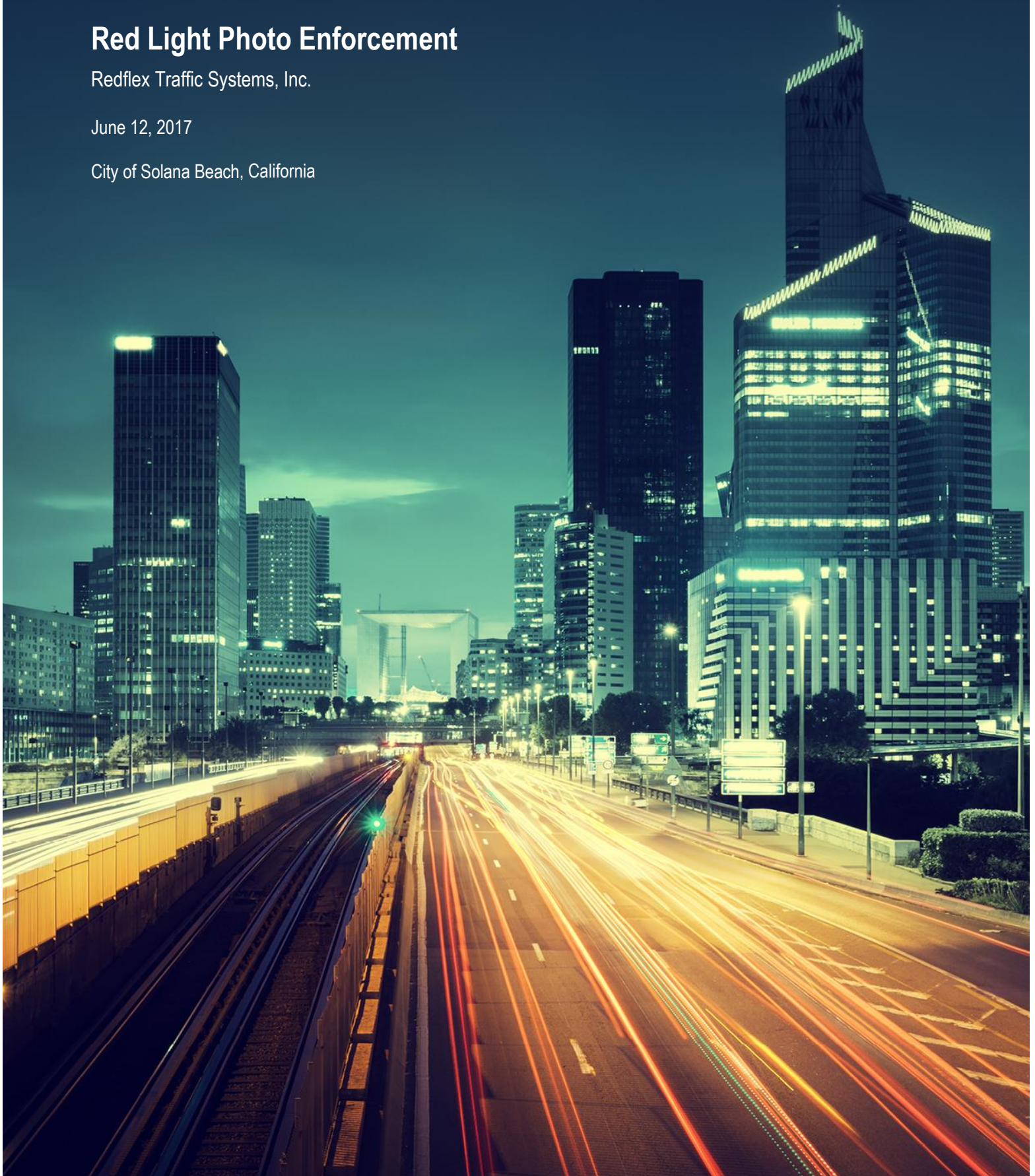# Red Light Photo Enforcement

Redflex Traffic Systems, Inc.

June 12, 2017

City of Solana Beach, California

June 12, 2017

Greg Wade
City Manager
635 S. Highway 101
Solana Beach, CA 92075

Dear Mr. Wade:

Redflex Traffic Systems, Inc., (Redflex) is pleased to present you with an overview of your Redflex red light photo enforcement program and all of the industry-leading technology and customer service associated with it. We have enjoyed working with the City of Solana Beach over the past 13 years to improve safety around the community with our REDFLEXred® enforcement systems. With our continued partnership, we look forward to continue to help save lives and keep your community streets safe.

As the country's most established safety camera provider, we have been a leader in the photo enforcement industry for nearly 20 years. Our research and development team listens to our client's requests which lead to innovative Redflex products. Below are a few key competitive advantages that we have to offer:

- **Streaming Video:** Our High-Definition (HD) streaming video allows the City and the San Diego County Sheriff's Department to have real-time access to high quality video cameras at each photo enforcement location. In addition, the San Diego County Sheriff's Department will continue their instant access to view and download historical video files from all approaches without the delay of requesting the video from the vendor for post incident investigations.

- **Redflex Technology:** Redflex develops its own systems, both front end (hardware) and back end (software) to ensure clients have leading edge technology. This is not a claim the rest of the industry can make. We employ more than 70 engineering resources dedicated to the continued development of products and services.

- **Continued Technology Enhancements:** Like we have since the inception of the program, Redflex will continue to provide mutually agreed upon enhancements to the City's red light photo enforcement systems throughout the life of the program. All of this will be done at no additional cost to the City.

- **Complete In-House Processing:** We understand the benefit of having a three-level incident review process that will be guided by City established criteria to eliminate unnecessary time burdens on law enforcement resources. Further, we offer in-house staffed, violation processing, printing, mailing and call center services. Ensuring the evidence chain remains safe and secure.

- **Local Expertise:** Supporting communities within the state of California since 2000, Redflex understands the needs of the area and the laws/statues that govern local programs.

- **Strength in People:** Redflex leads the industry in compliance and business ethics. With a dedicated group of client services professionals, Redflex is committed to maximizing system uptime and exceeding the City's expectations. The City's program will continue to be led by a client services team; all whom are knowledgeable about the program.

- **Strategic Partnerships:** Redflex is a certified strategic partner with NLETs and works closely with the California DMV and other state DMVs allowing us to obtain registered owner information for out-of-state parking violators.

While Redflex is a global company, our success comes from meeting the needs of each of our individual local clients. We look forward to the opportunity to continue a long-lasting, productive partnership to improve safety on Solana Beach roads.

Should you have any questions regarding our technology or any information provided, please contact me at 480.393.6668 | etiedje@redflex.com.

Kind Regards,

Edward Tiedje
Client Services Manager

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Redflex Qualifications and
Specialized Experience

Redflex Qualifications and Specialized Experience
About Redflex Traffic Systems, Inc.

Company History

Redflex Traffic Systems, Inc. is a wholly owned subsidiary of Redflex Holdings Limited (collectively Redflex), an Australian holding company publically traded on the Australian Stock Exchange ("ASX"), which owns and operates the world's largest network of digital speed and red light cameras. Redflex's predecessor in interest corporation was formed and initially incorporated in California in 1998 and in August 2002 was reincorporated in Delaware.

Redflex has been servicing photo enforcement programs across the world for nearly 20 years, making us the longest established photo enforcement service provider in North America. Redflex has partnered with over 500 communities in that time, including over 25 California cities such as Del Mar, Encinitas, Culver City, and Garden Grove.

Redflex manufactures and delivers quality products efficiently, in a professional and flexible environment, on time and at the right cost to our customers. Exceptional operational standards are crucial to our ongoing success and achievement of the consistent levels of customer satisfaction, commitment to requirements and continual improvement that we are known for. Quality is inherent in every product, from concept stage to end of life.

Redflex follows exacting processes for specification, design, development, purchasing, production, inspection, testing, packaging, storage, documentation, delivery, installation, repair and support of our products. These processes are aimed at delivering reliably superior results for you and your community.

Redflex technology and innovation goes beyond just deterring red light running. We also have other programs that deter speeding with multiple deployment options including fixed, mobile and hand held units (REDFLEXspeed®), passing stopped school buses (REDFLEX Student Guardian®), crossing railroad tracks while the alarm is active (REDFLEXrail®), running stop signs (REDFLEXstop®), unauthorized vehicles driving and stopping in bus lanes (REDFLEX Bus Lane®), speeding in highway work zones (REDFLEX Worker Guardian®), stopping in an intersection during a red light (REDFLEX Grid Free®) and travelling in a crosswalk when a pedestrian is present (REDFLEX Pedestrian Guardian®). Plus, we have technology to help prevent right angle crashes by red light runners (REDFLEXicp® System).

Acquisitions

In July 1999, Redflex acquired substantially all assets of American Traffic Systems, Inc. which included photo enforcement contracts with the cities of Paradise Valley and Scottsdale, Arizona and Fort Collins, Colorado. American Traffic Systems, Inc. is a different entity than current Redflex competitor American Traffic Solutions, Inc.

In 2000, Redflex acquired Traffic Safety Systems (TSS), including several contracts across the Southern California region.

In 2004, Redflex purchased the intellectual property and assets of Poltech International Ltd which included a permanent maintenance facility in Sydney and NSW-based staff. Since being awarded the contract to maintain and service the 31 Poltech speed cameras in New South Wales, the business has grown almost ten-fold where Redflex currently maintains more than 280 digital camera enforcement systems.

In 2012, Redflex acquired SmartBus Live! in order to combine the industry-specific experience of SmartBus with the unparalleled photo enforcement experience of Redflex. The result is an industry leading program offering utilizing superior equipment and service that undisputedly improves driving behavior, increasing the safety of children loading and unloading from school buses.

Research and Development

Redflex employs over 70 engineering resources dedicated to the advancement of the products and services provided by our organization. These full time resources are involved in every aspect of research and development of our technologies. The end-to-end development of Redflex solutions includes examining and improving every aspect of the technology. Everything from vehicle detection algorithms that ensure the most accurate and reliable vehicle detection available to image analysis and analytics tools to ensure performance is subject to continuous scrutiny and improvement. Redflex has invested countless resources into both manufacturing our own products and working closely with manufactures to design custom hardware to meet our rigorous standards. This allows Redflex to stand behind our products 100%. Redflex also works with our partner clients to develop custom solutions to meet any needs, something that the competitors are not able to do when working with off-the-shelf products.

As an industry leader in photo enforcement and an emerging leader in intelligent transportation systems, our company goal of building innovative technology to improve safety camera capabilities remains the core philosophy of our Research and Development (R&D) Team. Our continued innovation is proven by a history of firsts by Redflex, including:

- 1996: World's first digital image ticket processing facility
- 1998: First digital radar speed camera contract in the US
- 1999: First digital red light camera contract in the US
- 2001: First contract in the US for a combined digital red light and speed system
- 2002: First use of OCR to capture bus lane violators
- 2003: First to offer 12-second video clips of violations
- 2003: First multiple station, long distance point-to-point speed detection system
- 2003: First weigh-in-motion enforcement system: REDFLEX WIM™
- 2004: Our first rail crossing enforcement contract: REDFLEXrail®
- 2004: Our first vehicle pollution enforcement systems
- 2005: First-in-industry secure payment portal (photonotice.com)
- 2007: First school bus stop arm photo enforcement system
- 2008: Redflex develops and releases the Redflex Digital Loop Card, the fastest processing loop card in the world
- 2009: Redflex installs its first vehicle noise enforcement camera system
- 2009: First speed dual radar system
- 2011: Redflex installs the first intelligent collision prevention system: REDFLEXicp® system
- 2011: Redflex installs the first over-height photo enforcement: REDFLEX No Thru Truck™
- 2013: Introduces REDFLEX Grid Free® (anti- grid lock), REDFLEX Pedestrian Guardian® (pedestrian safety), REDFLEX Bus Lane® and REDFLEX Worker Guardian® (road construction worker safety)
- 2016: Introduced a hand-held speed detection system allows for violations (data, video) to be processed post-incident

Annual Accreditation

On an annual basis, Redflex obtains a SOC 1 Type II audit. This audit is in accordance with the American Institute of Certified Public Accountants (AICPA) Statement on Standards for Attestation Engagements (SSAE) 16. For the last five years Redflex has completed SOC/SAS 70 audits and has received unqualified, favorable opinions indicating that financial and information technology control objectives were met.

Phoenix Chamber of Commerce - Impact Award

Redflex Traffic Systems, Inc. is the proud recipient of the 2017 Greater Phoenix Chamber of Commerce Impact Awards for Exceptional Innovator. The Greater Phoenix Chamber of Commerce recognized Redflex's continued spirit of developing innovative intelligent traffic solutions to help keep all of our partner communities safer.

Voluntary Disclosure

In October 2012, the Chicago Tribune published an article discussing the alleged misconduct of several Redflex executives in connection with the Company's photo enforcement contracts with the City of Chicago. The Tribune article ultimately led to the US Department of Justice (the "DOJ") opening investigations in Chicago and Ohio relating to the alleged misconduct. Redflex fully and voluntarily cooperated with those investigations and provided substantial assistance to the DOJ in connection with its investigations. In addition, Redflex promptly enacted significant enhancements to its risk and compliance programs. Those programs are overseen by the Company's Risk and Compliance Committee and Board of Directors. The misconduct, the subject of the investigations, occurred more than four years ago and the individuals involved have not been employed at Redflex for approximately four years.

On December 23, 2016, Redflex and the DOJ entered into a Non-Prosecution Agreement (the "NPA") for a term of two years based in part on the Company's cooperation and assistance with the DOJ investigations and the Company's enhanced compliance programs. The NPA provides that the DOJ will not charge Redflex with any criminal offenses arising out of the Company's activities that were the subject of the DOJ investigations if Redflex fully complies with the NPA. The DOJ investigations, the NPA and Redflex's enhanced compliance programs are discussed in detail in the Company's December 24, 2016 ASX Announcement and the NPA, both of which can be found on the Company's website in the Investor Relations section at http://www.redflex.com/application/files/5514/8288/3560/2016-12-24_U.S._Department_of_Justice_Ends_Criminal_Inquiry_into_Companys_U.S._Subsidiary.pdf.

On February 3, 2017 Redflex and the City of Chicago entered a release and settlement agreement which resolved the civil qui tam litigation brought by the City. http://www.redflex.com/application/files/2114/8633/3423/2017-02-04_Legal_Settlement_with_the_City_of_Chicago__Qui_Tam_Claim.pdf

Redflex has resolved all criminal and civil matters in the United States arising out of the Company's 2013 investigation into misconduct by former executives.

On February 21, 2017 the City of Chicago entered its "Notice of Finding of Responsibility of Redflex Traffic Systems, Inc. thereby restoring Redflex as a responsible vendor entitled to submit proposals and bids for City of Chicago Contracts. http://www.redflex.com/application/files/9914/8773/2389/2017-02-22_Redflex_restored_as_Responsible_Vendor_in_Chicago_United_States_of_America.pdf

Key Personnel

Redflex believes that people are the key to a successful photo enforcement program. Our team of experienced industry leaders will continue support the City of Solana Beach's program including Keith Underwood - Project Manager, Edward Tiedje - Client Services Manager, processors, maintenance technicians and data analysts. Mr. Underwood will continue to be the City's main point of contact will coordinate efforts with other Redflex team members as needed. Both individuals will be available to support your program whenever the need arises such as providing a program statistics, addressing questions/concerns, or providing training.

Mr. Underwood and Mr. Tiedje are well versed in the City's current contract and the Business Rules associated with the program. They understand the complexities of California photo enforcement law and stay abreast of legislation. Should any market place issues arise or State legislation change, they will proactively work with the City to discuss and incorporate changes while minimizing disruption to the City's program; whether that be developing custom reports, modifying notice templates or adding new functionality to stay compliant with California laws.
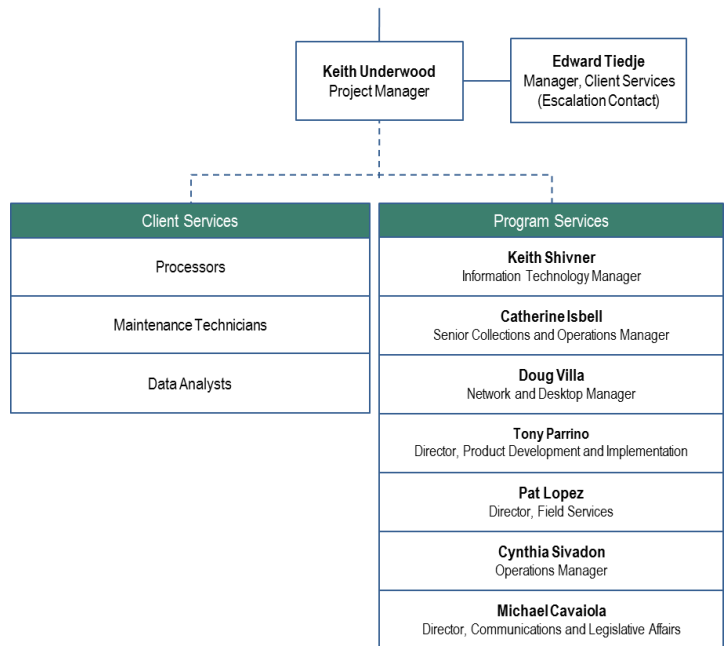
Keith Underwood	Project Manager and Client Services Specialist
Years of Experience: 40 **Years with Redflex:** 8	Mr. Underwood has been with Redflex for 8 years. Prior to his employment with Redflex, he retired as a Traffic Sergeant from the South Gate Police Department, CA after 33 years of service. The last five years of his career included being the program manager for the City's photo enforcement program, thus assuring a vast amount of experience, including managing the program, reviewing incidents, court appearances and interacting with the company, citizens and the City Council. Currently, Mr. Underwood is assigned as a Project Manage for several in Southern California, including the City of Solana Beach for almost 3 years.

Contract Roles and Responsibilities

- Provides day-to-day operations supervision to ensure that any issues and concerns are immediately addressed
- Provide customer support to the City
- Oversee maintenance records compilation for weekly and monthly reports

Edward Tiedje	Client Services Manager – West Coast Region
Years of Experience: 26 **Years with Redflex:** 11 **Education:** AA Criminal Justice, College of Lake County BA Criminal Justice, Triton College	Joining Redflex in 2006, Mr. Tiedje brings more than 15 years of law enforcement experience to the team. He began his career with Redflex as an Expert Witness and has assumed new roles over the years with increasing responsibility. Having worked on a number of implementation of programs all over the US over the year, Mr. Tiedje is well-versed on the technology, the program functions, and how to trouble shoot those issues. As the Client Services Manager, he oversees the Client Services team and works with clients throughout the Western Region of the US. Mr. Tiedje has been working with the City of Solana Beach for over 2 years.

Contract Roles and Responsibilities

- Coordinate and attend business guidelines development, project management, training and program monitoring
- Ongoing meetings and training throughout the life of the program
- Responsible for all contractual and financial requirements for the program
- Ensures sufficient resources are allocated to programs to ensure achievement of all objectives
- Stay up-to-date on all State and local laws regarding photo enforcement

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Redflex Product Overview

Redflex Product Overview

Red Light Enforcement – REDFLEXred®

REDFLEXred® is a highly secure red light violation detection system. Our automated enforcement systems are manufactured, installed, and maintained by Redflex and come with a wide variety of hardware and software configurations depending on specific approach and intersection requirements. If a vehicle is detected running a red light, an image is taken of the vehicle with a close-up of the license plate and a 12-second video for review and processing.

Our equipment is capable of monitoring up to four (4) lanes of traffic, including turn lanes and is capable of monitoring up to nine signal phases simultaneously. Regardless of varying weather, temperature or lighting conditions, Redflex systems will reliably capture violations. Our system components include:

Included in the Housing

The REDFLEXred® System, custom to Redflex, houses the communication gear, the digital camera, and the HD video camera. The central processing unit (CPU) and software that operates all system components are housed in a cabinet, which eliminates the need for ground mounted cabinet or an additional pole. The terminal block that will receive power for the signal head is located in the cabinet as well. The camera system operates on 110 volts from a stand-alone power source. The pole is a little more than 10 feet tall and is professionally engineered and built to industrial standards. Wireless secure communication links the CPU to the Redflex data center.

Flashes

Provides optimal illumination of the license plate area in all lighting conditions providing a superior capture rate. Our rectangle flashes have been engineered to provide clear images with no dark spots in the middle of the picture like most on the market. Redflex's typical recharge rate is between 250-400 milliseconds, but can be setup to go as low as 200 milliseconds.

Detection

Our REDFLEXred® System will continue to utilize inductive in-ground loops. This detection technology allows Redflex accurately capture violating vehicles without any disruptions to the City's current program.

Cameras

The system will include two industrial-grade digital cameras providing images up-to 11 MP. Color images of the violation, license plate, and the face of the driver will be captured. A high-definition (HD) video camera will capture a 12-second clip of the violation at 30 fps.

System Features

The REDFLEXred® system combines industry leading technology and advanced vehicle detection to reduce the number of red light runners, helping to make City streets safer without the need for additional City resources. Below we have provided the City with a breakdown of some of the most advanced technology features available on the market.

Inductive Loops

Redflex has successfully deployed inductive loops in thousands of installations across the globe, including at the City's current fixed approaches. The functionality of the inductive-loops has been reliable and we continue to experience consistent detections with this technology.

Our experience coupled with our Redflex designed and manufactured Digital Loop Card (DLC), the fastest processing loop card in the world, allows us to engineer a greater degree of flexibility with respect to actual loop placement to ensure no interference or "cross-talk" with any existing City loop-based traffic controls. Inductive loops use the presence of vehicles and time-over-distance calculations to activate our digital cameras.
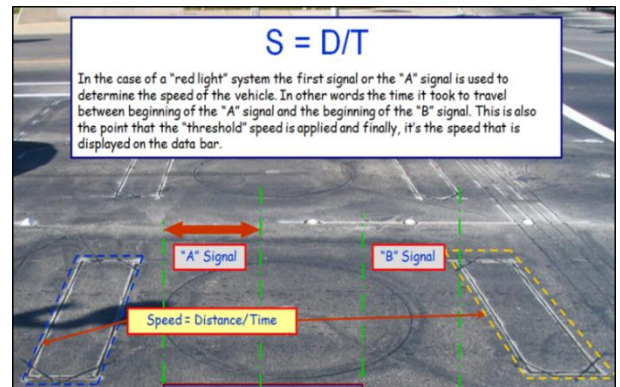
Enclosures - Tamper, Vandal, Bullet, and Weather Resistant

Redflex enclosures are tamper-, vandal-, and weather-resistant lockable housings. The camera housing units are designed to preserve the overall effectiveness of the program's operation and to protect the Redflex camera units from extreme weather conditions and vandalism, ensuring minimal "downtime" and easy maintenance. Each Redflex housing and pole system is professionally engineered and built to industrial standards from the ground-up.

Our camera unit housing is designed to be weather-, dust-, water- and spray-resistant. This housing is securely lockable and is pole-mounted. Each Redflex housing and pole system is professionally engineered and built to industrial standards, including:

- Weather-, ballistic-, and vandalism-resistant enclosures built to the standards of the National Electrical Manufacturers Association (NEMA)
- Water-resistant (salt and freshwater) and dustproof IP56 enclosure, with sealed access panel.
- Built from toughened aluminum; zinc-dipped and powder-painted in a neutral color or one desired by the City to match existing street furnishings
- Doubled-walled for extra protection and heat convection
- Equipped with shrouds that allow rotation and pivoting on the pole for optimal alignment
- Tightly locked into place with eight guide bolts that are securely covered by another shroud to prevent tampering. These can only be accessed from within the housing. The housing locks are fashioned from toughened steel with the single key engaging the three-way bolts
- Camera units are easily reachable without the utilization of lifts (bucket trucks) and Redflex has successfully deployed systems that include automated raising and declining mechanisms, which utilize "garage door" engines and controls
- Fitted with polycarbonate, National Institute of Justice (N1J) standard, ballistic-resistant, protective material and a 19mm-thick, ballistic-resistant glass shield
- Our camera units can effectively utilize much of the City's existing infrastructure, if desired, thereby minimizing required hardware and encroachments

Traffic Light Interface Module (TLIM)

Redflex equipment provides a reliable signal phase detection method that is optically isolated from the signal operation. We are able to meet this requirement in the following ways:

- For those applications in which our client desires a non-intrusive method of signal phase detection, Redflex is able to provide a Traffic Light Interface Module (TLIM). The TLIM is placed in the junction box closest to the controller that has access to the signal field wiring. A clamp style inductive coil will be placed on each phase to be monitored. The TLIM will be powered by the Redflex system via 12VDC through a CAT 5e cable
- Direct connection to the field output with 5 amp inline fuse and opto-isolators mounted in our equipment for isolation

The Redflex system is flexible in its ability to monitor traffic phases, and the Redflex team will work with the appropriate agency to provide a method that meets their specific requirements. A non-intrusive video phase detection system is available when other options cannot be implemented.

We can obtain access through either the signal controller or the junction box closest to the controller that has access to the signal field wiring. The City can decide which access point best suits their needs. If necessary, the work can be completed by an electrical contractor licensed to work in the jurisdiction. This system can be an alternative wireless option to existing, directly wired and inductively coupled systems for detection

Digitally Adjusted Light Table

In order to provide the highest yield of violations, Redflex has engineered and developed a digitally adjusted light table that enables our cameras to adjust the picture settings automatically. Redflex's imaging unit's operation is microprocessor-controlled and fully automatic. The system is capable of monitoring local weather and lighting conditions and reacting accordingly to all ambient weather and lighting conditions. This is accomplished by:

- Monitoring ambient light for specific time of day applications for camera metering

  - A look-up table is incorporated to override the natural light meter function which shuts down aperture settings during certain lighting conditions. The light meter lookup table is approach specific. Light metering data is based on a timetable to ensure required aperture settings are applied to obtain desired results.

- Focusing is accomplished by optimizing depth of field conditions for specific image capturing sequences.

Each camera's field of view is optimized by ensuring each detected vehicle captured in its lane of travel falls within the depth of field of the camera (based on the least forgiving lighting conditions, aperture settings, and image exposure settings). This is done by using the detected vehicle speed to anticipate the specific location of the vehicle in the roadway and timing the image capturing and synchronized flash to ensure proper focus is maintained, while applying the dynamic light metering settings for the conditions.

Single Time Source

Redflex patented technology allows us to use multiple cameras, synchronized to a single time source. By using multiple photos (scene and plate) you get the best resolution for both a wide angle shot (scene) and a close up shot (plate) but only if you can "sync" the photos to the same time source to ensure the evidence remains intact. Redflex ensures that violations are legally defensible because we can guarantee that the photos captured are all part of the same incident packet by looking at the timestamp. This is not standard practice in the marketplace.

The data bar provides confirmation of the synchronization of the time stamps to a single time source (these images are setup to capture two images "simultaneously" from two different cameras). This method allows Redflex to capture images from different angles without sacrificing image quality from other critical shots.

All of Redflex's cameras are connected to the same time clock and sync from an internet based NTP provider. The time is then applied through the network and onto CCU devices through NTP protocol.

Warranty

Redflex equipment is designed to be operational 24/7/365. Barring knockdowns, vandalism and unforeseen acts of nature, our equipment will be functional more than 98% of the year; downtime includes scheduled system maintenance. Redflex will warranty the system for the life of the contract. Redflex will be responsible for the maintenance and upkeep of the photo enforcement equipment throughout the life of the contract.

Superior Image Quality – Best in the Industry

Redflex prides itself on capturing the highest quality images in the industry. Redflex has invested numerous resources in manufacturing our own technology and working closely with major camera manufacturers to customize their technology to our specifications. While the configurations for photo enforcement systems are customized to the individual client and location, you will be able to see that Redflex provides our clients with the best image quality on the market.

Sample incident images can be provided upon request.

Incident Image Configuration

Each REDFLEXred® system will capture the following images and video:

- **Scene A**: captures the vehicle prior to the stop bar as the light is red
- **Scene B**: captures the vehicle in the intersection as the light is red
- **Plate Image:** provides a clear, zoomed in image of the vehicle's rear license plate
- **Face Image:** provides a clear, zoomed in image of the drivers face
- **Video:** which provides a 12-second video clip, captured at 30 fps

When the radar detects a vehicle's speed above a pre-determined threshold, the camera system is triggered. The Scene A image will show the vehicle behind the stop bar with the traffic signal red phase visible. The Plate and Scene B images are simultaneously captured when the vehicle has proceeded through the intersection.

All images will be captured from both the front and the rear so that an image of the violators face and license plate is captured along with the signal head showing that the light was red during the infraction.

License Plate Covers

We have designed our systems and selected our equipment to counter the effects of license plate covers, prism covers and photo sprays (photo blocker) that are intended to hide or blowout the license plate image. These photo blockers try to obstruct pictures of license plates by distorting images taken at an angle or removing the reflective properties of the license plate. The Redflex system utilizes high megapixel, industrial-grade cameras to take pictures of license plates further down the road instead of taking pictures at an angle. We also utilize a high intensity flash that is able to photograph a license plate regardless of if it is reflective or not.

Multi-Camera System

The Redflex system has the ability to identify and capture multiple digital still images and full-motion video of vehicles traveling through the signalized intersection during the red signal phase. System cameras will begin recording upon the violator's stop bar approach and continue through the vehicle's exit of the intersection. The proposed solution would provide up to four lanes of coverage and deliver recognition on 32 individual vehicles within that zone.

Example 1: Photos Taken Using Only a Digital Zoom

Example 2: Cameras Setup with an Optical Zoom. Redflex cameras utilize an Optical Zoom, allowing for crisper images with a lower MP camera

Redflex has a wide range of customized, digital, state-of-the-art camera systems that can be arranged in several ways to maximize enforcement effectiveness for any given intersection, be it a standard or anomalous configuration. For this contract, Redflex intends on utilizing a combination of digital, high-resolution, industrial-grade cameras with resolution ranging up to 11 MP, depending on intersection size and configuration.

It is a common misconception that higher megapixel cameras always provide better quality images. Some vendors will state that the highest megapixel count is always best; this is inaccurate and misleading information. Redflex has a strong technical understanding of applying the right number of pixels to an intended target in order to achieve the best image quality, therefore not always requiring a camera with the highest megapixel count. The REDFLEXred® multiple-camera system allows trained technicians to configure the field of view of each camera to maximize the pixel density of each still image. This results in as much as a 500 percent increase in pixel density in areas of interest such as vehicle license plates.

A simple analogy could be optical zoom vs. digital zoom. Redflex maximizes optical zoom with multiple cameras, focused on areas of interest, then digital zoom through its back-office processing. Vendors with single-camera systems require a wider field of view to capture all the required intersection information, such as traffic lights, stop line and the offending vehicle. Therefore, they can only rely on digital zoom when cropping the area of interest via their back office processing

The Redflex multi-camera system is a superior solution to achieving image clarity in certain conditions such as low light environments or large intersections. Our patented technology allows us to use multiple cameras, synchronized to a single time source. Our high-quality digital camera system provides prosecutable color images in all weather conditions, 24 hours a day. One or more images can be configured to be taken at a set distance, in centimeters, or time, in milliseconds, from the point of detection. The minimum rate of image capture for a typical installation, taking into consideration the flash recharge rate, is approximately 300 milliseconds.

Data Bar

Redflex will provide a system that provides images with a multitude of information. Each of the high-resolution, digital, full-color images of the violation produced by the system at the point of capture includes an encrypted data bar "stamped" with violation information on a 256-character field that can be customized to suit the client's specific preferences and requirements. These elements cannot be manipulated by Redflex or any other user. Standard data bar elements include:

- Elapsed time since red light, to 1/100th of a second
- Amber phase duration to 1/100th of a second
- Name of location where violation occurred
- Unique violation identifier/camera ID
- Violation date: day of the week, day, month and year
- Clear display of rear license plate

- The time of the violation in hours, minutes, and seconds
- Direction of travel and lane number
- Posted speed limit and vehicle speed
- Frame sequence number

Location: FLX-RDLH-01   E/B Raymeadows Dr and Limite Hwy, FLX FL   (Smartcam ver.4.12.0)
Date: Friday 08 July 2016   Time: 00:14:28 Frame: 1   Speed Limit: 45   MPH
Lane: 2   Vehicle Speed: 40 MPH   RED : 0.43
AMBER   4.12   Elapsed Time: 0.00

Amber Timing Monitoring

In addition to displaying the length of time the amber phase was active in the data bar, as described above, we can also program the system to reject any violations when the amber timing is below a specific threshold. This can reduce the volume of "out-of-spec" violations the Police need to review and reject. Our system can also automatically alert us to when an amber timing is below its threshold time. We can then inform the City of the issue so it can be corrected quickly.

Video Incident Capture

While the digital still cameras are recording a violation via three digital still images, a video camera records six seconds prior to the Scene A image and six seconds following the Scene A image, providing the City with approximately 12 seconds of the violation at 30 fps. The video duration is customizable and can be increased or decreased upon the City's request. Redflex has now enabled our violation video to have full audio capabilities, if desired. This unique functionality can be included upon the City's request.

Concurrent and Rapid Sequential Incident Capture

Redflex REDFLEXred® system is designed to capture concurrent and quickly occurring sequential violations. Our Redflex designed flash has a rapid recharge to capture incident images quickly and our software algorithms allow image sharing between two sequential incidents. For example, if Scene B from incident #1 could be used as Scene A for incident #2, that image would then be used for two separate incidents. Each incident will be created with a unique data bar for the image containing elements for each particular incident.

This proprietary and state-of-the-art technology allows Redflex to have no latency time between the primary camera and the secondary camera, enabling Redflex to capture multiple incidents when most competitor systems would only be able to capture one. This is because our system is able to capture multiple incidents using only one set of photos. Redflex has configured our systems to "share" images when a consecutive event occurs within a specific time frame. In return Redflex is able to capture and identical image that has two different sets of data applied to it. Redflex is the only one in the photo enforcement industry that has this technology.

Incident #1: June 13, 2013 at 15:15:06 - Acura

Scene A: Before Stop Bar   Scene B: After Stop Bar   License Plate

Incident #2: June 13, 2013 at 15:15:06 - Mitsubishi

Scene A: Before Stop Bar   Scene B: After Stop Bar   License Plate
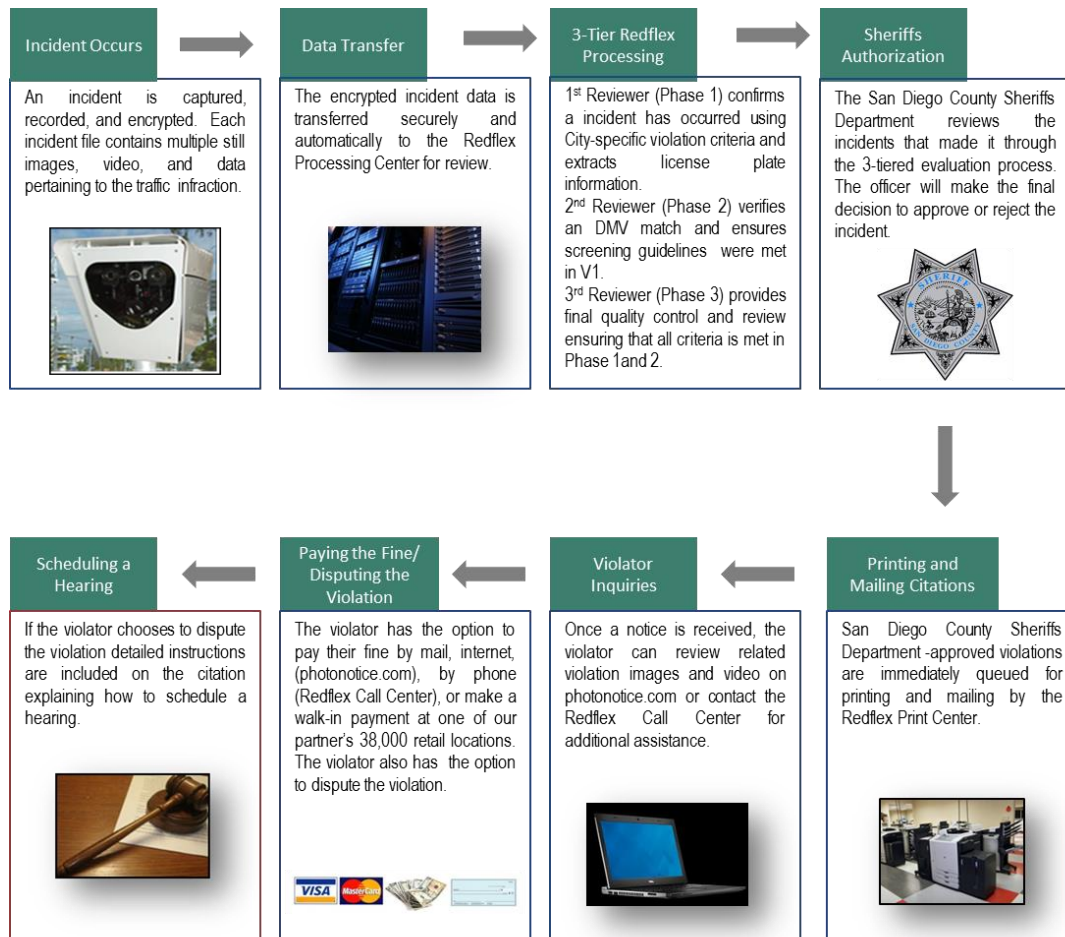
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Violation Processing

Violation Processing

To ensure all evidence is accurate and of the highest quality, and to reduce the need for the San Diego Sheriff's Department resources to be utilized in reviewing violations that don't meet defined criteria, each potential violation is subjected to three distinct levels of verification and quality control prior to law enforcement review. Redflex does not make any decision on issuing citations; the San Diego Sheriff's Department determines who does and does not get a citation. If the San Diego Sheriff's Department determines that a violation occurred, they approve the incident to be issued as a citation. The citation is then printed with all of the images from the working copy embedded on the citation and mailed to the registered owners address. The following graphic visually represents a sample incident process from incident occurrence to court hearing. Redflex applications are compatible with Internet Explorer 9.0 and higher, Chrome, Firefox, and Safari. City personnel will be able to access our applications using iPads, iPhones, Android tablets, laptops and desktops; providing highly desirable end user flexibility.

Incident Occurs	Data Transfer	3-Tier Redflex Processing	Sheriffs Authorization
An incident is captured, recorded, and encrypted. Each incident file contains multiple still images, video, and data pertaining to the traffic infraction.	The encrypted incident data is transferred securely and automatically to the Redflex Processing Center for review.	1st Reviewer (Phase 1) confirms a incident has occurred using City-specific violation criteria and extracts license plate information. 2nd Reviewer (Phase 2) verifies an DMV match and ensures screening guidelines were met in V1. 3rd Reviewer (Phase 3) provides final quality control and review ensuring that all criteria is met in Phase 1 and 2.	The San Diego County Sheriffs Department reviews the incidents that made it through the 3-tiered evaluation process. The officer will make the final decision to approve or reject the incident.

Scheduling a Hearing	Paying the Fine/ Disputing the Violation	Violator Inquiries	Printing and Mailing Citations
If the violator chooses to dispute the violation detailed instructions are included on the citation explaining how to schedule a hearing.	The violator has the option to pay their fine by mail, internet, (photonotice.com), by phone (Redflex Call Center), or make a walk-in payment at one of our partner's 38,000 retail locations. The violator also has the option to dispute the violation.	Once a notice is received, the violator can review related violation images and video on photonotice.com or contact the Redflex Call Center for additional assistance.	San Diego County Sheriffs Department -approved violations are immediately queued for printing and mailing by the Redflex Print Center.

Verification Review Phase 1

In the Verification Review Phase 1 phase, a trained Redflex associate will extract the original "raw" images, video and violation data and commence the review process, which includes:

- Reviewing of all the photographic evidence, including:
  - Multiple high-resolution still images
  - Full-motion video
- Confirming that a prosecutable violation has occurred that meets the criteria developed by the San Diego Sheriff's Department
- Zooming/cropping images, lightening or darkening for clarity
- Extracting (using OCR) or manually entering the license plate information
- The image clarity, including:
  - A clear and unobstructed license plate
- Violation information, such as location and date

California Department of Motor Vehicles (CADMV) and National Law Enforcement Telecommunication System (NLETS)

Redflex is set up to automatically obtain the majority of vehicle registration and driver's license information directly from the California Department of Motor Vehicles (DMV) and National Law Enforcement Telecommunication System (NLETS), which provides real-time DMV information for all 50 states. This strategic partnering allows Redflex to get the most up-to-date and accurate information available. Redflex takes full responsibility for obtaining ownership information with no assistance required of the City.

If multiple registration data is returned to Redflex, the incident is sent to a specialist, who will review all available information including rear license plates, vehicle make, model and year. Once all information is reviewed, the trained specialist will make the proper determination of the appropriate registration information to use.

In the event that a citation is returned due to an incorrect address, Redflex has access to LexisNexis® Accurint® which is an additional motor vehicle registration look up service. Accurint® provides Redflex direct access to public records in order to obtain an alternate address that is not listed with a DMV. When a program is initially defined, the City can determine if they would elect to have Redflex research an alternate address for those citations that are returned or if that would be handled by the local law enforcement. As the Redflex systems are highly customizable, this is another service that we make available to our clients.

Verification Review Phase 2

In Verification Review Phase 2, a trained specialist will complete the following steps:

- Review the photo and video evidence clarity and meets violation processing criteria as defined by the Business Rules
- Verify owner information including vehicle make/model
- Match against the screening guidelines developed by the San Diego Sheriff's Department

The process is fully automated between Phase 1 and 2 and eliminates the physical data entry process.

Verification Review Phase 3

Upon completion of Phase 2, Redflex provides one additional level of review, Verification Review Phase 3. This final review and confirmation ensures that the initial two reviews adhered to the City-approved guidelines and processes as depicted in the Business Rules. Once the incident passes through Phase 3, it is forwarded to the San Diego Sheriff's Department for final review and authorization.

All violations that are rejected at any phase of the three-step review process are reviewed daily by a Redflex analyst. The Redflex analyst is responsible for correcting any mistakes that are identified and then providing feedback to the processing team. The shift supervisors will provide ongoing training to the processors, thus adding an additional, continuous improvement phase to our processing. All incidents, whether approved or rejected are made available to the City for review.

Violation Authorization

Redflex electronically stores and makes available all still images, digital video files, and associated incident and registered owner data to our "Violation Authorization" module (VA) for San Diego Sheriff's Department review. Application access is completely secure, using robust user management and internet security protocols. VA is a web based application that can be accessed using any computer with internet capability and does not require any additional software to be installed. Once an officer is logged into the application, they can see all violations waiting for review.

Upon login to the VA application, an inbox will appear containing all violations, sorted by date, that have passed QA; have matching and accurate driver's license detail; and have met the specific screening guidelines and business rules developed specifically for the City. All violations in the inbox are available for review, rejection or final authorization. Choosing one of the violations in the inbox will pull up all the violation images and specific violation details for easy and prompt review.

Once the authorized public safety official clicks on the specific violation in the inbox a fast-loading, informative and intuitive violation review screen will appear. In approximately 20-25 seconds, the officer can review all the incident images, video and data and make an informed assessment to determine if a "violation notice" should be authorized, printed and mailed by Redflex. They will also have the ability to change the license plate images if there is a better one available.

VA also allows the user to view thumbnails of each raw image at the same time, and the zoomed cropped license plate image will appear in the "Plate" field by placing the cursor over that field of view. With a single click each image will expand to a larger view, also allowing a "Full screen" view.

Accept or Reject

Law Enforcement personnel shall make the final review of each incident and make a decision whether it meets the City's criteria to issue a citation. If the established criteria are not met, the system permits the Officer to choose from a list of defined explanation codes for rejection.

Accept

Upon accepting an incident, the system will require one confirmation click. This extra step was implemented as a failsafe to eliminate errors and confirm the Officer's decision.

Incident review screen provides access to importation information about the violation such as:
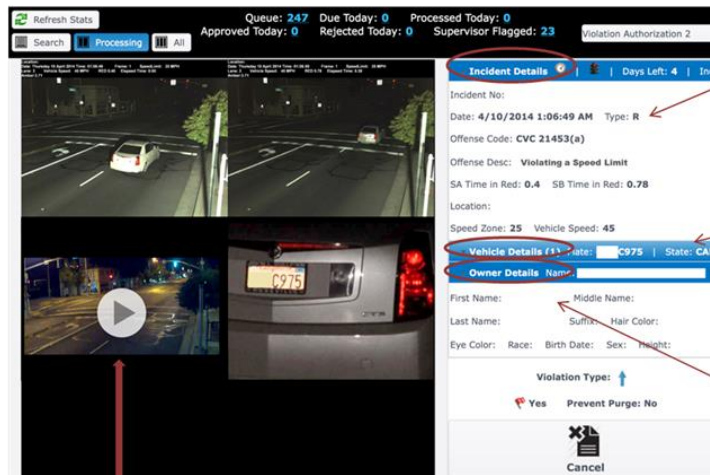
Incident Details such as date and time of the violation as well as location, posted speed and violation speed.

Vehicle Details including license plate number and make, model and year of the vehicle.

Driver Details including all driver's license information when applicable such as name, address, height and weight, eye and hair color, driver's license number, and date of birth.

Video and Image Viewing - As simple as clicking the image or the play button a window will pop-up and provide access to view full-screen images and video, replay the video and save the video to your local PC.

Reject

Upon rejecting an incident, if the incident is deemed "non-prosecutable", the user will select a rejection reason. This failsafe step was added to allow the Sheriff's Department and Redflex to track, trend, and remedy any possible oversight issues with the program, including training or maintenance needs. Data on rejected incidents will be available for PD review immediately after it has been rejected.

Printing and Mailing

Upon "acceptance" of a violation, the system automatically queues the information and violation images for citation notice generation, printing and mailing.

Redflex printed and mailed more than 3,300,000 notices in 2016

Redflex will mail Sheriff's Department-approved citations with a return envelope by first class mail and will bear the cost of postage. Each notice will display a digital signature of the Officer who authorized the citation and will be printed on high quality, perforated paper – allowing for ease of response by violators.

Currently, Redflex takes less than 5.5 days to capture an incident, process it through the three-tiered review and provide to the Sheriff's Department for their review. Once the violation is approved by the Sheriff's Department, notices are typically printed and mailed in less than a day. Most notices are printed the same day the police approves the violation, depending upon the time the approval is obtained.

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Suite of Applications – Redflex SMARTops® Back-Office

Suite of Applications – Redflex SMARTops® Back-Office

Redflex offers our clients a suite of exclusive applications that allow the City of Solana Beach and the San Diego County Sheriff's Department to manage their photo enforcement program by accessing enforced intersection in real-time, managing citation authorization and violations, evidentiary information for court use and program reporting all through one source. These applications can be accessed through a secure web-portal, Redflex SMARTops®. This single sign-on back-office means users only need to have one login and password for all applications. Redflex is committed to providing our clients the best technology and the most up-to-date software applications on the market.

Incident History

Redflex's Incident History application is a web based application accessible to the City which provides access to view all program details as needed. Our Police partners benefit greatly from the Graphic User Interface (GUI) as it streamlines all citation management functions relating to post citation management into one website, saving significant time in managing their automated enforcement programs. This includes obtaining information about the history of a given citation, and other functions (i.e., dismissals, fee waivers, nominations, etc.). The following sections provide an overview of this tool.

Screen Search

The Search Screen will allow the user to enter the city (or state, if the city is not known) as the primary search criteria, followed by name or citation, plate, or incident number as the secondary search criteria. It also allows the user to search by the date/time/location. If the search finds only one incident, the user will go directly to the Incident History screen. If more than one incident is found, the interface will show a dropdown menu with the name, citation number, plate number, city, violation date, violation type, and incident number to allow the user to select the desired record.

Once the intended record has been located, the user will be able to navigate the incident history through defined tabs.

View Details

The View Details tab will access violation, vehicle and registered owner details for the incident as well as violator call-in logs. The "Details" link in the Nomination History box is meant to be a "quick view" of the nominated driver details (name, address, etc.).
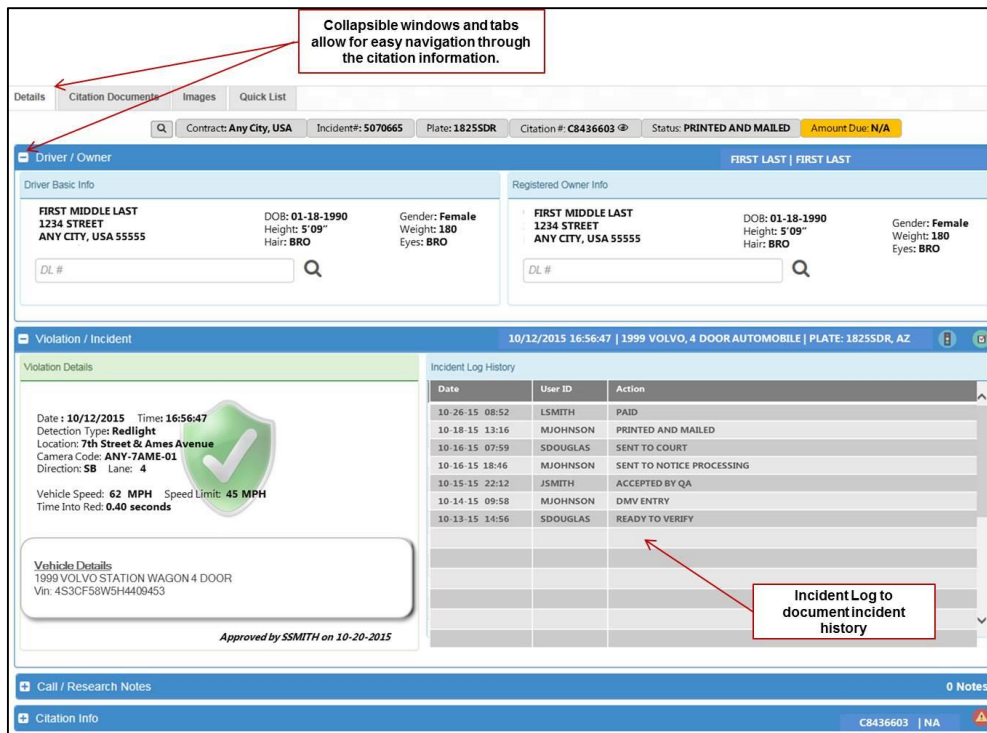
Documents

The Incident History application provides access to View Documents via a drop down list displaying all viewable documents to be selected by the user, including citations and subsequent citations(e.g. notice, corporate notice, second notice, nomination), payment letters (e.g. partial payments, defaults) and notices to appear.

Images

The Incident History application provides access to view images and the video clip related to each incident. The user will have the ability to select the desired image from the drop down list, as seen below. This includes the original raw image and the images that were modified during violation processing. This page also offers access to view the violation video and save the video locally to a PC, tablet or phone.

High Definition (HD) Live Streaming Video

Redflex has a wide range of customized, digital, state-of-the-art system solutions that can be arranged in several ways to maximize effectiveness for any given intersection, be it a standard or anomalous configuration. For the City's program, we propose utilizing a combination of digital, high-resolution, industrial-grade cameras with resolution ranging up to 11 megapixels, depending on intersection size and configuration.

The City will maintain access to live streaming video from each intersection through a secure URL/web address. This video is streamed in real-time and archived, and can be recalled on demand and utilized by anyone with approved access, through a secure website. Users will also have the capability to export a video clip and store it locally. This tool is commonly utilized for traffic management purposes, in response to accidents at emergency call centers, and also as an investigatory aid for non-traffic related matters.

HD Live Streaming Video is commonly utilized for traffic management purposes, in response to accidents at emergency call centers, and also as an investigatory aid for non-traffic related matters. Below are a few examples:
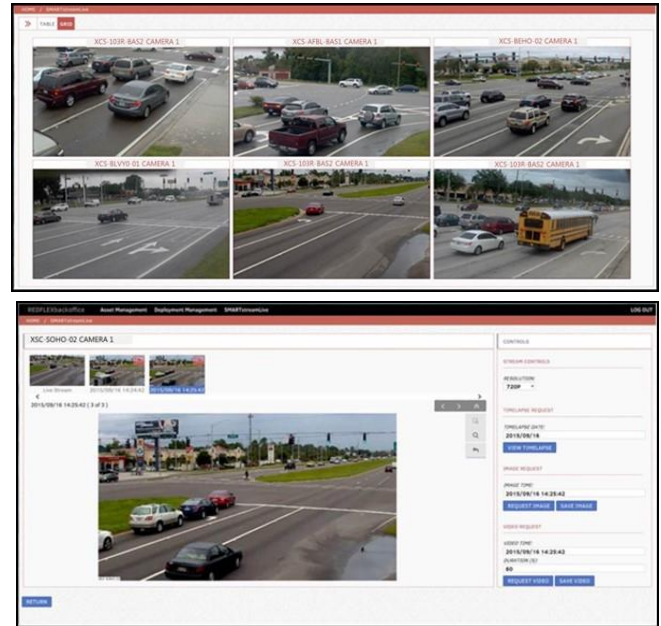
- Video archives were used in a high profile case to help identify the killer of a young female student that went missing. Detectives used this tool to find video of a truck following the student near a public location. They were able to retrieve video from earlier in the day of the truck at a Redflex approach based on unique features with the truck. The license plate was pulled and the driver's identity was confirmed along with other tips and evidence.
- Redflex video aided to identify a suspect of a red light running incident. The suspect fled the scene after driving over and killing a retired police officer who was serving as a crossing guard at the intersection.
- A motorcycle and truck were involved in a fatal accident where the driver of the motorcycle was killed. The original findings were that the driver of the truck was at fault however based on Redflex video it was determined that the motorcycle was actually speeding and at fault in the accident.

Statistical Analysis and Reporting

The proposed program provides a comprehensive reporting package with numerous standard reports to be used to track the effectiveness of your program. The powerful Oracle relational databases underpinning our report generation function allows extensive management reporting to the City and system managers. Each report can be easily accessed on-line via a web-based application 24/7 by authorized personnel. Sample reports can be made available upon request.

The graphical user interface (GUI) was developed using the insight of experienced law enforcement professionals. Redflex facilitated user groups during development consisting of law enforcement representatives that were both familiar and unfamiliar with our company and with photo enforcement. The result of these groups was the development of the most "user-friendly" applications available in the market, which features intuitive navigation and logic. Reports are easily searchable and information can be effectively downloaded in MS Excel and ACSII Delimited formats. These reports are provided in "real-time."

- **Customer Management Report:** Details violations captured, rejected violations with reason and issued citations by location
- **Incident Lookup Report:** Allows the user to quickly locate a specific incident that occurred near a known date/time range at a specific location
- **Dismissal Report:** Shows all citations that have been dismissed for a selected date range
- **Operations Summary Report:** Provides program statistics for two separate date ranges to allow for comparison
- **Red Light Traffic Statistics Report:** Displays traffic counts by enforced systems
- **Red Light Offender Report:** Delivers red light violation statistics based on violator time in red, violation hour of the day, and violation day of the week. This report provides two output options: a graphical or tabular view
- **Zip Code Report**: breaks down number of notices printed by zip code for a given month.

- ⟲ **Work In Progress View:** Details the count of violations in each phase of processing, with data ranges to allow the County to monitor Redflex and approving Law Enforcement Officer performance
- ⟲ **Work Order Job Statistics**: details maintenance activity associated with each system. Reporting data includes both reactive maintenance (malfunctions) and preventative maintenance records
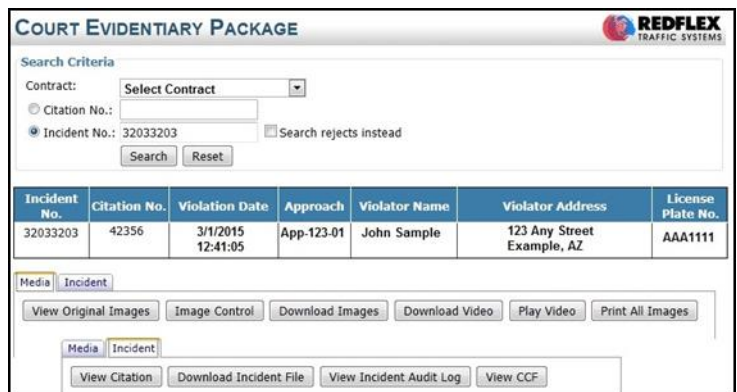
Ad-Hoc Reporting

Redflex will provide up to six ad hoc reports per year at no charge to the City. The following reports represent a sampling of the many customized reports that Redflex is able to create. Ad hoc reports will be emailed to the appropriate City / Waterloo Police Department personnel, the frequency of which will be determined by the City.

- ⟲ **Amber Phase Timing:** All detected approaches with amber phase duration outside of a set threshold (lower or higher) will be identified on this report
- ⟲ **Top 100 Photo Enforcement Offenders:** Identifies vehicles with the most photo enforcement offenses, including violation details and amount owed to the City
- ⟲ **Accepted/Rejected Incident Report:** Provides violation approval and rejection statistics specific to each approving officer. Report data will include the count accepted, rejected and total actions taken by each officer in the previous week
- ⟲ **Unpaid Citations Issued to the Jurisdiction:** Provides itemization and current status of all unpaid citations
- ⟲ **Status of Photo-Enforcement Citations:** Provides the itemization and status of all notices (including any balance due amount) since program inception

Court Evidentiary Package

Redflex provides our clients the option to generate court evidence packages themselves. The Court Evidentiary Package (CEP) application can be accessed through a secured Web based portal at the Authority's convenience, 24/7. Access to the application is granted when an approved user name and password is entered. The CEP Application, which is both user-friendly and intuitive, provides a comprehensive set of documents that supports a burden of proof by providing sufficient evidence that a traffic violation occurred, including: violation images, the violation video, a copy of the Notice of Violation, and other supporting documentation, such as the Certificate of Correct Functioning, for applicable systems.

System Accessibility

City and Law Enforcement personnel will be able to access our system from any internet connection. The Redflex application suite is comprised of web based applications, all which are accessible from any computer with internet access. Our applications allow for unlimited simultaneous users without degradation of service. Applications allow for multiple users to simultaneously view a single citation. The system includes a security and audit function that allows for the tracking of access, data entry and amending of citations.

Reliable, Accurate and Secure Capture of Violation Images

Redflex has taken the utmost care to ensure the security of the equipment and evidence contained within. We take a layered security approach to protect the system from the possibility of manipulation from outside sources. The cameras are designed to be in an optimal position to record only violation images in order to protect the privacy of the public.

Telecommunications Infrastructure

The Redflex solution was designed to maintain a secure chain of evidence. The system does not require data, images, or video to be physically or electronically transferred between different vendors and/or agencies. All incident data, images and video remain in a database at the Redflex headquarters facility, resulting in a preserved and secure chain of custody.

Redflex's software, the primary software used in Redflex's enforcement systems, has many features which allow Redflex to meet the security demands of the City. Our photo enforcement system is configured to encrypt all information and images associated with an incident beginning at the time of capture with a digital signature to provide authentication, authenticity and integrity to the incidents captured. Our photo enforcement system is configured to encode all of the data, images, and video associated with an incident into a single file incident package. Within the incident package, each data element, image, and video is digitally signed, as is the entire package. The individual elements and the entire package are signed using different hash standards. Cryptographic hash values are sometimes called (digital) fingerprints.

Once completed, the incident package is written to the camera system computer where an FTP-like file transfer system monitors for new incidents and transmits the incident data package to the Redflex data center in near real time. This file transfer occurs through an encrypted Virtual Private Network (VPN) tunnel that is maintained between the enforcement site and the Redflex data center, securing the transmission of all incident evidence and data between the two points.

Once the data arrives at the Redflex data center, it is imported into the Redflex processing system. During this import, the incident data is validated against business logic and enforcement criteria. Each import transaction is recorded, processed, authenticated, and archived. During the import process, the meta data associated with the incident is stored in a database. All images and video are stored on multiple storage arrays, and the original incident file is stored in the Archive. Redflex utilizes an Archive storage technology that exceeds the strictest regulatory requirements as it is a write-once, read many (WORM) storage device.

The combination of these controls ensures that the entire process, from point of capture through archive, is secured with the utmost of integrity. The process results in a vertically integrated solution with safeguards throughout the entire lifecycle of the enforcement process.

Secure Data Storage

All data is securely transferred from the enforcement systems to the Redflex data center. Redflex headquarters is a 76,500 sq.-ft. facility in Phoenix, AZ. which contains the primary data center. The data center is very complex and rivals a small ISP in connectivity and capacity. Redflex uses state-of-the-art enterprise equipment by such providers as APC, Cisco, Juniper, EMC, Compellent, EqualLogic, and Dell to ensure data integrity and uptime. The Redflex data center is protected by redundant cooling, UPS, a generator backup, and utilizes an efficient data center design.

Within the facility, only a core group of individuals has access to the data center including IT management, system administrators and network administrators. Access may also be granted for someone with an identified need for physical access only upon completion of a "10 print" fingerprint clearance and NLETS background check.

Physically, data storage is protected by a multi-layer system of physical barriers to entry. The primary data center is monitored 24x7 by multiple cameras monitoring every point of entry and egress to the facility. There are also cameras monitoring the entry and egress points to the Data Center itself. Access is controlled via card-key access assignments, and only pre-cleared personnel can open facility doors leading into the Data Center. The secondary (off-site), backup Data Center is protected by similar measures, as well as a professional security guard and an even more limited entry list than the primary data center. Additionally, the secondary data center is protected by a private cage enclosure, to which only Redflex authorized employees have access.

Data is protected through a layered security approach which includes multiple vendor firewalls, IPS, and a SIEM product. Redflex constantly monitors for potential security threats and utilizes several different data storage protection and preservation technologies, including disk-to-disk backup solutions, high spindle-count RAID array designs, multi-tier storage allocation, and off-site back-up and replication, as well as at-rest encryption of all personally identifying information (PII). Access to data is limited according to tightly monitored and controlled electronic policy implementation. Internal users are only granted access to data based on job responsibility and role and access may be limited based on the user's ability to pass the necessary background checks.

The Redflex data center and co-location data center are connected by a high-speed private connection. Redflex owns all the hardware at the co-location site. By using this methodology, Redflex is able to implement technology and solutions that will minimize recovery time and restore windows. This also allows Redflex to minimize if not eliminate the potential for lost data. In the event of a disaster at the processing site, Redflex's real-time data replication environment allows for a much faster and more reliable data recovery than in a standard tape backup environment.

With the use of real-time data replication, there is no nightly backup window or nightly backup delay. Since all the production systems are backed up to disk arrays, times are significantly faster (compared to tape recovery), as multiple recoveries can take place simultaneously, if necessary.

Redflex will store violation data for the City based upon the legal retention policies imposed by the state and agency. The Program Manager will work with the team to identify the rules of the program, defining data retention and archiving policies.

Two-Factor Authentication

Redflex has also implemented another layer of security to help keep data secure. Two-Factor Authentication provides an additional layer of security when logging in or preforming transactions online. This improved security measure has been rolled out for all Redflex client account users. Redflex will provide Solana Beach a set of tokens, similar to a key

An added layer of security, Redflex offers a token or a security application to generate a one-time-use passcode for two-factor authentication.

fob, to be used in addition to their passwords when logging on to the system. This ensures that if a password is stolen, the person who stole the password will not be able to access your account because they will not have your token, and vice versa.

Redflex All-Inclusive Services

Redflex All-Inclusive Services

Redflex is excited to continue to offer the City an all-inclusive suite of services designed and implemented to guarantee the City's photo enforcement program generates excellent customer service and eliminates the need for constant City intervention. Redflex does this by creating all applications and performing all functions of the program in-house. Redflex will continue to provide the City with industry-leading customer service to ensure that all City and program needs are being met.

Adjudicatory Support

Interfacing with Adjudicatory Agencies

Our equipment and services have been developed to seamlessly integrate with the programs and systems that courts already have in place. Violation information is accessible by any agencies to which the City grants access. There are no equipment or software requirements for the court or clerk's office; everything is web-based with secure logins to maintain chain of custody requirements. This component of implementation includes:

- Obtaining existing processing and administrative requirements from the clerk
- If a third-party Client Records' Management System (CRM) is in use, working directly with the CRM programmers to co-develop any new reports or data files for transmission
- Designate frequency and content of file transmissions to and from Redflex
- Law enforcement will be able to access our court evidentiary package module to download any evidence required for a contested case

Redflex also offers a hearing scheduling service by which violators have the ability to schedule a court date by contacting our Customer Call Center or by mailing in a hearing coupon.

When a hearing is requested, Redflex will change the violator's status to "Hearing Scheduled" and automatically mail a notice to the violator. We are also able to send an Outlook calendar invite to appropriate personnel. This will aid the Sheriff's Department in coordinating schedule for an appropriate person to attend the hearing on behalf of the prosecution.

Custodian of Records

The jurisdiction will remain legal Custodian of Records for their data and images; the jurisdiction will work with Redflex Traffic Systems Inc.'s Corporate Custodian of Records to safeguard the evidence collected through our enforcement system (the jurisdiction owns the data). When a person receives a citation, they have a legal right to a hearing if they choose to contest their notice. Upon receipt of a written request, Redflex shall provide a certified copy of the evidence/records to be used during the trial/hearing. Or, in lieu of contacting Redflex for the evidence package, the jurisdiction will have the ability to print the documents themselves, 24/7.

Typical evidentiary packages include a copy of the citation/notice that was sent to the violator, a copy for the original images of the violation incident (un-zoomed and un-cropped), maintenance records (if necessary or upon request), the original 12 second video (if necessary), a Declaration of Technology that explains how the system works and safeguards in place to ensure security of the data and information. If necessary, we can work with the jurisdiction to ensure that a correspondence file is part of the history for the violations and then if necessary to supply copies of correspondence that is received by Redflex.

Redflex also provides our clients the option to generate court evidentiary packages themselves. The Court Evidentiary Package (CEP) Application can be accessed through a secured Web based portal at the jurisdiction's convenience, 24/7. Access to the application is granted when an approved user name and password is entered. The CEP Application, which is both user-friendly and intuitive, provides a comprehensive set of documents that supports a burden of proof by providing sufficient evidence that a traffic violation occurred, including; violation images, the violation video, a copy of the citation, and other supporting documentation, such as the Certificate of Correct Functioning.

Expert Testimony

Redflex fully supports and provides ongoing expert testimony, as reasonably necessary, at contested court hearings. Redflex kindly requests 14 business days' notice in advance of court proceedings in order to provide expert testimony.

Throughout the term of this agreement, Redflex shall provide system training to police personnel as often as reasonably necessary in order to allow such personnel to act as expert witnesses on behalf of the City with respect to the program.

System Maintenance

Redflex's maintenance team has one goal in mind: to provide our clients with the most advanced photo enforcement systems in the industry with little to no system downtime. To accomplish this goal, Redflex offers a three-pronged approach to our system maintenance to ensure minimal system downtime and delays: 1) daily remote, 2) preventative and on-site maintenance, and 3) emergency maintenance. This combination ensures correct functionality, high yields and the most stringent assurances on the levels of legal defensibility.

All photo enforcement equipment maintenance will be the responsibility of Redflex; no involvement will be required by the City. Redflex will be responsible for daily verification of each site's operational status and will immediately notify the City upon detection of any camera or system malfunction.

Daily Remote Maintenance

Essential daily maintenance and support activities will be provided by a field technician and the Redflex Customer Service Center (CSC). This includes both onsite field based activities as well as daily remote diagnostic systems check which serve to ensure correct functionality, to establish the highest yields and to guarantee the most stringent assurances on the levels of legal defensibility.

Daily remote diagnostic checks include image quality assessments and system performance analysis. Remote fault diagnosis and resolution is available for a wide variety of system performance issues. Those issues unable to be resolved remotely via the CSC will be serviced by our local field Technician.

The CSC utilizes numerous proprietary tools, methods and resources for identifying and resolving any issue that may arise throughout the life of a photo enforcement program. All Redflex photo enforcement systems have been designed to automatically notify appropriate personnel of systems failures. Below is an overview of some of the tools available to our Redflex field technicians and CSC to identify system issues as quickly as possible to reduce system downtime:

SMARTview Plus™

SMARTview Plus™ is a proprietary tool we use to review recent images from all violations at an approach, and to review the images that are being produced in near real-time. The images become available as soon as they are imported into Redflex's Central Server, prior to processing.

The CSC uses this tool to perform daily image analysis and proactively catch and resolve any image quality, camera or computer issues in an effort to reduce the amount of incidents affected. Issues may include flashes not firing, constant flash firing, plate image outside of the frame, incident video unattached, pixilation or distortion of the images, and vandalism.

Daily Variance Reports (DVR)

We use Daily Variance Reports (DVR) to proactively identify sites that have not reported in the past 12 hours. These reports show the time of the most recently recorded incidents and the average number of incidents over the past three months and past 12 months. If a variance exists +/- 10%, then we can conduct an operational check to explore and resolve the issue.

While reviewing images, our maintenance team looks for issues that could cause a violation to be rejected, as well as the date and time of the last incident. If an issue is found, we can resolve the problem remotely from the CSC or assign a maintenance technician to investigate.

Digital Camera Management System (DCMS)

DCMS is a system for remotely monitoring cameras and environmental alarms. When a failure is detected at an approach, a list of some 46 alarms will notify both your field technician and the CSC, ranging from brightness level, hardware failure, certificate expiration, traffic light failure and much more. The alarms span five levels of severity – Minimal, Medium, Serious, Critical and Severe – allowing us to better gauge and allocate maintenance resources. Once a failure is acknowledged, a CSC team member will investigate and the alarm will be removed so other users monitoring the same dashboard can address other problems as they are presented. Once the issue has been resolved, DCMS will clear the alarm automatically.

Inventory/Asset Tracking System

Redflex utilizes an Enterprise Resource Planning (ERP) system that greatly enhances our ability to proactively maintain enforcement systems.

The ERP system allows for tracking "mean time to failure." The software features Quality Management Functionality offering full integration for managing quality processes and nonconformance's, including the ability to track parts that are returned from the field for repair. Using this information, we can analyze the product service life and failure rate to determine mean-time-between-failures.

Once Quality Management has identified a part has a high failure rate, the system will inform Redflex where the part is located in the field. The ERP will then create Service Orders and your field technician will replace the parts before they result in downtime for a site.

Preventative & On-Site Maintenance and Calibration

This phase of the maintenance program is based on a strict regimen of various strategic checks. These steps, along with the immediate response to problems as they arise, are pivotal to both system uptime and increased issuance rates. During this process your field technician will conduct image quality assessments, system performance and statistical analysis of the equipment.

A maintenance log will completed by the maintenance technician during Redflex's scheduled maintenance. This maintenance includes both system checks and a physical inspection. To ensure that the system is running at peak performance and that all hardware and software is functioning properly, a thorough system check is performed.

Service orders are automatically generated on a monthly basis for each site to ensure maintenance inspections are performed. While on site, maintenance technicians complete a form indicating which items have been checked. The on-site checks are detailed in the Preventative Maintenance Check List, including review of the following items:

- Cleaning the camera enclosure glass
- Verify that all signage is in place
- Inspect enclosure, cables, connectors and hardware for signs of leaks, wear and/or damage and to ensure proper alignment

- Inspecting inductive loops for signs of wear or damage
- Testing enclosure safety devices for proper operation to ensure safe working conditions for maintenance personnel and the public to operating voltages

These maintenance forms are stored electronically and are available upon request. When a situation arises, Redflex will begin initial maintenance work as quickly as possible and keep the City informed of our action plan.

Emergency Maintenance

Major issues and knockdowns will have an agreed resolution plan, to be approved by the appropriate <MUNICIPALITYTYPE> personnel. These types of issues typically require the use of a subcontractor due to their severity, but it is Redflex's commitment to work with the utmost speed to have the site or the vehicle functional as soon as possible.

In the event of main power failure data collection and system clock will continue to capture accurate data and no data will be lost.

Training City, Law Enforcement, and Court Personnel

With a continuation of Redflex's program, training of City personnel will be minimal as the team is familiar with our program. Redflex will continue to provide refresher training and training on all new hardware and software to all personnel that will be working closely with this photo enforcement program. Redflex will provide training for any additional training/refresher requested by the City.

Should new team members join the team during the program, our client services team would be available to provide training. We will continue to conduct ongoing training throughout the life of the program so City staff remains current on the latest processes and technologies.

Ongoing Training Options

- **Specialized On-Site Training at Customer Location:** We can conduct additional sessions at the client's location as needed, including "refreshers" from previous trainings or sessions on new technologies.
- **One-on-One Training:** We are available to conduct customized, one-on-one training sessions, if needed, to help staff members improve efficiencies and enhance their understanding of photo enforcement systems and processes (additional cost, outside of quarterly training and regular account management audits).
- **Computer-Based Training:** This program is available 24/7 to allow easy access for new employees or as a refresher for existing employees.
- **Expert Witness Testimony:** Provides a hands-on review of the documentation available in a court package and how that documentation is relayed in a court forum. Each piece of evidence is reviewed and discussed in depth, and mock trials are held to assist in understanding of photo enforcement technology, processes and operations.

Public Outreach

A consistent, strategic public relations plan is vitally important to advancing the City's traffic safety message. Redflex will continue to assist the City in building a proactive, simple to execute, annual communications plan in support of the its photo enforcement program. This plan will communicate the goals and successes of the program and correct misinformation in the marketplace. Redflex's goal is to serve as a strategic partner to the City, ensuring the long-term success of the photo enforcement program.

Website

Redflex will continue to work in partnership with the City to ensure the City's website remains a useful and powerful public information tool. Redflex will continue to assist the City in updating its website with any new information regarding its photo enforcement program.

Administrative Office of Courts – Annual Report

Redflex will continue to prepare and send annual reports to the California Administrative Office of Courts to assist the City in meeting their obligation to have red light photo enforcement enabled in the City. Redflex has prepared this report for the City of Solana Beach and other California clients since the requirement was implemented and will continue to do so at no additional cost to the City.

Violator Payment Options

Redflex offers multiple payment options for violators including: mail-in, online, retail locations and our call center. We offer this wide range of payment options to achieve the highest possible rate of citation payment.

By Mail

When paying a citation by mail, the individual will be asked to enclose the citation and personal check, money order or cashier's check for the fine amount and court costs indicated on the front of the citation. Checks will be made payable as directed by the City of Solana Beach and will be mailed to a specified Court address.

Online

Photonotice.com is a company developed and maintained secure website which provides customer support to address citizens' concerns, while allowing for viewing of violation images and the violation video clip and for payment of the citation. The website is typically printed on the citation for ease of accessibility for the violator. This web based application can be accessed by violators 24/7 from any internet connected computer. The violator will be able to submit a payment through this website. The payment would be directed to the court system or into a lockbox account maintained by our company.
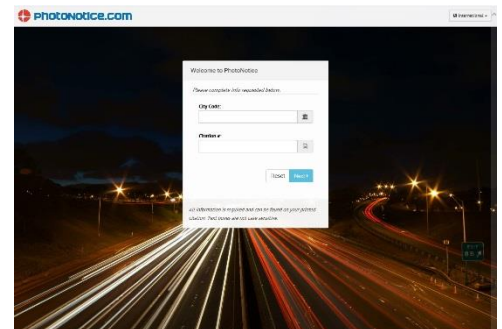
Call Center

Incoming citizen inquiries will be answered at our toll-free multilingual customer service call center located within our Glendale, AZ headquarters. The call center is designed specifically for the public.

The Redflex call center is staffed from 6:00AM – 5:00PM CST, Monday to Friday, by a team of approximately 20 customer service staff. Half of the team is bilingual, speaking English and Spanish. The Redflex Call Center provides general information regarding citations, payment option, hearing process, nomination of a driver, and eligibility for traffic school. Additionally, the call center accepts violator payments over the phone and provides a receipt via email or fax. The call center also accepts requests to reschedule hearings and engages with local offices to complete these requests. All calls are recorded for quality assurance purposes.

The Redflex Call Center accepts violator payments over the phone and provides a scheduling service in which violators have the ability to schedule court dates.

Interactive Voice Response system (IVR)

The Redflex IVR system allows the public to inquire about a citation via a citation number or license plate number. The public will be able to easily get citation information including the issuance date, citation number, license plate number, past due date or balance due. Each call will begin with a welcome greeting, the payment mailing address, details to make payments through the IVR or over the Internet via Redflex's photonotice.com, and instructions for contesting a citation. Callers will have the option of hearing information in either English or Spanish and the system is available 24/7.

Pricing

Redflex

Pricing

Fee Proposal

The Redflex all-inclusive red light program is offered to the City of Solana Beach at **$2,386 per month, per system at existing approaches.**

The full program has been outlined throughout the proposal, however is it important to note that our flat fee pricing includes the following aspects at no additional charge:

- All system hardware and software ……………………………………………........ Included
- Approach installation, construction, and maintenance …………………...……….....… Included
- Secure data transmission and storage ……………………………………..…..…………… Included
- Redflex 3-tier violation processing ………………………………………………….…….. Included
- SMARTops® back office including a tool for PD incident review and incident life cycle status …..…. Included
- Full in-house printing and mailing …………………………………..………………..……… Included
- Program training for authorized personnel ……………………………………..………….. Included
- Online program reporting module ……………………………………..……………….….... Included
- Unlimited users online applications ……………………...………..……………..………... Included
- Adjudication support ……………………………………………………………………….…… Included
- Public Awareness / Community outreach support ……………………..…………………….. Included
- Violator support including online incident review and variety of payment options …………….….. Included

We look forward to continuing to partner with the City to increase safety throughout the community.

Redflex

FOR A WORLD ON THE MOVE