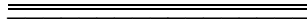
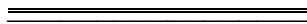


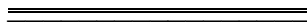
**The Bill Blackwood
Law Enforcement Management Institute of Texas**



Red Light Cameras: An Asset to Traffic Safety



**A Leadership White Paper
Submitted in Partial Fulfillment
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ABSTRACT

Law enforcement officers spend a significant amount of their time each year responding to motor vehicle crashes. Most, if not all, police departments have specialized traffic units that focus on traffic enforcement in an attempt to gain driver compliance with traffic laws and make roadways safer. The question is frequently raised of how much impact officers writing citations and enforcing traffic laws truly have on the safety of roadways. This would be nearly impossible to measure due to many variables. Technological advances today have provided law enforcement with other options.

Red light cameras should be considered one option for helping to make roadways safer. A primary reason to support this statement is that red light cameras have a proven record of changing driver behavior. Often, this translates into dramatic reductions in crash numbers at intersections. Another reason to consider red light cameras is that they offer a very economical option to law enforcement agencies compared to alternatives. In addition, the use of red light cameras offers an unbiased and non-discriminatory enforcement that still holds all of the due process requirements. The sources used to support these statements are backed up from a wide variety of Internet sites, raw data from studies in Texas, National Highway Traffic Safety Administration (NHTSA) studies, newspaper articles, and periodicals. It would be irresponsible for agencies to not consider red light cameras as a component of a traffic safety plan to increase the safety of citizens within their communities.

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INTRODUCTION

Traffic crashes in the United States killed 37,261 and injured 2,346,000 people in 2008 (National Highway Traffic Safety Administration [NHTSA], 2009) and cost society in immeasurable amounts from an economic standpoint due to property damage and lost time from work. The time that law enforcement spends in its response to traffic collisions is also costly in that it is time that could be spent doing other crime prevention activities. Public safety officials and traffic engineers often struggle with new and innovative ways to combat this problem and decrease the losses from traffic crashes. Recently in Texas, and over the past several years across the United States, red light cameras have emerged as a new technology to combat the problem of red light runners and increase traffic safety. Many have argued that “red light cameras are controversial” (Stiles, 2009, p. 1), do not increase traffic safety, and simply serve as a revenue generator for cities while actually increasing read-end crashes. It is important to recognize that other measures must also be considered with red light cameras to effectively make intersections safer. Red light cameras are not the magic tool and should not be considered the sole way to make an intersection safer.

In order to truly examine the effectiveness of the cameras, it is important to look at several things: the effect of red light cameras on driving behavior, the amount collisions have been reduced, whether the use of the cameras offers a fiscally responsible option to cities to combat the problem of red light running, and whether this is a fair and unbiased form of enforcement. In examining these points, evidence suggested that it is clear that drivers are aware that cameras are there by looking at the amount of violations captured over the life of a red light camera. Evidence also

suggested that collision rates at intersections where there are cameras are also on the decline (Frisco Police Department, 2010). It is also clear that red light cameras truly are unbiased in their method of enforcement, and they also offer a much more cost effective solution to increasing traffic safety. By illustrating these points, it would be irresponsible to not consider them as a measure to increase traffic safety.

Initially, there was not much data to support a position as to the effectiveness of red light cameras either way. Over the past few years, however, as more cities have implemented them in both Texas and across the United States, there is a lot of data to examine and determine how the cameras are doing in decreasing crashes and increasing public safety on roadways. In Texas, "A statewide study by institute researchers shows that monitored intersections had an overall 30 percent decrease in collisions" (Stiles, 2008, p. 1). With regards to changing driver behavior, "There's a dramatic change in driver behavior when red-light cameras are used," said Richard Retting, senior transportation safety engineer for Insurance Institute for Highway safety (as cited in Copeland, 2007). In examining two intersections in the City of Frisco, Texas, there were drops in both the collision rates and drops in the amount of violations captured by the cameras indicating a change in driver behavior (Frisco Police Department, 2010). Based on all of these points, red light cameras should be considered as an alternative means to increase traffic safety at selected problem intersections.

POSITION

In order to measure the effectiveness of red light cameras, it is common for many people to simply look at crash numbers. While it is important to examine crash statistics

at camera monitored intersections, it is more important to measure the effects of the cameras on driver behavior. A simple way of doing this is to examine the number of violations from the inception of a camera at an intersection compared to what it is capturing at the present time. In Frisco, the city began with two cameras at two different intersections. In the beginning, the cameras were capturing about 900-1000 violations per month for both cameras combined in 2006 (Frisco Police Department, 2010). By 2009, those two cameras were only capturing approximately 60 to 80 violations per month. These numbers certainly illustrate that there was a change in driver behavior. It is important to note that there were structural improvements that took place to both intersections, and traffic flow changes occurred over time, but the dramatic dip in violations captured certainly illustrates that drivers were more aware when traveling through those two intersections.

Frisco is not the only city to experience a significant drop in the number of violations captured at a camera-monitored intersection. Dallas saw the same trend: "Dallas officials reviewed the numbers and decided that a quarter of the cameras they had installed to catch motorists running red lights were too effective. So they shut them down" (Johnson, 2008, p. 1). The cameras became extremely effective in changing driver behavior. In addition to Dallas, several other cities have experienced the same trend at their intersections. This heightened awareness of drivers and knowing that the cameras were there planted a seed in their mind. They knew not to run the light at those intersections because they would be subject to a fine. This illustrates the effect that this change in driving behavior has had at these monitored intersections. Just imagine if the behavior change in drivers has a spillover or "halo effect" on other

intersections. A more-aware driver clearly translates into a safer driver. This is a quantifiable measure that cannot be disputed. In looking at crash statistics, there are too many variables to consider, like traffic counts, weather, and time of day, to make that the sole basis for measuring the impact of a red light camera.

In today's economic times, budgets have been tightened, and more than ever, city leaders want to demonstrate fiscal responsibility in new programs and services they offer to citizens. After establishing that red light cameras make roads safer by changing driver behavior, it is important to look at the costs associated with implementing a red light camera program and the impact this program has on city budgets. Red light cameras are self-supporting cost neutral programs, which means that cities entering into agreements with vendors usually do not have to worry about the program losing money. In the agreement between the City of Frisco and Redflex Traffic Systems, Inc., the cost neutral language reads:

cost neutrality is assured to the customer. The maximum compensation that customer shall be obligated to pay Redflex each month is the fixed fee. If the amount invoiced exceeds the revenue, then city shall only be obligated to pay the revenue to Redflex and the difference between the revenue and the amount invoiced for that month will carry over to the next month as a deficit (deficit amount). Upon contract expiration any such outstanding deficits will be forfeited by Redflex (City of Frisco, 2005, p. 24).

This means that the city is not obligated to pay anything if the cameras do their job and change driver behavior, reducing the number of violations. It should also be noted that the vendor usually assumes all of the costs associated with installation, maintenance, and training on the new system. It would be extremely challenging for any administrator in a law enforcement agency to find a safety program that has an impact on the public and takes on no financial risk or start up cost. Generally speaking, the monthly fee that

vendors charge per approach is \$4500-\$5500. One can take the midpoint in this range and do a comparison versus staffing at an intersection with an officer to just look for red light violations. The mid-range salary for a Frisco police officer is \$26.63 per hour. Assuming an agency staffed an officer at an intersection at that hourly cost for an entire month, around the clock, the cost would be \$19,202.40. This is obviously much higher than the cost of a camera. It should also be considered that not too many departments have the ability to spare an officer to solely monitor an intersection for an entire month. In addition, the camera is much more efficient in catching violators.

The final area to consider with the economic aspect of red light cameras is the revenue that they generate. When the cameras are catching violators, they can certainly bring in a large revenue stream. The Texas Transportation Code, in 2007(TRC 707.008 (1)), mandated that this revenue be split between municipalities and a state trauma center fund. The Transportation Code also mandated that the money that municipalities do keep must be spent on traffic safety. In Frisco, a large amount of revenue has not been generated, comparatively speaking, but what has been collected has paid for items such as: battery back-up systems for signal lights, scales to enforce weight violations for trucks, speed measuring devices for officers, and a speed trailer to educate the public. The purchase of these items clearly make the roads safer, and without the money generated from red light cameras, these things may have never been purchased. There are other benefits to red light camera systems: "The contributions to the health care system can also be felt: "\$5.6 million from the region in the fiscal year 2007-2008 according to the state comptroller report" (Neilsen, 2009, p. 1C). This will translate into over \$2 million going to help trauma centers in the DFW area due to red

light camera revenue. Feibel (2009) stated that “Houston area hospitals received \$4.6 million of the most recent distribution – more than half sent to trauma centers across the state” (p. B2). Economically, red light cameras are a very sound strategy that pays benefits across the board, including cost effectiveness for the agency, ease of implementation, and increased available funding other traffic safety programs and trauma centers.

It is always important for any public policy or program to pass the test of fairness. In the law enforcement world, this includes making sure that any new initiative that is taken on is unbiased and non-discriminatory. One observation that can be made about red light cameras is that they treat everyone equally. This can be said because the only thing that cameras catch are vehicles that run red lights. The public cannot even use the argument that police officers get special treatment. Eiserer (2009) stated that the Dallas Police Department has policies requiring officers “who ran a red light without proper cause to be responsible when ticketed by red light cameras. After reviewing more than 700 cases, the city ordered 14% had to be paid or contested by the police employee” (p. 1C).

Cameras also do not pay any attention to the race or gender of a driver. In Texas, as in most places, red light cameras are designed to take photos of a vehicles license plate and rear angle. Since there is no photo of the driver in these cases, there would be no way for officers or those reviewing the violations to be prejudicial in the process. In Texas, if an officer makes a traffic stop on a vehicle, the officer is required to comply with racial profiling laws and provide information about the stop that covers race of the violator, reason for stop, search info, etc. These laws were obviously

created for a reason: with hopes that providing this data would highlight bias based profiling at departments and amongst certain officers. With cameras, this issue does not even come into question because profiling is not possible.

Another benefit to red light cameras is that they offer each violator an opportunity to see their violation. This is something that typically is not possible when an officer issues a citation. When a violator goes to municipal court to contest his/her violation, it very often comes down to the officer's word against the violator's. There is no evidence of the violation committed that can be seen or reviewed by a judge or jury in most cases. This is another way that red light cameras offer a much more transparent due process than ever before. Each violator can see his or her violation before a hearing to decide if they wish to contest it. If they do request a hearing, the same due process that is afforded to any other traffic violator is afforded to them. The only difference is that in Texas, these are civil proceedings rather than criminal, so the initial hearing is done before an Administrative Hearing Officer. If the violator is not satisfied with the outcome of this hearing, then he or she can appeal it like any other violation. In examining all of these aspects afforded to violators, one could truly make the argument that red light cameras offer a non-discriminatory, transparent enforcement alternative that most would consider fair.

COUNTER POSITION

Despite the many benefits outline regarding red light cameras, some people oppose them. The primary arguments against red light cameras are that they increase rear end crashes, they are simply designed to generate revenue for municipalities, they are an invasion of privacy, and they do not necessarily target the person who commits

the violation. Each of these points can be refuted by a closer examination of the numbers.

Looking first at rear end crash numbers, it is certainly a valid concern and one that has been looked at. In 2008, The Texas Transportation Institute (TTI) conducted a study on the effectiveness of red light cameras. The study examined crash numbers at 56 different intersections prior to cameras being installed and then a year after cameras had been installed. Included in the crash analysis was a look specifically at rear end crashes. The findings were that rear end crashes rose from 106 to 111 or 5% over the course of the year (as cited in Walden, 2008). While this may seem to support the claim regarding rear end crashes, it is important to note that the same study saw total crash numbers reduced from 586 to 413, or a 30% reduction. In addition, there were drops in right angle collisions from 265 to 151 at 43% reduction (as cited in Walden, 2008). Typically, right angle collisions are significantly more harmful in terms of injuries and property damage than rear end crashes. Another consideration when looking at rear end crashes is that it is much more difficult to define than a right angle crash. This makes them much more difficult to count. We know that a right angle intersection crash occurs within an intersection. It is important to establish what agencies are counting as rear end crashes. Uniformity among reporting amongst agencies is certainly a consideration that needs to be addressed in looking at crash data to examine effectiveness of a red light camera.

Another study conducted by students at Rice University in Houston examined the effectiveness of Houston's red light camera program. This study found that "the proportion of collisions occurring at monitored approaches decreased significantly

relative to the non monitored approaches” (Dahnke, Stevenson, Stein, & Lomax, 2008, p. 4). This further supported an overall reduction of crashes as was found in the TTI study. These questions and studies cause serious problems for the argument that red light cameras increase rear end crashes. Assuming that they do cause a small increase in rear-end crashes, it clearly does not cancel out the significant drop shown in other, mainly right angle, crashes.

Another major argument against the cameras is that they are simply designed for generating revenue for cities. While it has been shown that red light cameras can bring in a substantial amount of revenue, it is important to note the requirements that cities must adhere to in order to put up a camera. State law requires that municipalities study crash data for a period of time on an intersection prior to placing a red light camera there. Included in this examination of crash data is specifically a look at the number of right angle or red light crashes that have occurred at the intersection. This analysis continues even after the camera is placed to monitor what effects, if any, it may be having on the intersection. Engineering studies must also be conducted for suitability for camera placement. State law also requires cities to include in the process a citizen advisory committee made up of members appointed by the city’s governing body. Warning signs must be posted with flashing yellow lights notifying drivers that it is a photo-enforced intersection. Red light cameras are clearly not a magic tool that should be put up to simply generate revenue. This is why the state has requirements within the law, like gaining citizen input, annual analysis, and engineering studies. Cities should also ensure that they have taken other measures to increase safety at an intersection, such as lengthening yellow light cycles and increasing lighting.

Critics of red light cameras also frequently make the argument that their right to privacy is being violated, and the person receiving the ticket may not have even been in the car. In Texas, red light camera citations are issued to the registered owner of a vehicle. So, it is true that there may be situations where the registered owner has loaned his car out to someone else who was driving the vehicle and was caught by a red light camera. In these cases, municipalities allow the registered owner to complete an affidavit that states they were not driving the vehicle at the time of the violation, and they can then nominate the person who was. That person is then sent the citation. The argument over violations of privacy involving red light cameras cannot be made because there are not pictures or videos taken of the driver. Only the vehicle is photographed, and the vehicle on a public roadway has no expectation of privacy. The Attorney General of the State of South Carolina issued an opinion in 2002 supporting that there was no expectation of privacy and that the use of automated traffic enforcement is constitutional on these grounds (Federal Highway Administration, 2003, p.7). These arguments certainly are evidence that red light cameras pass the test of legality across many different realms.

CONCLUSION

Red light cameras should be considered as a means of increasing traffic safety at selected intersections. Red light cameras have shown to have significant positive results on changing driver behavior. A red light camera program offers cities a fiscally responsible initiative where they will assume no financial risk while providing additional funding to local trauma centers and other traffic safety programs. Red light cameras also offer a transparent, non-discriminatory form of enforcement that maintains due

process for the violator. The arguments against having a red light camera program clearly do not outweigh the benefits. As shown in numerous studies, the slight increase that may occur in rear end collisions do not cancel out the significant drop in total collisions and right angle collisions (Hess, 2009; NHTSA, 2006; Walden, 2008). One of the studies cited was done in Texas, but similar findings have been seen in studies done across the U.S. and globally. Hess and Aeron-Thomas (2009) stated that “five studies in Australia, Singapore, and the USA all found that use of red light cameras cut the number of crashes in which there were injuries. In the best conducted of these studies, the reduction was 30%” (p. 2). In addition, red light cameras have passed the test of legality within the court system with regard to privacy issues. Lastly, red light camera programs can certainly generate revenue, but their primary mission to increase safety and reduce injuries and crashes is statistically supported. In addition the revenue that they do generate in Texas must be applied toward other traffic safety programs that can further make roadways safer. Red light cameras can have a significant impact in the law enforcement community by reducing crashes, thus freeing officers to focus on other crime prevention activities.

Agencies should examine the number of fatalities and injuries caused by red light runners in their communities and determine whether a red light camera program could help if deployed. This technology should be viewed as simply another tool that police agencies have at their disposal to help combat a problem they are confronted with. As with any tool, it is not the perfect solution, and research must be done on where and how to properly deploy each camera. Law enforcement and society would simply be acting irresponsibly by not considering the use of red light cameras.

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