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## Red Light Running Cameras – Reader Reactions and Authors' Reply

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### EDITOR'S NOTE (RJM)

*These two letters and the authors' reply are related to the following paper published earlier this year:*

Langland-Orban, B., Pracht, E.E., & Large, J.T. (2008). Red light running cameras: would crashes, injuries, and automobile insurance rates increase if they are used in Florida? *Florida Public Health Review*, 5, 1-7.

*Some editing of the two letters and the authors' reply occurred strictly for stylistic purposes and editorial consistency.*

***Florida Public Health Review, 2008; 5:47-52***

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### To the Editor:

The story is told of an army traveling through a town and found the fences and trees adorned with hand painted targets - all shot with a direct bull's-eye. The general wanted to find this shooter to use in his army as a sniper. When located, this marksman is asked- "How do you get a bull's-eye every time?" He responds- "I shoot first, and then draw the target later." In the same way many of us approach a problem with a preconceived answer and do not even consider our beliefs as opinion. Of course as they say-opinions are like pie holes, everyone has one. Allow me to express my opinion over the *Florida Public Health Review* article concerning red light cameras.

Review articles are intended to analyze the current information objectively and arrive at a conclusion. Reading this article provokes me to raise several "red flags" concerning possible bias in the approach used by three University of South Florida professors.

Much of their language is emotionally charged in what is referred to as "loaded." Words are obviously selected in an attempt to impress and not just express. The studies they like are referred to as "comprehensive," "rigorous," and "robust."

A large amount of effort is spent attacking studies that disagree with their opinion; whereas, favorable studies are not subjected to the same degree of scrutiny. For example, were the increased accidents at these busy intersections due to increased traffic flow from an expanding population? Also, the percentages they quoted were not defined in terms of absolute versus relative risk. I'm very familiar with statistical shenanigans, and unfortunately, commonly agree with the phrase - "Figures lie, and liars figure."

Remarks about the insurance industry and red light cameras are pure speculation consistent with the paranoia found in a segment of society prone to believe in conspiracy theories. Automotive insurance is a for-profit industry, but the researchers neglect to emphasize a possible goal of decreasing accident payouts, and instead focus on red-light cameras as convoluted schemes to increase premium rates.

The article also has an unusual, hard-to-follow comment attempting to compare automobile insurers with tobacco companies. Such interpretative conjectures are not consistent with an unbiased review article.

My own bias comes as a family practice doctor with emergency room experience. This vocation puts one on the receiving end of a funnel concerning the small, but significant number of individuals permanently affected by someone who "blew the light."

I am surprised in terms of the emotional response the red light camera issue elicits. Even a cursory search of the Internet reveals abundant material for either side to reference in this debate. Unfortunately the majority of humankind is motivated more by fear than hope. It seems some have a great phobia of obeying the law and having to stop at red lights. My hope is that our children may go through life without being maimed or killed. My fear is that for the sake of saving a minute someone will crush that hope by speeding through a red light.

Daniel R. Retzer MD

Davis Junction, IL

[SK8INDR@aol.com](mailto:SK8INDR@aol.com)

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### To the Editor:

Recently there has been considerable press coverage of a study published by Langland-Orban, Pracht, and Large who are at the University of South Florida that argues against the installation of photo enforcement to curb red light running. Regrettably much of the press coverage has identified their report as a study by the University of South Florida, which implies that it reflects the collective wisdom of the University. Because there are thousands of faculty members at USF, the press coverage would have more accurately noted the views as those of Langland-Orban and colleagues.

As Director of the USF Center for Urban Transportation Research I feel compelled to offer some contrary evidence. In their paper, Langland-Orban et al. cite the National Motorists Association

as one of their sources. You owe it to yourself to check out the website of the National Motorists Association. You'll find they would better be named the national scofflaw association. If you check out their website you'll find they sells books like "Speeding Excuses That Work," "Beat Your Ticket: Go to Court and Win," a full range of radar detectors, and their Guerilla Ticket Fighter CD - not exactly a credible source.

Their article reports the results of a year-long study, but really it was a synthesis of other studies. Their article correctly notes that there are many engineering countermeasures that can affect crashes at signalized intersections, including assuring signal head visibility, selecting appropriate yellow time intervals, use of an all-red clearance interval, and others. These measures are important and are included in recommended practice by traffic engineering practitioners. While focusing on a couple contrary studies and citing the aforementioned National Motorists Association, they neglect to include in their synthesis the many studies that support the effectiveness of red light running cameras. A recent Iowa State University showed dramatic reductions in both violations and crashes after the installation of red light cameras for both rear end crashes and for right angle crashes. They also omit discussion of the National Academy's Transportation Research Board report on the Impact of Red Light Camera Enforcement on Crash Experience, which did a comprehensive review of many studies done across the country. They concluded that a majority of jurisdictions that have implemented camera enforcement reported downward trends in red-light running violations and crashes, especially the more severe types.

The USDOT Federal Highway Administration and the 15,000 member Institute of Transportation Engineers endorse the proper implementation of photo enforcement, which includes site by site studies and implementation of other engineering countermeasures, oversight of photo enforcement by public agencies, and a strong public education program.

Driving on our roads is a privilege and we shouldn't hesitate to ticket those who violate basic rules of the road, notably failure to stop at a red traffic light, which endangers all of us.

Edward A. Mierzejewski, PhD, PE  
Director, Center for Urban Transportation Research  
University of South Florida  
Tampa, FL  
[mierzeje@cutr.usf.edu](mailto:mierzeje@cutr.usf.edu)  
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### **Langland-Orban, Pracht, and Large Respond**

This response is to address comments and questions posed about our analytical review of red light camera studies, including issues raised in letters to the editor. Our interest in the topic is described, along with comments on other studies suggested to us. We discuss evidence of the roles of the automobile insurance research institute and camera vendors in promoting cameras, as well as the Institute of Transportation Engineers' (ITE) advisory regulatory guidelines and the function they play.

As background, we began conducting research with trauma surgeons from both the University of South Florida and University of Florida beginning in 2001. The red-light camera topic emerged in 2005, 2006 and 2007 when Florida legislation proposed allowing camera use with a portion of ticket monies accruing to trauma centers; however, so far all efforts to enact such a policy have failed. Trauma surgeons did not take a position on the legislation even though trauma centers would financially benefit from camera tickets. A concern has been that any potential increase in crashes and injuries would be contrary to their mission. Because camera tickets were the proposed means to assist Florida trauma centers, we sought to understand the impact of cameras on public safety. We found the major differences in camera study conclusions are explained by vast dissimilarities in research assumptions, methods and outcome measures used, and the questionable application of statistical analyses in some evaluations.

The U.S.-based pro-camera studies that were included in our original report were chosen because they were used in Florida when legislative changes were considered to permit the use of red-light cameras. Our intent was to compare these studies with recent, large, U.S.-based studies that had contradictory conclusions. In our original analysis, we found the two pro-camera studies grossly deficient, in part, because they did not conduct before-and-after evaluations at camera intersections and did not report changes in red-light running or total crashes and injuries. Of the criticisms we have received to date, none have claimed that we incorrectly presented information from these studies.

Much of the criticism we have received comes from sources upset with our findings. Some critics proffered other reports and studies that concluded cameras are effective. Our response, after having since examined other studies, is as follows. First, critics have rhetorically asked if we have any disposition against the predominant methodological technique used in most red-light camera studies, namely empirical Bayes (EB), which was used in the study funded by the Federal Highway Administration

(Council, Persaud, Eccles, Lyon and Griffith, 2005). Quite to the contrary, we applaud the use of rigorous analytical methods. Our major concern is the misuse of methods that can lead to erroneous findings. EB requires an intense amount of data and input. The study using EB and claiming red-light cameras are on the whole beneficial is lacking in many, if not all, the technical areas. Second, the studies cited by critics to our analytical review exhibit similar research design deficiencies as the pro-camera studies we originally examined. This is not surprising as these studies tend to have the same backing organizations, authors or affiliations.

One critic referenced a 2007 Iowa study (Fitzsimmons, Hallmark, McDonald, Orellana, & Matulac, 2007), which he believes demonstrates cameras are effective. However, our review of this study found that it failed to demonstrate a credible safety outcome improvement. It should be noted the study acknowledged contributions from at least one source from the Insurance Institute for Highway Safety. Our general comments on the Iowa study are discussed below for each of the three cities included in the analysis.

- For the city Clive, Iowa, the study admits that it could not conduct a before-and-after red-light camera comparison because the city did not perform an analysis before cameras were installed. Instead, the evaluation analyzed red light running *violations* after cameras were installed, which precludes robust analysis.
- Council Bluffs, Iowa had only one year of after-camera data, which the study admits is inadequate to conduct a robust analysis.
- The Davenport, Iowa evaluation analyzed four camera intersections and concluded cameras were associated with a statistically significant reduction in total crashes. However, our review of their statistical analysis reveals that the before and after expected crash frequencies had overlapping intervals, meaning they were not different (Tables 6-15 and 6-17). Further, the lower bound of 95% credible sets in Table 6.24 is 0.01 at all camera intersections. The fact that they are all the same and so close to 0 (presumably a difference of 0.01 crash per quarter) is not likely a meaningful difference in crashes. Despite an 11-fold increase in red light running citations (585 in 2004 before cameras and 6,610 in 2006 after cameras), crash frequencies remained statistically the same.

Conspiracy theories and conjecture are not needed to conclude the automobile insurance

research institute, along with several large camera vendors, is actively working to advance cameras. Evidence of advocacy is provided from both the Insurance Institute for Highway Safety (IIHS), which is self-described as being fully funded by automobile insurers, and “The National Campaign to Stop Red Light Running,” which is sponsored by three camera vendors. We have simply pointed out that some financial incentives inherent to insurers and camera vendors could introduce conditions that may undermine public safety. Some evidence of their support is explained below.

- Red light running (RLR) accounts for approximately 2% of traffic fatalities in the U.S. However, the IIHS’ reported statistics has obfuscated the relative magnitude of the problem. For example, the IIHS has reported that violating traffic control devices accounted for 22% of all crashes and, of these, 24% were attributed to red light running (Federal Highway Administration, 2007). The percentages can be misleading because individuals must know to multiply 22% by 24% to understand the IIHS is reporting that RLR caused 5% of crashes in the four urban areas referenced. The statistics used by the IIHS could lead some to believe RLR causes one of every four or five crashes instead of something closer to one in 25.
- The IIHS web site identifies cameras as the remedy to RLR (IIHS, 2007), and grades each state on their camera laws. States that do not allow red-light cameras receive a rating of “poor” on their use of cameras (IIHS, 2008), which clearly indicates bias toward camera usage.
- The IIHS provides rebuttals to discredit reports that conclude red-light cameras are associated with increased crashes. Targets of their rebuttals have included the U.S. House Majority Leader’s report and the North Carolina study, both of which we referenced in our original report (IIHS, 2001; Kyrychenko & Retting, 2004; IIHS, 2005). The *Washington Post* also reported an increase in crashes at camera intersections in Washington D.C., indicating that total crashes doubled over a six-year period and angle crashes increased by 30%. The findings at camera intersections were “similar or worse” than non-camera intersections (Wilber & Willis, 2005). The IIHS web site posted a letter from the IIHS’ Chief Operating Officer to the newspaper’s editor rebutting the analysis as flawed and

claiming an increase in angle crashes is “illogical on its face” and “out of line” with other findings. The letter states existing research “indicates that cameras reduce red light running and crashes at all intersections in the community, not just those with cameras” (Lund 2005). The IIHS has disparaged independent and unaffiliated analyses that conflict with their own findings.

- The IIHS provides testimony to influence state legislation regarding cameras, such as that provided to the Ohio Senate Committee on Highways and Transportation and to the Pennsylvania House Committee on Transportation (McCartt, 2005; Oesch, 2007), and references their Oxnard study (Retting & Kyrychenko, 2002).

With regard to cameras, the IIHS behavior is similar to the tobacco industry in that both industries conducted their own research via a separate “scientific” institute, which was used to advance a product (cigarettes) despite independent research producing contrary conclusions that raise health and safety concerns. This strategy is unfortunate in that the questionable camera research and opposition to independent research could tarnish the good work the IIHS has conducted in studying crashes. Meanwhile, camera vendors systematically use IIHS information in efforts to change state laws and advance camera use.

“The National Campaign to Stop Red Light Running” is an advocacy group sponsored by three red-light camera vendors (ACS, Redflex and Gatso USA). The “National Campaign” was founded by ACS - Affiliated Computer Services, Inc., which provides other information technology outsourcing services, such as electronic toll road collections and fiscal agent to Florida Medicaid (The National Campaign to Stop Red Light Running, 2008; ACS, 2008). Other red-light camera vendors also provide toll road collections services. This includes the Faneuil Group, a Canadian company that provides a customer call center for Florida’s SunPass tolls, and American Traffic Solutions, which profits from SunPass toll collections on rental cars (Faneuil, Inc., 2008; TOLLROADSnews, 2007; TOLLROADSnews, 2006; American Traffic Solutions, Inc., 2008). Such vendors benefit from the privatization of public services, including camera enforcement.

The camera vendors’ “National Campaign to Stop Red Light Running” explicitly recruits survivors, family members, and friends of red light running victims and teaches them to influence public opinion and public policy. This includes preparing

and “coaching” victims and others to speak to reporters, write letters to newspaper editors, and influence legislators. This camera vendor initiative is openly discussed on their campaign’s web site under the “Crash Survivors” tab.

The National Campaign to Stop Red Light Running (2008) states the following: *Survivor advocates have the most powerful voice in trying to change public policy... Advocates will work with these individuals to prepare, assist and even “coach” them for advocacy involvement if desired. Some of the activities in which survivor advocates can choose to participate are: writing letters to legislators; testifying before state legislative committees; speaking to news reporters on the phone; writing letters to the editors of local papers; serving as a spokesperson at media events; and working with other survivor advocates throughout the country* ([http://www.stopredlightrunning.com/html/crash\\_survivors\\_network.htm](http://www.stopredlightrunning.com/html/crash_survivors_network.htm)).

In Florida, increased automobile insurance profitability was not achieved by reducing costs. From 2000 to 2004, claims increased from \$6.4 billion to \$8.5 billion, a 7.3% annualized increase. Meanwhile, a disproportionately higher increase occurred in premium revenues with a 12.4% annualized increase, despite the crash rate remaining unchanged (Florida Statistical Abstract [FSA], 2001; FSA, 2006). Over this five-year period, underwriting profit experienced a 23% annualized rate increase. That is to say, profits were rising three times faster than claims. Hence, automobile insurance profits in Florida were augmented by premium revenue growth, not cost reductions.

One critic’s letter states the Institute of Transportation Engineers (ITE) supports photo enforcement, recognizing the ITE establishes advisory regulatory guidelines. However, in a 2001 report on red-light cameras, the Office of the U.S. House Majority Leader (Dick Armey) described the ITE as negatively changing their advisory regulatory guidelines on traffic signal timings. This occurred from 1994 to 2000 at the same time red-light cameras were beginning to be actively advanced in the U.S. ITE changes were modified to allow for choosing enforcement even when yellow light timings were deficient, which increases red light running incidents and, therefore, the number of tickets issued at camera intersections. The all-red clearance interval was also made “optional.” The Federal Highway Administration endorsed these changes in the 2000 “Manual on Traffic Control Devices.” The U.S. House report describes this as a “hidden tax” being levied on motorists (Office of the Majority Leader, 2001).

In effect, a jurisdiction can use the ITE changes to create the public's perception of a red light running problem and then offer cameras as the solution, intended for the purpose of revenue - the "hidden tax." The failure to use an all-red clearance interval can result in the appearance of red light running since some vehicles that enter the intersection on a yellow light are still in the intersection when the signal turns green for cross traffic. When this practice is combined with shortening yellow light timings, even more "witnessed" red light running will occur. Hence, using the revised ITE guidelines can foster public perceptions that RLR has become an "epidemic."

Evidence suggests the "hidden tax" dilemma is a legitimate concern. In March 2008, a Chattanooga judge dismissed 176 camera tickets after concluding the camera vendor set the yellow light timing nearly one second (0.9) below the "bare minimum" needed (Lazenby, 2008). In 2002, an administrative judge in Baltimore concluded that 39% of 181 camera citations were associated with inconsistent yellow light timings and 10% occurred where the yellow light timing was slightly less than the 3-second federal minimum. The judge also recommended abolishing the contingency fee arrangement with the camera vendor (ACS) and replacing it with a flat fee (Matthews, 2002).

If passing a camera law, states can avoid such abuses by structuring requirements that essentially prohibit using cameras for revenue rather than safety. For example, in 2008, the Florida Senate Committee on Transportation approved the camera bill with the following substitutions (Florida Senate, 2008).

- Preempts the regulation and use of camera enforcement to the state and requires the Florida Department of Transportation to develop minimum specifications and required compliance with specifications.
- Requires other engineering measures to be used prior to camera use.
- Prohibits payment of camera vendors based on the number of tickets issued.
- Requires the removal of cameras if crashes increase by 10% within one year.
- Requires the distribution of fine revenues adhere to the formula for other traffic citation fines, meaning local governments receive only a portion of each fine.

Similar to the 1950s, the need is evident for a paradigm shift in traffic safety; away from relying solely on enforcement and toward a systematic approach to reduce high traffic crash and fatality rates. Traffic fatalities began to decline in the 1960s when emphasis was placed on improvements in

automobile and roadway engineering, along with education. These improvements resulted in motor vehicle safety being recognized as one of the top 10 public health achievements of the 20<sup>th</sup> century (MMWR Weekly, 1999). It is a fact that engineering countermeasures can prevent crashes from red light running, along with other types of intersection crashes, by reducing the likelihood of driver error.

Barbara Langland-Orban, PhD  
Associate Professor and Chair  
[borban@health.usf.edu](mailto:borban@health.usf.edu)

Etienne E. Pracht, PhD  
Associate Professor  
[epracht@health.usf.edu](mailto:epracht@health.usf.edu)

John T. Large, PhD  
Assistant Professor  
[jlarge@health.usf.edu](mailto:jlarge@health.usf.edu)

Department of Health Policy and Management  
University of South Florida  
Tampa, FL  
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