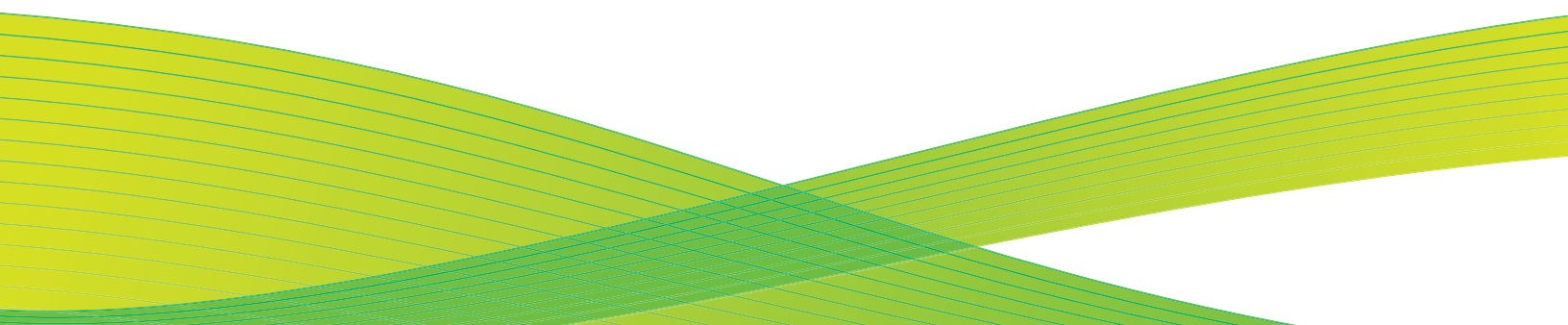


Stop in the Name of Safety: How Photo Enforcement Solutions Prevent Accidents and Save Lives

In too many cities, drivers see yellow lights as a signal to speed up. When they misjudge, they speed through intersections after the light turns red. Accidents, injuries and deaths result. Red-light cameras present a powerful deterrent to risky driving by changing the equation.

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Stop in the Name of Safety

A honking horn. The high-pitched squeal of brakes followed by a skid and an ear-splitting crush of metal. Another red light run.

According to the Insurance Institute for Highway Safety, motorists are more likely to be injured in urban crashes caused by red-light-running than in any other type of accident. In 2006, in the U.S. alone, close to 900 people were killed and an estimated 144,000 injured in these intersection crashes.

The best way to reduce this number is to change drivers' behavior. Get people to slow down when they approach an intersection, and motivate them to lose that "I can make it" mentality. One way to accomplish this goal is to park police officers at those intersections. Although this strategy is effective, it's not a practical use of limited resources that could be focused on crime prevention. That's why cities are turning to Photo Enforcement to automate the manual process of "the officer on the side of the road" – a strategy that is saving lives and making a significant impact.

Everyone's Starting to See the Light

Although the concept of photo enforcement is relatively new in the United States, it has been commonplace throughout Europe and in numerous international countries for decades. Initially used for speed-enforcement, the technology was then migrated to deter red-light-runners, as well.

A study conducted during several months at five busy intersections in Fairfax, Virginia, prior to the use of red-light cameras found that, on average, a motorist ran a red light every 20 minutes at each intersection.

Source: Insurance Institute of Highway Safety

The concept of photo enforcement was invented by famed Dutch racecar driver Maurice Gatsonides, who took a 35mm wet-film camera, embedded a data bar and integrated this image with technology that clocked vehicle speed. Although successful, this initial iteration required hours of manual work. Police officers were required to maintain the cameras, view as many as 150 rolls of film each day – typically, through a magnifying glass – and then physically type up the tickets.

Instead of taking time away from other police duties, today's photo-enforcement solutions act as a force multiplier, using digital technology downloaded to a centralized processing center to "cover" the appointed intersections. According to numerous independent studies, the solution delivers an average 40 to 50 percent reduction in accidents at targeted areas. In addition, it frees police officers to focus on crime prevention and other critical duties.

Bringing the Facts into Focus

In the United States, particularly, the proverbial red-light cameras have gotten a bit of a bad rap. Some factions believe that their main purpose is income-generation and that the goal is to "catch people in the act." The fact is, red-light cameras are set up to deter red-light-running, not to profit from those who do. The technology is sophisticated enough to capture only those vehicles that are in the intersection when the light is actually red. And, because extensive public information campaigns are a part of the photo-enforcement model, its goal, like the police car parked on the side of the road, is to prevent accidents by getting people to change their behavior.

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Source: Insurance Institute of Highway Safety

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Before implementing a comprehensive solution, Xerox works with a city client to identify the areas in need of the program, reviewing traffic-engineering data, crash data and configurations to identify the most dangerous intersections and the single point-of-travel within each intersection where the cameras will be concentrated. A typical system is comprised of four major components: detection system (loops or noninvasive technology), camera system, communications and an auxiliary flash. The system is activated only after the traffic light turns red, which eliminates the possibility that cars entering the intersection during the yellow or green cycle will be photographed.

When a violator runs the red light, the camera takes the first shot of the car in front of the stop line; the second shot of the car in the middle of the intersection, with the light clearly red; and video that makes the violation indisputable. As the camera is photographing the violation, all relevant information on the data bar – including the time, date and sequence number of the violation – is stored. The automatic integration of images and violation data results in tamper-proof photographic evidence, while eliminating data-entry errors.

The encrypted digital images are downloaded to the back-end server, reviewed twice based on the client's specific business rules, and sent to police personnel to verify the violation and vehicle information. Xerox personnel typically handle the processing and mailing of tickets and subsequent delinquent notices, as well as the collection of funds.

In addition to capturing red-light violations, this photo-enforcement system can also be set up to capture speeding violations on the green phase, achieving multi-purpose safety function from one system.

Xerox takes on all the construction responsibilities – from getting permits to installing equipment – and, in many cases, maintains the title for the equipment to save cities the burden of out-laying cash. Equally as important is the fact that Xerox manages the entire back-office operation, even creating a public portal that enables violators to view the photos pertaining to their case, schedule a hearing or pay their violation online.

A Strategy That Yields Results

The success of the program is often tied to the laws that govern the offenses, which can range from standard tickets to suspended licenses or delayed motor vehicle registrations for repeat offenders. In addition, when state legislation is not enacted, home-rule municipalities have the option to pass a local ordinance base on a code enforcement fine and impose financial penalties if the violation is not paid.

The state of Victoria in Australia is legendary for its success, using an aggressive red-light and speed-enforcement campaign to reduce T-bone accidents by 30 percent and casualties from those accidents by 10.4 percent, transforming it from the most dangerous to the least dangerous region in the country. Oxnard, California, reduced its front-to-side crashes involving injuries by 68 percent in the first four years of its program, even though only 11 of its intersections are equipped with photo-enforcement technology. A study in Fairfax, Virginia, showed that violations declined about 40 percent after just one year of photo enforcement. These represent a small sampling of success stories from around the globe.

Numerous studies have shown that well-planned photo-enforcement systems typically lower violations by between 40 and 50 percent.

In addition to keeping citizens safer, a well-publicized photo-enforcement program has a domino effect, not only on the police but on emergency medical personnel as well. Without the high number of injury-accidents caused by right-angle collisions, their resources can be focused on other pressing emergencies.

Currently, more than 300 U.S. jurisdictions have joined the worldwide movement toward photo enforcement. Although the goal is accident prevention, not profit-taking, most programs fund themselves. Those cities with a surplus from the program can apply these funds to their public safety initiatives. For example, Atlanta is investing its program surplus into building better roads and hiring more police officers.

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Mobility Brings More Opportunity

In addition to static systems earmarked for specific intersections, Xerox's photo-enforcement systems can go mobile for speed enforcement. Instead of being mounted on a pole or other structure, the system can be installed in a vehicle that moves from area to area. These mobile solutions can be used for neighborhood traffic control or in school zones to ensure motorists slow down and children remain safe. Recently, Illinois became the first state to initiate this technology for use in work-zone speed enforcement, to combat a growing number of construction worker deaths in the area.

The City of Chicago is currently placing photo-enforcement technology on up to 100 street sweepers to capture the license plates of violators who cause congestion and traffic problems by illegally parking along the streets. Similar technology is being explored by cities to combat illegally parked cars for bus lane violations.

In early 2008, the Kingdom of Saudi Arabia launched its visionary Automatic Traffic Violations Administering and Monitoring (ATVAM) program. This program, which currently is the largest of its kind in the world, is designed to help the Kingdom reduce traffic deaths and injuries by changing drivers' behavior. It includes up to 1,500 sophisticated photo-enforcement systems, in combination with traffic management and security systems, across the entire Kingdom. The model predicts that revenue generated from speeding and red-light-enforcement tickets will fund the entire countrywide project. As part of the program, Xerox was awarded a contract by Saudi firm Alesayi to implement the project.

Integration Makes the System "Go"

Xerox does not manufacture enforcement cameras, but remains a vendor-agnostic systems integrator. This approach enables Xerox to source the best-of-breed camera technology and select the most appropriate camera for each client's requirements. It also allows us to change or upgrade to different camera technologies during the contract, if new client requirements develop or new camera technology is introduced into the market that offers significant benefits beyond the previously installed technology.

These solutions can be applied to cities of all sizes, with different areas of needs. The first step is to pinpoint the real issues, and then identify where technology can be applied to address those issues efficiently. For some cities, that means placing cameras on street sweepers. For others, it could mean focusing efforts on the three most deadly intersections.

The key to all of these solutions – and to the public's acceptance of them – is a well-defined public information campaign. Because the goal is to change behavior, not to catch people in the act, making sure residents know about the program and camera locations is critical to its success.

A 2006 study of the red-light camera program in Garland, Texas, found crashes caused by red-light-runners decreased by 56 percent at intersections with cameras; crashes at intersections without cameras decreased by 38 percent.

Today, with limited resources, cities are forced to become more creative in dealing with ongoing challenges. Photo-enforcement systems can act as an extension of a city's police force, reduce calls for emergency medical personnel and, most importantly, save citizens' lives. It's a system that works, continually delivering double-digit results and making the streets safer for everyone.

You can learn more about us at www.xerox.com/businessservices.

About the Author

Barbara Y. Roberts, Vice President, Public Safety Solutions within Xerox Transportation Solutions Group, manages business development of photo-enforcement and violations processing. Specifically, Roberts identifies and develops strategic alliances, teaming partners and subcontractors for operational delivery, and evaluates technical market offerings for customer fit within solution architecture and delivery spectrum.

