

**City Council Meeting
Council Chambers – 7:00 PM
Tuesday, March 5, 2013**

Correspondence from the public pertaining to

Item #5

5. Approval of Phase-Out of the City's Red Light Camera Program

February 11 – March 1, 2013

Email from Mr. Jim Lisner

CityClerk

From: Jim
Sent: Monday, February 11, 2013 4:52 PM
To: CityClerk; City Manager
Subject: Hayward's red light camera contract
Attachments: aaaBWltr300pdf02102013_00001.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

2-11-13

To City staff: Please distribute this email to the members of the City Council, and place it on the next Council agenda under written communications from the public.

Honorable Mayor and Councilmembers:

The red light camera contract between the City and Redflex will be expiring in September. That may seem a long way off, but in the red light camera business many contracts get renewed many months before the expiration date.

Monthly ticket counts available online at <http://highwayrobbery.net/redlightcamsdocsHaywardMain.html> show, over the last two years, no significant decrease in the number of tickets issued by the City's red light camera program. No decrease in ticketing suggests that the cameras are not making City intersections any safer. (With red light cameras, ticketing is supposed to decrease over time.)

If despite that, you decide to continue the program, here are some things to consider before acting on a contract renewal.

1. You're currently paying \$5679 per month for each of ten cameras. Many cities are paying much less than that. Eleven California cities are paying less than half of that. (To see a list of cities paying \$3000 or less, see FAQ # 17 on this page: <http://highwayrobbery.net/redlightcamslinksref.htm#FAQ> . The same website contains copies of the contracts from more than 80 cities.) No city should agree to pay more than \$3000 once its cameras are five years old - and four of your cameras will reach that age in September. If in the upcoming months you renew for (a typical) five years and continue the \$5679 price you will overpay by \$1,607,400 compared to a \$3000 target price.

2. Adding to the importance of negotiating a sharp price is that in November a respected government-funded study group (National Cooperative Highway Research Program ("NCHRP") of the Transportation Research Board of the National Academy of Sciences) published a study recommending substantially longer minimum yellows. The minimums recommended by the study were 0.4 to 0.6 sec. greater than California's present minimums for thru movements. On Jan. 7 the Virginia DOT adopted the NCHRP standards.

Minimum Yellows	Straight Thru Movement		Left Turn	
	California, eff. 2005	NCHRP rec. 2012	California, eff. 2005	NCHRP rec. 2012
Posted Speed				
25	3.0	3.4	3.0	3.0
30	3.2	3.7	3.0	3.0

35	3.6	4.1	3.0	3.2
40	3.9	4.5	3.0	3.6
45	4.3	4.8	3.0	3.9
50	4.7	5.2	3.0	4.3
55	5.0	5.6	3.0	4.7
Table by highwayrobbery.net. See pgs. 57 & 58 of NCHRP report				

Right now the average red light violator is about 0.4 sec. late, so the extra yellow time will cut violations in half. An article about the study is at <http://www.thenewspaper.com/news/39/3941.asp> and the full study is at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_731.pdf.

If, on the other hand, you decide to terminate the program, you will hear concern that without the cameras, there will be mayhem in the streets of Hayward. Whether or not you believe that, I suggest that at the same time - or before - you remove the cameras, you improve the engineering at the intersections with the quick and cheap countermeasures suggested in this passage (mostly from the Alternatives page at highwayrobbery.net): Anyone who watches the crash videos circulated by the Industry will notice that most of the crashes occur many seconds into the red. In 2004 the Texas Transportation Institute (TTI), with sponsorship by the Texas DOT, studied 41 crash videos obtained from red light cameras and confirmed what the public has been noticing: "With one exception, all of the right-angle crashes occurred after 5 seconds or more of red." They also reported that the average was 8.9 seconds into the red. (Link to the study: <http://thenewspaper.com/rlc/docs/04-alternatives.pdf> See pages 5-15 and 5-16.)

These real late runners (5+ secs. late) aren't doing it on purpose. Recent evidence suggests that most of them are visitors who, because they don't live in town, simply don't know that there's a signal up ahead. They are lost or distracted, and by the time they notice that the signal is there, it is too late to stop. (On July 22, 2012 the mayor of Hallandale, Florida disclosed that 78% of the tickets there go to visitors. See last paragraph at: http://www.sun-sentinel.com/news/opinion/fl-guest-cooper-cameras-mon0723-20120722_0.6873108.story. In Washington DC about 80% of tickets go to visitors. It is claimed that in Paradise Valley, Arizona 98% of tickets go to visitors.)

A minority of the violations are by "locals" who forgot there's a camera up ahead because they were distracted, or impaired.

Because they won't know or won't remember that there's a camera up ahead, the presence of a camera won't keep the visitors or the distracted/impaired locals from making the real late runs. To cut those real late runs, a city should install visual cues to make its most dangerous intersections more prominent and to warn motorists, "signal ahead." Most of these engineering countermeasures are cheap and quick to do. And none of them carry the camera side effect of increased reenders.

2005 research sponsored by the Florida Department of Transportation concluded that improving street markings (painting "signal ahead" on the pavement) near intersections would reduce red light running by up to 74 percent. (<http://thenewspaper.com/rlc/docs/05-simulator.pdf> Section 3.4, p. 69 of the document, or p. 84 of the pdf.) A large red light camera study sponsored by the San Diego Police Department rated engineering countermeasures such as better markings as "most effective" in reducing unintentional running, while enforcement, including cameras, was considered "less effective."

(<http://www.highwayrobbery.net/redlightcamsdocsSanDiegoMain.html#SDdocs2> Table 6.3, p. 80 of the document, or p. 97 of the pdf.)

The 2004 TTI study (at page 5-9, link above) noted that countermeasures like increasing the diameter of signal lamps from 8" up to 12" or adding signal heads had the potential to decrease crashes by 47 percent. The 2005 Florida research recommended the installation of a signal pole on the "near" side of intersections. (The link is above. See p. 135 of the document, or p. 150 of the pdf.)

The 2004 TTI study (at page 5-9, link above) noted that adding backboards (back plates) to the signals had the potential to decrease crashes by 32 percent. [Or, enlarge the backboards you have.]

I suggest putting up larger and lighted name signs for the cross street, and larger bulbs in the street lights, at known dangerous intersections.

In Summation

Before signing up for more years of cameras, ask staff to report to the Council about the effect the NCHRP yellows will have on the quantity of violations and the the financial viability of the camera system. Ask staff to report about countermeasures as alternatives to cameras - or even try some of them. You can easily afford to do the countermeasures, as your latest CAFR audit (copy attached) says that you have \$18.1 million of unassigned money, available for spending at the City's discretion. (There is a separate \$10.7 million set aside for contingencies.) And, ask staff to seek a better price on the camera rent.

The cameras haven't reduced ticketing, so should be replaced by measures that are known to work.

Sincerely,

Jim Lisner

cc: Media

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¡Viva Hermosa!

Hayward CAFR

Financial Analysis of the Government's Funds

Governmental Funds. The focus of the City governmental funds is to provide information on near-term inflows, outflows, and balances of spendable resources. Such information is useful in assessing the City's funding requirements. In particular, unassigned fund balance may serve as a useful measure of a government's net resources available for spending at the end of the year.

At the end of fiscal year 2011, the City's governmental funds reported combined ending fund balances of \$84.4 million, an increase of \$400,000 in comparison with the prior year. Approximately 99% of the fund balance or \$66.3 million represent unassigned fund balances; which is available for spending at the government's discretion. However, of the \$66.3 million, 63% or \$41.9 million, is allocated for certain General Fund designations, special revenue programs, capital projects, and debt service that must be spent according to the terms of various bond issues. The remainder of the fund balance is reserved to indicate that it is not available for spending because of capital project deposits, encumbrance commitments, and land held for resale.

General Fund. The General Fund, by definition, is a major governmental fund and represents all funds not required to be accounted for in other funds. The General Fund accounted for 69% of the total governmental revenues and 69% of the total expenditures. A number of City services are accounted for in the General Fund, such as public safety, general government, development services, maintenance services, and Library and community services.

At the end of fiscal year 2011, the unassigned fund balance of the General Fund was \$29.55 million, while the total fund balance was \$47.9 million. As a measure of the General Fund's liquidity, it may be useful to compare both the unassigned fund balance and total fund balance to total fund expenditures. The unassigned fund balance represents 24% of total General Fund expenditures of \$121.1 million (including Transfers Out). The unassigned fund balance has been designated for the following purposes:

- \$9.35 million for economic uncertainty
- \$4.67 million for liquidity
- \$190,000 for hotel/conference center*
- \$522,000 for a retirement reserve
- \$3.1 million for emergencies
- \$1 million for public safety
- \$10.7 million for contingencies

*Previously established at \$1 million, but \$810,000 was spent on eligible expenses in FY 2011.

←
= \$18.1 million

The total economic uncertainty and liquidity balances total \$14.02 million, which is 12% of total General Fund expenditures, 3% less than Council policy of a combined 15%.

At the end of fiscal year 2011, total fund balance in the General Fund increased by \$11.08 million. The change in fund balance is due primarily to the transfer of Land Held for Redevelopment from the City's Redevelopment Agency into the General Fund, which added \$10.3 million to fund balance. However, the Land is an illiquid asset and is reflected in the nonspendable portion of total fund balance. Generally accepted accounting principles (GAAP

CityClerk

From: Jim
Sent: Friday, February 15, 2013 7:35 PM
To: CityClerk; City Manager
Subject: Hayward's red light camera contract - for council meeting of Feb. 26
Attachments: aaaBWltr300pdf02152013_00000.pdf

2-15-13

For City staff: Please add this email (below) to the public comments on the red light camera item scheduled for the Feb. 26 council meeting. (It has been revised to reflect data from the new CAFR published today.)

----- Original Message -----

From:- Mon Feb 11 16:52:16 2013
X-Mozilla-Status:0001
X-Mozilla-Status2:00800000
X-Mozilla-Keys:
Message-ID:<51199237.5070703@vivahermosa.com>
Date:Mon, 11 Feb 2013 16:52:07 -0800
From:Jim
Reply-To:
User-Agent:Thunderbird 2.0.0.22 (Windows/20090605)
MIME-Version:1.0
To:CityClerk@hayward-ca.gov, citymanager@hayward-ca.gov
Subject:Hayward's red light camera contract
Content-Type:multipart/mixed; boundary="-----000403040602030405070708"

2-11-13 (revised 2-15 to reflect data from just-published CAFR)

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In Summation

Before signing up for more years of cameras, ask staff to report to the Council about the effect the NCHRP yellows will have on the quantity of violations and the the financial viability of the camera system. Ask staff to report about countermeasures as alternatives to cameras - or even try some of them. You can easily afford to do the countermeasures, as your latest CAFR audit (copy attached) says that you have \$16.4 million of unassigned money, available for spending at the City's discretion. (There is a separate \$10.7 million set aside for contingencies.) And, ask staff to seek a better price on the camera rent.

The cameras haven't reduced ticketing, so should be replaced by measures that are known to work.

Sincerely,

Jim Lisner

cc: Media

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¡Viva Hermosa!

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¡Viva Hermosa!

Hay CAFR publ- 2-19-13

Financial Analysis of the Government's Funds

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At the end of fiscal year 2012, the City's governmental funds reported combined ending fund balances of \$91.3 million, an increase of \$6.8 million comparison with the prior year. Approximately 69.5% of the fund balance or \$63.5 million represents Non-Spendable, Restricted, and Assigned fund balances; and 30.5% or \$27.8 million is Unassigned and is available for spending at the government's discretion, this amount represents the General Fund Reserve balance.

General Fund. The General Fund, by definition, is a major governmental fund and represents all funds not required to be accounted for in other funds. The General Fund accounted for 64% of the total governmental revenues and 69% of the total expenditures. A number of primary City services are accounted for in the General Fund, including public safety, general government, development services, maintenance services, and library and community services.

At the end of fiscal year 2012, the unassigned fund balance of the General Fund was \$27.8 million, while the total fund balance was \$34.94 million. This is a reduction for the prior fiscal year due to the loss of the Hayward Redevelopment Agency and a continued General Fund structural gap. As a measure of the General Fund's liquidity, it may be useful to compare the unassigned fund balance to total fund expenditures. The unassigned fund balance represents 22.6% of total General Fund expenditures of \$123.1 million (including Transfers Out). The unassigned fund balance has been designated for the following purposes:

- (\$10.7 million) for contingencies
- \$9.35 million for economic uncertainty
- \$4.67 million for liquidity
- \$1 million for public safety
- (\$190,000 for hotel/conference center*)
- (\$522,000 for a retirement reserve)
- \$1.3 million for emergencies

*Previously established at \$1 million, but \$810,000 was spent on eligible expenses in FY 2012.

⇒ \$16.4 million

At the end of fiscal year 2012 the total General Fund total fund balance decreased by \$12.9 million. The change in fund balance is due primarily to the transfer of Land Held for Redevelopment from the City's General Fund to the Successor Agency of the Hayward in the amount of \$10.3 million (an illiquid asset) and \$2.5 million use of the cash reserve.

General Fund Budgetary Highlights. FY 2012 ended with a net \$2.5 million gap and resultant use of the General Fund reserve (revenues less expenditures). The chart below compares fiscal year 2012 actuals to fiscal year 2012 Adjusted Budget to gauge performance against expectations. The net variance between the actual revenues and expenditures compared to the Adjusted Budget is \$1.86 million, and is largely attributed to unexpected revenues – about half of which are non-recurring (i.e., one-time in nature).

Email from Chandni Ayinikattu

Yolanda Cruz

From: Miriam Lens on behalf of CityClerk
Sent: Tuesday, February 19, 2013 9:25 AM
To: Al Mendall; Barbara Halliday; Barbara Halliday; Francisco Zermeno - Forward; Greg Jones; Mark Salinas; Marvin Peixoto; Michael Sweeney; Mike Sweeney
Cc: Fran David; Kelly McAdoo; Michael Lawson; Diane Urban; Darryl McAllister; Yolanda Cruz; Joanne Burkman; Colleen Kamai
Subject: FW: Red Light camera ticket

Mayor and Council Members,

Below is a message related to the City's Red Light Camera Program.

Regards,

Miriam Lens, CMC, MPA

City Clerk _____

City of Hayward | Office of the City Clerk | 777 B Street | Hayward, CA 94541 |

Phone: 510-583.4401 | Email: Miriam.lens@hayward-ca.gov

www.hayward-ca.gov | City Clerk's Blog: www.hayward-ca.gov/cityclerk/

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-----Original Message-----

From: chandni ayinikattu

Sent: Friday, February 15, 2013 10:23 PM

To: CityClerk

Subject: Red Light camera ticket

Note against redflex camera tickets.

First of all getting \$500 for a right turn red light ticket was really heart breaking. \$500 is around half a months salary, for folks who are making ends meet this is like a dagger into their chest.

Took around couple of days to fight out and get the ticket dismissed. I could not afford to pay \$500 and if I was found guilty only option I had was community work hrs. Really a tedious process making normal folks life miserable just for a rolling right turn.

We should stop all camera's all over the place.

thank you

Email from Mr. Alex Klajic

CityClerk

From: Alex Klajic
Sent: Monday, February 18, 2013 4:53 PM
To: CityClerk
Subject: Red light camera

Follow Up Flag: Follow up
Flag Status: Flagged

To Members of the Hayward City Council,

I would like to express my opposition to continuing camera enforcement for red light infractions. I believe the way that this is being enforced is not in the best interest of the people for the following reasons:

1. Yellow light durations are typically set at the minimum allowable or very close to it, even though it has been demonstrated that longer yellow light durations results in fewer violations. Fewer violations means safer intersections. It has been demonstrated that this improvement is lasting and not a temporary effect.
2. The ticket fee is excessive. A fee of close to \$500 is very high for a split second mistake in judgement. With camera enforcement, the fees have gone up dramatically. Currently these fees are among the highest in the nation for this offense. For someone with a limited income, the ticket fee plus increase in auto insurance premiums places an overbearing burden on someone struggling to pay for basic necessities for themselves and their families.
3. Privatizing law enforcement opens the door to corruption, which is evidenced by the recent investigation of Redflex for alleged bribery in Chicago, resulting in the discontinuation of the Chicago's contract with Redflex and the resignation of the chairman of Redflex' parent company. With privatization, profit is the driving force behind the system, not the safety of the people.

Please consider these points when hearing proposals about continuing the red light ticket system in Hayward. Thank you.

Sincerely,
Alex Klajic

Email from Mr. Scott McGregor

CityClerk

From: Scott McGregor
Sent: Monday, February 18, 2013 9:39 PM
To: CityClerk
Cc: Michael Sweeney; Marvin Peixoto; Barbara Halliday; Mark Salinas; Greg Jones; Al Mendall; Francisco Zermeno;
Subject: Red Light Camera Contract Renewal

Follow Up Flag: Follow up
Flag Status: Flagged

To: CityClerk@hayward-ca.gov
Subject: Red Light Camera Contract Renewal

Please deliver the following letter to the City Council members, City Manager and Chief of Police prior to the upcoming council meeting scheduled for February, 19, 2013.

Thank you,

Scott L. McGregor

A Message for Hayward City Council Members, City Manager and Chief of Police

According to the California state law, traffic enforcement and fines are supposed to be used to make streets safer for traffic. Considerations of revenue generation should not, and legally can not, be used in making such law enforcement decisions.

Hayward's police department seems to have decided to ignore this state law and is aggressively pursuing revenues using red light cameras, and may actually be contributing to reduced public safety by doing so.

And this is not going unnoticed. Hayward is becoming a poster child on the internet for this unprofessional attitude.

How egregious is Hayward's red light camera revenue seeking?

The first section of [HighwayRobbery.Net's](#) red light camera ticket page is entitled "Police Going Too Far" and talks about the use of fake tickets called "Snitch Tickets" that the city sends out, but that it doesn't even file with the court.

The very first city mentioned, in that first section of the web page is *Hayward!* And here is what the web page says:

"Hayward's police chief reported that in a typical month, her department mails out about 730 Snitch Tickets, equal to 59% of everything they send out."

Is this how Hayward wants to be known? Issuing fake tickets to collect revenue?

Because Hayward PD has put its focus on revenue generation ahead of safety, it has actually introduced and operated red light cameras in a way that makes several Hayward intersections less safe!

A specifically troubling example: A Street and I-880

Take, for instance, the red light cameras on A street at the intersections with the entrances and exits of highway I-880.

These are very complicated and confusing intersections, with cars backing up in left lanes in the dark areas under the overpass, waiting to turn onto the entrances. And on the eastern side, Arbor Avenue intersects A street less than 50 feet from the I-880 entrance. People exiting freeways are rapidly decelerating from speeds in excess of 55 miles per hour, and traveling on A street at a speed of 30 miles per hour or more. Early in the morning eastbound traffic faces the rising sun, and in the evening, the westbound faces into the setting sun. That can make negotiating these intersections and going in and out of the shaded area even more complicated.

Short Yellows maximize revenue at the cost of safety!

Given all those complications and difficult conditions, you might think that the Hayward PD would want to provide extra long yellow lights at these intersections so that people have plenty of time to process all the confusing information and safely get through the intersection before the impending red light.

When a housemate of mine received a red light ticket at this intersection, I was surprised that, Hayward's traffic department did just the opposite. They've set their yellow lights on these intersections to just 3.2 seconds, which is the *minimum* time that the state allows under the best conditions for a street where the speed limit is 30 miles per hour. Yet the intersections I am referring to are far from the best conditions.

In fact, the published reports of the **National Cooperative Highway Research Program**, which is jointly sponsored by both Federal and State traffic safety departments, has determined that given driver reaction times, they recommend a minimum yellow light time of not less than 3.7 seconds for a 30 mile per hour street under the best of conditions. Hayward PD and traffic departments have disregarded safety and chosen a yellow light that is half a second shorter than the recommended safe minimum for a 30 mph street, in situations that clearly calls for a longer than minimum time. Most offenders enter the intersection within a fraction of a second after the red, because these yellow lights are so slow, and these intersections so complicated. Increasing them by just .5 second -- in lines with the NCHRP recommendations and the additional complexity of the intersection would reduce 50% of all violations and make the intersections much safer -- as has been seen by many surrounding communities.

The safety implications of that should make the choice obvious and instantaneous. but when looked at as a loss of 2-5 million dollars in fines it is hard for city officials to choose safety over revenue. That illustrates the difficult economic decisions and bad judgement that red light camera revenues exacerbate.

Flashing lights temporarily blind and confuse drivers, another safety hazard

In fact, because Hayward operates these cameras even after sunset, they employ bright lights which flash as the car enters the intersection, momentarily blinding or startling drivers, which actually can make the situation even less safe, especially considering the frequent backup of cars in the left turn lanes under the overpass, or the sunrise or sunset glare faced by easterly or westerly facing drivers.

Red light cameras increase accidents and damage costs

Indeed, New Jersey's Department of Transportation has determined that use of red light cameras actually *increased accidents*:

A New Jersey Department of Transportation analysis of two dozen intersections that have had the automated traffic cops for at least a year found that accidents -- particularly rear-end crashes -- have increased, and the collisions are more costly.

Rear-end collisions at the intersections were up by 20 percent, from 286 the year before the cameras were installed to 343 the year after, according to the report made public yesterday. Overall, accidents increased from 577 crashes the year before the cameras were installed to 582 the year after. The "crash severity cost" -- which takes into account vehicle and property damage, emergency response and medical care -- increased by nearly \$1.2 million after the cameras were installed.

I'm sure that others will point out the other obvious reasons why red light camera are a bad idea: they supposedly will reduce red light violations, but the violations are not declining. Yet cities who abandon red light cameras and lengthen yellow lights do find violations decline. But when revenue is at stake no one really wants a decline in violations.

We appreciate the need for revenue in tight times - but don't sacrifice safety

I am the founder of a local high tech start-up company, and a local resident who has friends and employees who live in Hayward. I also do business with suppliers who operate in Hayward. I have never had a traffic violation in Hayward, but I travel here regularly, including through intersections like A Street and I-880 where the cities actions have put my own safety at risk.

Hayward provides valuable housing and employment for many East bay residents, and we all benefit from the city being strong and being able to provide great public services. We all appreciate that in tough economic times, revenue is needed for essential services like Police. It can be tempting to try to raise that additional revenue from traffic enforcement activities instead from the city tax base -- even if that is not the purpose of traffic enforcement and is illegal under state laws. But don't give into that temptation.

Red light camera fees create hardships for hardworking local residents

The bail costs of these red light tickets, more than \$550 for the ticket plus traffic school is also outrageously high. My housemate who showed me his ticket has a take home pay of just less than \$700 per paycheck. Fines this high are a hardship. If he were to fight this ticket and lose, the long term effect on his auto insurance would be even more burdensome. Don't put your residents and city visitors in such a bind.

Don't create perverse incentives for public officials

Unfortunately, when red light camera systems cause conflicting revenue goals for police departments, city councils and traffic departments, they encourage departments and individuals to lose sight of their primary roles as public servants. This conflicts actually force officials to consider putting the public at risk in order to meet revenue goals. Such conflicting goals are crazy making for the public servants who have to balance them, and can lead to further perversions of the public interest in favor of revenue generation in other areas of public safety as well.

I urge council member not to renew your contract with the red light camera company and remove the temptation to sacrifice safety for revenue that they cause. They lead to a perversion of the traffic enforcement goals, but more importantly they are also reducing safety, rather than contributing to it.

Hayward's reputation is at stake -- is it for sale?

Hayward's reputation as a community that cares about its residents and businesses will be enhanced or harmed by your actions in this matter, so I urge you to consider how you want Hayward to be seen by the people of the bay area. Is your reputation as a good place to live and work for sale to the red light camera companies?

--Scott McGregor

Email from Mr. Chuck Uhler

Miriam Lens

To: Miriam Lens
Subject: FW: Red light enforcement program
Attachments: Hayward Program Report final.doc; ATT00001.htm; IIHS January 2013.pdf; ATT00002.htm

From: Miriam Lens
Sent: Tuesday, February 19, 2013 4:46 PM
To: Al Mendall; 'Barbara Halliday'; Barbara Halliday; Francisco Zermeno - Forward; Greg Jones; Mark Salinas; Marvin Peixoto; Michael Sweeney; 'Mike Sweeney'
Cc: Fran David; Kelly McAdoo; Michael Lawson; Maureen Conneely; Yolanda Cruz
Subject: FW: Red light enforcement program

Council Members,

This is concerning the City's Red Light Program.

Regards,

Miriam Lens, CMC mpa

City Clerk

City of Hayward | Office of the City Clerk | 777 B Street | Hayward, CA 94541 |
☎ Phone: 510-583.4401 | ✉ Email: Miriam.lens@hayward-ca.gov
www.hayward-ca.gov | [City Clerk's Blog: www.hayward-ca.gov/cityclerk/](http://www.hayward-ca.gov/cityclerk/)



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From: "Chuck Uhler"
To: "Michael Sweeney" <Michael.Sweeney@hayward-ca.gov>
Cc: "Diane Urban" <Diane.Urban@hayward-ca.gov>, "Darryl McAllister" <Darryl.McAllister@hayward-ca.gov>, "Dave Lundgren" <Dave.Lundgren@hayward-ca.gov>
Subject: Red light enforcement program

Dear Mr. Sweeney,

We have discovered that the Redflex photo safety program is to be discussed at the February 19, 2013 council meeting. I am an account manager with Redflex and work here in Alameda County. I will be in attendance at the meeting and should any questions about Redflex or the program arise, please call on me for a response. I have attached two documents. One is a report prepared by the Insurance Institute for Highway Safety (IIHS) issued January 2013 that addresses red light camera programs. The hyperlink below leads to a 2012 IIHS report on red light photo

enforcement. It contains 16 commonly asked questions regarding photo enforcement and provides responses to each. The IIHS is not affiliated with the photo enforcement industry. I suspect many of those topics will surface on the 19th. I have also prepared and attached a short report discussing the effectiveness of the City of Hayward's safety camera program.

<http://www.iihs.org/research/qanda/rlr.aspx>

Respectfully,

Chuck Uhler
Account Manager
Redflex Traffic Systems Inc.
(925)260-2825
cuhler@redflex.com<<mailto:cuhler@redflex.com>>

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City of Hayward Photo Enforcement Program Overview

The contract between the City of Hayward and Redflex Traffic Systems Inc. was signed in November 2007. At the time of installation the Traffic Unit at the Hayward Police Department identified high risk intersections based on traffic collision stats and the volume of traffic. That study period lasted for several months. The 5 year term became active upon activation of the first system, September 1, 2008.

Hayward Police reviews all detections and determine whether or not a prosecutable violation has occurred. Redflex has no control over issuance of citations. Police reviewers have total discretion on citation issuance or dismissal. They may determine that a violation occurred but does not require enforcement action.

Violators have several opportunities to communicate with the police department prior to court trial. They can contact reviewers by phone or in person. Violators can also view their violation in privacy of their home via an internet website. Violators have the option to plead guilty and pay the fine or contest the citation in court. If a violator is found guilty a fine is imposed by the courts. The base fine is \$100, but when fees and assessments are added the total bail is just over \$500.

Most court revenue is paid to several state entities and some county programs. The amount varies based on actions taken or not taken by the police and the actions of the court. Approximately 70% of court revenue disbursement is from photo enforcement citations. There have been substantial issues with court reported revenue since October 2011 when the court implemented new software, however it is clear that the majority of fine revenue received in Hayward comes from photo enforcement citations. As an example, Emeryville discontinued its photo enforcement program in May of 2012. Since that time, their court revenue disbursement has dropped by 70%.

The traffic safety cameras are intended to be used for enforcing red light violations, but in some circumstances they can contribute to serious traffic and major criminal investigations. Our equipment includes streaming video that runs continuously. If a major event (homicide, kidnapping, rape or robbery for example) were to occur it is possible to capture a video image of the suspect vehicle if it passed through an enforced intersection whether or not the direction of travel has red light enforcement.

Our systems can be used by traffic engineers to conduct accurate traffic volumes in the enforced direction. Vehicle counts, by lane, can be studied if needed. Police and authorized city staff can monitor the live streaming video from any computer with an internet connection.

The Insurance Institute for Highway Safety has no affiliation with the photo enforcement industry, but they have conducted substantial studies of the use of these devices. In January 2012 the IIHS answered 16 commonly raised issues relating to red light cameras. Those questions and their

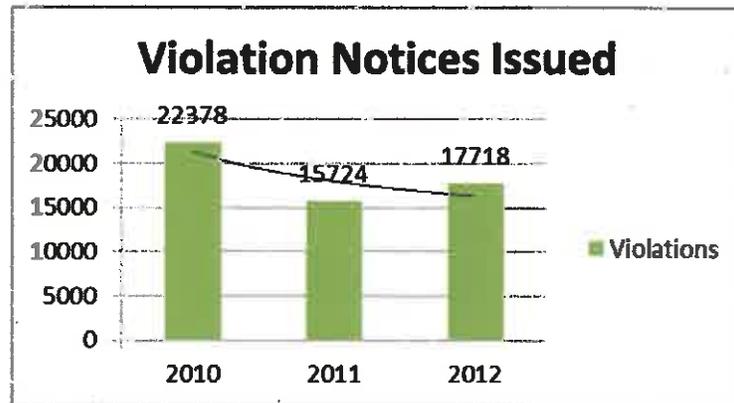


MAKING A **SAFER** WORLD.

responses can be found on their webpage by clicking on this link while connected to the internet:
<http://www.iihs.org/research/qanda/rlr.aspx>

The IIHS also issued a report in January 2013. That report is being delivered in the same email as this document.

The best and most relevant information concerning photo enforcement in Hayward comes directly from the Hayward safety camera program. Detections, prosecutable violations and notices issued have all trended downward as the program achieved its desirable result of modifying driver behavior. The first full year of operation at with all 10 traffic safety cameras deployed was 2010. That year 22,378 notices were issued to violators. In 2011 15,724 notices were issued, but in that year 2,995 potential violations were not reviewed due to staffing issues. In 2012 17,718 Notices were issued. That means that in 2012, 4,660 fewer violation notices were sent and it is reasonable to believe traffic safety for the citizens of Hayward was increased by the drop in these hazardous violations.



Redflex Traffic Systems has been proud to partner with the City of Hayward in this successful public safety program. We look forward to further opportunities to work together to enhance public safety in the community.

We are available at any time to provide additional information or to respond to a questions or concerns.

Chuck Uhler
Account Manager
Redflex Traffic Systems
(925) 260-2825
cuhler@redflex.com

**INSURANCE INSTITUTE
FOR HIGHWAY SAFETY**



Effects of Red Light Camera Enforcement on Red Light Violations in Arlington County, Virginia

January 2013

**Anne T. McCartt
Wen Hu**

Insurance Institute for Highway Safety

Abstract

Objectives: In June 2010, Arlington County, Virginia, installed red light cameras at four heavily traveled signalized intersections. The effects of the camera enforcement on red light violations were examined.

Methods: Traffic was videotaped during the 1-month warning period and 1 month and 1 year after ticketing began at 12 signalized intersections, including the four camera intersections, four "spillover" intersections without cameras in Arlington County (two on the same travel corridors as the camera intersections and two on different travel corridors), and four "control" intersections without cameras in adjacent Fairfax County. Rates of red light violations per 10,000 vehicles were computed. Logistic regression models were used to estimate changes in the likelihood of red light violations at the camera intersections and at the two sets of spillover intersections, relative to what would have been expected without the cameras, based on changes at the control intersections.

Results: At the camera intersections, there were significant reductions 1 year after the start of ticketing in the odds of red light violations occurring at least 0.5 second (39 percent) and at least 1.5 seconds (86 percent) after the light turned red, relative to what would have been expected without the cameras. There was a marginally significant 48 percent reduction in violations occurring at least 1 second into the red signal phase. At the non-camera intersections located on the same travel corridors as the camera intersections, there were declines in the odds of violations occurring at least 0.5 second (14 percent), 1 second (25 percent), and 1.5 seconds (63 percent) into the red signal phase; none of these changes was significant. The odds of violations increased at the non-camera intersections located on other travel corridors in Arlington County, compared with expected violations based on the control intersections.

Conclusions: Consistent with prior research, there were significant reductions in red light violations at camera-enforced intersections. These reductions were greater the more time had passed since the light turned red, when violations are more likely to result in crashes. Spillover benefits were observed only for nearby intersections on the same travel corridor, and these were not always statistically significant. At intersections on other travel corridors, red light running increased, compared with expected rates based on the control intersections. This evaluation examined the first year of Arlington County's red light camera program, which was modest in scope and without ongoing publicity. A larger, more widely publicized program likely is needed to achieve community-wide effects.

Keywords: Red light cameras; Red light running; Red light violations

1. Introduction

In the United States in 2010, more than 2.2 million police-reported motor vehicle crashes occurred at intersections or were intersection related (Insurance Institute for Highway Safety, 2012). These crashes accounted for 42 percent of all police-reported crashes and more than 68,000 serious non-fatal injuries and 7,707 deaths. About one-third of the deaths occurred at intersections with signal lights.

Red light violations are common. A study conducted at five busy intersections in Fairfax, Virginia, found that, on average, a motorist ran a red light every 20 minutes at each intersection (Retting, Williams, Farmer, & Feldman, 1999a). Similarly, a study of 19 intersections in four states reported an average of 3.2 red light violations per hour per intersection (Hill & Lindly, 2003). In a 2011 national telephone survey, 94 percent of drivers said it is unacceptable to go through a red light if it is possible to stop safely, but 37 percent reported doing so in the past 30 days (AAA Foundation for Traffic Safety, 2012).

The safety consequences of running red lights are considerable. In 2010, 673 people were killed and an estimated 122,000 were injured in crashes in which police were able to establish that drivers ran red lights. More than half of the deaths were pedestrians and occupants of other vehicles hit by red light runners (Insurance Institute for Highway Safety, 2012).

Motorists are more likely to comply with traffic laws if they perceive a high likelihood of being ticketed. Red light cameras can supplement traditional methods of enforcement at intersections, especially at times of the day and on roads where traditional enforcement can be difficult or hazardous. Studies in Oxnard, California, and Fairfax City, Virginia, reported reductions in red light violation rates of about 40 percent after the introduction of red light cameras (Retting et al., 1999a, Retting, Williams, Farmer, & Feldman, 1999b); reductions occurred not only at camera-equipped sites but also at other signalized intersections without cameras. Studies also have found reductions in injury crashes (Retting & Kyrychenko, 2002; Aeron-Thomas & Hess, 2005) and fatal crashes (Hu, McCartt, & Teoh, 2011) associated with camera enforcement.

As of December 2012, nearly 550 communities use red light cameras. A 2011 survey of drivers in 14 large cities with longstanding red light camera programs found that two-thirds of drivers supported their use (McCartt & Eichelberger, 2012). An earlier national survey found that 75 percent of drivers

supported red light cameras (Royal, 2004). However, in some jurisdictions, camera programs have been controversial.

A case in point is Virginia. From July 1995 through June 2005, Virginia law permitted selected municipal governments to establish red light camera enforcement programs. The state legislature allowed the law to expire effective July 1, 2005, but effective July 1, 2007, a new law permits localities with more than 10,000 residents to implement, by ordinance, red light camera programs. The law establishes operating guidelines. For example, the selection of intersections for cameras should consider crash rates, number of violations, pedestrian traffic, and the difficulty of conducting traditional enforcement. An engineering safety study must be conducted, and communities must make reasonable location-specific safety improvements, including adding signs and pavement markings, if indicated. The length of the yellow signal phase should be based on the recommended methodology of the Institute of Traffic Engineers. Warning signs must be conspicuously placed within 500 feet of the intersection. In determining violations, there must be a minimum grace period of 0.5 second after the signal turns red. Drivers cannot be photographed; images of vehicles must be taken before and after entering the intersection. A police officer must affirm all violations based on inspection of photographs or video. Citations are mailed to registered owners of vehicles, but drivers are liable for a fine of no more than \$50. Citations are not applied to driver records and cannot be used for insurance purposes.

Under the original Virginia law on red light camera enforcement, Arlington County conducted red light camera enforcement during August 25, 1998–July 1, 2005. On June 21, 2010, Arlington County reinstated the use of red light cameras. This study examines the effects of Arlington's current red light camera program on red light violations.

2. Methods

The main analysis focused on the effect of the camera enforcement program on red light violation rates at intersections with cameras, relative to violation rates at signalized intersections without cameras in the adjacent county of Fairfax. Given prior evidence of spillover effects of cameras at signalized intersections without cameras in a community, potential spillover effects of the cameras were examined at signalized intersections without cameras in Arlington County.

2.1. Arlington County program

Located in northern Virginia across the Potomac River from the District of Columbia, Arlington County is a small (26 square miles), densely populated, self-governing county. Many of the county's roadways are heavily traveled and often congested, and there are areas of heavy pedestrian traffic.

On June 21, 2010, Arlington County activated videocameras to enforce red light violations on a single approach at four busy signalized intersections. Following a 30-day warning period, citations carrying fines of \$50 began to be issued on July 21. In keeping with Virginia's law, citations are issued only if at least 0.5 second has elapsed after the light turns red. The camera technology used to flag potential red light violations is unable to determine whether vehicles have come to a full stop before turning right on red, as required by law. Therefore, camera citations are issued to drivers turning right on red while traveling more than 10 mph, subject to review by police officers. Traffic in right-turn slip lanes is not camera-enforced.

The county issued two press releases at the outset of the program in summer 2010, announcing first the installation of the cameras and then the initiation of ticketing. There was considerable local media attention leading up to and following the activation of the cameras, but little after. As required by Virginia law, there are signs on the camera-enforced approaches alerting drivers to the camera enforcement. There are no additional signs about the camera enforcement on other roads throughout the county.

2.2. Study intersections

For this study, data on red light violations were collected at 12 signalized intersections. As shown in Figure 1, there were eight study intersections in Arlington County. In addition to the four intersections with red light cameras (camera group), these included two intersections without cameras located on the same travel corridors as the four camera intersections (corridor spillover group), and two intersections without cameras located on different travel corridors (non-corridor spillover group). Four intersections without red light cameras were located in adjacent Fairfax County (control group). At each of the 12 intersections, traffic was videotaped for 11 hours (7 a.m.-6 p.m.) on each of two weekdays during the 30-day warning period (June 28-July 19, 2010), about 1 month after ticketing began (August 23-September 1, 2010), and about 1 year after ticketing began (August 22-August 31, 2011). Videotaping was not

conducted during rainy conditions. Videocameras were located so as to have a clear view of the traffic signals and the stop lines and crosswalks and to record unobtrusively the traffic approaching and entering the intersection. Traffic was videotaped on the camera-enforced approach at the camera intersections and on one approach at the other intersections.

Two technicians observed the traffic videotapes to tally counts of vehicles and identify violations. For the purposes of the study, red light violations were defined as vehicles entering an intersection at least 0.5 second after the signal light turned red. A jog and shuttle controller was used to view the videotape by frame (1/30th of a second) when a violation was detected to determine the elapsed time after red. The coded violations then were reviewed by the supervising researcher. At all 12 intersections, coding of red light running included vehicles traveling straight through the intersection and vehicles turning left (where permitted). Right-turn-on-red violations were excluded at intersections where vehicles can turn right on red, including intersections with slip lanes and intersections without slip lanes. Right-turn-on-red violations were excluded at the latter intersections because it could not be determined definitively from the videotape whether or not a driver stopped before turning right. Right-turn-on-red violations were coded at one camera-enforced intersection where turning right on red is prohibited.

2.3. Analysis

At each intersection, the rates of red light violations per 10,000 vehicles were calculated for each of the three observation periods by seconds elapsed after the signal light turned red (≥ 0.5 second, ≥ 1 second, and ≥ 1.5 seconds). Percentage changes were calculated for violation rates 1 month after ticketing began compared with the warning period and for rates 1 year after ticketing began compared with the warning period.

Logistic regression models were used to estimate the effects of red light cameras on the probability of red light violations at the camera intersections. The dependent variable was the ratio of red light violations to the number of passing vehicles. Separate models were built for violations occurring at least 0.5 second, 1 second, and 1.5 seconds after the signal light turned red. The independent variables were individual intersection indicators and study period (after vs. warning period). Individual intersection indicators instead of study group indicators were included in the models to account for the difference among intersections within the group. An interaction variable for camera group and study period also was

included as the primary measure of effectiveness of the cameras. It tested whether changes in the probability of red light violations (after vs. warning period) differed between the camera intersections and control intersections. For example, if the parameter for the interaction term between the camera vs. control group and the 1-year after vs. warning period is -0.4873, the percentage change in the odds of a red light violation is calculated as $([\exp(-0.4873)-1] \times 100)$, a 38.6 percent reduction. P values less than 0.05 were considered statistically significant.

Similarly, potential spillover effects were examined with interaction variables that tested whether changes in the probabilities of red light violations differed between the corridor spillover intersections and control intersections and between the non-corridor spillover intersections and control intersections.

3. Results

Table 1 provides traffic counts at the 12 study intersections when measured during the warning period and 1 month and 1 year after ticketing began. The traffic flows measured 1 year after ticketing began were higher than the traffic flows measured during the warning period at eight intersections (range 2 to 15 percent), lower at three intersections (range 2 to 8 percent), and essentially unchanged at one intersection.

The rates of observed red light running violations per 10,000 vehicles occurring at least 0.5 second, at least 1 second, and at least 1.5 seconds after the light turned red were computed for each study group for each study period. Table 2 shows these rates as well as the percentage changes in the violation rates for 1 month and for 1 year after ticketing began, relative to the rates during the warning period. Appendix A provides the information in Table 2 for each intersection.

For the Arlington County camera intersection group, the rates of violations consistently declined in the two study periods after ticketing began for violations occurring at least 0.5 second, 1 second, and 1.5 seconds after the signal light turned red. Relative to the rates during the warning period, the rates 1 year after ticketing were 24, 30, and 50 percent lower, respectively. As listed in Appendix A, violation rates at the individual camera intersections also showed generally declining rates.

Relative to the violation rates during the warning period, the rates for the spillover intersection group located on the same travel corridors as the camera intersections were lower 1 month after ticketing began but were either higher or only slightly lower 1 year after. The results differed for the two

intersections in this group (Appendix A), with violation rates going up at one intersection and generally down at the other. For the spillover intersection group not located on the travel corridors with cameras, the rates were much higher 1 month and 1 year after ticketing began. The rates for the Fairfax County control intersection group also were generally higher 1 month and 1 year after ticketing began. The pattern in violation rates for the spillover intersection group not located on the camera corridors was similar to that for the control intersection group.

To estimate the effects of the cameras on violation rates, the changes in violation rates at the camera and potential spillover intersections are considered relative to the changes occurring at the control intersections, where rates increased. For example, for violations occurring at least 0.5 second into the red signal phase, the violation rate after 1 year of camera enforcement was 42 percent lower for the camera intersection group (i.e., $100[(100-24)/(100+30)-1]$), 20 percent lower for the corridor spillover intersection group, and 118 percent higher at the non-corridor intersection group, relative to the change at the control intersection group.

3.1. Results of logistic regression models

To estimate the effects of the cameras more rigorously, logistic regression models examined changes in the odds of violations at the camera and spillover intersections relative to the changes at the control intersections. For each model, the parameters for the interaction terms for study group and study period can be used to derive the percentage change in the odds of red light violations associated with camera enforcement, relative to the odds that would have been expected in the absence of the cameras. These estimates are provided in Table 3. Of most interest was any effects of the cameras observed 1 year after ticketing began.

Relative to the odds of red light violations that would have been expected in the absence of the cameras, the odds of red light violations occurring at least 0.5 second after the light turned red at the camera-enforced intersections were 18 percent lower 1 month after ticketing began and 39 percent lower 1 year after. The latter change was significant. The odds of red light violations occurring at least 1 second after the light turned red were 16 percent lower than expected 1 month after ticketing began and 48 percent lower 1 year after. The latter change was marginally significant ($p = 0.07$). The odds of red

light violations occurring at least 1.5 seconds into the red signal phase were 83 percent lower 1 month after ticketing began and 86 percent 1 year after. Both these changes were significant.

The estimated effects of the camera enforcement at the potential spillover intersections were mixed. Relative to the odds of red light violations that would have been expected without the camera enforcement, the odds of violations after 1 month of ticketing for the spillover intersections located on the camera corridors were lower for violations occurring at all three intervals into the red signal phase. The changes were significant for violations occurring at least 0.5 second and at least 1.5 seconds after the light turned red. After about 1 year of ticketing, there were non-significant reductions in the odds of violations occurring at least 0.5 second (14 percent), 1 second (25 percent), and 1.5 seconds (63 percent) into the red signal phase. The lack of significance for these changes likely reflects the fact that, as noted above, the violation rate went up at one of the corridor spillover intersections and down at the other.

At the spillover intersections located on non-camera corridors, the odds of red light violations were larger for all three time intervals into the red signal phase for both 1 month after ticketing and 1 year after ticketing, relative to the odds of violations that would have been expected without the camera enforcement. Some of the estimated percentage increases were very large, including a marginally significant 128 percent increase in the odds of running a red light at least 0.5 second after the red signal phase 1 year after ticketing began, and a significant 477 percent increase in the odds of a red light violation at least 1 second after the signal turned red.

4. Discussion

Consistent with prior research on red light camera programs, Arlington County's use of red light cameras led to significant reductions in red light violations at camera-enforced intersections 1 year after ticketing began. Prior studies of the effects of red light camera enforcement found large reductions in red light violation rates not only at the intersections with cameras but also at signalized intersections without cameras (Retting et al., 1999a, 1999b). In the current study, spillover benefits were observed only for the intersections located in Arlington County on the same travel corridors as the camera intersections. These effects were smaller than those at the camera intersections and not always statistically significant. There were increases in violations at intersections located on different travel corridors, compared with expected rates based on the control intersections.

The main analyses focused on the effects of the camera enforcement measured at the end of the first year of the program. The scope of the program during this period was modest, with only four cameras. Although there was substantial media coverage surrounding the initiation of the camera enforcement, this largely dissipated. Whereas some communities place signs alerting drivers to the presence of automated enforcement on roads throughout the counties and at county borders, Arlington County placed signs only at the camera-enforced intersections. Given the small number of cameras and signs, it is likely that many Arlington drivers did not know about the camera enforcement, whereas those who were aware likely knew the cameras were limited to a few locations. Given these factors, it is not surprising that the effects of the cameras declined as the distance from the camera intersections increased. Especially in populous, heavily traveled communities like Arlington County, a larger, more widely publicized red light camera program likely is needed to achieve substantial community-wide effects. The county plans to activate five additional cameras in other areas of the county in early 2013. Broader effects would be expected to emerge after this planned expansion.

Few prior studies of red light cameras have looked at violations committed at varying lengths of time after the signal light turns red. In the current study, there were reductions at the camera intersections in violation rates occurring at least 0.5 second, 1 second, and 1.5 seconds into the red signal phase. The longer the time elapsed after the red signal, the larger the reduction. This is important because the longer after the red signal a vehicle enters an intersection, the more likely a crash will occur. The effects of Arlington County's red light camera enforcement on crashes will be the subject of future research.

It is a limitation of this research that relatively short-term effects were examined. Insofar as possible, spillover and control intersections were sought that were similar to the camera intersections. However, these sites were imperfect matches. Violation rates were lower at both of the non-corridor spillover intersections relative to intersections in the other study groups during all three study periods, and violation rates showed different trends at the two spillover intersections located on the same travel corridors as the camera intersections. It is not clear why red light violation rates generally increased at the non-corridor spillover intersections and at the control intersections in Fairfax County. It is possible

these reflect an improving economy, although effects of the economy on traffic volumes should have been accounted for by examining rates based on traffic counts.

In sum, the current research reinforces earlier research on the effectiveness of red light camera enforcement in reducing violations at camera-enforced intersections, with particularly large decreases for the most dangerous violations, those happening 1.5 seconds or longer after the light turned red. Some spillover benefits were observed at intersections located on the same travel corridors as the camera-enforced intersections, but these were smaller and not always statistically significant. At intersections on other travel corridors, rates of red lighting running increased, compared with expected rates based on the control intersections. Larger, well-publicized red light camera programs likely are needed to produce community-wide spillover effects.

Acknowledgements

The authors would like to acknowledge Ivan Cheung for assisting with the design and early management of the study and Srin Mandavilli, Indique Solutions, and his staff for collecting and coding the observation data. We thank Chuck Farmer for his advice on the analysis. We are very appreciative to the following persons from the Arlington County Police Department for providing information on the program and sharing camera citation data: Captain James Wasem; Captain Kamran Afzal; Caroline Allen, Photo Red Light Program Manager; and Dalip "John" Gupta, Public Service Aide Supervisor. This work was supported by the Insurance Institute for Highway Safety.

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Table 1

Left-turning and through counts of vehicles at study intersections based on videotapes of one direction of traffic during 7 a.m.-6 p.m. on two weekdays

	Warning period	1 month after ticketing began	1 year after ticketing began
Arlington County intersections with red light cameras			
Southbound Fort Meyer Dr at Westbound Lee Hwy	26,019	29,993	29,558
Northbound N Lynn St at Eastbound Lee Hwy	24,385	27,183	27,272
Northbound N Glebe Rd at N Fairfax Dr	22,109	22,063	22,112
Westbound Washington Blvd at Lee Hwy	19,796	19,452	19,351
Total	92,309	98,691	98,293
Arlington County corridor spillover intersections			
Westbound Lee Hwy at N Kirkwood Rd	15,017	15,722	15,569
Northbound N Glebe Rd at Washington Blvd	17,051	18,533	18,843
Total	32,068	34,255	34,412
Arlington County non-corridor spillover intersections			
Westbound Arlington Blvd at Manchester St	38,012	39,903	40,170
Eastbound Columbia Pike at S George Mason Dr	15,842	15,537	14,531
Total	53,854	55,440	54,701
Fairfax County control intersections			
Southbound Backlick Rd at Braddock Rd	11,238	11,935	11,619
Southbound Rolling Rd at Old Keene Mill Rd	15,817	17,349	18,214
Westbound Burke Center Pkwy at Roberts Rd	16,503	15,161	16,216
Northbound Route 123 at Braddock Rd	20,593	20,683	20,994
Total	64,151	65,128	67,043

Table 2

Observed red light violation rates per 10,000 vehicles by time into red signal phase and percentage changes 1 month and 1 year after red light camera ticketing began, compared with warning period

	Violation rates per 10,000 vehicles by time (seconds) into red									Percent change in violation rates compared with warning period					
	Warning period			1 month after ticketing			1 year after ticketing			1 month after ticketing			1 year after ticketing		
	≥0.5 sec	≥1 sec	≥1.5 sec	≥0.5 sec	≥1 sec	≥1.5 sec	≥0.5 sec	≥1 sec	≥1.5 sec	≥0.5 sec	≥1 sec	≥1.5 sec	≥0.5 sec	≥1 sec	≥1.5 sec
Arlington County															
Camera intersections	11.7	5.8	3.0	11.6	4.7	1.6	8.9	4.1	1.5	-1	-20	-47	-24	-30	-50
Corridor spillover intersections	19.3	10.3	4.7	12.6	6.7	3.2	20.1	10.2	6.1	-35	-35	-31	4	-1	30
Non-corridor spillover intersections	1.7	0.4	0.4	4.3	2.0	1.3	4.8	2.9	1.6	159	434	240	184	688	343
Fairfax County control intersections	6.9	2.8	0.5	8.6	2.8	1.5	8.9	4.0	1.8	25	-2	228	30	44	283

Table 3

Summary of results from logistic regression models of changes in the odds of red light violations 1 month and 1 year after red light camera ticketing compared with warning period and relative to control non-camera intersections

Study Group	Study period	Violations 0.5 second or more after red		Violations 1 second or more after red		Violations 1.5 seconds or more after red	
		Percent change in odds of violation	p value	Percent change in odds of violation	p value	Percent change in odds of violation	p value
Effect of red light cameras at camera intersections (interaction between camera vs. control intersections and after vs. warning period)	1 month after ticketing	-17.7	0.423	-16.5	0.644	-83.3	0.014
	1 year after ticketing	-38.6	0.047	-48.4	0.073	-86.1	0.006
Effect of red light cameras at corridor non-camera intersections (interaction between corridor spillover vs. control intersections and after vs. warning period)	1 month after ticketing	-44.9	0.036	-29.4	0.418	-77.9	0.049
	1 year after ticketing	-14	0.569	-24.8	0.465	-62.6	0.178
Effect of red light cameras at non-corridor non-camera intersections (interaction between non-corridor spillover vs. control intersections and after vs. warning period)	1 month after ticketing	116.8	0.079	467.6	0.038	8.4	0.938
	1 year after ticketing	127.5	0.059	477.4	0.03	22.2	0.843

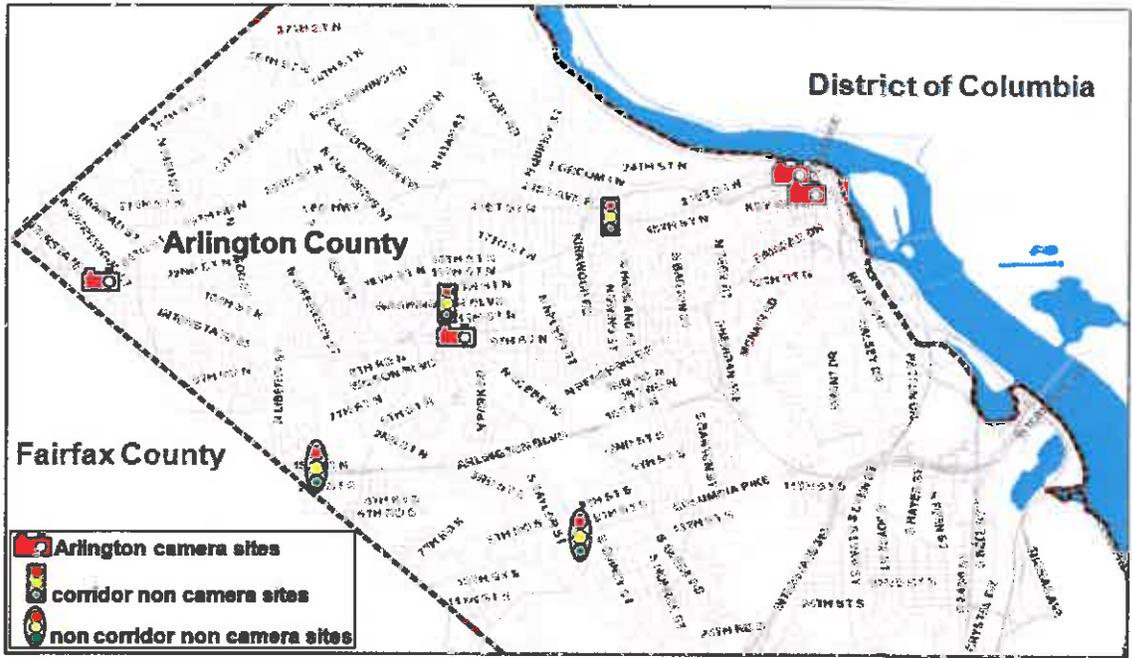


Figure 1. Map of study intersections in Arlington County

Appendix A

Observed red light violation rates per 10,000 vehicles by time into red and percentage changes 1 month and 1 year after red light camera ticketing compared with warning period

	Violation rates per 10,000 vehicles by time (seconds) into red									Percent change in rates compared with warning period					
	Warning period			1 month after ticketing			1 year after ticketing			1 month after ticketing			1 year after ticketing		
	≥0.5 sec	≥1 sec	≥1.5 sec	≥0.5 sec	≥1 sec	≥1.5 sec	≥0.5 sec	≥1 sec	≥1.5 sec	≥0.5 sec	≥1 sec	≥1.5 sec	≥0.5 sec	≥1 sec	≥1.5 sec
Arlington County intersections with red light cameras															
Southbound Fort Meyer Dr at Westbound Lee Hwy	10.0	6.5	4.6	12.3	8.0	3.0	8.5	4.7	2.0	23	22	-35	-15	-28	-56
Northbound N Lynn St at Eastbound Lee Hwy	13.1	5.7	1.6	13.2	4.4	1.5	8.1	2.9	1.5	1	-23	-10	-39	-49	-11
Northbound N Glebe Rd at N Fairfax Dr	16.3	6.3	4.1	12.7	2.7	0.5	13.6	6.8	1.8	-22	-57	-89	-17	7	-56
Westbound Washington Blvd at Lee Hwy	7.1	4.5	1.5	6.7	2.1	1.0	5.2	1.6	0.5	-6	-55	-32	-27	-66	-66
Total	11.7	5.8	3.0	11.6	4.7	1.6	8.9	4.1	1.5	-1	-20	-47	-24	-30	-50
Arlington County corridor spillover intersections															
Westbound Lee Hwy at N Kirkwood Rd	36.6	20.0	8.7	22.9	11.4	5.1	31.5	16.7	11.6	-37	-43	-41	-14	-16	34
Northbound N Glebe Rd at Washington Blvd	4.1	1.8	1.2	3.8	2.7	1.6	10.6	4.8	1.6	-8	53	38	159	171	36
Total	19.3	10.3	4.7	12.6	6.7	3.2	20.1	10.2	6.1	-35	-35	-31	4	-1	30
Arlington County non-corridor spillover intersections															
Westbound Arlington Blvd at Manchester St	1.8	0.5	0.5	4.3	2.0	1.0	5.5	3.2	1.7	131	281	91	197	515	231
Eastbound Columbia Pike at S George Mason Dr	1.3	0	0.0	4.5	1.9	1.9	2.8	2.1	1.4	257	—	—	118	—	—
Total	1.7	0.4	0.4	4.3	2.0	1.3	4.8	2.9	1.6	159	434	240	184	688	343
Fairfax County control intersections															
Southbound Backlick Rd at Braddock Rd	1.8	0.9	0	0.8	0	0	4.3	2.6	0.9	-53	-100	—	142	190	—
Southbound Rolling Rd at Old Keene Mill Rd	20.2	8.2	1.3	25.4	8.6	4.6	22.0	11.5	5.5	25	5	265	9	40	334
Westbound Burke Center Pkwy at Roberts Rd	3.6	1.2	0.6	2.6	1.3	0.7	1.2	0.6	0.6	-27	9	9	-66	-49	2
Northbound Rte 123 at Braddock Rd	1.9	1.0	0.0	3.4	0.5	0.5	6.2	1.0	0.0	74	-50	—	219	-2	—
Total	6.9	2.8	0.5	8.6	2.8	1.5	8.9	4.0	1.8	25	-2	228	30	44	283

EB=eastbound, WB=westbound, NB=northbound, SB=southbound

Email from Mr. Bob Pfahnl

CityClerk

From: Bob Pfahl
Sent: Wednesday, February 20, 2013 6:36 PM
To: CityClerk; Michael Sweeney; Marvin Peixoto; Barbara Halliday; Mark Salinas; Greg Jones; Al Mendall; Francisco Zermeno
Cc:
Subject: Red Light Cameras are the WRONG Solution
Follow Up Flag: Follow up
Flag Status: Flagged

To Whom It May Concern,

Please forward this to the City Council, City Manager, and Chief of Police.

Red light cameras are the wrong solution to red light runners. The vast vast majority of those ticketed are simply making slow, safe right-hand turns which pose no danger to anybody. Study after study shows that accidents caused by rolling right turns are an extremely minor fraction of intersection collisions and accidents. This is a bald-faced money-grab by the city from the working-class residents and visitors that do nothing wrong.

What studies do show are that the vast amount of red light runners are also drunk drivers. Want to do something about red light runners? Crack down on drunk driving. Forcing poor residents to pay \$500 to some out-of-state camera company does not solve this problem.

As I have with other cities that use red light cameras, I will continue to deny any business or tax revenue to the city of Hayward until the red light camera program is halted. There are plenty of other cities in the East Bay that deserve my business and tax revenue that do not unjustly harass its residents and visitors.

I hope you take this into consideration at your meeting March 5. Thank you.

-Bob Pfahl

Email from Mr. and Mrs. Donald Trimble

CityClerk

From: Donald Trimble
Sent: Saturday, February 23, 2013 1:18 PM
To: CityClerk
Cc:
Subject: red light cameras

Follow Up Flag: Follow up
Flag Status: Completed

Please forward the following message to the Hayward City Council, City Manager, and Chief of Police:

I have been a victim of the current photo pestilence (RLC) and would like to state my case against the practice. I was ticketed for a rolling right turn (10 mph recorded) into a completely deserted intersection. There were no vehicles or pedestrians visible in any direction. For that an outrageous fine was levied. To be charged several hundred dollars for making a completely safe maneuver, illegal or not, is ridiculous.

Cameras are not capable of understanding traffic conditions or making value judgments. That's why a police officer should always be involved in alleged violations.

The matter became even more absurd when I learned that the city was deceiving me and costing me unnecessary time and anxiety over a bogus traffic ticket in the hope of simply collecting extra money from the unwary and often innocent. People do not like discovering that they have been tricked.

For their fraudulent practices with respect to traffic tickets, the Hayward Police Department has already lost some respect in the eyes of the community as evidenced by the flood of protest. Maintaining them, even with improved yellow light durations, is the wrong thing to do. It is not morally acceptable to punish safe drivers in order to catch an occasional dangerous one.

These red light cameras are a blight and a blot on Hayward's image as a fair and decent place to live, drive, and shop. My wife and I believe they are inexcusable and should be abolished as they have been elsewhere. The improvement in safety from their use that might possibly be hoped for is way out of proportion to their abuses and certainly to the size of the fines.

Sincerely,

Mr. and Mrs, Donald Trimble

Email from Trung D. Nguyen

CityClerk

From: Trung Nguyen
Sent: Wednesday, February 27, 2013 11:30 AM
To: CityClerk
Subject: Red Light Camera Contract Renewal

Follow Up Flag: Follow up
Flag Status: Flagged

Please deliver the following letter to the City Council members, City Manager and Chief of Police prior to the upcoming council meeting scheduled for March 5, 2013.

Thank you,

Trung D. Nguyen

A Message for Hayward City Council Members, City Manager and Chief of Police

Safety of individuals is the reason why California has laws. Traffic laws are placed to make the streets safe for drivers, bicyclists, and pedestrians alike. Any other laws made that may go against that should be reconsidered. Factors responsible for creating these laws should only be safety and nothing else. However, a factor that has been problematic and goes against that is revenue generation, and not only should it not be factored, but it cannot be legally be used in making law enforcement decisions.

Hayward, in particular, has grown to become a known aggressor in red-light camera ticketing and making a reputation throughout the country via internet to place revenue over the safety of its residents and visitors. Their policies have caused much more confusion and as a result of their implantation, have created intersections that are less safe.

As a visitor, some of Hayward's intersections are problematic even without camera enforcement. The most notable one is A St and I-880. The overpass creates a shaded area with people waiting to turn onto the freeway entrance. Especially in the morning and evening, when the sun is rising and setting, the light can cause complications to travelers unfamiliar with the area. Coupled with the cameras and the city's decision on how to operate them, it has created an unsafe environment with the only individuals remotely able to navigate the intersection safely are residents who are familiar with the area. This enforcement discourages visitors to Hayward, and creates a hostile environment that does not go unnoticed.

A simple solution would be to extend yellow lights.

Given the conditions, you might think that the Hayward PD would want to provide extra time for a driver to process their environment to be able to navigate through the intersection safely. Instead, they have it set to the bare minimum that the state allows for best conditions for the street. Such intersections noted are nowhere even close to best conditions. Extending that yellow would reduce red-light violations and result in a safer environment.

The National Cooperative Highway Research Program (NCHRP) conducted studies which resulted in their Report 731: "Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections", which with it factoring in driver reaction times, it is recommended to have a minimum yellow light time of **4.1 seconds for a 35 mph zone under the best conditions**. Hayward PD have disregarded safety and chose a time that is half a second shorter than the recommended safe minimum for intersections that clearly require longer than minimum time. Because these yellow lights are so short and the intersections complicated, many offenders enter the intersection within fractions of a second after the red. Increasing them by only 0.5 second to meet NCHRP recommendations would reduce violations and create a much safer environment.

The increased safety would be a clear factor in making the right decision, however facing a decision that can cause the city were to lose revenue due to the reduced violations one can imagine why safety is set aside.

Red light camera fees create hardships for everyone.

The bail costs of these red light tickets are outrageously high. They can be more than \$550 including traffic school. The majority of local residents would not only be left in a financial burden over a long period of time, but visitors would probably not come back for some time too. These red light camera companies create a burden not just for residents, visitors, and even potential visitors, but also to the city itself.

I urge that the council members do not renew your contract with the red light camera company and remove the temptation to sacrifice safety for revenue that they cause. They lead to a perversion of the traffic enforcement goals, but more importantly they are also reducing safety, rather than contributing to it.

--Trung D. Nguyen

Email from Ms. Melanie LeMire

Yolanda Cruz

From: Miriam Lens on behalf of CityClerk
Sent: Wednesday, February 27, 2013 2:47 PM
To: Al Mendall; Barbara Halliday; Barbara Halliday; Francisco Zermeno - Forward; Greg Jones; Mark Salinas; Marvin Peixoto; Michael Sweeney; Mike Sweeney
Cc: Fran David; Kelly McAdoo; Michael Lawson; Diane Urban; Darryl McAllister; Colleen Kamai; Joanne Burkman; Yolanda Cruz
Subject: FW: Hayward resident input for City Council meeting concerning red light cameras

Mayor and Council Members,

The message below is related to the City's Red Light Camera.

Regards,

Miriam Lens, CMC MPA

City Clerk

City of Hayward | Office of the City Clerk | 777 B Street | Hayward, CA 94541 |
☎ Phone: 510-583.4401 | ✉ Email: Miriam.lens@hayward-ca.gov
www.hayward-ca.gov | [City Clerk's Blog: www.hayward-ca.gov/cityclerk/](http://www.hayward-ca.gov/cityclerk/)



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From: Melanie LeMire
Sent: Wednesday, February 27, 2013 11:35 AM
To: CityClerk
Subject: Hayward resident input for City Council meeting concerning red light cameras

Hello,

I want to express my opposition to red light cameras. Since adding a fraction of a second to the yellow times is the most effective means of reducing red light violations it becomes clear the real motivation behind the camera enforcement is money for the city. Too bad Redflex siphons off such a huge chunk. It adds up to far too few winners and far too many losers. I would not be able to have confidence in the judgement of any elected official who feels continuing this program to be a good decision for Hayward.

Kind Regards,
Melanie LeMire

Email from Mr. Martin Morrison

Miriam Lens

From: Joanne Burkman
Sent: Wednesday, February 27, 2013 3:47 PM
To: Fran David; Miriam Lens
Subject: FW: Red-light Camera Proposal (Hearing March 5, 2013)

Fran,
From the General City Manager Mailbox.
Joanne

-----Original Message-----

From: [\[mailto: \]](#)
Sent: Wednesday, February 27, 2013 1:50 PM
To: Barbara Halliday; Marvin Peixoto; Greg Jones; Mark Salinas; Francisco Zermeno; Al Mendall; City Manager; Diane Urban; Michael Sweeney
Subject: Red-light Camera Proposal (Hearing March 5, 2013)

I have been informed that the Hayward Police Department is scheduled to present a new contract proposal for photo enforcement of red-light violations to the City Council on Tuesday, March 5th.

The Hayward Police and Engineering Departments should disclose to the City Council that a vast majority of such violations occur within a fraction of a second after a light turns red. An analysis of the data provided by the City shows that 71 percent of violations from the straight through lanes of traffic occur within the first 0.70 seconds of the red light. One signal light in Fremont had 0.70 seconds added to its yellow, and there was an immediate and lasting 75 percent reduction in violations of the straight-through type.

Newark, which already employs yellow lights 0.70 seconds longer than the legal minimum, reports that fewer than 10 percent of all violations occur in the straight-through lanes of traffic. Oakland reported in one study period a 48 per cent reduction from all lanes of traffic when one second was added to most of its yellow lights.

Many of us citizens of Hayward know that the maintainance of the red-light camera program has little to do with safety and much more to do with raising more revenue from us citizens. This simple and inexpensive solution to red-light running problems by extending the yellow-light cycle is not more widely used because it severely impacts revenue.

In fact, so suspect have these camera programs become that many major cities are uninstalling them entirely as a result of citizen complaints of corruption in the program. Among these cities are Houston and (currently) Miami.

I urge you to have the courage to do the really safe thing: shut down the program entirely or, failing that, implement the yellow-light extension program.

Martin Morrison

Email from Mr. Mel Madden

Yolanda Cruz

From: Miriam Lens on behalf of CityClerk
Sent: Wednesday, February 27, 2013 5:38 PM
To: Al Mendall; Barbara Halliday; Barbara Halliday; Francisco Zermeno - Forward; Greg Jones; Mark Salinas; Marvin Peixoto; Michael Sweeney; Mike Sweeney
Cc: Fran David; Kelly McAdoo; Michael Lawson; Diane Urban; Darryl McAllister; Joanne Burkman; Colleen Kamai; Yolanda Cruz
Subject: FW: Red Light Cameras

Dear Mayor and Council Members,

Mr. Mel Madden has requested that I forward his message to all of you.

Regards,

Miriam Lens, CMC MPA

City Clerk

City of Hayward | Office of the City Clerk | 777 B Street | Hayward, CA 94541 |
☎ Phone: 510-583.4401 | ✉ Email: Miriam.lens@hayward-ca.gov
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From: Mel Madden
Sent: Wednesday, February 27, 2013 4:02 PM
To: CityClerk
Cc: Yolanda Cruz
Subject: Re: Red Light Cameras

Yes. Please forward this email to all you have noted.

Thank You

Mel Madden

From: CityClerk <CityClerk@hayward-ca.gov>
To: Mel Madden
Cc: Yolanda Cruz <Yolanda.Cruz@hayward-ca.gov>
Sent: Wednesday, February 27, 2013 2:52 PM
Subject: RE: Red Light Cameras

Mr. Mel Madden,

Thank you for your email. An agenda report regarding the City's Red Light Camera is tentatively scheduled for March 5, 2013. The agenda and staff report will be available on the City's website at the following link on March 1, 2013.
<http://www.hayward-ca.gov/CITY-GOVERNMENT/CITY-COUNCIL-MEETINGS/index.shtm>

Do you want me to forward your email to the Mayor, City Council Members, and City staff?

Regards,

Miriam Lens, CMC MPA

City Clerk

City of Hayward | Office of the City Clerk | 777 B Street | Hayward, CA 94541 |
☎ Phone: 510-583.4401 | ✉ Email: Miriam.lens@hayward-ca.gov
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REPLY ADVISORY: Please be advised that messages sent to me on the City of Hayward e-mail system are not confidential and may be reviewed by other persons without my knowledge. Please do not send messages or attachments that may violate the City of Hayward e-mail policy.

From: Mel Madden
Sent: Wednesday, February 27, 2013 11:34 AM
To: CityClerk
Subject: Red Light Cameras

John Fitton, the CEO of San Mateo County Superior Court is on record as saying camera tickets are bogging things down. 1/3 of all traffic court time (if not all court time) is devoted to camera tickets at the same time when his budget has taken a 33% hit.

What has this done to Alameda County Courts?

I'd like this question raised at the first appropriate City Council meeting.

Thank you.
Mel Madden

Email from Mr. John S. Cooper

CityClerk

From: John S. Cooper
Sent: Wednesday, February 27, 2013 4:56 PM
To: CityClerk
Subject: concerning red light cameras

To the Hayward City Council,

I am strongly opposed to the use of red light cameras. From the evidence I have examined, my understanding is that red light cameras do not increase safety, nor reduce light-running violations.

A much more effective and economical solution would be to slightly increase the yellow-light times by less than a second. This has been proven to improve safety and reduce red-light violations. Other cities (Oakland, Newark, Fremont) have experimented with longer yellow-lights times, with great effect.

I understand red-light-cameras generate revenue for the city, but this is offset by the contract fees paid to the red-light monitoring companies. And if they're not improving safety, then it seems the city is turning a blind eye to the welfare of its citizens in order to earn some income. That just isn't right.

Sincerely,
John S. Cooper

Email from Mr. James C. Walker

Yolanda Cruz

From: Miriam Lens
Sent: Friday, March 01, 2013 9:33 AM
To: Yolanda Cruz
Subject: FW: Red light cameras damage cities economically

From: Joanne Burkman
Sent: Thursday, February 28, 2013 9:16 AM
To: Fran David; Miriam Lens
Subject: FW: Red light cameras damage cities economically

From the General City Manager Mailbox.
Joanne

From:
Sent: Thursday, February 28, 2013 9:13 AM
To: Michael Sweeney; Marvin Peixoto; Barbara Halliday; Mark Salinas; Greg Jones; Al Mendall; Francisco Zermeno; Diane Urban; City Manager
Cc: ccnnewsrelease@bayareanewsgroup.com
Subject: Red light cameras damage cities economically

Dear Hayward Officials,

There is another mystery in Hayward and other California cities that use the cameras.

WHY do these city councils want to do SO much economic harm to their own cities?

Most of the camera revenue goes to Sacramento and Arizona (home to Redflex and ATS). Yes, some of this predatory money-grab comes back to the city councils to play with, but WAY less than half the total corrupt take, and often as little as one-third comes back. The majority of the money goes to Sacramento and the corrupt camera vendors that seek only revenue.

WHY would citizens put up with taking so much money out the local economies where it damages their employment levels and the economic viability of their businesses? Each \$490 stripped out of the wallets of citizens and visitors is money that will NOT be spent in your stores, malls, restaurants, entertainment businesses, service businesses, charities, etc.

AND why would citizens put up with having their visitors exploited at \$490 a pop when so many of those ticket victims will refuse to return and spend money in such predatory towns? Treating tourists and visitors in such predatory ways is hardly the way to encourage them to return.

It makes no sense from any viewpoint.

Simply adding 0.7 to 1.0 seconds to the yellow intervals will improve safety overall and drastically drop the straight through violation rates, typically by 60% to 90%. And those lower violation rates stay down, contrary to the false claims of the camera vendors. This could be done immediately to sharply reduce the violation rates and tickets between now and September. Better traffic light engineering produces greater safety than using red light cameras.

For one last point, I personally find it difficult to understand why any city would want to continue to deal with any company under this kind of a corruption cloud.

<http://www.chicagotribune.com/news/local/ct-met-redlight-executive-fired-20130222,0,2803221.story>

The citizens of Hayward need to tell their city officials to let the red light camera program with Redflex completely expire

this year, and tell them not to add any additional cameras.

Respectfully,

James C. Walker

Life Member, National Motorists Association

Board Member and Executive Director, National Motorists Association Foundation

www.motorists.org

Email from Mr. Jay Beeber

Yolanda Cruz

From: Miriam Lens
Sent: Friday, March 01, 2013 10:13 AM
To: Al Mendall; Barbara Halliday; Barbara Halliday; Francisco Zermeno - Forward; Greg Jones; Mark Salinas; Marvin Peixoto; Michael Sweeney; Mike Sweeney
Cc: Fran David; Kelly McAdoo; Michael Lawson; Diane Urban; Darryl McAllister; Yolanda Cruz; Joanne Burkman; Colleen Kama
Subject: FW: Comments to City Council - Red Light Camera Program
Attachments: Comments to Hayward City Council - Red Light Camera Program.pdf

Mayor and Council Members,

The email below from Mr. Jay Beeber relates to the City's Red Light Camera Program.

Regards,

Miriam Lens, CMC, MPA

City Clerk _____

City of Hayward | Office of the City Clerk | 777 B Street | Hayward, CA 94541 |

Phone: 510-583.4401 | Email: Miriam.lens@hayward-ca.gov

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-----Original Message-----

From: Jay@saferstreetsla.org [mailto:Jay@saferstreetsla.org]

Sent: Friday, March 01, 2013 7:10 AM

To: Miriam Lens

Cc: CityClerk

Subject: Comments to City Council - Red Light Camera Program

Miriam,

Attached please find the document entitled "Comments to Hayward City Council - Red Light Camera Program.pdf" for distribution to the Hayward City Council Members for their review prior to the upcoming council meeting on March 5th.

Thank you,

Jay Beeber

Executive Director

Safer Streets L.A.

Please acknowledge receipt of the this correspondence.

To: The Honorable Members of the City Council, Hayward CA

Subject: Information on the Hayward Red Light Camera Program

March 1, 2013

Councilmembers,

My name is Jay Beeber and I am the Executive Director of Safer Streets L.A., a grassroots organization dedicated to the adoption of scientifically sound and sensible transportation and traffic laws. We strive to provide the public and elected representatives with well researched and verifiable data in order to promote scientifically based solutions to motorist and pedestrian safety issues.

For your information, the following reports are attached:

Collision Analysis of Photo Enforced Intersections in Hayward, CA
Analysis of Violations at Photo Enforced Intersections in Hayward, CA
The Problem of the Yellow Light Time in California

My hope is that you will view these reports in the spirit in which they are intended, which is to provide you with additional information for you to rely on as you make your decision regarding whether or not to continue with your current photo enforcement program.

If you have any questions or would like to discuss this matter further, please do not hesitate to contact me.

Sincerely,

Jay Beeber
Executive Director - Safer Streets L.A.
City of Los Angeles Pedestrian Advisory Committee
505-500-4790

Collision Analysis of Photo Enforced Intersections in Hayward, CA

By Jay Beeber, Safer Streets L.A.

Introduction

The following is an analysis of Red Light Related (RLR) collisions at Red Light Camera (RLC) equipped intersections in the city of Hayward, California. Accident statistics were compiled from the California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS) database. The SWITRS database serves as a means to collect and process data gathered from collision scenes by multiple police agencies throughout the state. The most recent complete year for which data is available is 2011. No relevant data is yet available through this database for 2012, although local police agencies may have more up-to-date information. However, the data can provide relevant information as to collision trends over the study period.

In evaluating the effectiveness of RLC programs, attention must be given to analyzing relevant types of collisions. Since red light cameras target drivers who cross the limit line after the light has turned red, collisions for which the primary collision factor is listed in the database as a violation of California Vehicle Codes 21453A (circular red signal) and 21453C (red arrow signal) provide the most accurate information about the possible benefits of photo enforcement as these types of collisions are the only type of collision that can reasonably be expected to be reduced through the use of red light cameras. However, in some studies of this type, the category of "broadside collisions" is mistakenly used for the analysis. Since not all broadside collisions are caused by a red light violation and not all red light violations result in a broadside collision, using the category of broadside collisions rather than the more specific category of collisions caused by red light running, may provide erroneous results. Additionally, care must be taken when drawing specific conclusions, as numerous factors may determine whether red light running collisions have increased or decreased from year to year over the study period, including traffic volume, signal timing, weather, driver impairment, distraction, and fatigue, etc.

The table on the following page shows the raw numbers of red light related collisions at camera equipped intersections before and after the cameras were installed. Photo enforcement was initiated at three intersections during July 2008, one intersection in June 2009, and four additional intersections in February 2010. Since red light camera enforcement was initiated at differing times, the before and after periods at each location vary according to when enforcement first began. In order to maximize the period of study, we first determined the maximum "after period" for which data was available at a particular location and then chose a similar "before period" of equal length. For example, photo enforcement began on July 1, 2008 at the intersection of Industrial Parkway and Huntwood Avenue. Since the SWITRS database contains data through December 31, 2011, the maximum "after period" possible for study at this location was 3 ½ years (42 mos). We therefore chose as the "before period" the 42 month time period extending from January 1, 2005 to June 30, 2008. Similar calculations were made at the other seven photo enforced locations with the before and after periods listed in the table under each location heading.

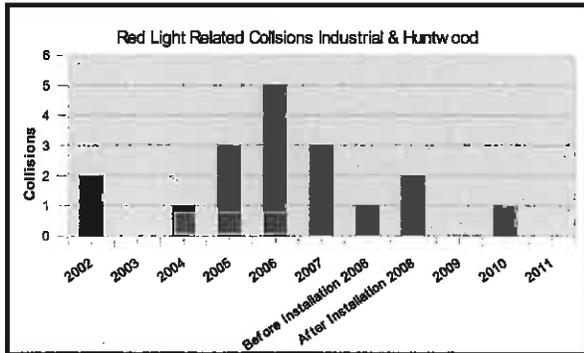
Results

The results of the analysis appear in the table below. Four intersections showed an increase in red light running collisions over the study periods, two intersections showed no change, and two intersections showed a decrease in collisions. Overall, across all photo enforced intersections, there was a net *increase* in the number of red light running collisions between the before and after periods.

Time Period	RLR Collisions
A ST & RT 880 2/27/2010	
5/2008 - 3/2010	2
3/2010 - 12/2011	7
Change in Collisions	5
B ST & 2nd 7/30/2008	
3/2005 - 8/2008	4
8/2008 - 12/2011	9
Change in Collisions	5
Hesperian & Winton 7/31/2008	
3/2005 - 8/2008	3
8/2008 - 12/2011	5
Change in Collisions	2
Industrial & Whipple 2/1/2010	
3/2008 - 2/2010	1
2/2010 - 12/2011	2
Change in Collisions	1
Santa Clara & Jackson 2/28/2010	
5/2008 - 3/2010	3
3/2010 - 12/2011	3
Change in Collisions	0
Hesperian & A ST 6/25/2009	
1/2007 - 7/2009	1
7/2009 - 12/2011	1
Change in Collisions	0
Industrial & Mission 2/1/2010	
3/2008 - 2/2010	2
2/2010 - 12/2011	1
Change in Collisions	-1
Industrial & Huntwood 7/1/2008	
1/2005 - 7/2008	12
7/2008 - 12/2011	3
Change in Collisions	-9
Total Before	28
Total After	31
Total Change	3

Discussion

Three quarters (¾) of the intersections experienced either an increase or no change in the number of red light related collisions after photo enforcement was initiated. One intersection had a non-statistically significant decrease of 1 collision. Only one location, the intersection of Industrial Parkway and Huntwood Avenue had a somewhat sizable decrease in collisions. However, this was more than offset by the increase in collisions at other intersections. Additionally, considering that the vast majority of intersections showed no improvement in safety due to photo enforcement and the net number of collisions increased overall, it is doubtful that the the red light cameras were responsible for the decrease in collision seen at this one location. Since this intersection had a relatively high number of red light related collisions in the before period, the reduction in collisions is more likely the result of a statistical regression to the mean, the tendency of a random variable that is highly distinct from the norm to return to "normal." Further evidence of this conclusion is the fact that an analysis of collisions at this location over a ten year period shows relatively larger numbers of collisions in the years 2005, 2006, and 2007, which coincidentally coincides with the "before period" of the study, but relatively fewer collisions both before and after this time period (see the table and chart below).



Year	RLR Collisions
2002	2
2003	0
2004	1
2005	3
2006	5
2007	3
Before Installation 2008	1
After Installation 2008	2
2009	0
2010	1
2011	0

Conclusions

Overall, photo enforcement appears not to have provided any significant improvement in safety at the intersections where they have been employed in the City of Hayward. However, other engineering countermeasures such as increasing the yellow and all-red signal phases by 1 second have made a significant positive impact on intersection safety at other study sites. For example, the City of Loma Linda experienced a 92% decrease in red light running violations immediately after lengthening the yellow time at photo enforced intersections by 1.0 second. Likewise, after Caltrans increased the yellow signal time by 0.7 second at one photo enforced intersection in Fremont, CA, violations dropped by an average 77%, a reduction that has endured for more that two years. For a full explanation of why the current practice of setting yellow light times in California leads to inadvertent red light violations, see our report "The Problem of the Yellow Light Time in California" which follows.

Since photo enforcement seems not to have reduced collisions at problem intersections, Hayward city officials should eliminate the red light camera program and replace it with a comprehensive set of proven engineering countermeasures.

Analysis of Violations at Photo Enforced Intersections in Hayward, CA

By Jay Beeber, Safer Streets L.A.

Introduction

The following is an analysis of violations at Red Light Camera (RLC) equipped intersections in the city of Hayward, California. Violation statistics were compiled from the Redflex Redlight Offender Statistics Report for the time period of April through June 2010.

Types of Violations

The objective of a red-light-running treatment program should be the reduction of red light related crashes as opposed to red-light violations. The reason for this is that not all red light violations have an equal tendency to cause crashes. For example, violations that occur early in the red phase (less than 2 seconds into the red) rarely result in the more serious right angle (T-bone) crashes due to the fact that cross traffic has not yet entered the intersection. This is especially true where a sufficient all-red phase is incorporated into the signal phasing.

Late Into Red (LIR) violations, those that occur well after the light has turned red are most likely to result in the more severe right angle crashes. The problem, from a crash reduction standpoint, is that LIR violations are committed by drivers who either are unable to safely stop or are unaware of the need to stop due to impairment, fatigue, inattention/distraction, inclement weather, or engineering deficiencies. These types of violations are therefore resistant to the effects of increased red-light enforcement, especially automated red light enforcement.

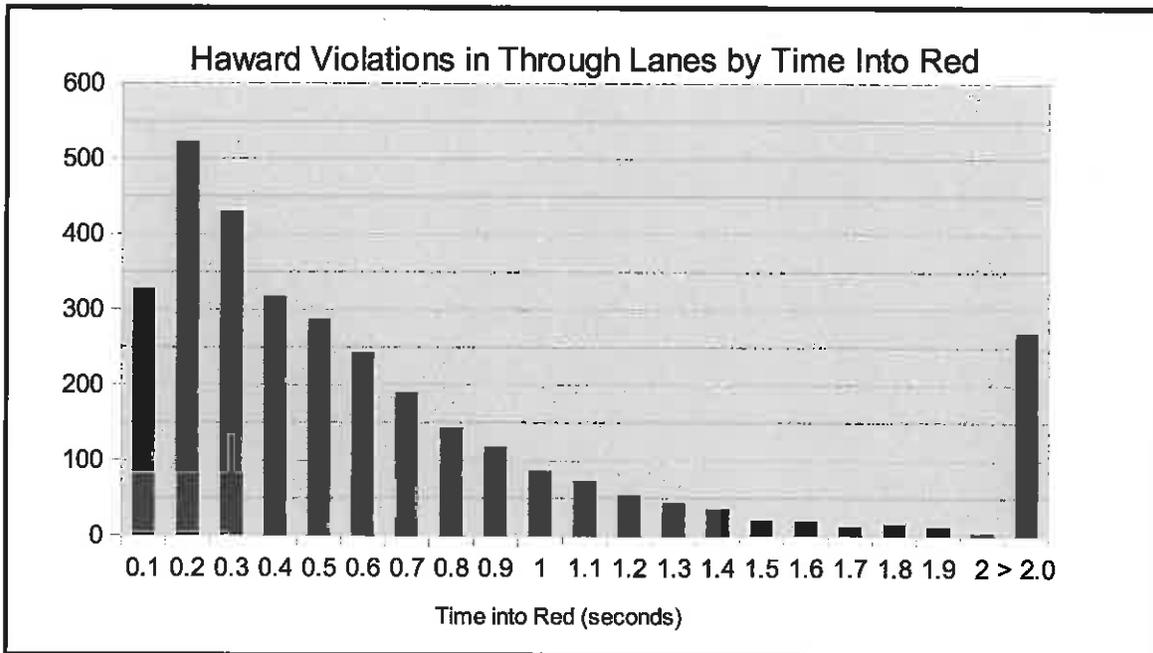
Rolling-right-turns also rarely result in crashes. A report from the National Highway Traffic Safety Administration regarding the safety impacts of right turns on red (RTOR) found that RTOR crashes represent just 0.05% of all traffic crashes. See: <http://www.nhtsa.gov/About+NHTSA/Traffic+Techs/current/The+Safety+Impact+of+Right+Turn+on+Red:+Report+to+Congress>. Likewise, an analysis by Safer Streets L.A. of collisions in Los Angeles showed that accidents attributed to rolling-right-turns represented just 0.079% of all accidents. For comparison, about three times as many accidents are caused each year by drivers opening their car door into passing traffic. Also, based on the number of rolling right turns which occur annually, we calculated that the chance that a rolling-right-turn will result in a collision is 0.00029%. This means that a driver would have to make over 345,000 rolling-right-turns before they might be involved in an accident. This suggests that the rolling-right-turn does not present a significant hazard to other motorists, pedestrians or bicyclists. See: <http://saferstreetsla.org/wp-content/uploads/reports/HOW%20DANGEROUS%20IS%20A%20ROLLING%20RIGHT%20TURN.pdf>

Therefore, a red-light-running program that concentrates on reducing the types of violations that do not give rise to a sizable number of crashes has little chance of resulting in a significant improvement in safety.

Results

Fraction of a Second Violations

The chart below shows the distribution of violations in through (non-turning) lanes as a function of the time into the red phase.



As can be seen, more than half (60%) of the violations occur within the first half second after the light turns red, 83% occur within 1 second, and 92% occur within the first two seconds. This is significant for two reasons. First, as discussed above, the chance that these violations will result in a collision is extremely small, especially at intersections with a sufficient all-red phase. Therefore, even if red light cameras were successful in eliminating these violations (which they are clearly not, considering the large number of violations being captured by the system) there would likely be little, if any, improvement in safety. Second, if these types of violations are of concern, it is relatively easy to eliminate them by adjusting the yellow phase to account for a wider range of motorists' reaction times, approach speeds and braking rates. See our report, "The Problem of the Yellow Light Time in California" which follows.

Note that it may appear from the above chart that a large number of violations are occurring more than two seconds after the light turns red. This is a result of the way Redflex provides the time into red data. The violations that are occurring after two seconds are occurring throughout the balance of the red phase which can be as long as 60 to 90 seconds. In other words, the final data point represents a minute or more worth of violations in contrast to all the other data points in the chart which represent violations occurring within one tenth of a second. If the data for violations occurring after two seconds were displayed in a similar manner to the data in the rest of the chart, we would find only one violation for every 1 - 3 tenths of a second on average. Therefore, the reader should be aware that while the bar representing violations occurring after two seconds may appear large, if the data were spread out over the full length of the red phase in tenths of a second increments as it is in the rest of the chart, these violations would barely register.

Rolling Right Turns

At a number of intersections, citations for rolling right turns comprise most of the tickets being issued. The locations issuing the largest percentages of rolling right turn citations are listed in the chart below.

Location	Right Turn Percentage
Industrial & Whipple	88.80%
"A" St. and Hwy 880 Northbound OnRamp	82.20%
Hesperian & A St.	78.90%
Industrial & Huntwood	75.67%
Santa Clara & Jackson	70.24%
"A" St. and Hwy 880 Southbound OnRamp	64.42%

As discussed above, rolling right turns pose little hazard to other users of the roadway, including pedestrians and bicyclists. Therefore, even if red light cameras were successful in eliminating these types of violations, the city would see no improvement in safety.

Discussion

The City of Hayward issues the vast majority of its red light camera citations for rolling right turns and violations that occur within a fraction of a second after the light turns red, violations that pose little danger of causing a collision. This is likely the reason that the city did not experience any overall reduction in red light related crashes after implementation of the red light camera program. (See our other report "Collision Analysis of Photo Enforced Intersections in Hayward, CA".) Issuing these large numbers of citations while receiving no safety benefit in return constitutes a huge misallocation of resources. If the city chose, instead, to reduce the incidence of red light running through the use of proven engineering countermeasures, such as increasing the yellow and all-red signal phases, the city could achieve a much greater safety benefit while conserving police and administrative resources for other needs.

The Problem of the Yellow Light Time in California

by Jay Beeber, Executive Director, Safer Streets L.A.

The purpose of the yellow signal phase is to alert drivers that their right-of-way is about to end and, depending upon their relative proximity to the intersection, to permit them to come to a safe stop or allow them time to enter the intersection (cross the limit line) prior to the onset of the red phase. When set correctly, the yellow signal time should not create situations where motorists are forced to unintentionally run the red light. In order to understand how the yellow signal time is currently set and why it presents a problem for some motorists causing them to inadvertently violate the red signal, we begin with a few basic concepts.

The Critical Distance

Most people intuitively understand that a traffic signal cannot change directly from green to red because motorists close to the intersection when the light changed would not be able to stop their vehicles before entering the intersection and would be forced to run the red light. The reason, of course, is that due to momentum their vehicle cannot stop immediately when the brakes are applied. The vehicle must gradually slow down (decelerate) before it comes to a complete stop. During this time, the vehicle continues to travel down the roadway. The distance the vehicle travels is known as the braking distance and can be calculated using a basic physics formula if we know both the vehicle's initial velocity and rate of deceleration (how hard the driver applies the brakes).

In addition, human beings cannot immediately react to a stimulus such as a change in the signal phase. There is always a delay while the driver sees the change in the signal, perceives what it means, decides what to do, and then takes the required action such as applying the brakes. There is also a delay between the time the driver applies the brakes and when the brakes fully engage. These delays before the vehicle starts to slow are collectively known as the perception/reaction time. During this period the vehicle also continues to travel down the roadway towards the intersection. The distance the vehicle travels can be calculated using another basic physics formula, the equation of motion, if we know both the vehicle's initial velocity and the driver's perception/reaction time. It should be noted that there are a range of typical reaction times exhibited among drivers and that individual drivers themselves can exhibit a range of times depending on their driving situation.

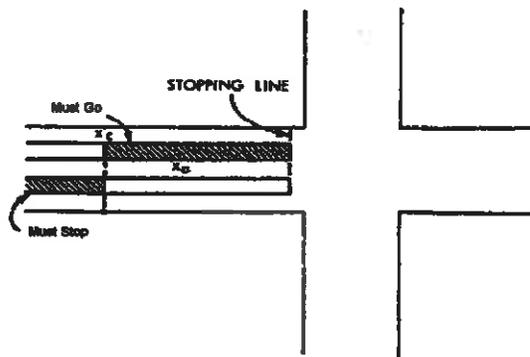
By adding the distance the vehicle travels during the perception/reaction time to the vehicle's braking distance, we can determine the vehicle's total stopping distance. Traffic engineers refer to this as the critical stopping distance or simply the critical distance. This is the absolute minimum length of roadway a motorist requires in order to bring his vehicle to a safe and complete stop after the onset of the yellow signal.

Calculating the Minimum Yellow Time

It follows then that if the yellow light illuminates and a motorist is further from the intersection than the critical distance he will be able to stop his vehicle before crossing into the intersection. Conversely, if a motorist is closer to the intersection than the critical distance when the yellow light illuminates, he will

not be able to stop his vehicle before crossing into the intersection, he must keep going. Of course, he must be given at least enough time to cover the distance to the intersection before the light turns red. As stated previously, the signal must not change instantly from green to red. Additionally, any warning time that is provided by way of a yellow signal must not be shorter than the time it will take for the vehicle to cross the critical distance. Again, using the equation of motion, if the velocity of the vehicle and the distance that needs to be covered (the critical distance) is known, the minimum time needed to cross that distance can be calculated.

This is the theory behind how to properly determine the minimum yellow signal time. The idea is that once you calculate the critical distance, you can set the yellow light time to give a motorist at least enough time to cross that distance. When the yellow time is set to this absolute minimum, if a driver is at or near the critical distance when the light turns yellow, he will have exactly enough *time* to make it to the limit line before the light turns red and he will have exactly enough braking distance to stop at the limit line (although the light will have turned red before he arrives). This situation is depicted in the graphic below.



One might think that this is therefore the correct or ideal setting for the yellow signal time. As will be explained, it is not. In fact, setting the yellow time at or near the minimum time creates a host of problems for many reasonable drivers who may be forced to inadvertently violate the red signal.

The Problem For the Driver

For the driver, the yellow signal presents a problem because it does not convey a clear and consistent message each and every time it is displayed. Depending on how far the driver is from the intersection when the yellow light illuminates, the yellow signal could either mean “stop” or it could mean “go”. In many instances the message to the driver is obvious: if you are close to the intersection - keep going; if you are far from the intersection - slow down and stop. The problem arises when the driver is “in the middle”, not so close that the choice is obvious to go and not so far that the choice is obvious to stop. As can be seen from the above graphic, at the critical distance there exists a “decision point” in the roadway, where a driver must instantly change his choice from “I should stop” to “I should go”. If the yellow time is set at the minimum, there is no room for error in this decision. If the driver is on the near side of the decision point, and he chooses to stop, he will not have enough roadway to stop his vehicle before he crosses the limit line and will stop in the crosswalk or intersection - he will violate the red. Likewise, if the driver is on the far side of the decision point and he chooses to go, he will not have enough time to make it across the limit line before the light turns red - he will again be a red light violator. With yellow light times set at the minimum, drivers must make the correct decision 100% of the time, and they must do so without the benefit of knowing exactly where the decision point is. Even an error of a few feet will create an unintentional violation.

A further problem for the driver is that, as discussed above, the location of this decision point or “critical distance” changes according to the driver's speed, perception/reaction time, and rate of deceleration. In the real world, a driver cannot accurately know the location of the critical distance in every instance so eventually he makes a mistake and becomes an inadvertent red light runner.

In addition, even where the driver makes the correct decision to “go”, he must keep going at his current speed. If he slows down, he will cross the critical distance at some average velocity lower than his initial velocity. It will take him longer to reach the limit line and he will again become an inadvertent red light runner. This becomes a problem on straight through approaches because some percentage of drivers will slow down due to the presence of other vehicles in their path or simply for added safety while traversing the intersection. But it is especially problematic in turning lanes as all drivers must slow down in order to negotiate the turn. However, under California law, the yellow phase for a protected left or right turn is permitted to be as short as 3.0 seconds regardless of the actual approach speed or posted speed limit. In these lanes, where the driver could actually need more time than what the minimum yellow time allows for because he must slow down, the state permits a shorter time to be used. In all these situations, drivers will become inadvertent red light runners under the right conditions.

The Problem For the Traffic Engineer

One of the primary goals of traffic engineering is to prevent collisions. In other words, to ensure that two vehicles do not occupy the same space at the same time. The problems for the driver discussed above cause a problem for the traffic engineer (and vice versa). With today's technology, the traffic engineer must choose only one yellow light time at each signalized approach. But as we've seen, the critical distance (and they minimum yellow light time which is based upon it) changes according to the driver's speed, perception/reaction time and deceleration rate. Therefore, there can be no “right” minimum time for all drivers approaching that intersection in all situations. Depending on the circumstances and the yellow light time previously chosen by the traffic engineer, some drivers may become inadvertent red light runners through no fault of their own. What's a traffic engineer to do?

Since the traffic engineer cannot set a *correct* time, he must recognize that whatever time he sets for the yellow signal, he is simply choosing a yellow time that prevents some percentage of drivers on the roadway from unintentionally violating the red light. The converse is also true, that he is not accommodating some percentage of lawful drivers who may then be left to inadvertently run the red. In effect, he asks himself, “what percentage of red light running is acceptable”? While the engineer cannot be expected accommodate every driver in every situation, it should be obvious from the discussion above that the more the yellow time is extended above the minimum, the lower the percentage of drivers left unaccommodated and likely to unintentionally violate the red light.

By examining each variable that goes into calculating the critical distance, we can get a sense for what percentage of drivers are currently being accommodated with each value and determine what is a reasonable policy for choosing each variable.

It should be noted that when we speak in terms of “accommodating” driver traits and behaviors, we are simply recognizing that a range of reasonable and legally permissible traits and behaviors exist in the real world and we must take them into account in order to protect the cross traffic from a collision with an inadvertent red light runner.

We now return to the three variables that determine the critical distance and the minimum yellow light time.

Driver's perception/reaction time - This is the time it takes the driver to perceive the yellow signal, decide whether the proper action is to stop or keep going, and (if stopping) apply the brakes. The traditional practice has been to assume this time to be 1.0 second. However, studies of actual driver reaction times have indicated that there are a range of reaction times exhibited by typical drivers. One second is the average time, meaning at least half the drivers on the roadway will have reaction times longer than this assumed time. Most studies have shown that 85% of drivers have a perception/reaction time of at least 1.4 seconds or less. Therefore, if more than half of drivers are to be accommodated by the yellow time, a perception/reaction time of 1.4 seconds or more must be used in the formula to calculate the critical distance.

Additionally, reaction times can vary depending on the complexity of the intersection and driving conditions as well as the surrounding visual clutter in the driver's field of view such as is found in the urban driving environment. Also, reaction times can vary depending upon the driver's proximity to the intersection when the yellow light illuminates. For drivers close to or far from the intersection, reaction times can be much shorter since the decision to stop or go is obvious. However, for drivers near the critical distance when the light turns yellow, reaction times can be much longer since the decision to stop or go may not be immediately apparent.

Approach speed - This is the speed at which a driver approaches the intersection. The yellow formula was designed to use the 85th percentile speed of free flow traffic measured at the critical stopping distance as the approach speed. Since there will necessarily be a range of speeds at which drivers are approaching the intersection, what speed is chosen as the approach speed and how it is measured will determine what percentage of drivers on the roadway will be accommodated by the resulting yellow light time. However, the State of California short circuits this analysis by arbitrarily setting the approach speed at the posted or statutory speed limit. This is problematic since it has widely been determined that actual approach speeds range from approximately 10 mph higher than the posted speed limit on lower speed roadways (posted below 45 mph) to approximately 5 mph higher on higher speed roadways (posted above 45 mph). The result of using the posted speed limit therefore is that the yellow light time will be between 0.4 and 0.7 seconds shorter than it would be if the actual approach speeds were measured correctly and used in the calculation.

California law regarding the setting of speed limits also allows jurisdictions to round down the speed limit from what it would otherwise be set at. For example, if the 85th percentile speed is determined to be 44 mph, instead of rounding up to 45mph, the speed limit can be established at 40 mph. This arbitrary rounding down leads to a reduction in the yellow time of 0.4 seconds and a 53 foot long stretch of roadway, within which, if a driver encounters the onset of the yellow signal phase he will neither be able to stop before crossing the limit line nor cross the limit line before the light turns red.

Deceleration rate - This is the rate at which drivers are able to brake comfortably and bring their vehicles to a safe stop. It has traditionally been assumed to be 10 feet per second per second (fpsps) for passenger cars. However, larger vehicles often cannot comfortably decelerate at this rate and need more stopping distance. Therefore, by using the deceleration rate for passenger vehicles in the formula, it must be recognized that larger vehicles may have difficulty stopping appropriately and some may be forced to run the red signal.

It should be obvious at this point that maximizing the values used in calculating the critical distance leads to a larger range of drivers that will be accommodated by the yellow light time and a lower number of inadvertent red light violations. It should also be obvious that estimating more accurate numerical values only provides a more accurate *minimum* yellow time. It still does not provide the “right” time and does not take into account the entire range of driver variables nor situations where drivers may slow on their approach to the intersection such as when negotiating a turn or braking for added safety. Therefore, even with an increase in the statutory minimum time, some percentage of drivers may still violate the red unintentionally, although this number will decrease incrementally according to how much the yellow signal time is set above the minimum.

How the Minimum Yellow Light Time is Currently Set

The current statutory minimum times for the yellow signal phase are given in the California Manual on Uniform Traffic Control Devices (CAMUTCD) according to the following chart:

POSTED SPEED or PRIMA FACIE SPEED mph	MINIMUM YELLOW INTERVAL Seconds
25 or less	3.0
30	3.2
35	3.6
40	3.9
45	4.3
50	4.7
55	5.0
60	5.4
65	5.8

Note that these minimums assume a perception/reaction time of 1 second for all drivers, a deceleration rate of 10 fpsps and a speed of no more than the posted speed limit. They do not take into account drivers who slow on their approach, drivers with longer perception/reaction times, drivers traveling above the posted speed limit, motorists driving larger vehicles, or drivers traveling during inclement weather (which often requires a lower deceleration rate). Note also that the minimum yellow change interval for a protected left-turn or protected right-turn phase is permitted to be as short as 3.0 seconds regardless of the actual approach speed or posted or prima facie speed and corresponds to an approach speed of approximately 27 mph.

The Problem with Red Light Camera Enforcement

As has been shown, the current protocol for setting the minimum yellow light time in California leads to inadvertent red light running because it does not accommodate a large range of lawful driver behaviors nor does it leave any room for reasonable and inevitable driver errors. When this situation is coupled with an enforcement system that has the capability of detecting violations occurring within fractions of a second, it becomes easy, and all too often common, for jurisdictions to generate large numbers of citations for violations that are very likely to be unintentional. Considering the large volume of vehicles on the state's roadways, even a small percentage of inadvertent violations can lead to significant numbers of citations being generated. Regardless of whether or not one believes that red light cameras enhance intersection safety, it is incumbent upon a civilized society, and the elected officials that represent its citizens, to ensure that penalties do not accrue to those who had no intention of violating the law. Indeed, it is not only their responsibility to ensure that otherwise law abiding citizens are not unfairly penalized, it is their responsibility to correct the conditions that might lead to those unintentional violations in the first place.

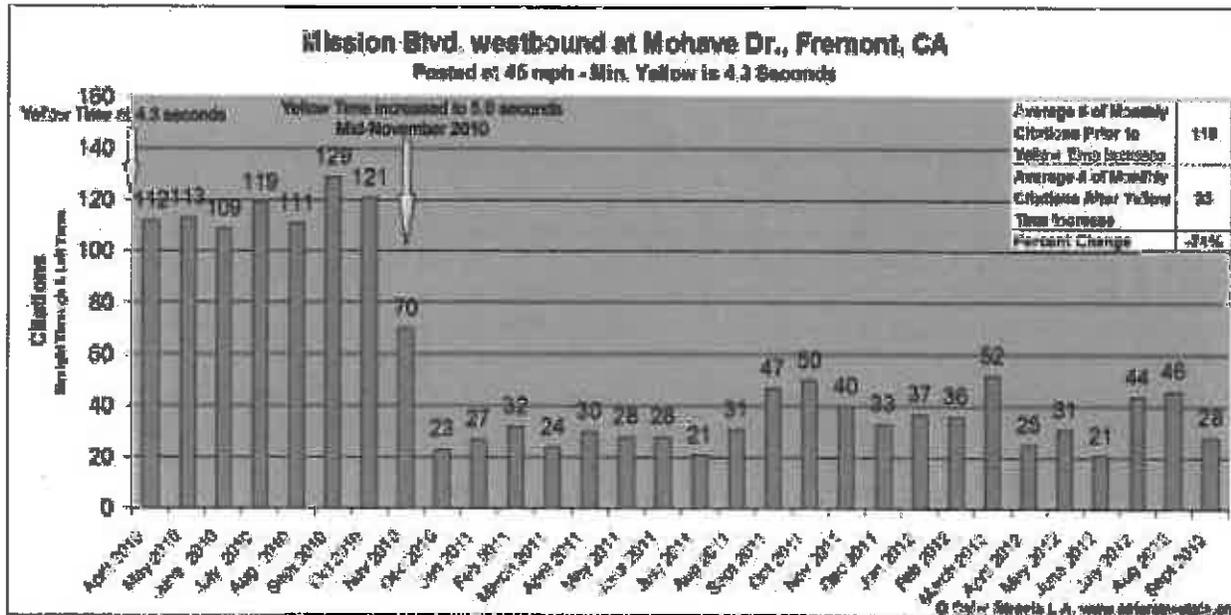
RECOMMENDATIONS

For jurisdictions that wish to maximize safety without unduly penalizing otherwise law abiding citizens who may inadvertently violate the red light due to shorter than necessary yellow signal times, we provide the following recommendations.

1. Correct the arbitrary reduction in yellow light times caused by the permitted rounding down of speed limits. Direct that when speed limits are rounded down, the engineer should instead round up to the nearest 5 mph increment when calculating the minimum yellow signal time. This change would affect all signalized intersections where the speed limit has been rounded down from the calculated 85th percentile speed. At most, this requirement would add 0.4 second to the yellow light time.
2. At intersections with red light camera photo enforcement (or other locations where red light violations may be a concern), set the yellow time for all movements (straight through and turning) to 1 second beyond the minimum requirement set forth in the CAMUTCD for the straight through movement. The basis for this requirement is the following:
 - a) Take into account that the 85th percentile of perception/reaction times is 1.4 seconds as opposed to the 1.0 second now used and which only accounts for 50% of driver perception/reaction time. This adds an additional 0.4 second to the yellow time.
 - b) Take into account that actual approach speeds have consistently been found to be 5 mph to 10 mph above the posted speed limit, even in locations where the posted speed limit has been set according to an engineering & traffic survey. This adds an additional 0.6 second to the yellow time (based on an additional 8 mph).
 - c) Take into account that drivers in turning lanes must slow down to negotiate the turn and it therefore takes longer to cross the critical distance and avoid running the red light.

A Case Study - Fremont, California

For those curious about how an increase in the yellow light timing will affect intersection safety, we provide the example of the intersection of Mission Blvd. and Mohave Drive in Fremont California where CalTrans officials increased the yellow signal time for the straight through movement by 0.7 seconds above the minimum time required by state law to a full 5.0 seconds. The intersection experienced a significant reduction in violations and the lower citation rate did not return to earlier levels. As can be seen in the chart below, the positive safety results achieved by lengthening the yellow signal time have now remained in place for more than 22 months. Overall, there has been an average 71% decrease in citations during the study period and we have yet to observe any rebound to previous violation levels.



The absence of rebound in red light running violations clearly indicates that motorists do not adjust their driving behavior to account for longer yellow times as critics of this safety countermeasure have often claimed. Furthermore, the immediate and lasting reduction in violations which occurred upon lengthening of the yellow signal time strongly suggests that a large majority of the red light running incidents that had been occurring previous to the timing adjustment were inadvertent, not willful.

Note that the data includes both straight through and left turn violations but only the yellow time for the straight through movement was increased. Yellow time for the left turn movement remains at an insufficient state minimum of 3.0 seconds. It is almost a certainty that if the left turn yellow time was also increased, the violation rate at this intersection would be further reduced.

More importantly, if the yellow signal time was increased at other red light camera locations in Fremont (and everywhere else), violations would likewise be reduced at those intersections, resulting in a significant increase in safety as well as eliminating the needless ticketing of tens of thousands of otherwise law-abiding motorists every year.

Email from Mr. Michael Finholt

Yolanda Cruz

From: Miriam Lens on behalf of CityClerk
Sent: Friday, March 01, 2013 10:32 AM
To: Al Mendall; Barbara Halliday; Barbara Halliday; Francisco Zermeno - Forward; Greg Jones; Mark Salinas; Marvin Peixoto; Michael Sweeney; Mike Sweeney
Cc: Fran David; Kelly McAdoo; Michael Lawson; Diane Urban; Darryl McAllister; Yolanda Cruz; Colleen Kamai; Joanne Burkman
Subject: FW: Red Light Cameras: a bust for you and me

Mayor and Council Members,

Below is an email from Mr. Michael Finholt regarding the City's Red Light Camera.

Regards,

Miriam Lens, CMC, MPA
City Clerk _____

City of Hayward | Office of the City Clerk | 777 B Street | Hayward, CA 94541 |

Phone: 510-583.4401 | Email: Miriam.lens@hayward-ca.gov

www.hayward-ca.gov | City Clerk's Blog: www.hayward-ca.gov/cityclerk/

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-----Original Message-----

From: mike finholt [mailto:
Sent: Wednesday, February 27, 2013 8:25 PM
To: CityClerk
Cc: Roger
Subject: Red Light Cameras: a bust for you and me

Hayward City Clerk,

Red light camera tickets are not the way to make our streets and heavy-traffic intersections safer. I consider it tax on working people and therefore bad for local economies. Since most of the tickets happen within a fraction of a second after light turns red, why have an amber warning light? This proves it hasn't a thing to do with safety, but with revenue. Should half a second cost a person over \$500.00?

I'm also concerned with drivers causing accidents from fear of these cameras. After I had paid my half K fine in San Francisco, for a while I was scared to death of seeing all the flashing cameras going off, not because of my driving, but others. I put my breaks on and almost caused rear-ender.

Also, the mention of Redflex Traffic System's, the camera firm covering most of California, alleged bribery of Chicago's official in charge of the program is noteworthy. The company is not permitted to bid on further contracts (Chicago

Tribune Feb. 8, 2013, [articles.chicagotribune.com <http://articles.chicagotribune.com/>](http://articles.chicagotribune.com)) due to what seems clear as an "improper relationship with city hall." The sales representative of RefFlex made \$570,000 in commissions while in Chicago. Why would the Hayward City Council want to do business with this company? Michael Finholt

Email from Michel French

Yolanda Cruz

From: Miriam Lens on behalf of CityClerk
Sent: Friday, March 01, 2013 10:36 AM
To: Al Mendall; Barbara Halliday; Barbara Halliday; Francisco Zermeno - Forward; Greg Jones; Mark Salinas; Marvin Peixoto; Michael Sweeney; Mike Sweeney
Cc: Fran David; Kelly McAdoo; Michael Lawson; Diane Urban; Darryl McAllister; Yolanda Cruz; Colleen Kamai; Joanne Burkman
Subject: FW: Red Light Cameras are a Bad Idea

Mayor and Council Members,

Below is an email from Michel French regarding the City's Red Light Camera.

Regards,

Miriam Lens, CMC MPA

City Clerk

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From: michel french
Sent: Friday, March 01, 2013 9:20 AM
To: CityClerk
Subject: Red Light Cameras are a Bad Idea

Dear City Clerk:

I am writing on behalf of the Red Light Camera Protest Group. I urge the City of Hayward to consider their true intentions for the operation of automated camera surveillance and enforcement. It has been calculated that 71% of the red light violations have occurred during the first 0.7 seconds of the red light. It is interesting to note that the duration for yellow lights have been reduced at the same time. Your neighboring cities of Newark and Fremont have taken the logical approach by adding 0.7 seconds to the yellow light duration and discovered that the number of red light triggers declined by up to 75%. What has been widely speculated among motorists is that these systems are in fact used to generate revenue as opposed to increasing safety. There has not been any known safety improvements, but it has created an outcry from motorists whose lives have been impacted by the excessive fines of over \$500. Many of these people, myself included, can barely provide food for our families. These fines create financial hardship and stress. They push the boundaries of our 4th Amendment Rights against

excessive fines. So one has to honestly ask themselves, is it for money or is it for safety? With the camera vendor's recent legal issues and with major cities such as Chicago cancelling their contracts, it is a sign of goodwill to the community and it's motorists to disassociate from the system of automated camera enforcement. In the interest of safety, it is better to provide a longer yellow light.

Respectfully,

Michel

Email from Ms. Alissa Johnson

Yolanda Cruz

From: Miriam Lens on behalf of CityClerk
Sent: Friday, March 01, 2013 10:39 AM
To: Al Mendall; Barbara Halliday; Barbara Halliday; Francisco Zermeno - Forward; Greg Jones; Mark Salinas; Marvin Peixoto; Michael Sweeney; Mike Sweeney
Cc: Fran David; Kelly McAdoo; Michael Lawson; Diane Urban; Darryl McAllister; Yolanda Cruz; Joanne Burkman; Colleen Kamai
Subject: FW: Red light Cameras

Mayor and Council Members,

Below is an email from Ms. Alissa Johnson regarding the City's Red Light Cameras.

Regards,

Miriam Lens, CMC MPA

City Clerk

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From: Alissa Johnson
Sent: Thursday, February 28, 2013 11:37 AM
To: CityClerk
Subject: Red light Cameras

To whom it may concern:

I understand the Hayward Police Department is scheduled to present a new contract proposal for photo enforcement of red-light violations to the City Council at 7 p.m. Tuesday at City Hall. I'm writing to express my concerns with red light cameras.

Last year, a camera at 27th street in Oakland and Hwy 24 caught me "running a red light" in Alameda county. First, let me express that I think actually running red lights is incredibly dangerous. Especially when it is a high pedestrian area and there is speeding involved. However, this case involved none of the above. This camera caught me rolling a right turn on the red light. The photos/video clearly showed me looking both ways, but not coming to a 100% complete stop and very slowly proceeding through the intersection. What was my penalty for this- something I see people do all day long on the roads- and no life has been injured or lost due to it? MORE THAN \$500. Further, I had to take time off of work on more than one occasion. Luckily my boss

thought it was laughable that the city of Oakland was making me jump through all these hoops for rolling a right hand turn and didn't doc my pay. The sentiment was "oh, Oakland... cuz that is what you should be worried about..." And once I got to court, there was no mercy for the fact that I DID NOT EVEN RUN A RED LIGHT. I MADE AN IMPROPER TURN. I DID NOT PUT ANY ONE'S LIFE IN DANGER.

This ticket cost me 1/4 of my take home pay, and more than half my rent. Further, it cost me time, tears, and I was one of the people that can actually afford for something like this to happen. I don't live paycheck to paycheck, but know that I am one of the lucky ones. I concede that I made a mistake. However, the punishment does not fit the crime. There is no way a real-life police man/woman would have pulled me over and fined me more than \$500 for such a small offense. That is why these cameras are so ridiculous. There is no one using common sense to operate them.

Sincerely,
Alissa Johnson

Email from Mr. Larry Goltz

Yolanda Cruz

From: Miriam Lens on behalf of CityClerk
Sent: Friday, March 01, 2013 12:07 PM
To: Al Mendall; Barbara Halliday; Barbara Halliday; Francisco Zermeno - Forward; Greg Jones; Mark Salinas; Marvin Peixoto; Michael Sweeney; Mike Sweeney
Cc: Fran David; Kelly McAdoo; Michael Lawson; Yolanda Cruz; Joanne Burkman; Colleen Kamai; Darryl McAllister
Subject: FW: Oppose Red light cameras

Mayor and City Council Members,

Below is an email from Mr. Larry Goltz regarding the City's Red Light Camera.

Regards,

Miriam Lens, CMC MPA

City Clerk

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From: Larry Goltz
Sent: Wednesday, February 27, 2013 12:07 PM
To: CityClerk
Subject: Oppose Red light cameras

Dear Ms. David. Please enter this letter as a citizen against red light cameras. No one wants to see unsafe or irresponsible drivers get away with their misdeeds, but our government should not use traffic laws to balance the budget.

I ask that the city end the contract to use red light cameras. One more point I believe that like the 55 MPH speed limit of the 1970s this use of unreasonable traffic laws undermines the citizenship our people. When our citizens feel that the government is taking advantage of them and not protecting them they ultimately see the government as the oppressor.

Larry Goltz
Independent Insurance Agent