



City of San Leandro

Facilities & Transportation Committee

Automated Red Light Enforcement Program

April 7, 2021

City Council Goals

- Provide quality public safety service and grow our partnership with the community to keep San Leandro safe
 - Technology force multipliers
- Maintain and enhance San Leandro's infrastructure
- Support and implement programs, activities and strengthen communication that **enhances the quality of life** and wellness, celebrates the arts and diversity and promotes civic pride

Red Light Camera Enforcement Program



Why Red Light Cameras

- Red Light Violations cause 100,000 crashes and 1,000 fatalities each year(1)
- Red Light Violations are often deadly
- Red Light Cameras are an effective way to discourage red light running throughout the entire City
- Red Light, Stop Sign and traffic control violations are the most common type of collision
- 70 California law enforcement agencies implemented red light cameras in 2003
- Red light cameras provide 24-7 enforcement
- Reduces risk when Police must often run the red light as well to apprehend and cite a red light violator



Effective Use of Red Light Cameras

Red Light Cameras provide a positive crash-cost benefit

Most beneficial at intersections where:

- There are few rear end crashes and many right-angle ones
- Higher proportion of entering traffic on the major road
- Locations with left turn protected phases

High publicity levels enhance the benefits of Red Light Camera Systems

Safety Evaluation of Red-Light Cameras – FHWA April 2005(1)



EXECUTIVE SUMMARY

Safety Evaluation of Red-Light Cameras— Executive Summary

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This document is an Executive Summary of the report *Safety Evaluation of Red-Light Cameras*, FHWA-HRT-05-048, published by the Federal Highway Administration in April 2005.

Abstract

The fundamental objective of this research was to determine the effectiveness of red-light-camera (RLC) systems in reducing crashes. The study involved an empirical Bayes (EB) before-after research using data from seven jurisdictions across the United States to estimate the crash and associated economic effects of RLC systems. The study included 132 treatment sites, and specially derived rear end and right-angle unit crash costs for various severity levels. Crash effects detected were consistent in direction with those found in many previous studies: decreased right-angle crashes and increased rear end ones. The economic analysis examined the extent to which the increase in rear end crashes negates the benefits for decreased right-angle crashes. There was indeed a modest aggregate crash cost benefit of RLC systems. A disaggregate analysis found that greatest economic benefits are associated with factors of the highest total entering average annual daily traffic (AADT), the largest ratios of right-angle to rear end crashes, and with the presence of protected left-turn phases. There were weak indications of a spillover effect that point to a need for a more definitive, perhaps prospective, study of this issue.

Introduction and Background

RLC systems are aimed at helping reduce a major safety problem at urban and rural intersections, a problem that is estimated to produce more than 100,000 crashes and approximately 1,000 deaths per year in the United States.⁽¹⁾ The size of the problem, the promise shown from the use of RLC systems in



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Why Red Light Cameras

In cities that **turned on** red light cameras



21% fewer

fatal red light running crashes
per capita



14% fewer

fatal crashes of all types per capita
at signalized intersections

than would have occurred without cameras

In cities that **turned off** red light cameras



30% more

fatal red light running crashes
per capita



16% more

fatal crashes of all types per capita
at signalized intersections

than would have occurred with cameras

Effects of Turning On and Off Red Light Cameras
on Fatal Crashes in Large U.S. Cities
Insurance Institute for Highway Safety – July 2016

San Leandro Program Initiation 2005

➤ Intersections with the Highest Numbers of Accidents

1. Fairmont Dr/Halcyon Dr and Hesperian Blvd
2. Lewelling Blvd and Washington Ave
3. Marina Blvd and Merced Street
4. Washington Blvd and Halcyon Ave/Floresta Blvd
5. San Leandro Blvd and Washington Ave

➤ Intersections with the Highest Red Light Running Complaints

1. Davis Street and Warden Ave/Timothy Dr
2. Davis Street and Doolittle Dr
3. Doolittle Dr and Fairway Dr



San Leandro Program Initiation 2005

San Leandro Police Department staff evaluated several vendors that provide red light camera programs. Redflex Traffic Systems was selected based on the following criteria:

- 1) Technical aspects of its program
- 2) Positive customer service input
- 3) Familiarity with the Alameda County judicatory process;
- 4) The overall proven success of its programs.



San Leandro Program Initiation 2005

Redflex Conducted Video Surveys June 2005

<u>Intersection</u>	<u>Traffic Direction</u>
Marina & Merced	Westbound
Lewelling & Washington	Eastbound
Dutton & MacArthur	Southbound
Marina & Teagarden	Westbound & eastbound
Davis & East 14 th	Northbound & southbound
150 th & East 14 th	Northbound & southbound
Fairmont & East 14 th	Eastbound
Washington & Halcyon/Floresta	All 4 directions

San Leandro Program Initiation 2005

Redflex Conducted Video Surveys June 2005

Intersections	NB LT	NB	NB RT	SB LT	SB	SB RT	EB LT	EB	EB RT	WB LT	WB	WB RT
Marina & Teagarden	*	*	*	*	*	*	19	6	35	5	3	0
Davis & East 14th	19	2	2	0	8	0	*	*	*	*	*	*
Fairmont & East 14th	*	*	*	*	*	*	6	21	37	*	*	*
Lewelling & Washington	*	*	*	*	*	*	12	4	0	*	*	*
Washington & Halcyon/Floresta	0	2	2	2	9	0	3	4	12	4	14	10

San Leandro Program Initiation 2005

After many months of design, review and construction, red light cameras at three locally controlled intersections were activated on December 12, 2005:

- Marina Blvd and Teagarden Ave
- Washington Ave and Halcyon Dr/Floresta Blvd
- Lewelling Blvd/Washington Ave

The two Caltrans controlled intersections were activated on May 11, 2006 through an encroachment permit process:

- East 14th St/Davis St
- East 14th St/Fairmont Dr

Results of First Before & After Study

(2010 - 4yrs Before & After)

East 14th Street at Davis Street

Collision Statistics	Before	After
Number of Collisions	30	27
Collision Rate	0.451	0.406

East 14th Street at Fairmont Drive

Collision Numbers	Before	After
Number of Collisions	22	10
Collision Rate	0.36	0.164

Marina Boulevard at Wayne Avenue/Teagarden St

Collision Statistics	Before	After
Number of Collisions	18	13
Collision Rate	0.515	0.372

Washington Avenue at Floresta Boulevard

Collision Statistics	Before	After
Number of Collisions	32*	17
Collision Rate	0.503	0.267

Washington Avenue at Lewelling Boulevard

Collision Statistics	Before	After
Number of Collisions	34*	26*
Collision Rate	0.484	0.37

Results of 2016 Before & After Study

Four ARLE Intersections 9-Year Before and After

01/01/96-12/31/04 (Before) - 01/01/07 to 12/31/15 (After)

Collision Diagram Orientation		Volume (ADT)	Pre ARLE Injury+Fatal #	Pre ARLE Injury+Fatal Rate	After ARLE Injury+Fatal #	After ARLE Injury+Fatal Rate	After - Pre Injury+Fatal Rate
Horizontal	Vertical						
Davis	East 14th	26,100	19	0.22	9	0.1	-0.12
Fairmont	East 14th	40,527	20	0.15	7	0.05	-0.1
Floresta/Halcyon	Washington	32,970	19	0.18	15	0.14	-0.04
Marina	Teagarden	<u>29,700</u>	<u>16</u>	0.16	6	0.06	-0.1
Totals for 4 ARLE Intersections		129,297	74	0.17	37	0.09	-0.08

Results of 2016 Before & After Study

Eight Non-ARLE Intersections 9-Year Before and After							
01/01/96-12/31/04 (Before) - 01/01/07 to 12/31/15 (After)							
Collision Diagram Orientation		Volume (ADT)	Pre ARLE Injury+Fatal #	Pre 2005 Injury+Fatal Rate	After ARLE Injury+Fatal #	Post 2006 Injury+Fatal Rate	Post 06-Pre '05 Injury+Fatal Rate
Horizontal	Vertical						
Estudillo	Bancroft	23,440	17	0.22	6	0.08	-0.14
Davis	Doolittle	40,741	9	0.07	12	0.09	0.02
Davis	San Leandro	45,200	18	0.12	16	0.11	-0.01
Halcyon-Fairmont	Hesperian	35,840	16	0.14	9	0.08	-0.06
Marina	Alvarado	25,990	7	0.08	7	0.08	0
Marina	Merced	39,110	21	0.16	21	0.16	0
San Leandro	Washington	24,250	19	0.24	8	0.1	-0.14
Fargo	Washington	30,560	19	0.19	10	0.1	-0.09
Totals for 8 Intersections w/o ARLE		265,131	126	0.31	89	0.1	-0.21

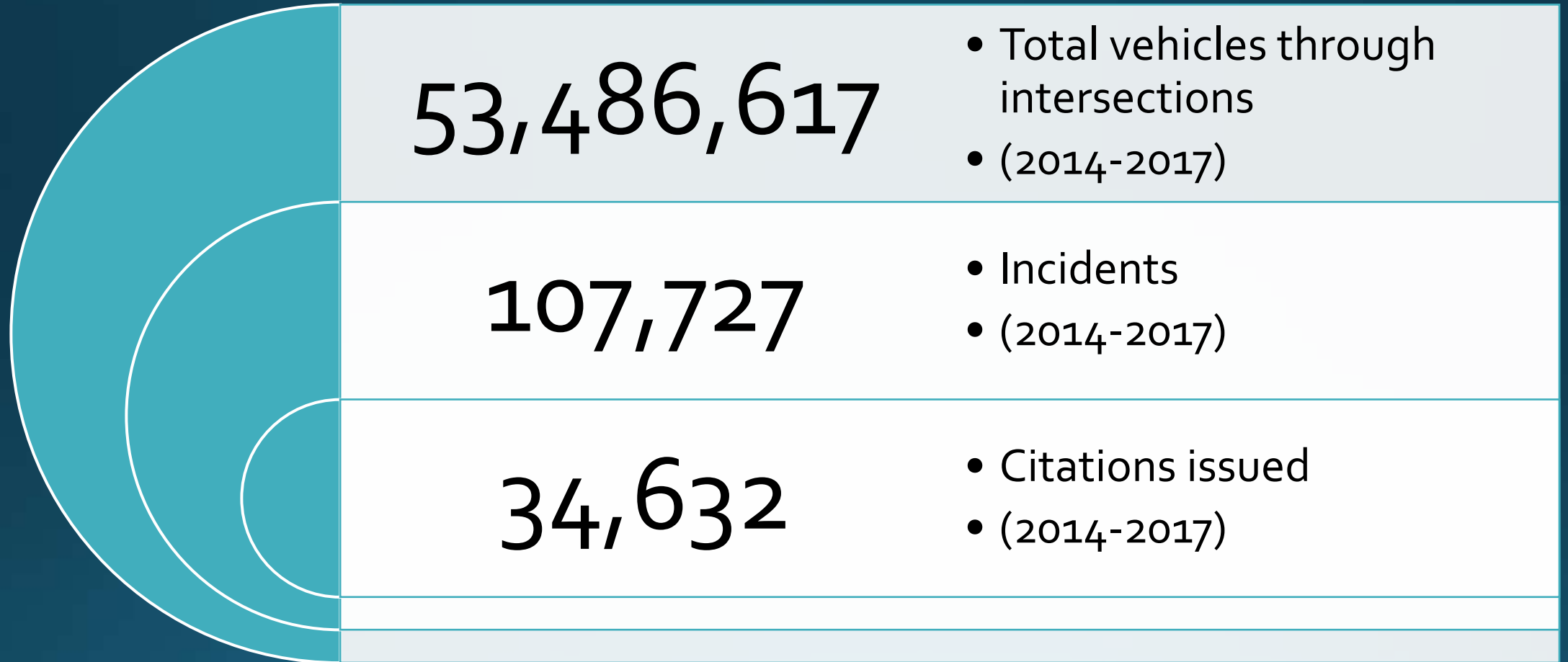
Findings

- Total Collisions at Red Light Locations declined by 47%
- Collisions @ Sample Locations declined by 68%

	Rate 9 Years Before	Rate 9 Years After	Rate Decreased	% Decreased
Average Collision rate at Red Light Locations	0.17	0.09	0.08	<u>47%</u>
Average Collision Rate at Non-Red Light Locations	0.31	0.1	0.21	68%

Average Collision Rate = Number of Collisions in every million vehicles entering the intersection

Driver Behavior: By the Numbers



97% of drivers did not violate the law a second time

Caltrans Encroachment Permit Requirements

- Permanent Permit in 2005 to Annual Permit Commencing 2016
- Traffic Study required every five years
- Adequate Yellow light time is required
- Staff must submit for Caltrans approval of a new permit for April 20, 2021