions and an 18 percent increase in property-damage-only collisions. Researchers found that the positive societal benefit resulting from the decrease in fatal and injury crashes was greater than the cost associated with the increase in property-damage-only crashes. The report concluded that the program "has been shown to be an effective tool in reducing fatal and injury collisions" and recommended its continuation. Based on the results, the transportation minister authorized the use of red light cameras throughout Ontario.

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-after studies of red light camera effectiveness from Australia, Singapore, and the United States.⁹ The authors reported that those 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.

Privacy issue

Photographing vehicles whose drivers run red lights does not 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 should not be observed on the road or that their violations should not 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 US cities found more than 75 percent of drivers supported red light cameras.¹⁰ The Virginia Transportation Research Council conducted a public opinion survey at six locations throughout Virginia. Almost two-thirds of the respondents supported red light camera programs.¹¹ Similar public opinion surveys in Europe and Canada revealed that the majority of drivers support red light cameras.¹²

A extensive body of scientific research demonstrates the effectiveness of automated red light camera enforcement in reducing red light violations and related serious injury crashes, especially right-angle injury crashes. The citizens of Pennsylvania will benefit from the continuation of these programs.

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