

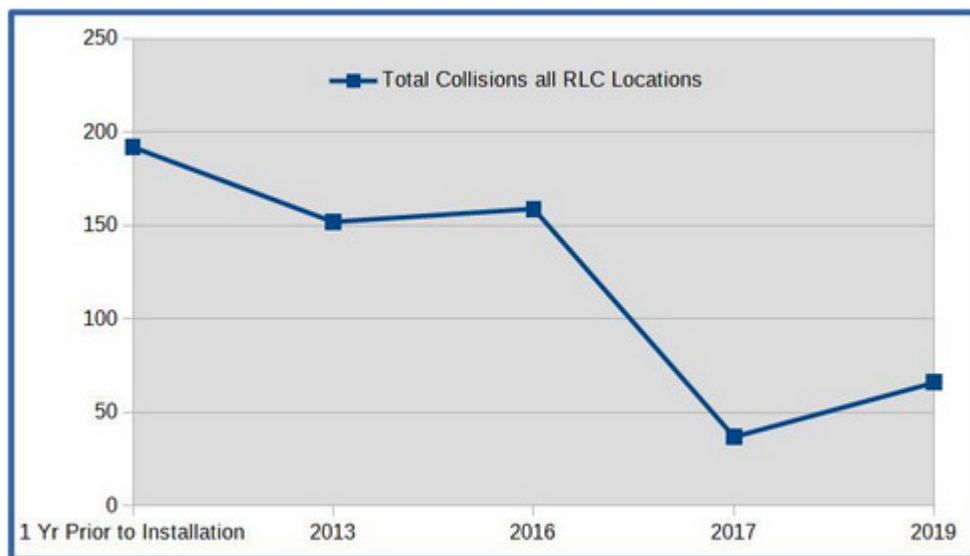
6-15-20, 11:30 am

Venue: June 16 City of Fremont city council agenda, item 5(a)

Subject: Based on questionable safety stats, Fremont may extend its camera program 5 years and add 2 cameras for a \$1 million payday

Honorable Councilmembers:

Public safety is supposed to be the justification for a red light camera program, and the staff report (copy attached) claims a 62% reduction in collisions since the original cameras were put in (pg. 4, top). Unfortunately, in Fremont that claim is based upon a comparison of apples and oranges: If we look at the annual reports the City and RedFlex were required to submit to the Judicial Council beginning in 2013 (attached), **there wasn't much of a reduction until 2017, and then it was dramatic, a 77% drop in one year.**



Fremont collision stats submitted to Judicial Council by City/RedFlex per CVC 21455.5(i). City/RedFlex did not submit collision stats in 2014, 2015 and 2018.

Fremont isn't the first city with questionable figures. In an email I sent to your council on June 29, 2015 (copy in thread of my 2019 email*, attached), I discussed a then-recent occurrence in Ventura. There, during the March 30, 2015 council meeting with the president of RedFlex in attendance, staff stood up and presented a report claiming a 75% reduction - which instantly fell apart after a question from a councilmember. Ventura staff offered her this explanation:

"The way the police department reports collisions now is vastly different than we did when we started this program. Now we only report - correct me if I'm wrong - now we only report injury or major property damage collisions. That's different.

Our total collision numbers are down quite a bit because the reporting is different." (At 3:20:20 in the council meeting video.)

Two other RedFlex clients have claimed an even greater reduction than yours or Ventura's: Sacramento, in 2018, and Victorville (now closed), in 2015, each claimed a reduction of 92%. (See those cities' Docs pages at highwayrobbery dot net.)

*My May 2019 email to the Fremont council is attached today, but I have not included its four attachments. They can be found on highwayrobbery dot net, or you may still have copies in your email inbox. Or, I will send them to you upon request.

On page 3 of today's staff report a table shows that Fremont's **fatal collisions have gone up** with cameras, despite the better medical care and safer cars (side airbags, antiskid and automatic braking) we have now.

The Proposed New Cameras

Per page 8 of the staff report the proposed new cameras - which will be the 3rd and 4th on Automall - will bring the City a substantial new revenue stream (nearly \$1 million, net, annually), but CVC 21455.5(c)(2)(A) says that new cameras have to be justified by safety considerations, not potential revenue.

1. The staff report tells us that Christy/Automall is ranked #1 for collisions, that it and the other proposed site have been the location of 420 red light citations in five years [equal to exactly seven per month!], but the staff report does not tell us how many - if any - of those collisions and citations were related to rolling right turns - even though around 90% of the future citations will be for rolling rights (based on the figures in the table on page 7 of the staff report). And even if it could be shown that many of those collisions and citations were indeed related to rolling right turns, it's impossible to ignore the fact that after many years of heavy enforcement there's still thousands of rolling right violations, and tickets, each year in Fremont.

2. In a City commissioned 2016 study of the cameras on Mission Boulevard, DKS Engineering wrote:

*"According to City of Fremont Staff, other safety features to improve safety and discourage red light violations were not considered prior to the installations of the ARLE systems [red light cameras] at either study intersection. To date, the City is satisfied with the operational benefits of the current ARLE system and **have not explored other possible countermeasures.**" (DKS at page 11, emphasis added.)*

The current staff report doesn't mention engineering countermeasures, even though the very low (to nil) level of violations at most of the intersections just surveyed (page 7, top) suggests that there could be a problem peculiar to the design or capacity of the Christy/Automall and Pacific Commons/Automall intersections. At page 7, bottom, staff

tells us that the two intersections were "evaluated by traffic engineering" but gives only this single sentence describing their work: "Traffic engineering verified that the yellow light timing was in compliance with state law." Nevertheless, by the next paragraph, which appears to have been written by the main author of the staff report, that very narrow scope of investigation (yellow light timing) has been expanded to the claim: "In summary... engineering factors were not an apparent cause in the red-light violations."

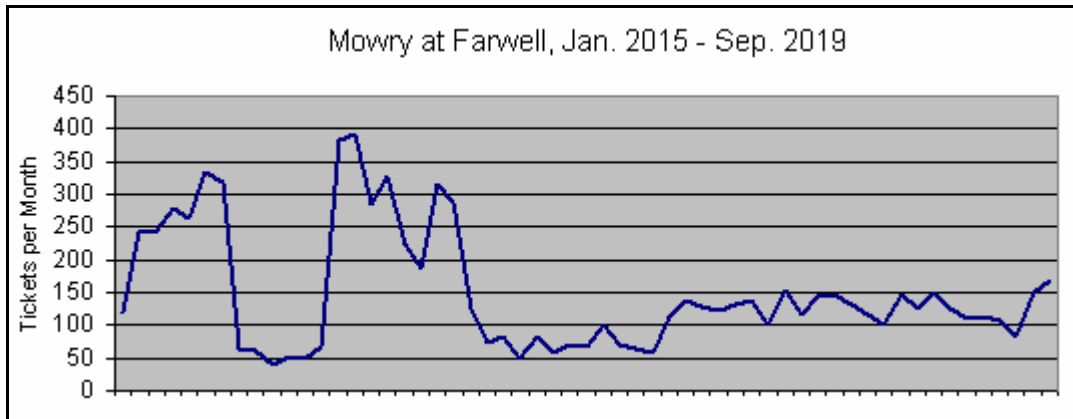
Last month, in a staff report supporting the suspension of the camera program in West Hollywood, that city's engineering staff stated:

"... the equipment has been removed.... Staff's intent is to explore and evaluate other options for improving traffic and pedestrian safety at intersections throughout the City. For example, staff recently installed countdown pedestrian signals, leading pedestrian intervals (where the WALK symbol activates several seconds before the green light), and in-roadway warning lights, all of which have improved pedestrian and vehicular safety. Staff will continue to seek additional measures that will reduce accident risk and to research actions that other cities have taken to enhance safety. This would be a more effective and potentially more beneficial approach for improving safety." (Report presented at May 18, 2020 City of West Hollywood council meeting.)

Because Fremont staff's long term stats cannot be relied upon, because staff has not explored countermeasures, because rolling right enforcement has not been effective, and because the City's camera program has cost local motorists more than \$90 million in fines, the City should spend the relatively small amount of money needed to hire a thoroughly independent firm to perform a first-in-twenty-years professional evaluation of the program's effect upon safety and to examine the safety justification for the proposed new cameras. *Before entering into the proposed new contract or adding the proposed new cameras.*

Other Issues

Several of you were on the council in 2017 when 4000 people were not given the full refunds and expungements they deserved after City staff mis-set the yellows at two intersections, causing the ticketing gyrations depicted in this graph.



Making those people whole will make you whole! (See the Fremont Docs page at highwayrobbery dot net for more details about the yellow timing and the refunds.)

On page 5 staff says RedFlex will do an "upgrade" but nowhere in the staff report do they say what that includes, and the staff report does not include a copy of the draft contract (where further details might be found).

Also on page 5 staff says that the city can terminate the contract at any time, but they don't say if there's a penalty for doing so. Those penalties, which can be as much as \$50,000 per camera for an "upgraded" 20-year-old installation, would be disclosed in a draft contract.

The new councilmembers should be told about RedFlex' convictions for bribery.

What to Do

Option A: During** the meeting ask the RedFlex rep (a retired FPD lieutenant?) if he will agree to continue the current contract for six months with a rent reduced to no more than the \$2239.20 rate Elk Grove negotiated earlier this year for its system of five RedFlex cameras. Take a ten-minute break to let him decide. (\$2239.20 is a win-win - Del Mar, with just three RedFlex cameras, pays \$1578 per month.) Then with that \$70,000 savings you should be able to gain some good will by reducing the fines for right turns, as I suggested in my May 2019 email, copy attached. And commission a professional report on safety and the proposed new cameras.

**RedFlex' treatment of City of Encinitas staff during a price negotiation is why the Fremont city council should put the RedFlex rep on the spot during the meeting. Encinitas' 2004 contract had the following clause:

"11.2 MOST FAVORED CUSTOMER For the complete period covered by this agreement, Redflex represents that all of the prices, terms, warranties, benefits and conditions granted by Redflex herein are comparable to or better than the same offered by it to any present or future customer of Redflex within San Diego County. In the event the City in its sole discretion determines otherwise, the City

may compel Redflex to execute an amendment to this Agreement so that City may receive the same price, term, warranty, benefit or condition enjoyed by said present or future customer." (Encinitas 2004 contract.)

Despite Encinitas' Most Favored status, beginning in 2009 two cities in the County were paying considerably less than Encinitas, with one of them, Del Mar, paying just \$1500 per camera per month (plus a COLA), less than half of what Encinitas was paying. In 2018 Encinitas staff attempted to negotiate a lower price but was met with foot-dragging by RedFlex and eventually gave up. I have attached some of the email exchange from that 2018 negotiation. [It is also available on the Encinitas Docs page at highwayrobbery dot net.]

Option B: Take no action tonight except to suspend the cameras for a minimum six-month study period like the Cities of El Cajon and Poway did. Commission a professional report on safety and the proposed new cameras. And during the six months, negotiate a lower price upon the (possible) re-start of operation. I believe that RedFlex will happily go along with anything short of the outright terminations they've experienced recently in Menlo Park, San Mateo and Encinitas.

Sincerely,

Jim L---

Comments on Fremont Red Light Camera Program

By Jay Beeber, Safer Streets L.A., Member ITE

EXECUTIVE SUMMARY

Safer Streets L.A., a research organization dedicated to the adoption of scientifically sound and sensible transportation and traffic laws, reviewed the staff report on the city's red light camera program and found serious flaws in the data and conclusions presented. Below, we highlight these defects so you may have a more complete picture of the subject prior to your deliberations on this matter.

Specifically, our analysis shows:

1. In assessing both the efficacy of the program overall and the need for additional camera locations, city staff violated the city's own evaluation criteria which states that intersections will be analyzed based on, "The number of ... traffic collisions **caused by running red lights...**". In contrast, however, throughout most of the report, staff instead uses "total collisions" as its basis for evaluation.
2. Where staff uses the number of red light violations for analysis, they fail to distinguish between rolling-right-turn violations and the more dangerous through movement violations which the program is meant to target.
3. In evaluating the potential safety benefits of the program, staff appears to "cherry-pick" the data in an attempt to put the program in its most favorable light. Staff consistently ignores evidence that the overall benefit of the program is questionable at best, and fails to consider confounding factors which might provide an alternative explanation for the reduction of total collisions seen in the city over the past two decades.
4. The report is skewed in favor of choosing Redflex Traffic Systems as the city's vendor and does not provide a fair evaluation of alternatives. This, coupled with the cherry-picked data, strongly implies that Redflex, which has a financial interest in the contract, may have contributed more substantially to the evaluation and report than would otherwise be appropriate. This suggests that the report is not a fair and independent evaluation of the city's red light camera program.

GENERAL COMMENTS

First, one of the major problems with the staff report is that it conflates "collisions" and "traffic signal related collisions" with collisions caused by red light running violations. These are not the same and conflating these different types of collisions when discussing the efficacy of red light camera enforcement serves to confuse the issue in an attempt to place the program in the best light possible. When evaluating the effectiveness of red light cameras, the only metric that is relevant to the discussion is the potential change in collisions caused by red light running since this is the sole violation the ticketing cameras are potentially capable of addressing.

Additionally, the staff report conflates the different types of red light running violations - through movement, right and left turns - which have very different safety implications. This is especially important since the staff report recommends the addition of two new enforcement cameras which would primarily target slow rolling-right-turn violations with a \$490 ticket. Slow rolling-right-turn violations, while unquestionably a citable infraction, are treated equally with through movement violations although they pose much less danger to other roadway users.

While rolling-right-turn violations are “easy pickins” for enforcement, they generally pose little to no safety hazard unless the turn is made at a high rate of speed (which is rare). Our analysis in Los Angeles found that the chance that a rolling right turn might result in a collision was approximately 1 in 345,000. Additional data from the FHWA supports the extremely low crash and injury danger posed by rolling-right-turns. Although these violations are technically considered equivalent to straight-through violations with regards to the fines and penalties imposed, carrying a \$490 penalty and the potential for a license point, they are not equivalent in terms of the danger posed to other roadway users.

Rolling-right-turn tickets are a huge financial burden on citizens for a relatively minor infraction and engender unnecessary animosity and disrespect for elected officials and law enforcement. At a time when social injustice is at the forefront the nation’s consciousness and animus towards the police is at an all-time high, it would be highly inappropriate to expand the city’s red light enforcement program to target an extremely minor violation with an excessive penalty. These types of fines impact hardest on marginalized communities and a \$490 ticket could mean the difference between paying rent and putting food on the table. Does the Fremont City Council really wish to expand this aspect of the program which will lead to further income inequality and make it more difficult for low-income residents to climb out of poverty?

Finally, the staff report credits the presence of red light cameras for all reductions in traffic collisions in Fremont although it should be obvious that this cannot be valid. Red light cameras target only one type of violation and therefore could only be responsible for a change in collision rates of the accidents caused by those violations, not “all collisions” or all “traffic signal related” collisions. Further, the staff report fails to acknowledge that numerous factors may be responsible for decreases in the number of collisions between the 1990’s and today. For example, the nation’s roadway fatality rate is down almost 30% in the last two decades. Since automated camera enforcement is not in widespread use throughout the country, these ticketing machines cannot be the cause of the dramatic decrease.

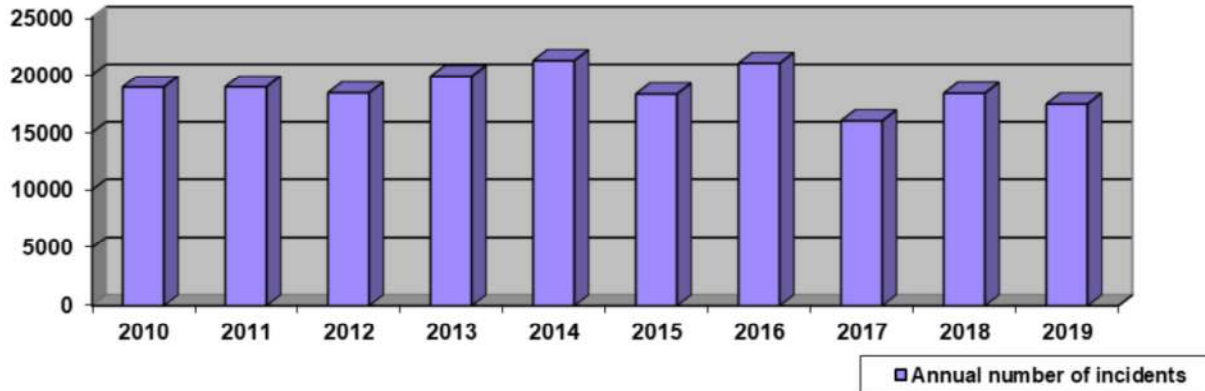
We will highlight these issues in our analysis of the staff report below.

Program Performance

Staff Report: When first implemented, it was staff’s opinion that the number of citations issued and traffic collisions would drop after the first two years due to heightened public awareness. Factoring in an increase in population, vehicular traffic and commute patterns, staff’s assessment was correct.

The report provides no data to back up this claim. The chart which follows this statement begins in 2010, long after the program first started issuing tickets.

Staff Report: *The following chart shows automated red-light incidents over the last ten years of the Program.*



Note that over the ten years highlighted, the number of violations fluctuates but does not show a general downward trend. In fact, the number of violations is higher in both 2018 and 2019 than in 2017. If the violations are not decreasing, how can the cameras be responsible for a significant reduction in collisions? Further, no data is provided showing the change in violations or collisions during the first few years of camera enforcement at each intersection.

Staff Report: *All ten of the current intersections detect “straight through” activations. In addition, three intersections capture right turn incidents and two intersections capture left turn incidents. The Mission Boulevard at Mohave Rd. intersection is the only approach that captures straight through, right turn and left turn incidents in a southbound direction.*

Yet according to the annual Judicial Council reports filed by the city, more than half of the citations are issued for rolling-right-turns and left turns. This suggests that rolling-right-turns are over-represented in ticketing of violators. Now, Fremont PD is recommending that the city significantly increase the number of tickets issued for this violation by adding two additional cameras at locations where virtually all the violations are rolling-right-turn violations.

Staff Report: *Since the Program’s inception in 2000, the City has recorded a 38% decrease in traffic-signal related collisions city-wide. The chart below compares collisions city-wide five years prior to implementing an automated red-light program and the most recent five-year period.*

Collision Statistic Comparison

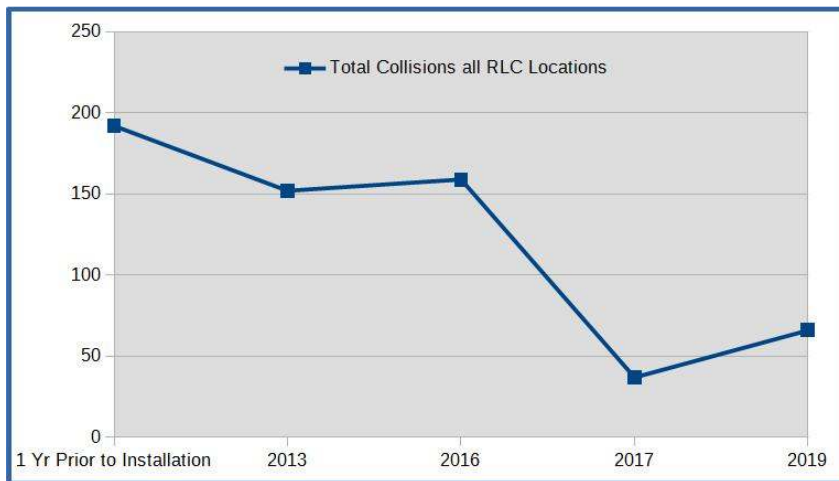
	Total Collisions	Injury Collisions	Fatal Collisions	Traffic-Signal-Related
07/01/95 – 06/30/00	9155	4601	31	734
07/01/2014– 06/30/2019	6754	3450	36	451

Note that Fremont PD does not use red light running collisions as a metric in this comparison, nor does it show the change in red light running collisions at the intersections targeted for automated enforcement. This data is readily available, yet Fremont PD does not provide it. Also, note that “Traffic Signal Related” collisions as a percentage of “Total Collisions” has barely changed in 20 years of red light camera enforcement (8% vs 7%) and issuance of hundreds of thousands of red light camera tickets. Note also that Fatal Collisions have increased during this period and Injury Collisions as a percentage of Total Collisions has remained unchanged. This belies the claim that the red light cameras have made Fremont’s roadways much safer.

Staff Report: *The following table shows that collisions at the ten intersections equipped with automated red-light photo enforcement camera equipment have decreased by 62% in 2019 as compared to the year prior to automated red-light photo enforcement equipment being installed.*

Again, staff is comparing only total collisions at these intersections, not red light related collisions. This comparison tells us nothing about the effectiveness of red light camera enforcement since the cameras only target red light violations, not all the other causes of collisions. Also, the staff report does not account for other factors which may have caused a change in overall collisions such as increased DUI enforcement, changes in traffic patterns, and engineering countermeasures such as improvements to traffic signal timing.

Further, according to the annual Judicial Council reports filed by the city, the drop in collisions appears to have occurred beginning in 2017. The chart below graphs the total collisions at all red light camera locations for the years in which the data was reported to the Judicial Council and the “1 year prior” figures provided in the staff report.



Since the major reduction in collisions didn't occur until 2017, 17 years after the program was implemented, the presence of the cameras could not be the cause of the 62% reduction in collisions claimed in the staff report.

Staff Report: ...staff cannot re-design the Program to reduce fines.

This is a misleading statement suggesting that the city's hands are tied with regards to red light camera enforcement. While the city cannot change the amount of the fine, the city can decide how and where to use the cameras and which types of violations they target. As clearly stated in the staff report, some intersections only cite for through movement violations. These are potentially the most dangerous violations; especially if they occur late into the red interval after the cross traffic has started up. The city could choose to only target through violations, since these are the types of violations most likely to cause a collision and injury. It is highly likely that when the Fremont City Council first approved the use of ticketing cameras, they intended that the program would only target through violations, not issue \$490 tickets for the minor violation of a rolling-right-turn. However, staff is recommending that the city change the focus of the program and significantly increase the number of tickets issued for rolling-right-turns by adding two additional cameras at locations where virtually all the violations are of this type.

Instead, the city could make the program more equitable by either eliminating the targeting of rolling-right-turns or changing the business rules as to what constitutes a violation worthy of a \$490 ticket. Many cities do not choose to cite for rolling-right-turns, or if they do, they only issue these tickets when the video shows that the maneuver was conducted in an extremely unsafe manner and posed a direct danger to other roadway users. Alternatively, providing a warning to violators prior to issuing a citation for a second violation can be an effective safety measure. Issuing a warning notice for a first time slow rolling-right-turn would provide the possibility of an effective deterrence to repeated violations while ensuring that the \$490 tickets do not become a financial burden on citizens who make an unintentional or infrequent mistake. This is especially important considering the disaster to our economy brought on by the pandemic, which has most impacted the lowest income stakeholders.

RedFlex Traffic Systems Contract

Staff Report: ...staff estimates it would take at least one year to seek a new vendor...

The contract can be extended for 1 year or month-to-month while staff explores other options. Also, if this were a main concern, why did staff not recognize this and come to the Council with a recommendation to issue an RFP at least a year in advance of the contract expiration?

Staff Report: *The Alameda County Superior Court is familiar with the technology and citation-issuing program that RTS uses and has devoted substantial resources to integrate the two systems. ... A change in vendor would significantly disrupt and/or delay court proceedings.*

This misleadingly suggests that the Court would have difficulty integrating a non-Redflex system into Court proceedings. Nothing could be further from the truth. The Court regularly processes tickets issued in jurisdictions using vendors other than Redflex and would have no difficulty processing tickets if Fremont chose a different vendor. While we have no opinion as to whether or not Redflex is the best vendor for the City of Fremont (despite their clear ethical lapses in recent years) it is concerning that the staff report so strongly makes the case for not exploring other contracting options. This, along with the clear statistical lapses within the staff report,

suggests that the city's vendor may have heavily influenced the writing of this report. Regardless of whether the Council wishes to continue the program in some form, the authorship of the staff report should be investigated and an independent review of the program should be ordered.

Staff Report: *The proposed contract would be for a five-year term with two one-year extensions*

There is no reason to sign a five year contract as most other cities contracts with Redflex run between 1 - 3 years. Also, the staff report does not say whether the extensions would be automatic or would need Council approval. Again, the inclusion of provisions so clearly favorable to Redflex strongly suggests that the vendor has a hand in drafting the staff report or that staff's relationship with this vendor has become too cozy over the past two decades.

New Intersections

Staff Report: *In evaluating an intersection/approach for installation of an automated red-light photo enforcement camera system, the following criteria is to be followed:*

- *The number of red-light violations and traffic collisions caused by running red lights is significant.*

As we will see, the Fremont PD immediately violates this first principle in their recommendation for installing new cameras at Christy Street and Automall Parkway and Pacific Commons Boulevard and Automall Parkway.

Staff Report: *During a five-year period, January 2015 to December 2019, thirty-one traffic collisions occurred at the intersection of Christy Street and Automall Parkway, and eight traffic collisions at Pacific Commons Boulevard and Automall Parkway.*

The staff report does not provide any information as to how many, if any, of these collisions occurred due to red light running; violating their first principle for determining which intersections might need photo enforcement. In fact, it is highly likely that few or none of these collisions were due to red light running, since the survey shows that there are relatively few to zero through movement violations at these locations. The vast majority of violations, and therefore the vast majority of \$490 tickets that will be issued at these two locations, are rolling-right-turns which rarely ever cause a collision. Further, the report does not say how serious any of these collisions were, a major lapse in the analysis of where photo enforcement might be justified.

Staff Report: *A ranking of the forty intersections in the City of Fremont with the highest number of traffic collisions found Christy Street and Automall Parkway to be ranked #1.*

But the staff report does **not** say that this intersection is ranked #1 **for red light running collisions.**

Staff Report: *At the Police Department's request, the intersections of Christy Street and Automall Parkway and Pacific Common Boulevard and Automall Parkway were evaluated by traffic engineering. Traffic engineering verified that the yellow light timing was in compliance with state law.*

Being in compliance with state law and being sufficient for the safe and legal movement of traffic is not the same thing. In fact, we have evaluated a number of locations throughout California, including in Fremont (see study attached), where increasing the yellow interval time beyond the minimums prescribed in state law have significantly decreased red light running and increased intersection safety. These increases are not arbitrary. They are based on the engineering principle known as "engineering tolerance" which recognizes and takes into account the fact that driving behavior and capability varies throughout the motoring population and types of vehicles on our roadways. Increasing the yellow interval beyond the absolute minimum by up to 1.0 additional second, accounts for this range of factors. Anyone who suggests that increasing the yellow interval above the minimums is problematic or unwise or is disallowed is not well versed in the field of engineering or has alternative motivations. Further, increases of 0.2 seconds, while helpful, are generally insufficient to account for the range of variables.

Staff Report: *In summary, the following items were considered in selecting and recommending automated red-light photo enforcement camera systems be added to Christy Street and Automall Parkway and Pacific Commons Boulevard and Automall Parkway: (1) high number of reported collisions at the intersections over the last five years;*

Again, the City's own criteria for evaluating whether an intersection might be appropriate for automated enforcement is "*The number of ... traffic collisions caused by running red lights is significant.* Yet this was not the criteria used in evaluating the intersections being recommended for additional camera enforcement.

Staff Report: *(2) input from officers and community members indicating the location had a significant number of red-light violations;*

Yet the survey conducted shows that the vast majority of these violations are for slow rolling-right-turns which, regardless of any claims to the contrary, have been proven to be an insignificant factor in collisions, especially injury collisions.

Staff Report: *(4) engineering factors were not an apparent cause in the red-light violations;*

Other than this one statement, no information is provided as to how these intersections were evaluated for engineering deficiencies or possible improvements. Note that since drivers do not choose specific intersections at which to run red lights and ignore others, any higher than average incidence of red light violations strongly suggests that there exists engineering factors which may be causing this higher incidence.

Has staff evaluated the reasons why only one intersection approach shows any significant number of through movement violations or is staff suggesting that drivers just like to run red lights at that location more than at any other intersection? Has staff also questioned why at Christy Street and Automall Parkway there are 300% more through violations in the westbound

direction compared to the eastbound direction? Is staff suggesting that this is all due to driver choice and that there are no external factors that might account for this and could be remedied? Did Fremont's engineering staff actually conduct this evaluation or was this done by the city's vendor which has a financial interest in suggesting that red light cameras are the only and best solution to red light violations?

Staff Report: *and (5) safety and quality of life for Fremont's community members and persons who visit our city.*

While improving safety and quality of life are laudable goals, note that the placement of these new cameras will target mostly those who visit Fremont to patronize the businesses in the area. How likely are these visitors to return to the city after receiving a \$490 ticket for a slow rolling-right-turn?

Staff Report: *The potential revenue after expenses for Year One through Year Three for the two new approaches is as follows:*

State law specifically forbids consideration of revenue generation when evaluating the need for red light camera enforcement. Therefore, the inclusion of this factor in the discussion violates state law. However, we can surmise that it was included as an added incentive to convince the Council to approve the new camera locations. However, this evaluation fails to take into account the reduction in revenue the city and its business will likely see due to the significant enmity that will be generated by issuing thousands of new red light camera violations for slow rolling-right-turns.

RECOMMENDATIONS:

1. The city should not authorize the two additional ticketing cameras recommended by staff as the intersections have not been shown to have a significant number of collisions due to red light running as required by state law and the city's own rules.
2. The city should not authorize a new five year contract without further independent evaluation of the effectiveness of the enforcement cameras and evaluation of alternative vendors. Extension of up to 1 year or month-to-month might be warranted in the interim.
3. The city should review the criteria for issuing tickets for slow rolling-right-turns. Possible alternatives are a) eliminating ticketing for this violation and concentrating on through movement violations, b) issuing only a warning notice for all first-time rolling-right-turns violators, or c) only issuing tickets if the video shows that the violation occurred in such a way as to put other roadway users at risk.
4. Evaluate alternative engineering countermeasures to reduce red light running including increasing the yellow interval up to 1.0 second beyond the state required minimums to account for engineering tolerance.

For more information, please contact:

Jay Beeber 818-██████████

A Before and After Study of Violations in Fremont, CA Subsequent to an Increase in the Yellow Duration

By Jay Beeber, Safer Streets L.A., Member ITE

Introduction

Fremont, CA has been using photo enforcement since the early 2000's. In November of 2010, CalTrans officials examined the intersection of Mission Blvd. and Mohave Drive and increased the yellow signal time for the straight through movement by 0.7 second above the minimum time required by state law to a full 5.0 seconds. (See attached email exchanges documenting the change)

On January 31, 2013 we requested violation statistics from Sgt. Mark Dang of the Fremont Police Department. Specifically, we requested the Monthly Redflex Redlight Offender Statistics (RROS) Report (aka Late Time Bar Charts) for the intersection of Mission Blvd. and Mohave Drive for the period April 2010 through December 2012. The reports were received in hard copy format on February 15, 2013. Digital scans of the original reports are available at <http://wp.me/a1mxAG-bz>

The report shows, in chart format, the number of violations recorded in each of the four photo enforced lanes of approach to the intersection. Three charts are provided (by time into red, by hour of the day, and by day of the week) for each lane as well as for all 4 lanes combined.

At the west bound approach to the Mission Blvd. and Mohave Drive intersection there are four lanes, all enforced with red light cameras. On the RROS Report, the lanes are numbered starting from the left hand side of the roadway closest to the center median. Lane 1 is the left turn lane, lanes 2 and 3 serve straight through traffic, and traffic in lane 4 may either proceed straight or turn right.

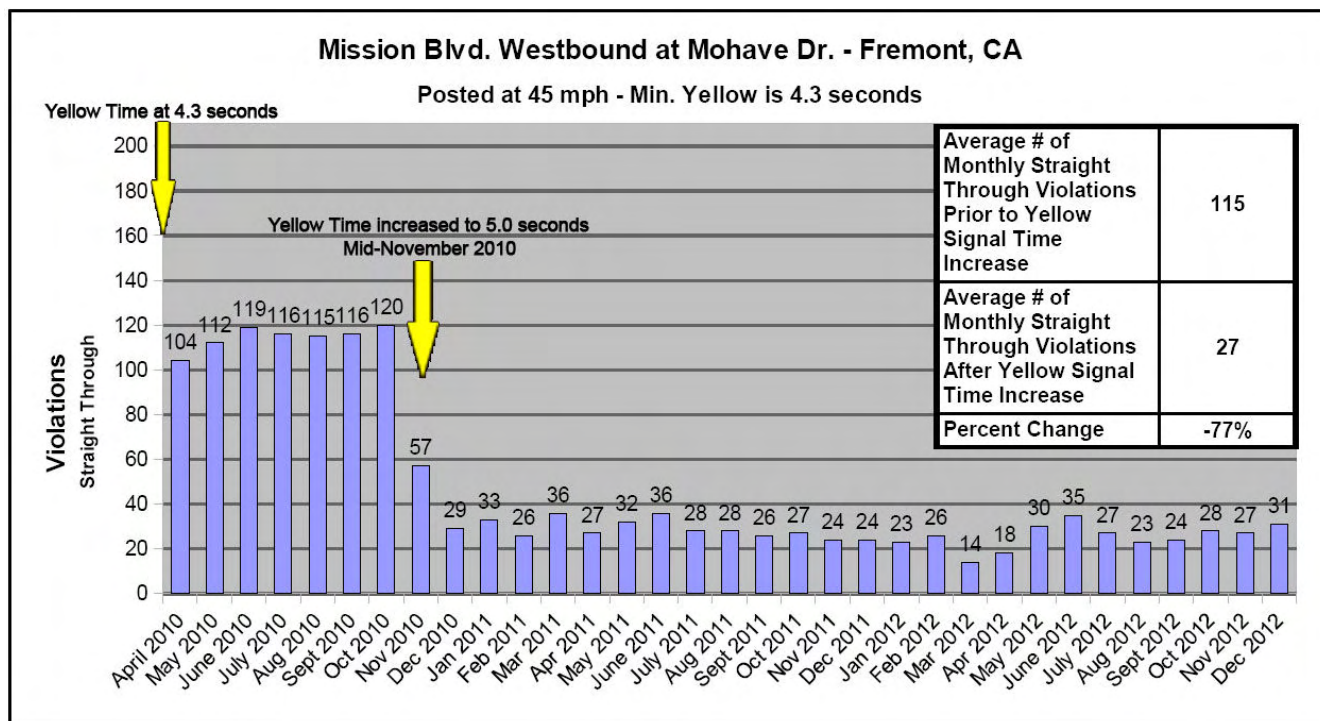


In order to perform the data analysis, we transcribed the data from the hard copy reports into an excel spreadsheet, listing the number of violations in each lane by month. (Spreadsheet available for download at <http://wp.me/a1mxAG-ct>) Since the goal of the analysis was to study the effect of the increase in signal timing for the straight through movement, we did not consider the violations in lane 1 as only left turns are permitted from that lane, nor lane 4 as that lane serves both straight through and right turn movements. We then added together the number of violations in lanes 2 and 3 to arrive at the approximate number of straight through violations occurring each month.

As stated previously, the signal timing was adjusted upwards by 0.7 second in November 2010. We therefore averaged the number of violations occurring in the previous 7 months to obtain the average number of violations in the “before” period. Since the timing change was made in mid-November, we eliminated that month's data from consideration and averaged the subsequent months' violations to obtain the average number of violations in the “after” period.

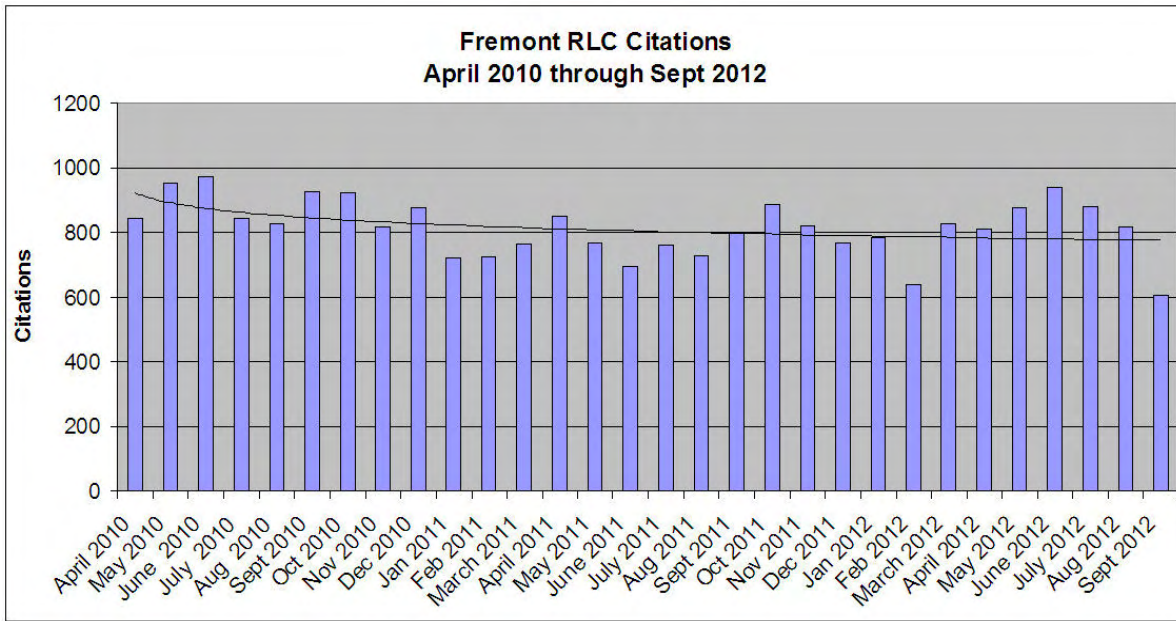
Results

The results appear in the table and chart below.



Immediately after the signal timing increase, the intersection experienced a significant reduction in straight through violations and the lower violation rate has not returned to earlier levels. As can be seen in the above chart, the positive safety results achieved by lengthening the yellow signal time have now remained in place for more than 24 months. Overall, there has been an average 77% decrease in violations during the study period and we have yet to observe any rebound to previous violation levels. In contrast, the violation rate for the left turn movement, where the yellow time remains unchanged at the state minimum of 3.0 seconds, increased approximately 25% during the same period (see spreadsheet). The reason for the increase is undetermined at this time, but regardless, it is almost a certainty that if the left turn yellow time had also been increased, the violation rate for that movement would have been significantly reduced as well.

In addition, since the yellow light time was not increased at any of the other red light camera intersections in Fremont, we analyzed the violation rates at those locations over the same time period to determine if there had been any change in violations over the study period. Using the data available at <http://highwayrobbery.net/redlightcamsdocsFremontMain.html> we charted the total number of monthly violations at all Fremont photo enforced intersections. As the chart below indicates, although the number of violations fluctuates from month to month, there was no overall change in violations at intersections that did not have the signal time increased.



Conclusions

The absence of an increase in red light running violations both at intersections with longer yellow times and at intersections without increases clearly indicates that motorists do not adjust their driving behavior to any large extent 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. This was likely primarily due to the use of the posted speed limit to calculate the minimum yellow duration rather than the true approach speed of the vehicles on the roadway.