



**OFFICE OF THE CITY AUDITOR
Audit Report**

Stockton City Council
Mayor
Edward J. Chavez

Vice-Mayor
Leslie Baranco Martin

Council Members
Steve Bestolarides
Dan Chapman
Clem Lee
Susan Eggman
Rebecca Nabors

**PERFORMANCE AUDIT:
RED LIGHT CAMERA PROGRAM**

October 2007



City Auditor
F. Michael Taylor

Stockton, California



CITY OF STOCKTON

OFFICE OF THE CITY AUDITOR

22 East Weber Avenue, Suite 325 • Stockton, CA 95202-2326
Phone 209-937-8916 • Fax 209-937-7026 • www.stocktongov.com

October 12, 2007

Stockton City Council

AUDIT SUMMARY - PERFORMANCE AUDIT: RED LIGHT CAMERA PROGRAM

According to the National Safety Council (NSC) in 2007, “motor-vehicle accidents continue to be the leading cause of injury-related death in the country” and have a significant impact on the nation’s economy.¹ In 2005, the City had 24 fatalities as a result of motor-vehicle collisions. In applying NSC’s calculable cost per fatality, we estimated an economic impact of \$27.6 million. Red light cameras are an effective countermeasure to prevent red light running and subsequent accidents.

We have completed our performance audit of the City’s Red Light Camera Program in accordance with our 2006-2007 audit plan.

The objectives of our audit were to determine if the program is

- meeting the City’s objectives (General),
- complying with the legal requirements for operating in California (Compliance),
- reducing the number and severity of accidents (Safety), and
- generating revenue or operating at a deficit (Financial).

Below is a summary of our observations and conclusions with a reference to pages in our Audit Report where additional information as well as management’s action plans and target dates for corrective are presented.

GENERAL

The City should expand the use of red light cameras. We determined red light cameras have reduced the number of red light violation accidents, the number of injuries, and the severity of injuries. Expansion of the Red Light Camera Program is warranted as the City’s population, traffic volume, and number of controlled intersections increase. (See page 6)

Finding: Program needs performance measures and periodic monitoring. While the Police Department performed a detailed pre and post analysis of collisions and red light violation data, results have not been compared to the program’s goals and objectives to measure performance. (See page 8)

¹ National Safety Council, *News Release*, June 7, 2007 (accessed September 6, 2007); available from http://www.nsc.org/news/injury_data.htm.

COMPLIANCE

City's Red Light Camera Program complies with the legal requirements for operating in California. We determined the City's Red Light Camera Program meets the requirements detailed in the California Vehicle Code (see page 9) and complies with the yellow light timing standards established by the State of California Department of Transportation (see page 14). Additionally, the City does employ various elements to appropriately retain control of the program. (See page 12)

Finding: Encroachment permits were not verified for all locations where red light camera systems have been installed. Staff could not provide permits for 4 of 13 locations. (See page 11)

SAFETY

Red light cameras have reduced the number of accidents and injuries (See page 14) as well as the seriousness of injuries (See page 18). Red light violation collisions decreased 9 percent since implementation in fiscal year 2004. The number of injuries and their severity decreased one year after implementation.

FINANCIAL

City's Red Light Camera Program is generating revenue. The program generated net revenue of \$183,078 for fiscal year 2007 based on estimated collections of \$842,657 and payments of \$659,579 to Redflex. The revenue generated is an estimate as detail data is not available from the San Joaquin County Superior Court. (See page 20)

We wish to thank the Police and Public Works' Departments for their cooperation in completing this audit.


F. MICHAEL TAYLOR, CIA
CITY AUDITOR


VANESSA D'SOUZA, CGAP
SENIOR DEPUTY CITY AUDITOR

emc: J. Gordon Palmer, Jr., City Manager
Ren Nosky, City Attorney
Katherine Gong Meissner, City Clerk
Wayne Hose, Chief of Police
Jim Giottonini, Director of Public Works
Connie Cochran, Public Information Officer
Macias Gini & O'Connell, LLP
The Record

TABLE OF CONTENTS

PERFORMANCE AUDIT: RED LIGHT CAMERA PROGRAM

	Page
Audit Summary	
Audit Report	
Background	1
Objectives and Scope	4
Methodology	5
Results	6
Other Comments	23

List of Exhibits

Exhibit 1: City-wide Collisions with Fatalities (1999 to 2007)	7
Exhibit 2: City-wide Collision & Injury Data (1999 to 2007)	15
Exhibit 3: City-wide Red Light Violation Collisions & Controlled Intersections Fiscal Year (2002 to 2007) with Corresponding Ratio (collisions/intersections)	16
Exhibit 4: Total Accidents & Injuries at Red Light Camera Intersections (including Airport/Charter & Charter/B)	17
Exhibit 5: Combined Traffic Volume at Red Light Camera Intersections (2001 to 2005)	17
Exhibit 6: Stockton Population (1997 to 2006)	18
Exhibit 7: Seriousness of Injuries at Six Red Light Camera Intersections	19

PERFORMANCE AUDIT: RED LIGHT CAMERA PROGRAM

In accordance with our 2006-2007 audit plan, we have completed a performance audit of the City of Stockton's Red Light Camera Program.

BACKGROUND

In 1996, California Legislature authorized the use of red light cameras as a measure to address the problem of motorists running red lights. Since it is difficult for a police officer to witness and enforce a red light violation at the time it is committed, the Federal Highway Administration identified automated enforcement systems – commonly known as red light cameras – as a measure to address the problem.

California Vehicle Code (CVC), Section 21455.5, allows governmental agencies to equip intersections with an automated enforcement system. On December 5, 2003, under Council Resolution 03-0622, the City entered into a five year contract with Redflex Traffic Systems, Inc. (Redflex) to install a maximum of 20 traffic signal cameras under a phased implementation plan. Redflex is responsible for installing and maintaining the camera equipment and providing the Police Department with a system to process red light violation citations.

On July 14, 2004, the City installed the first red light camera at the intersection of March Lane and Quail Lakes Drive. As of July 1, 2007, the City installed a total of 13 red light cameras throughout the city at the following 12 intersections and installation dates:

Intersection	Installation Date
March Lane & Quail Lakes	7/14/04
Hammer Lane & Lan Ark - both directions	10/5/04
West Lane & March Lane	10/15/04
Hammer Lane & West Lane	10/18/04
West Lane & Harding Way	10/18/04
West Lane & Swain	10/18/04
March Lane & Pacific Avenue	11/11/04
March Lane & Pershing Avenue	3/21/05
Pacific Avenue & Robinhood Drive	3/21/05
Pacific Avenue & Benjamin Holt Drive	3/21/05
Charter Way & B Street	1/25/06
Airport Way & Charter Way	6/5/06

What are the Police Department's goals and objectives for the program?

The goals of the Red Light Camera Program are to promote community safety, enhance law enforcement, and improve traffic conditions. Intersections with red light cameras should see a reduction in traffic collisions and captured red light violations. A red light camera system will offer 24 hour surveillance which is equivalent to having 14 police

officers monitor intersections continuously to cite red light violators. The program would provide the City with another tool to improve traffic, community, and pedestrian safety.

How is placement of red light cameras determined?

According to the City's contract with Redflex, the placement of red light cameras is to be mutually agreed between Redflex and the City. The Police Department initiates the process by performing an analysis of traffic collision data and selects the candidate intersections. The Police Department can generate reports which list intersections with the most collisions. Engineers from the City's Public Works' Traffic Section (Public Works) perform an initial engineering screening of the proposed intersections, which includes a review of the intersection layout for any proposed or pending engineering improvements. Once reviewed by Public Works, the Police Department notifies Redflex of the prospective intersections. Redflex will then perform a physical survey of the intersection, the results of which are submitted to the Police Department. Once the City and Redflex agree on an intersection, Redflex will submit the engineering drawings to obtain the necessary permits and approval to proceed with construction and installation.

Does the City have any red light camera systems installed at State-owned intersections?

The City currently does not have any cameras installed at State-owned intersections. There are a total of 38 State-owned intersections located along exits from and entrances to Highway 99, Interstate 5, and Highway 4, commonly known as the Cross-Town Freeway. State-owned intersections are included in the Police Department's analysis of prospective intersections.

What criteria are used in authorizing a citation?

According to the CVC, a driver commits a red light violation if they fail to stop at a marked limit line before proceeding straight or making a legal left or right turn. If there is no marked limit line, they should stop before entering the crosswalk on the near side of the intersection or, if none, then before entering the intersection.

Automated red light incidents are captured by cameras at twelve intersections. A video recording of the incident is also captured and sensors in the road record the vehicle's speed. The camera images include four shots: zoom shot of the driver's face, zoom shot of the vehicle license plate, and two scene shots of the vehicle at the intersection. These camera shots are initially reviewed by Redflex personnel. According to the business rules² contained in the contract, Redflex will reject incidents for obvious

² Business rules, agreed to by the parties to the contract, give vendors guidance on how to operate the Red Light Camera Program and provide an additional level of oversight and control.

mitigating events such as blurred photographs, a funeral procession, officer controlled intersection, or a parade. Redflex will then obtain the registered vehicle owners' Department of Motor Vehicle (DMV) information and include it with the incident record which is transmitted to the reviewing officer.

The business rules provide standard reasons in which the reviewing officer may reject an incident including unclear images, incorrect plate, authorized emergency vehicle, or if the driver is unidentifiable. The reviewing officer will review each of the four photographs and video and compare the driver image from the incident to the DMV photograph of the registered owner of the vehicle. The images are reviewed to verify the light was red, the driver failed to make a complete stop, and the vehicle crossed the limit line. If the images match and a red light violation occurred, a citation is authorized.

If the driver information is incomplete, the reviewing officer will check the registration information for accuracy in the Records Management System and check for previous citations issued to the vehicle. If no information is available, the reviewing officer will accept the violation and a Corporate Notice will be mailed to the registered owner of the vehicle. A Corporate Notice is an advisory notice sent to the registered owner to inform them that their vehicle was identified in a red light violation and request they identify the driver of the vehicle.

What is the process to dispute a citation?

An individual may dispute a citation by contacting the Police Department to set up an appointment to review the photographs and video or by contacting the court to request a court trial or trial by written declaration.

According to the CVC, the registered owner or any individual identified by the registered owner as the driver of the vehicle at the time of the alleged violation shall be permitted to review the photographic evidence of the alleged violation. The Notice of Traffic Violation and Affidavit of Non-Liability, which are sent to the registered owner of the vehicle, provide the Police Department's phone number and available times for viewing the photographic evidence. The Police Department will accept walk-in appointments if time permits. An individual also has the option to view the video on the internet at www.photonotice.com. The City code and notice to appear number are required for online access and provided in the Affidavit of Non-Liability.

Based on the circumstances and review, the reviewing officer may dismiss the citation and enter a reason for the dismissal in the system or resubmit the Notice if the driver in the picture is not the registered owner of the vehicle. If the reviewing officer determines there is a valid reason to dismiss the citation, a copy of the citation is printed and submitted to the Deputy Chief of Police for review and signature and an email is sent to the Court representative identifying the citation to be dismissed. Once approved and signed by the Deputy Chief, the reviewing officer will walk the signed citation to the

Court to request a dismissal. A list of dismissed citations is maintained by the reviewing officer.

Additionally, the Notice informs the individual they can contest the violation in two ways through the Court. They can send a certified or registered letter not later than five days prior to the appearance date, or report to the Court by the appearance date to request a court trial on a future date when an officer and witnesses will be present. They can also send a certified or registered letter postmarked not later than five days prior to the appearance date, or go to the Court on or before the date on the Notice and request a trial by written declaration. They will be provided the forms to allow them to write a statement and submit other evidence without appearing in court. An officer will also submit a statement and a judicial officer will consider all of the evidence at the same time and decide the case.

OBJECTIVES AND SCOPE

The objectives of our audit were to determine if the Red Light Camera Program is

- meeting the City's objectives,
- meeting the legal requirements for operating in California,
- reducing the number and severity of accidents, and
- generating revenue or operating at a deficit.

The scope of our audit included an examination of:

- applicable California Vehicle Codes, Penal Codes, and Government Codes;
- California Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD);
- "Red-Light Camera Systems Operational Guidelines" from the US Department of Transportation, Federal Highway Administration (FHWA);
- Bureau of State Audits report entitled "Red Light Camera Programs: Although They Have Contributed to a Reduction in Accidents, Operational Weaknesses Exist at the Local Level" dated July 23, 2002;
- City's contract with Redflex;
- Business Rules between the City and Redflex;
- California Uniform Bail and Penalty Schedules;
- revenue and expenditures recorded in the City's computerized financial management system;
- invoice statements from Redflex;
- check statements, fund reports, and red light bail distribution schedule from the San Joaquin County Superior Court;
- various program management reports generated from Redflex's computer software program;

- accident collision data;
- encroachment permits for construction and installation of cameras;
- engineering drawings of construction at installation locations;
- annual audit reports and inspection logs prepared by Police Project Manager;
- City of Stockton Traffic Volume Flow Maps; and
- Redflex's maintenance and repair logs.

Our audit testing focused on records from the period of program inception, July 14, 2004 through June 30, 2007.

METHODOLOGY

To gain an understanding of the requirements for red light cameras, we reviewed relevant state laws over their use. We identified the criteria by which internal controls and performance measures would be tested and evaluated and obtained management's concurrence.

We initially reviewed the Bureau of State Audit's report on red light cameras to assist us in establishing audit objectives and determining prevailing weaknesses and strengths of Red Light Camera Programs operated by different cities in California.

Based on our review of available documentation and applicable criteria, we developed a list of audit issues or questions categorized as general, compliance, safety, and financial that became our audit objectives. We provided the list of audit issues to management. During the course of our audit, we made modifications to the audit issues in an effort to eliminate duplication and clarify the questions we worked to answer. In addition, we interviewed staff from the City, Redflex, and San Joaquin County Superior Court to gain an understanding of their duties as they related to the Red Light Camera Program.

Using each audit issue as a testing objective, we identified the applicable criteria; evaluated controls and performance measures; documented our procedures; and summarized our results. Where weaknesses in internal controls were observed, we communicated them to management with our recommendations for improvement. We also provided management with a list of suggestions for system improvements under a separate memorandum. Management suggestions are opportunities to make system improvements. Unlike reportable findings, management is not asked to submit corrective action plans related to suggestions, and formal audit follow-up is not performed.

Our audit was conducted in accordance with Generally Accepted Government Auditing Standards.

RESULTS

We determined the City's Red Light Camera Program is meeting the City's objectives by reducing the number of collisions and injuries as well as the severity of injuries. The program is complying with the legal requirements for operating in California. An expansion of the Red Light Camera Program is warranted as the City's population, traffic volume, and number of controlled intersections increases and contributes to the number of collisions and injuries. For fiscal year 2007, we determined the program generated net revenue of \$183,078 based on estimated collections of \$842,657 and payments of \$659,579 to Redflex.

We did, however, identify weaknesses related to:

- a lack of performance measures (page 8), and
- procedures to verify the necessary permits are obtained by vendors prior to construction (page 11).

We provided the audit findings to management and requested management's action plan and target date for corrective action, which have been included for each finding.

As discussed in the Methodology section of our report, we developed a list of audit issues or questions categorized as general (page 6), compliance (page 9), safety (page 14), and financial (page 20) that addressed our audit objectives. In presenting our results, we provide the question we sought to answer, a summary of our audit procedures, and audit results in the sections below.

GENERAL

Should the City expand the use of red light cameras?

In our opinion, the City should expand the use of red light cameras.

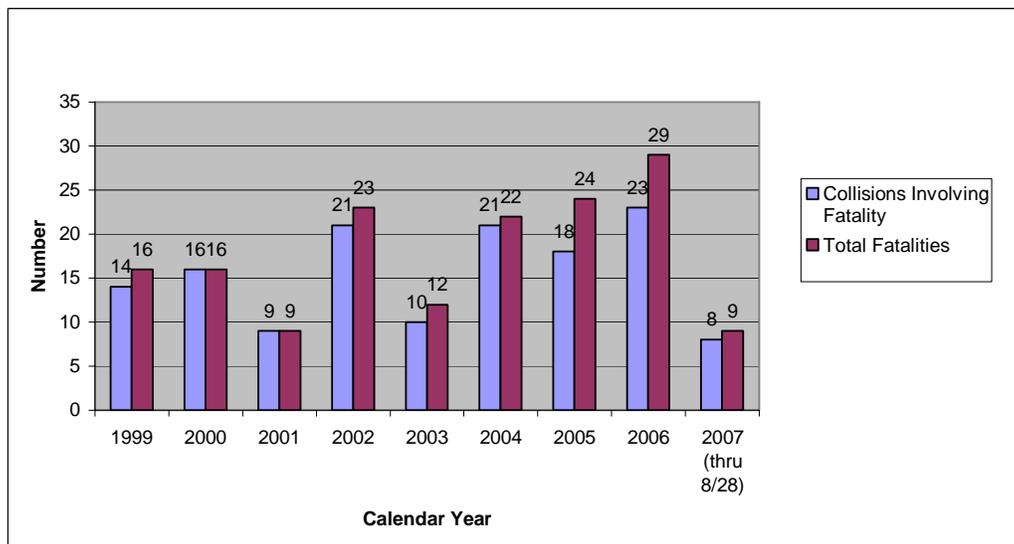
According to data released by the National Safety Council (NSC) on June 7, 2007, "motor vehicle crashes continue to be the leading cause of injury-related death in the country."³ Major factors that contribute to motor vehicle injuries and fatalities include driver behaviors such as speeding, distractions and impairments, as well as not wearing seatbelts.⁴

Our analysis of City-wide collisions involving fatalities (Exhibit 1) shows an increasing trend in the number of collisions involving fatalities since 2003 although the number of fatalities remains low for the current year.

³ National Safety Council, *News Release*.

⁴ Ibid.

Exhibit 1: City-wide Collisions with Fatalities (1999 to 2007)



Source: Police Department Traffic Analysis Reports

The NSC calculates estimates of the average costs of fatal and nonfatal unintentional injuries to illustrate their impact on the nation’s economy. According to the NSC, the “calculable costs of motor-vehicle crashes are wage and productivity losses, medical expenses, administrative expenses, motor vehicle damage, and employers’ uninsured costs.”⁵ For 2005, the NSC estimated the average economic cost per death at \$1,150,000, nonfatal disabling injury at \$52,900, and property damage at \$7,500.⁶ In applying NSC’s calculable cost to the City’s 2005 reported fatalities, the economic impact is estimated at an astounding \$27.6 million.

As detailed in our results on safety, page 14, the City’s population growth has an effect on urban growth, the number of controlled intersections, and corresponding traffic volume. On a City-wide basis while collisions may have increased (Exhibit 2, page 15), our analysis showed reported injuries for the 12 intersections with red light cameras decreased after implementation (Exhibit 4, page 17) and the severity of injuries reported at six intersections also decreased (Exhibit 7, page 19).

We reviewed a listing of the top twenty intersections with a high incidence of collisions for the period May 1, 2006 to May 31, 2007 to determine if additional intersections warrant a camera. We noted there were 26 intersections listed with the number of collisions ranging from 13 to 24 and cameras are currently located at 5 of these intersections.

⁵ National Safety Council, *Estimating the Costs of Unintentional Injuries, 2005*, (accessed September 6, 2007); available from <http://www.nsc.org/lrs/statinfo/estcost.htm>.

⁶ Ibid.

Clearly, collisions involving fatalities have an economic impact and the City should take appropriate steps to reduce the impact. Our analysis on the seriousness of injuries at six intersections with red light cameras (Exhibit 7, page 19), shows that red light cameras have helped reduce the severity of injuries from severe visible injuries to complaints of pain. We recommend the City increase the number of installed cameras to 20 as contracted and look to further expand the use of red light cameras within the City in an effort to reduce collisions, fatalities, and the seriousness of injuries. An expansion of the Red Light Camera Program is warranted as the City's population, traffic volume, and number of controlled intersections continues to increase. A review of intersections with high incidence of collisions showed 21 potential locations where red light cameras can have an impact.

Should management decide to expand the program by extending the current contract or entering into a new contract, management may need to perform an analysis of the financial impact of contract options, lease program versus per ticket cost, available from the vendor. We did not perform an analysis as it was outside the scope of our audit.

How does the Police Department measure progress for the program?

Finding:

The Police Department has not formally established performance measures and periodic monitoring to assess whether the City's Red Light Camera Program is effectively and efficiently meeting the goals and objectives of the program. Performance measurement is the ongoing monitoring and reporting of progress towards achieving pre-established goals. Measures may address the type or level of activity (process), products or services delivered (outputs), and/or the results of those products and services (outcomes). The FHWA states that a Red Light Camera Program should have clearly established goals and guidelines on monitoring program results.

The Police Department did perform an initial analysis of pre and post implementation data in July 2007. The study included an analysis of data for the twelve intersections where red light cameras are installed including collisions: for all directions at or near the intersection; for the direction of enforcement only; where the primary factor reported was unsafe speed for the direction of enforcement; and, where a red light violation was the primary collision factor for all directions and the direction of enforcement. The analysis also included a review of total City-wide red light violation collisions and the number of signal controlled intersections for fiscal years 2002 through 2007. What was lacking was a comparison of the results to the goals and objectives of the program. Without a system for periodic monitoring of program performance, management cannot easily determine if the program has adversely impacted the public, and management may miss opportunities to make program improvements.

Management Action Plan:

In summary, the Police Department's goals for the Red Light Camera Program are to promote safety, enhance enforcement efforts, and improve traffic conditions by reducing the frequency of collisions caused by red light running and red light violations captured by red light cameras. To measure these goals and evaluate the program's effectiveness against previous performance, the Police Department will begin conducting yearly analyses and publish its findings in an annual report.

The Police Department's report may include a comprehensive review and analysis of the following:

- The frequency of violations captured by red light cameras
- The number of citations issued for red light violations captured by red light cameras
- The frequency of collisions resulting from red light violations
- The severity of injuries attributed to collisions that result from red light violations
- Changes in the city's population, traffic volumes, and roadway infrastructure
- Trends affecting red light photo enforcement within other jurisdictions

Findings from the annual report may be used to change certain aspects of the program to improve its performance. The annual report will cover the 12-month period between January and December, beginning with calendar year 2007, and be completed by March 1 of the following year.

Target Date for Corrective Action: March 1, 2008

COMPLIANCE

Does the City's Red Light Camera Program comply with the following legal requirements?

- a) Are warning signs placed at intersections or major city or county entrances?***
- b) Are posted signs inspected on a routine basis?***
- c) Was a public notice issued before start of the program?***
- d) Were warning citations issued for first 30 days of the program?***
- e) Are citations approved by a sworn officer or qualified personnel?***
- f) Did City Council conduct a public hearing before entering a contract?***

Based on our observations and testing, we determined the City's Red Light Camera Program complies with the above mentioned legal requirements. The following is a summary of the steps we performed and our corresponding results:

- a) We verified the signs met the size specifications detailed in the Manual on Uniform Traffic Control Devices (MUTCD). We randomly selected 7 of 12 intersections and 4

of 25 major city or county entrances and verified placement of the red light camera enforcement sign.



- b) We reviewed and tested the sign inspection log maintained by the Police Project Manager. The Police Project Manager inspects the signs every two to three weeks.
- c) We verified the Police Department prepared media releases regarding the activation of the program on June 29, 2004 and July 14, 2004.
- d) Based on our review, there are indications that warning notices were issued during the first 30 days of the program. The data was not available for testing as it was deleted in accordance with the CVC for maintaining records.
- e) The CVC only requires approval by law enforcement while the City's contract with Redflex states the citations will be approved by a sworn police officer. All of Stockton's police officers are sworn officers.
- f) A public hearing was held on October 14, 2003 prior to the City entering into a contract with Redflex as documented in the minutes of the City Council Meeting.

Did the City address engineering solutions before placing red light cameras as suggested by the Federal Highway Administration (FHWA)?

The FHWA's Red Light Camera Systems Operational Guidelines was not developed to be a regulatory requirement; rather, it is intended to provide critical information to state and local agencies in order to promote consistency, proper implementation, and operation. When considering the use of a red light camera system, the FHWA recommends that an engineering study be performed and documented to identify potential engineering improvements that could be implemented in the intersection design and configuration.⁷ An engineering study can identify the following conditions present at intersections that contribute to red light running by motorists: grade of an intersection approach, poor visibility, roadside obstructions, obstructed line of sight,

⁷ U.S. Department of Transportation, Federal Highway Administration. *Red Light Camera Systems Operational Guidelines*. January, 2005. Accessed April 30, 2007. Available from http://safety.fhwa.dot.gov/intersections/rlc_guide/index.htm.

traffic volume, and signal timing.⁸ Some examples of countermeasures that can be taken to reduce incidences of red light running include, but are not limited to, modifying traffic signal timing, improving signing and marking,⁹ improving sight lines, adjusting prevailing speeds, and altering lane configuration.

Based on our discussions with staff from Public Works Traffic Engineering Division, we determined a formal documented engineering study is not performed on candidate intersections. Rather, engineers perform an informal engineering screening of the candidate intersections, which includes a review of the intersection design for any proposed or pending engineering improvements; and, compliance with current MUTCD standards for any traffic control devices at the intersection. As stated, the FHWA guide is not a regulatory requirement; however, documentation of an engineering study is recommended.

Did the City require vendors to follow municipal permitting standards when installing red light cameras?

Finding:

Encroachment permits were verified for 9 of 13 locations where red light camera systems have been installed. Public Works' Standards and Specifications require contractors to obtain an encroachment permit in order to perform construction work within the City right of way. We reviewed applications in the Permit Center's database. Staff was unable to locate permits for 4 locations where red light camera systems have been installed. Currently no procedures are in place to ensure the necessary permits are obtained and verified by the Police Department.

Management Action Plan:

The Public Works Department will make sure that the contractor installing the red light enforcement cameras will be required to obtain a City encroachment permit and pay the applicable fees. A copy of the encroachment permit will be forwarded to the Red Light Camera Officer in the Police Department for file.

Target Date for Corrective Action: September 26, 2007

Auditor Comment:

We recognize that the target date for corrective action has lapsed. Public Works has notified Redflex of the requirement to obtain an encroachment permit and provided them with a corresponding fee schedule. Currently, an additional intersection is under review for installation of a red light camera. We will keep the finding in an open status

⁸ Ibid.

⁹ Ibid.

as part of our annual findings follow-up audit until several intersections have been added in order to verify implementation of the process.

Does the City employ elements of oversight to retain program control?

- a) Perform site visits of the vendor?***
- b) Establish business rules?***
- c) Monitor mailing of unauthorized or unapproved citations?***
- d) Take appropriate steps to handle confidential data?***
- e) Establish retention periods for data?***
- f) Perform ongoing inspection of cameras?***

We determined the City employs adequate elements of oversight to retain control of the Red Light Camera Program. The CVC provides specific guidelines for mailing of unauthorized citations, handling of confidential data, establishing retention periods for data, and performing ongoing inspections of cameras. In their audit report, the California State Auditor concluded proper oversight should also include periodic site visits to the vendor's facility and establishing business rules.¹⁰ Our review of each of these elements is summarized as follows:

- a) The Project Manager has conducted annual site visits of Redflex's headquarters in Scottsdale, Arizona since the program's inception in 2004. The site visit included an inspection of the printing facility, operations area, and procedures for record retention and purging. The results are documented in the Photo Enforcement Program Audit memorandum prepared by the Police Project Manager in which no exceptions were noted in the 2005 to 2007 reports.
- b) Business rules give vendors guidance on how to operate the Red Light Camera Program and provide an additional level of oversight and control. Business rules between Redflex and City have been established and detail various provisions including information to be included on citations, instances in which citations would be rejected, timelines for processing citations, and record retention requirements.
- c) According to the CVC, only those citations that have been reviewed and approved by law enforcement are delivered to violators. Redflex's system is set up so that only incidents approved by an officer are converted to a citation and assigned a "Z" number. The approving officer's name and badge number are included in the Notice of Traffic Violation. We selected the time period from May 1, 2007 to May 4, 2007 and identified the incidents that were rejected by Redflex or the approving officer. With the assistance of the Project Manager, we randomly selected rejected incidents and validated the reason for rejection, verified that a citation number was not assigned, and performed a search on the license plate to determine if any citations had been issued for the plate. Based on our review, we found the reason the incidents were rejected was valid and

¹⁰ California State Auditor Bureau of State Audits, *Red Light Camera Programs: Although They Have Contributed to a Reduction in Accidents, Operational Weakness Exist at the Local Level*, July 2002, (accessed April 30, 2007); available from <http://www.bsa.ca.gov/bsa>.

that citations had not been issued for rejected incidents. We did, however, suggest and the Project Manager agreed to include a procedure to ensure that citations are not issued for rejected incidents, as part of the Police Department's annual audit.

- d) Captured incidents and issued citations contain confidential information for which procedures for handling confidential data should be established. We verified that the City's contract with Redflex defines the confidential information. Secure passwords are issued to each authorized person that has access to Redflex's system and training was provided to those with access. In addition, any individual that has access to the Department of Justice databases, which include DMV records, is required to have California Law Enforcement Telecommunications System training once every 2 years.
- e) According to the CVC, confidential records and information described may be retained for up to six months from the date the information was first obtained, or until final disposition of the citation, whichever date is later, after which time the information shall be destroyed in a manner that will preserve the confidentiality of any person included in the record or information. We verified the City's business rules identify a retention period in accordance with the CVC. As noted in paragraph a) above, record retention and purging of data is reviewed and documented annually by the Project Manager. We attempted to access old citations and received the notification "Purged pursuant to 21455.5(e)(3) CVC" on the computer screen.
- f) Equipment should be regularly inspected and maintained according to the CVC. Redflex cameras are connected via high speed internet and can be accessed remotely. Since Redflex personnel and the police officer reviewing captured incidents review data on a regular basis, both would be able to identify cameras experiencing problems based on the quality of the photographs and refer them to the technicians. We randomly selected three locations and reviewed the maintenance logs for each camera since implementation. We noted evidence that technicians worked on the cameras remotely and also made physical inspections. Each work order listed the issue or problem, the work performed, and included a signature of the technician who performed the work.

Does the City ensure Redflex maintains confidentiality of motorist's photos, names and addresses?

We determined the City does ensure Redflex maintains confidentiality of motorist's photos, names and addresses. According to CVC section 21455.5 (e)(1), photographic records made by an automated enforcement system shall be confidential, and shall be made available only to governmental agencies and law enforcement agencies. Section 21455.5 (c)(1) also states that the governmental agency needs to develop uniform guidelines for screening and issuing violations and for the processing and storage of confidential information. We verified the Project Manager has performed an annual inspection of the physical security of data and records maintained at Redflex's data

processing center in Scottsdale, Arizona. The results are documented in an annual audit report and no exceptions were documented.

Do the signal lights where cameras are placed comply with the yellow light timing standards established by the State of California Department of Transportation (Caltrans)?

Based on the results of our testing, we determined the City's signal lights at locations with cameras comply with the yellow light timing standards established by Caltrans. The MUTCD provides a table listing the minimum yellow light signal time interval based on the posted speed. We randomly selected three intersections with red light cameras and verified the yellow light timing using a stop watch for the direction of enforcement. No exceptions were noted.

How did the City determine the yellow light interval? Posted speed versus traffic speed? Are changes documented?

The City determines the yellow light interval using the posted speed of the direction of traffic. We determined the yellow light intervals for the direction of enforcement are currently set to exceed the minimum interval required by statute. The timing changes for traffic signals are documented in a log maintained by Public Works. We determined no changes for yellow light intervals were made for the direction of enforcement for the three intersections reviewed.

Does the City take appropriate steps to protect the data that is going to be transmitted to the San Joaquin Superior Court?

We determined the computer used to transmit data to the Court is located at the Police Department. The computer is adequately protected with limited access, in a secure area, and properly password protected.

SAFETY

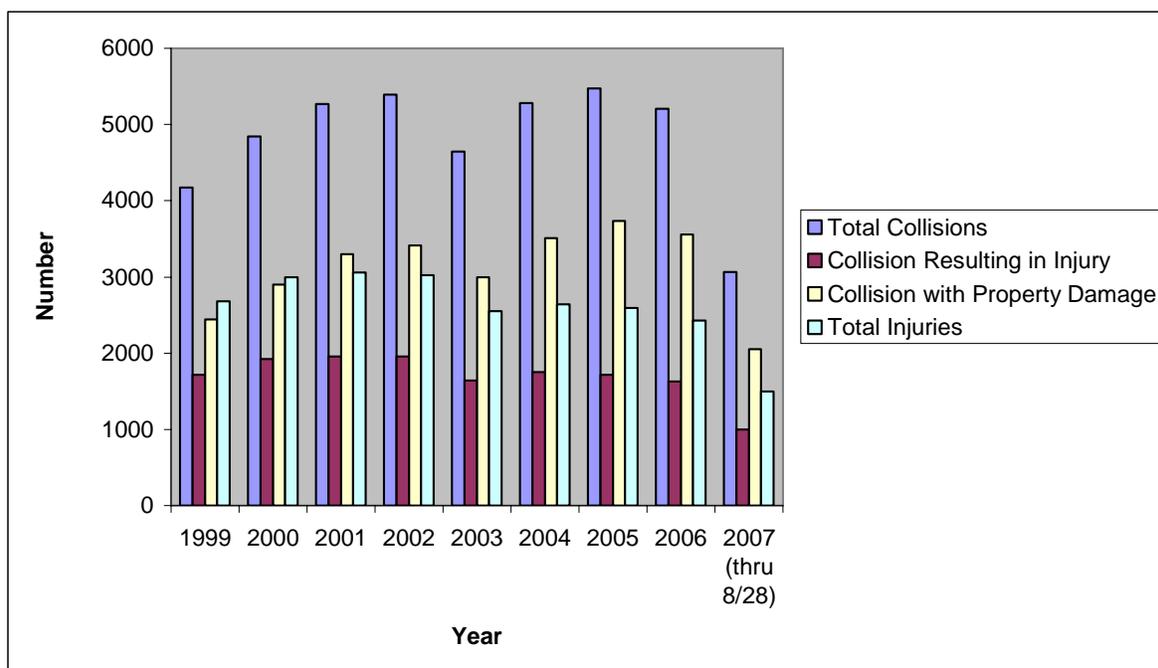
What is the impact of red light cameras on the number of accidents and injuries?

When we examined total City-wide collision and injury data, we determined the number of reported collisions and collisions with injuries increased after the Red Light Camera Program was initially implemented (Exhibit 2, page 15). We cannot conclude that the increase in collisions is caused by the implementation of red light cameras. In our opinion, other factors including increased traffic volume (Exhibit 5, page 17), population growth (Exhibit 6, page 18), and number of controlled intersections (Exhibit 3, page 16)

have had an impact on the number of accidents. Additionally, using the same reports provided to us, the Police Department performed a detailed analysis of accidents where red light violations were listed as the primary collision factor and found City-wide red light violation collisions have decreased (Exhibit 3, page 16). We also noted reported injuries for the 12 intersections with red light cameras decreased after implementation (Exhibit 4, page 17). Details of our analysis are presented below.

We obtained City-wide Traffic Analysis Reports from 1999 through August 28, 2007 and graphed the data which shows an increase in collisions after implementation of red light cameras in 2004 with a gradual decrease in 2006 (Exhibit 2). Note this data reflects all types of collision factors and not just those specifically identified as red light violations.

Exhibit 2: City-wide Collision & Injury Data (1999 to 2007)

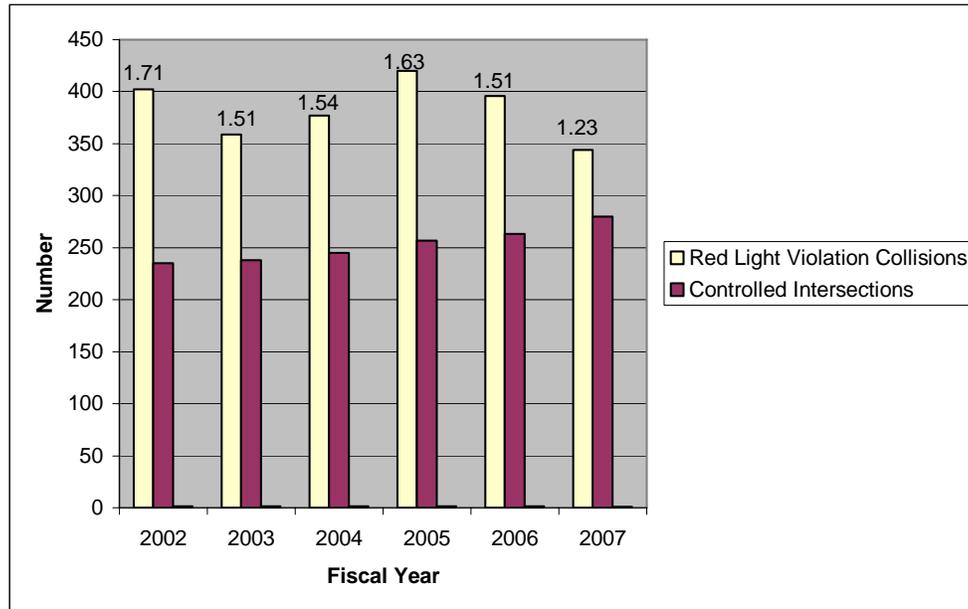


Source: Police Department Traffic Analysis Reports

As noted in our results on performance measures (page 8), the Police Department performed an analysis to identify the number of collisions in which a red light violation was listed as the primary collision factor. We did not verify the accuracy of their report as the results were provided after our fieldwork was completed. Based on the Police Department's analysis of City-wide data, red light violation collisions decreased 9 percent since implementation in fiscal year 2004 (Exhibit 3, page 16). In addition, the number of signal controlled intersections increased from 245 in fiscal year 2004 to 280 in fiscal year 2007 thus increasing the potential for more violations and collisions to occur. We computed the ratio of red light violation collisions to the number of controlled intersections to analyze the impact of the red light cameras. We noted a decrease from

1.63 in 2005 to 1.23 in 2007 in the number of red light violation collisions per intersection.

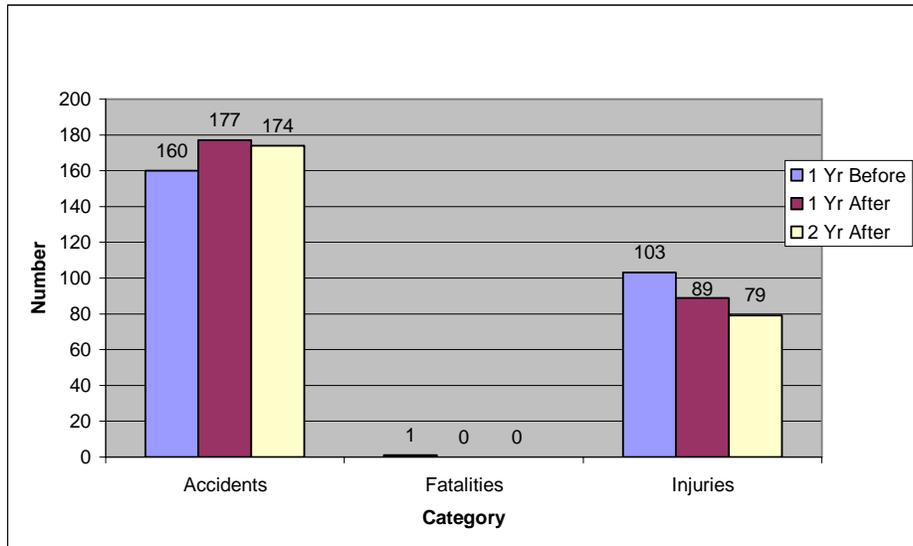
Exhibit 3: City-wide Red Light Violation Collisions & Controlled Intersections for Fiscal Year (2002 to 2007) with Corresponding Ratio (collisions/intersections)



Source: Police Department July 2007 Results

We obtained Traffic Analysis Reports specifically for the 12 intersections with red light cameras. Note this data reflects all types of collision factors and not those specifically identified as red light violations. The data range included 1 year before the implementation of the red light cameras and up to 2 years after implementation. We included the intersections of Airport Way & Charter Way and Charter Way & B Street even though both intersections did not have complete data for the 2 year period after implementation. While the total number of accidents increased 1 year after implementation, the number of injuries decreased (Exhibit 4, page 17). We had insufficient data to make a conclusion regarding the 2 year period after implementation; however, year to date statistics show a decreasing trend in the number of reported accidents and injuries.

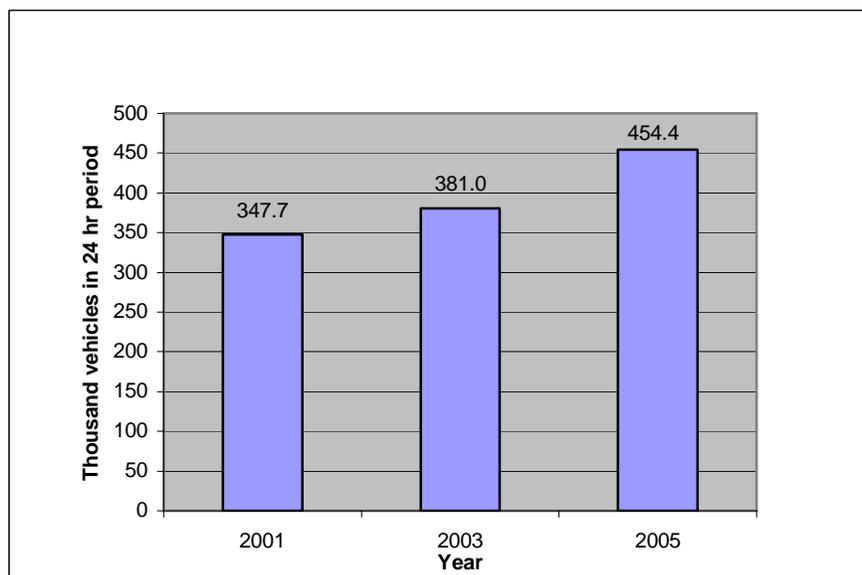
Exhibit 4: Total Accidents & Injuries at Red Light Camera Intersections (including Airport/Charter & Charter/B)



Source: Police Department Traffic Analysis Reports

We reviewed the City's Traffic Volume Flow Maps prepared by Public Works for 2001, 2003, and 2005. We determined on average the combined traffic volume of the intersections with red light cameras increased 31 percent from 2001 to 2005 (Exhibit 5). This equates to a traffic volume increase of 348 to 454 thousand vehicles during a twenty four hour period.

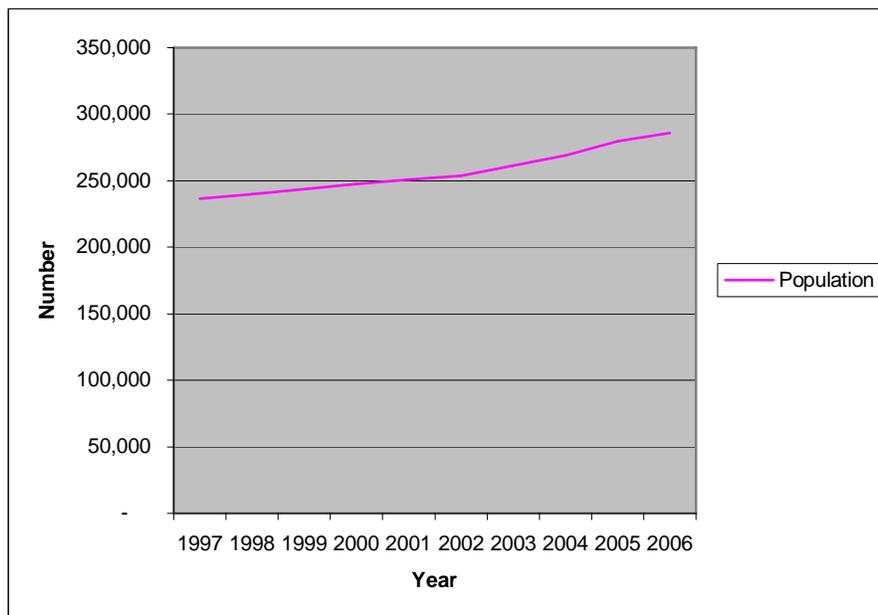
Exhibit 5: Combined Traffic Volume at Red Light Camera Intersections (2001 to 2005)



Source: Public Works Traffic Volume Flow Maps

In reviewing Stockton's population, we noted an estimated 9.5 percent increase from 261,300 in 2003 to 286,041 in 2006 (Exhibit 6). On average, the City's population is growing 2 percent per year.

Exhibit 6: Stockton Population (1997 to 2006)



Source: Comprehensive Annual Financial Report June 30, 2006 (table 17)

In summary, over time red light cameras have reduced the number of accidents where red lights were listed as the primary collision factor and reduced the number of reported injuries. We determined that an increase in such factors as the City's population, traffic volume, and number of signal controlled intersections have contributed to an increase in the number of collisions and injuries. As these factors continue to grow, the City will need to expand its measures to reduce the number of collisions and injuries.

What is the impact of red light cameras on the seriousness of injuries?

Based on our analysis, we determined that red light cameras have helped reduce the seriousness of injuries reported for collisions (Exhibit 7, page 19). For accidents reported to the Police Department, a collision report is completed by a police officer or a community service officer. The collision report documents the location of the accident, parties involved, description of property damage, and the extent of injury to individuals involved. The type of injury is categorized from most serious to least as follows:

- Fatal injury – death as a result of injuries sustained in a collision, or any injury resulting in death within 30 days of the collision.

AUDIT REPORT
 PERFORMANCE AUDIT: RED LIGHT CAMERA PROGRAM
 October 12, 2007

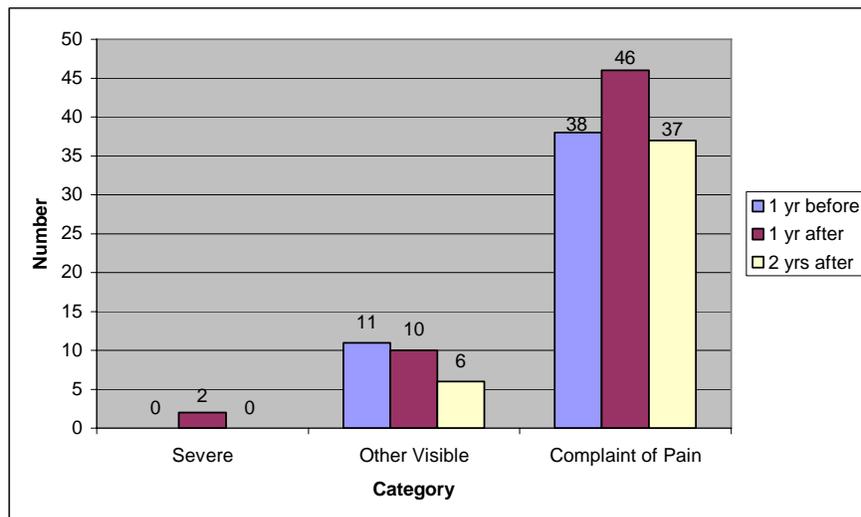
- Severe injury – an injury which results in broken, dislocated or distorted limbs, severe lacerations, or unconsciousness at or when taken from the scene.
- Other visible injuries – including bruises of discolored or swollen areas and abrasions.
- Complaint of pain – complaints of internal or other nonvisible injuries.

As discussed on page 14, our audit of the Traffic Analysis Reports for the 12 intersections with red light cameras showed a decrease in the number of injuries after 1 year and a current decline in the second year period after implementation of red light cameras (Exhibit 4, page 17). We selected the following 6 intersections and reviewed the collision reports to identify the severity of injuries reported:

March Lane & Quail Lakes Drive
 West Lane & Hammer Lane
 March Lane & Pacific Avenue
 March Lane & Pershing Avenue
 Pacific Avenue & Benjamin Holt Drive
 Charter Way & Airport Way

As illustrated in Exhibit 7, we observed that the number of severe and other visible injuries decreased after implementation of the red light cameras while the complaint of pain injuries increased. In the second year after implementation, there were no severe injuries. Other visible injuries reduced by 17 percent in the 1 year after implementation and another 40 percent in the second year after implementation. Complaints of pain increased 9 percent in the 1 year after implementation and currently show a 15 percent decrease in the second year period. As mentioned, the data included for Charter Way & Airport Way does not represent an entire year.

Exhibit 7: Seriousness of Injuries at Six Red Light Camera Intersections



Source: Police Department Traffic Collision History Reports

Based on our analysis, we conclude that the seriousness of injuries reported for collisions at intersections with red light cameras has decreased.

FINANCIAL

Is the City's Red Light Camera Program generating revenue or operating at a deficit?

For fiscal year 2007, we determined the program generated net revenue of \$183,078 based on estimated collections of \$842,657 and payments of \$659,579 to Redflex. There are several factors that affected the accuracy and our ability to calculate revenue for the Red Light Camera Program. Our computation is an estimated amount based on information from the San Joaquin County Superior Court (Court) which may not be accurate for the following reasons:

- Detail payment information is not available from the Court. The City receives a lump sum amount rather than details about which citations have been paid to the Court and subsequently distributed to the City. The City's Accounting Division (Accounting) reviews the Fund Report which accompanies a County Court check. The report provides two line items pertaining to traffic fees: "City-Traffic" and "Traffic Red-Light Surcharge." "City-Traffic" is the total of base fines for all traffic violations distributed to the City including red light violations. Therefore, Accounting needs to compute how much of "City-Traffic" dollars is attributed to red light camera citations. This amount is an estimate and assumes that the bail collected for each citation is the same amount. Judges have the discretion to reduce the bail amount on a case by case basis, and late payments may result in additional penalties.
- Based on our discussions with Court personnel, we determined the formula Accounting utilized to calculate the amount of revenue to allocate to red light cameras was incorrect. Accounting was using \$98.25 as the surcharge amount and \$80.20 as the base fine amount to compute red light camera revenue of \$178.45 per citation. As a result, total revenue of \$1,015,098 was recorded for fiscal year 2007.
- We compared the distribution amounts to the Bail Distribution Schedule obtained from the Court. We determined the Court was distributing a surcharge amount of \$90.41 and a base fine amount of \$41.36 for total revenue of \$131.77 per citation to the City. This resulted in an overstatement of City revenue allocated to the Red Light Camera Program of \$46.68 per citation in fiscal year 2007. Based on the actual distribution amounts from the Court, we computed total revenue of \$842,657 for the fiscal year 2007.

AUDIT REPORT
PERFORMANCE AUDIT: RED LIGHT CAMERA PROGRAM
October 12, 2007

- We did not attempt to compute the actual revenue for prior years since the revenue from the Red Light Camera Program is commingled with revenue from the Police Department's other sources in the General Fund. Bail amounts have also increased over the years and the distribution amount to the City would have also changed. Therefore, an adjusting entry is not required to restate the revenue. However, proper revenue amounts should be recorded to facilitate the Police Department's financial analysis of the program. Accounting has been provided the revised surcharge and base amounts to be used in computing revenue to be allocated to the Red Light Camera Program.
- We recognize that the Police Department incurs staff hours for the program. However, we concur with the Police Department that the staff hours are not a true cost of the program. When the program was implemented, new officers were not hired to manage the program. The Police Department has a rotating work schedule where staff is assigned to different divisions for a certain amount of time. As a result, we did not reduce the Red Light Camera Program revenue for Police Department labor expended on the program.

How much have we paid Redflex?

According to the City's contract with Redflex, the City pays Redflex \$89 per citation issued. In agreeing to the per citation amount, management anticipated the City would receive \$178 per citation from the Court and agreed to share half of the revenue with Redflex. According to the Bail Distribution Schedule obtained from the Court, the City is receiving \$131.76 per citation. Currently Redflex receives 67.5 percent of the \$131.76 bail amount, while the City receives 32.5 percent.

The City has paid Redflex a total of \$1,926,672 for their services for the period October 19, 2004 through July 24, 2007 as follows:

<u>Fiscal Year</u>	<u>Payment</u>
2005	\$394,270
2006	\$872,823
2007	<u>\$659,579</u>
Total	\$1,926,672

Does the City conduct monthly reconciliations of vendor invoices with the Court's payment records to ensure we are paying the vendor the appropriate amount?

The City is unable to perform a reconciliation of invoices from Redflex with the Court's payment records to ensure proper payment to Redflex because detail payment records

are not provided by the Court. By not having enough information from the Court, the City is unable to accurately determine how the program is operating financially.

What percent of clicks from cameras are authorized citations, collected, and uncollected?

We are unable to determine the percentage of citations collected and uncollected due to the lack of information from the Court. Since the implementation of the program a total of 68,466 incidents have been captured. Of which, approximately 31 percent or 21,202 incidents were authorized as citations. Based on our analysis of fiscal year 2007 revenue received from the Court and payments made to Redflex by the City, we estimated the City received revenue for 6,395 citations while made payments to Redflex for 7,411 citations. This results in an estimated collection rate of 86 percent. Redflex receives payment based on the number of citations authorized, not based on the number paid.

What is the collection process for a citation?

The City has no control over the collection process for red light camera violations as the Court maintains the collection program. California Penal Code (CPC) 1463.001 states that all fines imposed for crimes other than parking offenses that result in a court filing shall be deposited with the county treasurer and distributed monthly to the proper funds. In addition, CPC 1463.010 states that the Judicial Council shall adopt a program concerning the collection of moneys owed on fines, fees, and penalties imposed by the Court.

The Court controls the collection process once information on authorized citations has been transmitted to them by the Police Department. The Court will issue a courtesy notice to the violator with instructions on payment and court dates. The Court may dismiss a citation or lower the fee if they believe the violator cannot pay the full amount. Thus, the potential exists that the City will not recover the cost of issuance for some citations. The Court also has their own Revenue and Recovery Department to deal with past due citations. After a certain amount of time and unsuccessful collection efforts, the Court's Revenue and Recovery Department will refer the past due account to the Franchise Tax Board for tax withholding. According to CVC 40310, if a traffic penalty is not paid within 20 days, a late charge of 50 percent will be assessed.

Red light camera citations are not mandatory court appearance violations, so someone may pay for their bail amount without a court appearance. They may make a payment in person, by mail, check, money order, cashier's check, or credit card. All payments are made to the Court and not to the Police Department. If an extension is needed in order to make the payment, the violator may request an extension by phone, mail, or in

person anytime before the payment due date. If the citation is already past due, the violator will need to appear before a judge or commissioner for any further continuance.

Can the City account for the disposition of all citations?

We conclude that the City could account for the disposition of all citations by reviewing each citation in the Court's computer system. However, the process would be very cumbersome and time consuming. The Court sends updated information on citations to Redflex; however, they only consist of two statuses of either "active" or "disposed." "Disposed" can mean a number of things and not necessarily that the citation has been paid as a judge or commissioner may dismiss a citation. "Active" means the citation is still open; however, we are unable to determine if it is open awaiting payment, in dispute, or open for other reasons.

OTHER COMMENTS

In our review of computer systems, we determined that the use of outdated technology was hard coded in contract documents with the vendor. We suggest management update technology requirements in contracts to keep current with advances in technology and refrain from listing specific technologies that may become outdated as technological advances are made.

As discussed in the Financial Results section of our report, page 20, we obtained a Bail Distribution Schedule from the Court. Based on our review of the computations, we were unable to determine if the distribution amounts are accurate. We are currently working with the Court to resolve this issue. As this issue was outside the scope of our audit, we will notify management of our results upon completion.

CITY AUDITOR MISSION STATEMENT

The Office of the City Auditor independently promotes ethical, efficient and effective governance for the citizens of Stockton. We provide the City Council, management, and employees with objective analyses, appraisals, and recommendations for improvements to City systems and activities. The department maintains independence and objectivity by reporting directly to the City Council and by not exercising direct authority over any department, system, or activity subject to audit.

