INSURANCE INSTITUTE
FOR HIGHWAY SAFETY

NEWS RELEASE

May 23, 2001

**Comments on "The Red Light Running Crisis: Is It Intentional?"
from the Office of the Majority Leader, U.S. House of Representatives**

In the report cited above, early reference is made to the Insurance Institute for Highway Safety as the source of "studies performed in this country that claim red light cameras increase safety." The Institute's senior transportation engineer is dubbed "the father of the red light camera in America." Because the Institute has spearheaded scientific research about the effects of red light cameras — finding they not only deter red light running but also reduce intersection crashes, including collisions involving injuries — we wish to respond to the report.

Each year more than 800 people die and an estimated 200,000+ are injured in crashes that involve red light running. Total deaths in such crashes numbered almost 6,000 during 1992-98. More than half of these deaths were pedestrians and occupants in other vehicles who were hit by the red light runners. Another 2,779 deaths occurred in the vehicles running the red lights. During the same time period (1992-98), about 1,500,000 people were injured in such crashes.

This is not a new problem. People have been dying in red light running crashes for many years, as indicated by the earliest statistics compiled by the federal government.

Politicians versus traffic engineering professionals: A basic problem with the report is that it challenges the entire profession of transportation engineers on the subject of traffic signal timing. It alleges not only that individual signals aren't timed properly but also that the formulas widely used to time signals aren't correct. It alleges that the problem of red light running would disappear if only signals were timed properly — in particular, if yellow signals were lengthened. The report suggests that a conspiracy of traffic engineers has resolved to time signals incorrectly. Such allegations shouldn't be taken seriously because the Majority Leader's office isn't staffed with

— MORE —

1005 N. GLEBE RD. ARLINGTON, VA 22201 TEL. 703/247-1500 FAX 703/247-1588 www.highwaysafety.org

experts to make such engineering judgments. What should be heeded are the extensive findings of scientific studies by transportation professionals.

Yellow light signal timing is complex: There is no universal definition or agreement among traffic engineers concerning a "properly timed signal" (a phrase that's nevertheless used throughout the report). Rather, signal timing is a complex undertaking without a simple formula applicable to all intersections alike. Motorists approach intersections at different speeds, in a range of vehicle types, in varying weather conditions, etc. Signal change intervals are timed to accommodate the range of circumstances.

The duration of yellow signals is important. If they're too short, motorists will run the red lights. Yellow signals that are too long also increase red light running. The Institute of Transportation Engineers (ITE) and Federal Highway Administration provide guidance on signal timing, and two primary approaches prevail. Engineers can either employ a uniform value for the length of yellow change intervals, based on ITE formulas, or set the timing for each intersection individually to take into account factors such as geometry and traffic speeds. These approaches are backed by volumes of engineering studies, and to question them is to take on the whole community of transportation engineers and literature published by ITE and others.

Working with such engineers, the Insurance Institute for Highway Safety has a long history of evaluating yellow signal timing modifications. Institute researchers have published numerous studies in scientific journals on this subject, beginning with a 1984 examination of the effects of signal timing on traffic flow and crashes at signalized intersections (see "Selected Insurance Institute for Highway Safety Studies"). Based in part on this research, ITE adopted a proposal for establishing the duration of traffic signal change intervals.

More recently, Institute researchers conducted a study to estimate the potential crash effects of modifying the duration of traffic signal change intervals to conform with the ITE recommendations. Working with state and local transportation engineers, Institute researchers identified 122 intersections for the study and randomly assigned them to experimental and control groups. During a three-year period following changes in signal timing at the experimental sites, there was a 12 percent reduction in injury

crashes — an important reduction but not a solution, indicating that lengthening the yellow phase isn't enough to achieve big crash reductions.

Institute studies of red light running reflect scientific methods: Scientific methods also guide Institute studies of red light running and the effects of implementing red light camera programs. Initial studies documented red light running as a major source of intersection crashes. Subsequent studies quantified the extent of red light running and documented the effects of red light camera programs in reducing not only violations but also crashes. Researchers found a 68 percent reduction in front-into-side crashes involving injuries in Oxnard, California, after camera enforcement began in 1997.

These and other Institute studies have been subjected to the rigorous standards of peer review. Prior to publication in leading public health and engineering journals, they have been evaluated by panels of scientists. To attack the findings of these studies is to attack the widely accepted scientific research methods on which they are based. Still, the report attacks repeatedly. For example, the report questions whether the Institute finding of a red light running violation every 12 minutes at an Arlington, Virginia, intersection is valid (it is; the signal is timed with a yellow interval of 4+ seconds duration). The report questions whether rear-end crashes increased significantly under camera enforcement in Oxnard, California (they didn't). The report also questions whether motorists identified in Institute studies as red light violators are, in fact, innocent drivers who were unable to stop in time to comply with the signals. The fact is that red light cameras are designed to identify only deliberate violators, those who enter intersections well after the end of a yellow signal phase.

Flaws in Australian study: To counter the Institute's Oxnard findings, the report points to a 1995 study conducted in Australia. But this study doesn't follow scientific methodology. In particular, noncamera sites are used as controls, a problem because the spillover effect of camera enforcement to sites without cameras has been well documented. The authors don't account for the many confounding factors that cloud the results of the study over its 10-year period (aggressive speed camera enforcement during these years, robust alcohol enforcement, traffic signal changes during the study period,

etc.). And it's worth noting that the Australian study, unlike nearly all studies conducted by Institute researchers, has not been published in the scientific literature.

The bottom line is that the Majority Leader's office is off base in taking on the entire profession of transportation engineers regarding how to time traffic signals and whether to deploy cameras to reduce red light running. The justification for such cameras is questionable, the report concludes. But it's only questionable if the goal is to shield dangerous violators from getting tickets. If the goal is to reduce red light running, avoid crashes, and save lives, then cameras are proving effective.

Selected Insurance Institute for Highway Safety studies

The effect of signal timing on traffic flow and crashes at signalized intersections. 1984. *Transportation Research Record 1010*, 1-8. Washington, DC: Transportation Research Board.

Traffic signal change intervals: policies, practices, and safety. 1986. *Transportation Quarterly* 40:433-45.

Urban traffic crashes: New York City responds to the challenge. 1991. *Transportation Quarterly* 45:571-80.

Classifying urban crashes for countermeasure development. 1995. *Accident Analysis and Prevention* 27:283-94.

Characteristics of red light violators: results of a field investigation. 1996. *Journal of Safety Research* 27:9-15.

Influence of traffic signal timing on red-light running and potential vehicle conflicts at urban intersections. 1997. *Transportation Research Record 1595*, 1-7. Washington, DC: Transportation Research Board.

Red light running and photo enforcement. 1997. *The Police Chief* 64:28-29,32-33.

Red light running and sensible countermeasures: summary of research findings. 1998. *Transportation Research Record 1640*, 23-26. Washington, DC: Transportation Research Board.

Automated enforcement of traffic laws. 1999. *TR News* 201:15-18,29.

Evaluation of red light camera enforcement in Fairfax, Virginia. 1999. *ITE Journal* 69:30-34.

Evaluation of red light camera enforcement in Oxnard, California. 1999. *Accident Analysis and Prevention* 31:169-74.

Prevalence and characteristics of red light running crashes in the United States. 1999. *Accident Analysis and Prevention* 31:687-94.

Red light cameras and the perceived risk of being ticketed. 2000. *Traffic Engineering and Control* 41:224-25,227.

Reducing red light running crashes: a research perspective. 2000. *2000 ITE Annual Meeting Compendium of Technical Papers* (CD ROM). Washington, DC: Institute of Transportation Engineers.

Changes in crash risk following re-timing of traffic signal change intervals. 2001. *Accident Analysis and Prevention*, in press.

Crash reductions associated with red light camera enforcement in Oxnard, California. 2001. Arlington, VA: Insurance Institute for Highway Safety. (Note: This new study will be submitted for peer review.)

End of 4-page statement