



# The Effectiveness of Red Light Traffic Camera Enforcement

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## Issue

Is the installation and use of red light traffic cameras a cost effective and productive strategy for reducing the incidence of vehicle collisions or are cities using these camera installations primarily as a source of revenue?

## Background

Over the past four years, eight cities in San Mateo County have installed traffic cameras at numerous intersections. The cameras monitor and record red traffic light violations and have the stated objective of reducing the incidence of vehicle collisions at the traffic intersections that are monitored. In addition to running a red light (going straight through an intersection), in some cases the cameras also monitor whether a motorist stops at a red light before making a right hand turn. This recorded video is reviewed by police agency personnel. If sufficient evidence exists to support prosecution, the violator is issued a citation to appear in traffic court. The cities' police agencies have adopted this technology to supplement their traffic enforcement efforts.

Besides driving straight through a red light, there are two types of right-turn violations at a red light. The first is failing to stop completely before turning. This violation is cited under Vehicle Code (VC) section 21453(a) because the action reflects a failure to stop and thus is categorized as red light "running" in the same sense as driving straight through the intersection. The second type of right-turn violation involves coming to a full stop, but then proceeding to turn right in an unsafe manner. This turn could be unsafe because of the presence of pedestrians, on-coming traffic, or other conditions. This latter offense carries a much lower fine under VC section 21453(b).

The 2008-2009 San Mateo County Civil Grand Jury issued a report entitled "Red Light Cameras Increase Safety" and addressed the issue "Are photo enforcement red light cameras in Redwood City effective as traffic safety devices?" The report focused exclusively on Redwood City and the one red light camera installed at Whipple and Veterans Blvd. This current report expands on the previous report by incorporating all cities in San Mateo County that have red light cameras installed. However, the fundamental issue of traffic safety remains the same. The 2008-2009 San Mateo County Civil Grand Jury report recommendation to Redwood City was:

*Develop an annual review process which compares the number of collisions pre and post installation of the photo enforcement camera. Determine whether the equipment is serving as an effective deterrent and whether additional safety features should be implemented.*

Redwood City in its response stated that "... steps will be put into place within the next 30 days that will allow an annual review to take place." A review was held with the Chief of Police and other senior police officials in late April, 2010.

### Vendors

All of the traffic camera systems used by police agencies in San Mateo County are provided by two private firms. Two cities, Millbrae and South San Francisco, contract with American Traffic Solutions<sup>1</sup>. The remaining cities contract with Redflex Traffic Solutions<sup>2</sup>. Although there are two separate vendors, the provisions of the individual contracts are substantially the same. All of the equipment, installation and maintenance of the traffic camera system are the responsibility of the company providing the service. The contracts usually run five years with options to extend. Contracts can also be terminated earlier than 5 years, but with financial consequences. The equipment belongs to the vendor and is not the responsibility of the city.

The Redflex Traffic Systems agreement specifically refers to vehicle collisions in its recitals:

*WHEREAS, it is a mutual objective of both Redflex and the Customer to reduce the incidence of vehicle collisions at the traffic intersections that will be monitored pursuant to the terms of this Agreement.*

The American Traffic Systems agreement makes no such reference to an objective of reducing vehicle collisions.

### Citation Revenue and Operating Costs

The 2010 fine for failure to stop at a red signal under VC 21453(a) is \$446.00; however only a portion of this is funded back to the city that issued the citation. The total amount of the fine and the proportion that each city receives is determined by state statute.

Although the precise amount each city receives is different, in general, the portion of the fine paid to the city is approximately 33%, with the rest going to the county and the state. This amount is the same whether the citation is issued by an officer or as the result of a violation recorded by the camera system.

The cost associated with each red light camera consists of a fee paid to the vendor and the cost of employees who review and authorize citations. The contracts require that a flat monthly fee be paid for each installation. The monthly fees range from \$5,395 to \$6,350.

Based on the survey received from the cities, only the City of San Mateo provided full time dedicated sworn staff to the evaluation of the video recorded by the cameras. In all other cases, each individual city uses part-time sworn officers' help to evaluate possible violations, appearance in court, and answering questions from the general public. Millbrae and San Carlos contract with the City of San Mateo for their administrative support.

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<sup>1</sup> American Traffic Solutions Inc.  
7681 East Gray Road  
Scottsdale, AZ 85260

<sup>2</sup> Redflex Traffic Systems, Inc.  
23751 N. 23rd Ave, Ste 150  
Phoenix, AZ 85085

The number of citations increases significantly within a few months once a camera system is commissioned. (See chart on page 7) However the number then tends to decline and level out.

Warning Signs and Public Education

The 2008-2009 San Mateo County Civil Grand Jury report made several recommendations related to signage and public education:

*Install a photo enforcement camera notification sign alerting traffic traveling eastbound on Whipple Avenue approaching Veterans Boulevard.*

*Continue the practice of widespread public notice of activation of new automated red light photo enforcement cameras at intersections.*

*Continue expanding RWCPD web-site to include public education about the photo enforcement camera notification system.*



All current jurisdictions provide signage before entry into the city and most before entry into the red light intersection which complies with the statutory requirement. However, the signage is not always clearly visible unless the driver is looking for it. In some cases the signage can be found in the right hand lane some yards before the intersection. By contrast the signage used in San Carlos is posted on the signal stanchion itself and clearly visible to oncoming traffic (See Appendix A for more pictures of signage used).

The cities and intersections which had red light cameras installed and were surveyed included the following:

<u>Jurisdiction / Intersections</u>	<u>Installed</u>
<b>Burlingame</b>	
El Camino Real @ Broadway	3/22/2009
<b>Daly City</b>	
San Pedro @Junipero Serra	3/11/2008
Junipero Serra @ Washington	6/24/2009
John Daly @Sheffield	7/1/2009
Hickey @ Gellert	7/7/2009
<b>Menlo Park</b>	
Bayfront Expressway @ Willow Rd-WB	5/1/2008
El Camino Real @ Ravenswood / Menlo	9/1/2008
El Camino Real @ Glenwood	10/1/2008
<b>Millbrae</b>	
Millbrae Avenue @ Rollins RD (NB & SB)	9/18/2006
<b>Redwood City</b>	
Whipple Avenue @ Veterans Blvd	3/1/2008
Veterans Blvd @ Whipple Ave.	8/1/2009
<b>San Carlos</b>	
Brittan Avenue @ Industrial	11/25/2008
<b>San Mateo</b>	
Hillsdale Blvd @ Saratoga and Saratoga @ Hillsdale Blvd	4/20/2005

<u>Jurisdiction / Intersections</u>	<u>Installed</u>
Hillsdale @ Norfolk	7/29/2005
4th Avenue @ Humboldt	10/31/2006
<b>South San Francisco</b>	
El Camino Real @ Westborough Blvd	8/15/2009
El Camino Real @ Hickey Blvd.	8/15/2009

Since completion of the survey in September 2009, a number of new red light cameras have been installed throughout San Mateo County. The above table is not an up-to-date representation of all red light cameras installed as of the release of this report.

## Investigation

In its investigation the 2009-2010 San Mateo County Civil Grand Jury (Grand Jury) reviewed each of the contracts negotiated by the cities with red light camera installations. Follow up questions and interviews were conducted with some of the agencies. The Grand Jury also reviewed a number of current local and national news articles on the subject.

The Grand Jury surveyed all the police agencies in San Mateo County. The survey asked each agency if they had red light cameras or if they were considering them. For those with cameras, the survey requested information on how they administer their traffic camera programs and their effect. The inquiry asked for the amount of staff time required to administer the program, revenues received, and accident statistics before and after the camera systems were implemented.

The four areas that the investigation focused on were:

- Are the cameras meeting their objective of reducing accidents?
- Is the outlay of city funds to lease the systems justified by the results?
- Are the camera systems an effective supplement to the actions of police officers?
- What expenses and revenues are generated by employing red light traffic cameras?

The Grand Jury requested data on accident frequency prior to camera installation and after installation of the camera. The data as provided by the jurisdictions did not have enough precision and was not comparable between jurisdictions and therefore no accident statistics will be reported here.

## Findings

1. The cities choose locations for the two suppliers of red light cameras to evaluate. The vendors then recommend the location of cameras based on studies which evaluate the potential number of possible red light violations and not necessarily the number of accidents that can be prevented.
2. Police Departments and traffic engineers provide their input as to where cameras should be installed with primary emphasis on safety rather than the number of citations that can be issued. Ultimately, both the city and the vendor must agree on the location for installation.
3. The red light camera systems installed in the county are generating significant revenue for the cities. In 2009, the amount the cities receive per citation ranges from \$119.17 (San Mateo) to \$142.49 (San Carlos).

4. Three cities, Belmont, South San Francisco, and Burlingame have recently instituted red light traffic camera programs. The inception dates are too recent to report reliable empirical data. For the remaining cities, the grand jury estimated the potential monthly revenue based upon data received from the cities.

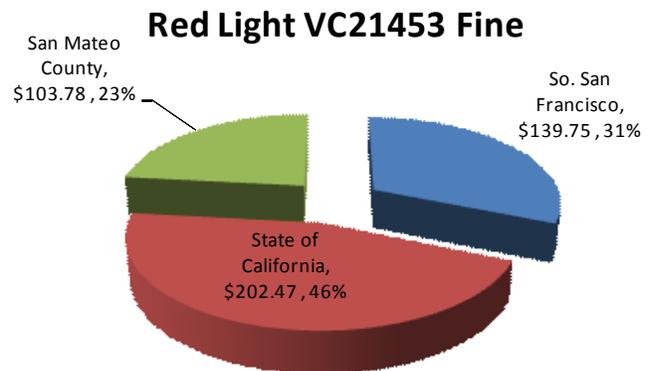
<u>Jurisdiction / Intersections</u> <u>through Sept. 30, 2009</u>	<u>Average Monthly<sup>3</sup></u>	
	<u>Citations</u>	<u>Potential City Revenue</u>
<b>Daly City</b>		
San Pedro @ Junipero Serra	177	\$23,276
Washington @ Junipero Serra	121	15,912
John Daly @ Sheffield	243	31,955
Hickey @ Gellert	119	15,649
Total Daly City	660	\$86,792
<b>Menlo Park</b>		
Bayfront Expressway @ Willow Rd	137	\$20,550
El Camino Real @ Ravenswood & Menlo	327	49,050
El Camino Real @ Glenwood	166	24,900
Total Menlo Park	630	\$94,500
<b>Millbrae</b>		
Millbrae Avenue @ Rollins RD	343	\$49,351
<b>Redwood City</b>		
Whipple Avenue @ Veterans Blvd	89	\$11,522
Veterans Blvd @ Whipple Ave.	*418	*54,114
Total Redwood City	507	\$65,636
<b>San Carlos</b>		
Brittan Avenue @ Industrial	53	\$6,280
<b>San Mateo</b>		
Hillsdale Blvd @ Saratoga	361	\$43,020
Hillsdale @ Norfolk	61	7,257
4th Avenue @ Humboldt	165	19,663
Total San Mateo	587	\$69,940

*\*Average was calculated based on data from November 2009 through March 2010*

<sup>3</sup> Average number of citations and average revenue earned is based on data provided by the respective police agency to the Grand Jury's survey. The number of citations and the revenue data as reported were for varying lengths of time – some for a few months; some for a year or more. An average monthly number was computed based on data provided as of September 30, 2009 and used here so as to make the information comparable from jurisdiction to jurisdiction.

The cities receive a portion of the total fine levied on the motorist. Please see the chart under finding #10 which uses South San Francisco as an example for the allocation of the red light violation fine. Each city surveyed provided the

5. The data as reported indicated that in all the jurisdictions above, the revenue earned from citations exceeded direct costs such as the vendor’s fee and employee costs. (Recently, the City of San Carlos extended the yellow light time to comply with state standards and found that the number of citations fell dramatically. As a result the revenue from red light citations could no longer cover the associated costs.)
6. Based on interviews and responses to survey questions, the reporting of accident statistics is not being used as a measure of the effectiveness of red light cameras. The primary emphasis appears to be on the number of citations issued. Based on the data provided by the cities, there was no overall trend indicating a noticeable change in accident rates before and after installation of red light cameras.
7. Most cities are protected from losses by a “cost neutral” clause in their contracts. In the event that fine revenue received does not cover the monthly cost of the contract, the city is only required to pay the actual amount that it did receive. San Carlos and San Mateo among other cities have voluntarily nullified the “cost neutral” clause in their contracts following a recent court case where a citation issued with this clause in place was dismissed by the court.<sup>4</sup>
8. A significant portion of the citations issued from red light cameras are for motorist failure to stop before making a right hand turn. The same fine is applied to both violations.
9. The fine for failure to stop before making a right hand turn seems out of proportion to similar offenses and as a result is often appealed to the traffic court. The state mandated fine in 2010 for failure to stop at a stop signal or failure to halt before turning right on a red light is \$446.00. Traffic School is an additional \$60.00. By contrast, the fine for failure to halt at a stop sign is \$214.00; and the fine for going 15 mph over the speed limit is \$214.00.
10. Using South San Francisco as an example, if a motorist is cited for either running a red light or not coming to a full stop before turning right, the \$446.00 fine would be distributed among the city, the county and the state as follows:



amount it receives for each citation. This amount was multiplied by the average monthly citations to derive average monthly revenue.

The potential revenue is based on the number of citations issued in any given month; however the transmittal of the funds from the county to the cities actually occurs some months later. In addition citation fines may be reduced by the traffic court if appealed. The revenue data presented is before payment to the vendor.

<sup>4</sup> In a September 2009 ruling, a San Mateo Superior Court Judge threw out a ticket from a San Mateo City red light camera based on the argument that the city’s contract is illegal. California law states that a company such as Redflex or American Traffic Solutions can’t charge based on the number of tickets the camera issues.

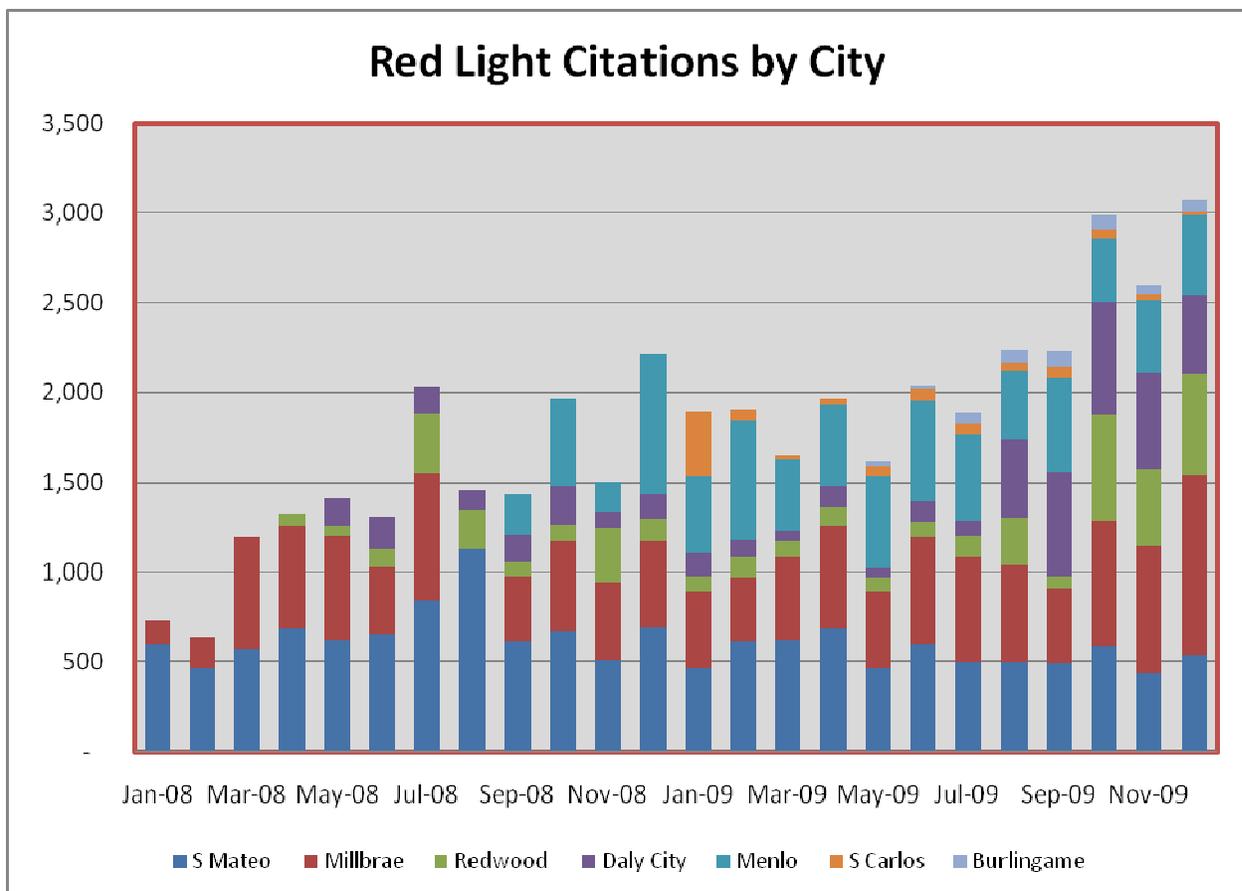
11. The number of citations that the Superior Court must adjudicate from red light cameras has increased significantly from 2008 to 2009. The Superior Court of San Mateo County reported the following information:

	<u>2008</u>	<u>2009</u>	<u>% Change</u>
Red Light Citations	17,211	30,948	80%
All Other Citations	113,023	133,871	18%
<b>Total Citations</b>	<b>130,234</b>	<b>164,819</b>	<b>27%</b>

12. The San Mateo County Superior Court system has become overwhelmed with citizens challenging the \$446 citation. The local court is not receiving any additional funding for this increased level of activity which requires additional staffing and resource commitment.

13. Local court personnel who have already been reduced by 20% from layoffs and mandated furloughs are in arrears by approximately six months in processing traffic complaints.

14. Based on court statistics the chart below provides an indication of the increasing volume of red light camera citations being issued over the two years ending December 31, 2009. South San Francisco was not included because on Feb. 5, 2010, the City had announced that it would be refunding/dismissing all tickets issued from the beginning of the program up to Jan. 27, 2010 - this was later extended to Mar. 10, 2010. The impact on the Superior Court from the increase in citations is not a consideration when cities are evaluating whether to install the cameras.



15. There is not uniformity among all cities regarding criteria used in the evaluation of possible violations and the decision to issue citations.
16. Not all cities are using warning signs at red light intersections as a tool to slow down drivers and thereby reduce the number of vehicle accidents. Appendix “A,” contains a selection of pictures of the warning signs used by the cities. Some such as San Carlos are clearly visible placed high and on the signal itself. Others such as those used in Menlo Park are in the far right, some distance from the intersection and often partially hidden by trees and other highway signs. In Daly City there were no warning signs at the intersection of Junipero Serra and Washington.
17. Police departments view the use of red light cameras and the associated signage as “behavior modification”, basically educating the public that they must be careful to observe moving violations at all intersections.
18. The cameras operate 24 hours per day seven days per week compared to a police officer who, if available, would monitor the intersection only sporadically.

## **Conclusions**

The 2009-2010 San Mateo County Civil Grand Jury concludes that:

1. There are no uniform protocols established throughout San Mateo County for evaluating possible infractions and determining the issuance of a citation, thus making court decisions difficult and undermining the trust of the county’s citizenry.
2. Although the purpose for the installation and maintenance of red light cameras may have been public safety, they have also come to represent a significant source of funding for the cities.
3. Cities have not established consistent and standardized reporting and evaluation processes to determine if the red light camera, at any particular intersection, is in fact, reducing the number of vehicle collisions.
4. With some exceptions, signage is not being used as a tool for slowing down oncoming traffic and thereby reducing the accident rate.
5. The use of red light traffic cameras is cost-effective and financially viable when compared to utilizing police officers to perform equivalent enforcement. All of the cities that have implemented this technology and still have the “cost neutral” clause in place have covered contractual costs and administrative costs.
6. The camera technology provides an effective method of enforcing a vehicle code violation that has a high probability of causing an accident.
7. Cities, when determining whether to install a red light camera, have failed to consider the impact on the Superior Court of San Mateo County and on the citizenry who need to access that court.
8. Within the county there should be no differences between the cities in the criteria used for the issuance of a citation.

## **Recommendations**

The 2009-2010 San Mateo County Civil Grand Jury recommends the following to the City Councils of the cities of San Mateo County:

1. Consideration of where a red light camera is to be installed should be driven by the number of vehicle collisions occurring at that intersection and not the potential amount of revenue generated from citations. Because of the impact on the courts as well as the citizenry, a final decision should be made by the respective city council in open hearings.
2. Each jurisdiction installing a red light camera should measure its ongoing effectiveness by the number of accidents caused from red light violations before and after installation.
3. Establish consistent and regular reporting of accident rates to senior officials including the respective city councils. This should be done at least annually. When reports indicate that accident rates have not been reduced, action should be taken to investigate why and removal of the red light cameras should be considered if they are not effective.
4. Working through the county Police Chiefs and Sheriff Association and/or the City Managers Association, establish and require consistent protocols to be used by all county cities for evaluating possible violations and the issuance of a citation. Such county-wide standards can allow courts to more quickly and efficiently evaluate appeals that come before it.
5. Install prominent signage, at the camera intersection, highly visible to all approaching traffic warning motorists of the camera. This should include signage warning motorists to come to a full stop before turning right on a red light.
6. Working through the county Police Chiefs and Sheriff Association and/or the City Managers Association, consider centralizing the administrative tasks of evaluating possible violations and issuance of citations. This would not only achieve budgetary savings but would also insure consistent and professional application of the protocols affecting San Mateo Drivers.

# The Effectiveness of Red Light Traffic Camera Enforcement

## Appendix A

### Selected Pictures of Red Light Cameras and Warning Signs



NB on El Camino & Glenwood



SB on El Camino at Menlo



NB on El Camino at Ravenswood



EB on Willow & Bayfront Exp.



SB on El Camino & Valparaiso  
*There are no cameras in the EB direction*

PHOTO ENFORCED  
Warning Signs Used  
In **Menlo Park** tend to be in the  
far right hand lane and some  
distance from the intersection.



This Warning Sign used in **Redwood City** is located right on the signal itself. It is noticeable to anyone making a right turn but not to a driver in the two left lanes.

EB on Whipple & Veterans



These Warning Signs used at Brittan and Industrial in **San Carlos** are located right on the signal itself. They are up high enough for all drivers to see them. San Carlos also has a warning sign prior to the intersection.



This is the only Warning Sign used at the intersection of Millbrae Ave and Rollins Rd in **Millbrae**. It is not clearly visible to all drivers.

## South San Francisco



Hickey & El Camino



This warning to stop before turning right is located on southbound El Camino Real