**Statement before the House Transportation Committee**

**Commonwealth of Pennsylvania**

# Research on Red Light Cameras

**Richard Retting**

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Chairman Geist and distinguished members of the Committee,

My name is Richard Retting. I serve as Vice President and Director of Safety & Research Services for Sam Schwartz Engineering, I have an extensive fraffic engineering and research background directly related to implementation and evaluation of automated traffic enforcement technology. This experience includes many papers published in scientific and engineering journals.

I previously sewed for 18 years as Senior Transportation Engineer with the Insurance Institute for Highway Safety. Prior to that I served as Deputy Assistant Commissioner for the New York City Department of Transportation in the 1980s, when the nation's first red light camera law was drafted and enacted.

Numerous studies conducted throughout the United States show that **motorists frequently run red lights**. Such violations may seem trivial to the violators, but the safety cansequences are real:

- On a national basis in 2009,676 people were killed and an estimated 130,000 were injured in crashes that involved red light running.
- About half of the deaths in red light running crashes are pedestrians, bicyclists, and occupants in other vehicles who are hit by the red light runners.

**In Pennsylvania, 40 percent of reportable crashes occur at intersections** – that's about 57,000 intersection crashes each year. **Intersection crashes account for about one quarter of total traffic fatalities in Pennsylvania**. Based on these facts, the Pennsylvania Strategic Highway Safety Plan designates *Improving Intersection Safety* as one of seven focus areas.

**Red light cameras are effective at modifying driver behavior.** On this question, the research is conclusive. Studies that I led at the Insurance Institute for Highway Safety (IIHS) documented reductions in red light running that ranged from 40 to nearly 100 percent. One such research project evaluated the first use of red light cameras in Pennsylvania – on Philadelphia's Roosevelt Boulevard.

The Philadelphia study evaluated the incremental effects on red light running of first lengthening yellow signal timing, followed by the introduction of red light cameras:

- At six approaches to two intersections, yellow signal timing was increased by about one second, based on engineering studies that I conducted and were reviewed by engineers at both the Philadelphia Department of Streets and PennDOT.
- The signal timing changes were followed several months later by red light camera enforcement.

- The number of red light violations was monitored before changes were implemented, several weeks after yellow timing changes were made, and about one year after commencement of red light camera enforcement.
- Similar observations were conducted at three comparison intersections in New Jersey where red light cameras were not used at the time, and yellow timing remained constant
- Results showed that yellow timing changes reduced red light violations by 36 percent, The addition of red light camera enforcement further reduced red light violations by 96 percent beyond levels aohieved by the longer yellow timing.
- The study concluded that the provision of adequate yellow timing reduces red light running, but longer yellow timing alone does not eliminate the need far better enforcement, which can be provided effectively by red light cameras.

The key question is, would wide use of red light cameras improve the safety of our urban and suburban streets? Numerous research findings indicate they do.

- At IIHS I served as lead author on the first major U.S. study that addressed this question. In Oxnard, CA, injury crasheswere reduced by about 30 percent. Side impact collisions involving injuries were reduced 68 percent

  A more recent study by IIHS compared changes in fatal red light running crashes for cities with and without red light cameras.

  - After controlling for population density and land area, the rate of fatal red light running crashes during 2004-08 for cities with camera programs was an estimated 24 percent lower than would have been expected without cameras.
  - This translates into hundreds of lives saved.
- A 2005 study sponsored by the Federal Highway Administration evaluated red light camera programs in seven communities. 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 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 i n rear-end crash frequency doe5 not offset the societal benefit resulting from the decrease in right-angle crashes targeted by red light cameras.

Research based on a review of the international literature provides further evidence that red light cameras can significantly reduce violations and related injury crashes.

- A detailed assessment that I led 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.

Red light cameras are a successful example of public-private partnerships, in which the government utilizes technology and contracted technical personnel to supplement traditional law enforcement activities. If managed properly, the government maintains control over the enforcement process, with technology suppliers providing a supporting role to fulfill specified equipment and personnel needs.

Despite the fact that red light camera programs --which include private-sector support – are government run, a recent report by the US Public Interest Group mischaracterizes this public-private partnership as "privatized" traffic enforcement. It is inaccurate and misleading to refer to a government run program supported by private-sector contractors as "privatized" traffic enforcement.

Some opponents of camera enforcement claim that red light cameras dramatically increase rear-end crashes. This simply is not true.

Data from red light camera programs across the nation show no consistent pattern of changes in rear-end crashes. We have seen some increase, some decreases, and instances of no significant change.

- As a traffic engineer, I'd like to point out that traffic signals themselves cause rear-end crashes. Rear-end crashes are the most common type of collision at signalized intersections in Pennsylvania, and throughout the country.

  Several studies with significant methodological errors have reported an overall increase in crashes associated with the implementation of red light cameras. It's not surprising that opponents of red light cameras seize these erroneous studies to support their ideological opposition to camera enforcement without regard to the technical merits of the studies.

Privacy is an important consideration, and frequently raised in the context of automated traffic enforcement.

- Photographing vehicles whose drivers run red lights does not violate protected privacy interests.
- Red light cameras in Pennsylvania would record only the rears of vehicles, not the occupants.

Besides, driving is a regulated activity on public roads. Neither the law nor common sense suggest that flagrant traffic violations should not be recorded.

- My written testimony includes a summary of privacy-related court decisions concerning automated enforcement.

Like other government policies and programs, red light cameras require acceptance and support from the public and elected leaders.

- Although the "big brother" issue is raised by opponents of automated enforcement, public opinion surveys consistently reveal wide acceptance and strong public support for red light cameras.
- Telephone surveys in many U.S. cities have consistently found that a majority of drivers support the use of red light cameras.

I'd like to conclude with a few sobering crash facts that should be weighed against the claim raised by opponents that red light cameras serve no safety purpose, and are simply money makers.

More than one thousand Pennsylvanians are killed each year in preventable motor vehicle crashes.

- Motor vehicle crashes are the leading killer of children, teens, and young adults.
- The annual cost of fatal crashes in Pennsylvania is more than $1.5 Billion. This cost does not include tens of thousands of crashes each year that do not result in fatalities. Billions of dollars in annual crash costs to Pennsylvania residents must be weighed against the fines associated with red light cameras.

Thank you for the opportunity to provide testimony on this important public safety issue.

## Appendix A

Summary of privacy-relateddecisions concerning automated enforcement as summarized *on* IIHS website -- http://www.iihs.org/laws/auto_enforce_cases.html

A District of Columbia trial judge made reference to unspecified privacy concerns and said, "[privacy] concerns are outweighed by the legitimate concerns for safety or our public streets." Agomo v. *Fenty*, 916 A.2d 181 (D.C. App. 2007). Taking a photograph of a vehicle license plate does not violate any privacy right. *Arizona v.* Hicks, 480 U.S. 321 (1987) (police can record serial numbers in plain view); New York *v.* Class, 475 U.S. 106 (1986) (police can move papers covering a vehicle identification number).

A California appellate court addressed the claim that automated enforcement violates privacy statutes protecting Department of Motor Vehicle driver records from disclosure. The court noted that the privacy statute allows government and law enforcement agencies access to driver records. The court held that the privacy challenge lacks merit "because private contractors are authorized to obtain the information directly from the DMV as an arm of law enforcement agencies in red light cases, and the information is used for legitimate purposes. It noted that the automated enforcement statute specifically authorizes use of contractors to provide services that are not expressly reserved to the municipalities. Review of driver records is not expressly reserved. in re Red ***Light Photo Enforcement Cases***, No. D048882, California Court of Appeal, 4th App. Diit. 1, Div. 1, June 13,2008. This case is on appeal to the California Supreme Court (No. 5165425).

When an attorney sued the District of Columbia for a list of people issued red light camera citations at a specific location, the DC Court of Appeals held that such information is not public and not subject to the Freedom of Information Act. *Wemhoff* v. *District* of *Columbia*, No, 04-CV-1310, DC Court of Appeals, December 15,2005.

APPENDIX B - EXPERIENCE AND QUALIFICATIONS

**Richard Retting, M.S., FITE,** is Vice President and Director of Safety & Research Services at Sam Schwartz Engineering (SSE), with extensive traffic engineering and research experience directly related to implementation and evaluation of automated traffic enforcement. Before joining SSE in 2008 he served for 18 years as Senior Transportation Engineer with the Insurance Institute for Highway Safety, prior to which he served as Deputy Assistant Commissioner for New York City Department of Transportation. With respect to automated traffic enforcement, Mr. Retting served as principal investigator or co-principal investigator on the following studies:

Svstem *Analysis* of Automated *Speed* Enforcement *Implementation* – Mr. Retting serves as Co-Principal Investigator for this NHTSA project. Tasks include identification and documentation of all US jurisdictions using speed cameras; collect detailed information on camera programs; identify key variables related to camera programs; identify and gather data and/or databases that may be used to evaluate automated speed enforcement program effectiveness.

*Evaluation* of Red *Light Camera Enforcement* in *Fairfax, VA* - As Principal Investigator, Mr. Retting selected study sites and collected red light running data; coordinated all research and data analysis; designed and managed public opinion surveys; served as lead author on final report.

Evaluation of Red *Light* Camera Enforcement in *Oxnard, CA* - As Principal Investigator, Mr. Retting selected study sites and collected red light running data; coordinated all research and data analysis; designed and managed public opinion surveys; served as lead author on final report.

*Evaluation* of Red Liaht Camera Enforcement in *Philadelphia,* PA - As Principal Investigator, Mr. Retting selected study sites and collected red light running data: coordinated all research and data analysis; designed and managed public opinion surveys; served as lead author on final report.

*Implementation* and Evaluation of *Automated* Speed Enforcement, *Montgomery* County, MD – As principal investigator, Mr. Retting selected study sites and collected data for 40 locations: coordinated all research and data analysis; developed criteria for site selection for deployment of automated speed enforcement; coordinated public outreach and public information; managed public opinion surveys; sewed as lead author on final report.

Evaluation *of Speed-on-Green* Enforcement at *Signalized Intersections,* Mesa. *AZ* - Mr. Retting developed the experimental design and data collection protocols, selected study sites, and collected data for 22 intersections in Mesa and phoenix. Coordinated data reduction from video and electronic files.

*Evaluation of* Automated *Speed* Enforcement, Washinaton, DC – As principal investigator, Mr. Retting selected study sites and collected data for 14 locations; coordinated all research and data analysis; managed public opinion surveys; served as lead author on final report

Evaluation *of Automated Speed* Enforcement on *Loop* 101 in *Scottsdale, AZ* - As Principal Investigator, Mr. Retting selected study sites and collected speed data: coordinated all research and data analysis; designed and managed public opinion surveys; sewed as lead author on final report.

*Characteristics* of *Speeders:* A Field *Investigation* - Mr. Retting served as principal investigator for a research project that identified characteristics of drivers traveling at excessive rates of

speed. Selected study sites; coordinated all research and data analysis; sewed as primary contact with DMV; served as lead author on final report

Characteristics of Red Liaht Runners: A Field *Investigation* – Mr. Retting served as principal investigator for a research project that identified characteristics -- including seat belt use -- of drivers observed running red lights. Managed research design, site selection, and data collection. Served as primary contact with Virginia DMV. Identified parameters and the format of relevant data elements in DMV driver records file: developed procedures for linking registered vehicle owner with driver records; obtained approval for release of driver license records.

School Zone *Speed* Evaluations. Prince *George's County,* MD - For this study Mr. Retting collected speed data and conducted statistical analysis for school zones throughout Prince George's County; made recommendations regarding appropriate sites for automated speed enforcement; conducted evaluations of speed enforcement in school zones; served as an ongoing techn˙cal resource to the County on this issue.

NCHRP *Project* 03-93: Automated Enforcement for *Speeding* and Red Liaht Running - Mr. Retting serves as Chair of this TRB project which is designed to determine which automated enforcement programs have been successful , what contributed to their success, to draw lessons from unsuccessful programs, and develop guidance for use of automated enforcement.

NCHRP Guidelines on Yellow and All-Red Traffic Sianal *Timing* - For this study Mr. Retting conducted a critical literature review of behavioral effects and crash effects associated with changes in signal timing; participated in research and development of national guidelines. Will serve as contributing author on Final Report.

Mr. Retting was an author *of* the following published studies:

- Retting, R.A.; Farmer, C.F. and McCartt, A.T. 2008. Evaluation of Automated Speed Enforcement in Montgomery County, Maryland. *Traffic Injury* Prevention *9:* 440-445.
- Retting, R.A.: Kyrychenko, S.; and McCartt. A.T. 2008. Evaluation of automated speed enforcement on Loop 101 in Scottsdale, Arizona. *Accident Analysis* and Prevention 40:1506-1512.
- Retting, R.A; Ferguson, S.A. and Farmer, C.M. 2008. Reducing red light running through longer yellow signal timing and red light camera enforcement: results of a field investigation. *Accident Analysis and Prevention* 40 (2008) 327–333.
- Retting, R.A. and Chapline, J.F. 2002. Changes in Crash Risk Following Re-Timing of Traffic Signal Change Intervals. *Accident* Analysis and Prevention 34/2: 215-220.
- Williams, A.F.; Kyrychenko, S.Y.; and Retting, R.A. 2006. Characteristics of Speeders. Journal of *Safety* Research 37(3) 227-232.
- Retting, R.A. 2006. Establishing a Uniform Definition of Red Light Running Crashes. *ITE Journal* 76/3: 20-22.
- Retting, R.A. and Farmer, C.M. 2003. Evaluation of Speed Camera Enforcement in the District of Columbia. Transportation Research *Record* No. *1830:* 34-37.
- Retting, R.A. 2003. Speed Cameras – Public Perceptions in the US. *Traffic* Engineering and *Control* 44/3: 100-101.
- Retting, R.A; Ferguson, S.A.; and Hakkert, A.S. 2003. Effects of Red Light Cameras on Violations and Crashes: A Review of the International Literature. *Traffic Injury* Prevention 4/1: 17-23.

- Retting, R.A. and Kyrychenko, S. 2002. Crash Reductions Associated with Red Light Camera Enforcement in Oxnard, California. American Journal of Public Health 92111: 1822-1825.
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- Carlson, P. and Retting, RA 2001. Evaluation of Red Light Camera Enforcement Signing. Proceedings of the 2001 Annual Meeting of the Institute of Transportation Engineers. Washington, DC. Institute of Transportation Engineers.
- Retting, R.A. and Williams, A.F. 2000. Public Opinion Regarding Red Light Cameras and the Perceived Risk of Being Ticketed. Traffic *Engineering and Control* June 2000.
- Retting, R.A.; Ulmer, R; and Williams, A.F. 1999. Prevalence and Characteristics of Red Light Running Crashes in the United States. *Accident* Analysis and Prevention 31 (1999): 687-694.
- Retting, RA; Williams, A.F.; Farmer, CM; and Feldman, A 1999. Evaluation of Red Light Camera Enforcement in Oxnard, California. Accident *Analysis and Prevention* 31 (1999): 169-174.
- Retting, RA; Williams, A.F.: Farmer, CM; and Feldman, A 1099. Evaluation of Red Light Camera Enforcement in Fairfax, Virginia. *ITE Journal* 69/8: 30-34.
- Refting, R.A. and Greene, M.A. 1397. Influence of Traffic Signal Timing on Red Light Running and Potential Vehicle Conflicts at Urban Intersections. Transportation *Research* Record No. *1595:* 1-7.
- Persaud, B.; Hauer, E; Refting, RA; Vallurupalli, R.: and Mucsi, K. 1997. Crash Reductions Related to Traffic Signal Removal in Philadelphia. *Accident* Analysis and *Prevention* 29/6: 803-810.

  Refting, RA. and Williams, AF. 1996. Characteristics of Red Light Runners: Results of a Field Investigation. Journal of Safety Research 2711: 8-15.


**Mr. Retting has served on numerous NCHRP panels and TRB special committees including:**

- Chair, NCHRP Project 03-93, Automated Enforcement of Speeding and Red Light Running
- NCHRP Special Project 20-5, Impact of Red Light Cameras on Crash Experience
- NCHRP Project 17-18(3), Guides on Reducing Fatalities Related to Speeding
- TRB Special Report 254, Managing Speed