



TRANSPORTATION REVIEW

AUTOMATED ENFORCEMENT

by Anne Teigen

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OVERVIEW

It's rush hour and you're running late. You glance up and notice that the green light just ahead turned yellow. You know that by the time you reach the intersection it will be red. You debate whether you should speed up and go for it. You're not alone; thousands of motorists face this dilemma every day. But it's dangerous and risky to run red lights. In fact, red light running—the leading cause of urban crashes—causes an estimated 137,000 motor vehicle accidents each year. In 2008, nearly 800 deaths resulted from these crashes. About half the deaths in red light running crashes are pedestrians and occupants in other vehicles who are hit by the red light runners. To curb intersection crashes, some communities have turned to automated enforcement. This technology allows law enforcement agencies to enforce traffic violations without depleting personnel resources.

This report provides an overview of camera enforcement technology and use. Action at the federal and state levels is discussed, as well as the experiences some states have had with this technology.

TECHNOLOGY

In 1910, Massachusetts began using a photo speed recorder. This device used a camera, synchronized with a stopwatch, to photograph speeding vehicles. The speed was calculated using mathematics based on the reduction in size of the motor vehicle in the photo. Photos were used in court as evidence and were held admissible by the Massachusetts Supreme Court. The court viewed this enforcement as more reliable than the “fluctuations of human agencies.” More widespread use of camera enforcement technology began in the early 1970s. Use of camera enforcement technology has become more widespread in the United States during the last 20 years.

Automated Enforcement Definitions

Automated enforcement - Photo radar and red light cameras often are referred to as automated enforcement technology.

Red light cameras - These devices, installed at intersections, are connected to sensors. The sensors, synchronized with the traffic lights, can detect vehicles driving through intersections on red lights. The sensors trigger the cameras that record the day, time and place of the violation. The photos are then used to determine the vehicle owner, and a citation is mailed.

Photo radar - This term describes radar devices that detect speeders, then trigger cameras. Typically, the camera takes two photos, one of the vehicle front and one of the back.

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Nearly all automated enforcement systems function the same way. Red light cameras are connected to the traffic signal system and can monitor red, yellow and green phases. Sensors detect the vehicle and its speed. After the light turns red, a vehicle traveling over the detectors will trigger the camera, causing it to take two photographs. One photograph shows the vehicle entering the intersection while the light is red, and the second shows the vehicle driving through the intersection on a red light. The cameras are set to photograph vehicles that enter the intersection after the light has turned red, not to photograph vehicles that enter the intersection on a yellow light.

As with most technologies, automated technology capabilities change frequently. New software allows cameras multiple fields of view, capturing images of both the front and rear of the vehicle. Newer cameras can also monitor up to six lanes of traffic at once, increasing efficiency at large intersections.

Some devices use video-based instead of photo enforcement. Video cameras can be used to determine a vehicle's speed as it approaches the intersection, track the vehicle through the intersection and provide law enforcement agencies with a brief video sequence of the violation.

Automated enforcement of speed violations is similar. The camera is typically connected to a speed measuring device and a computer. The speed measuring device detects speeders and triggers the camera unit. The photos—with the date, time and speed recorded—then are used to identify the vehicle owner, and tickets are generated and distributed.

FEDERAL ACTION

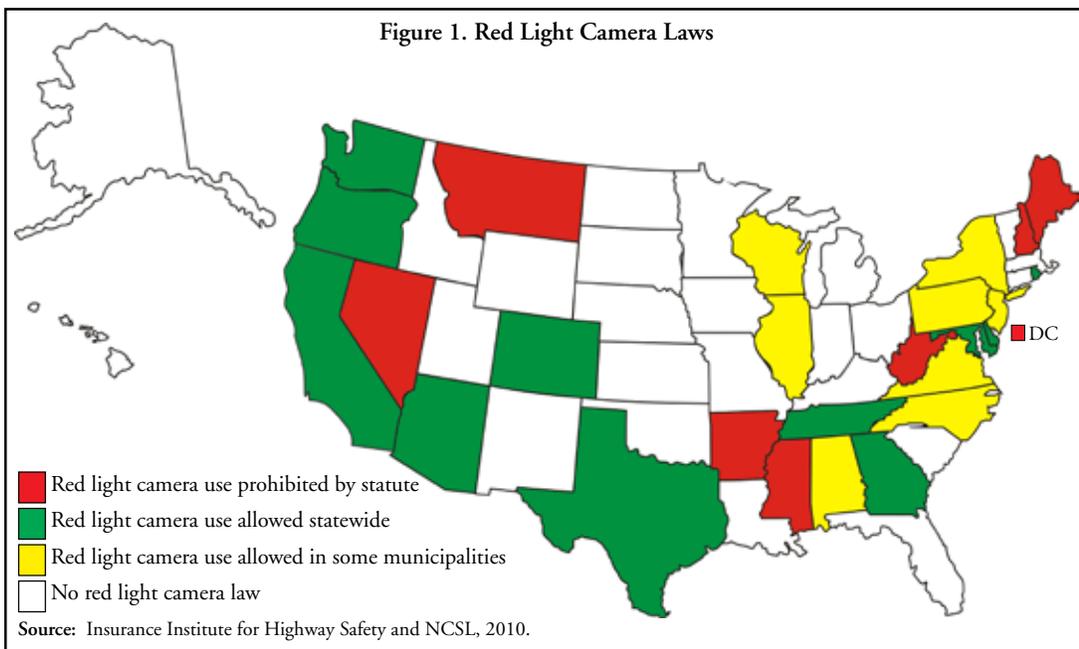
In 1992, the National Highway Traffic Safety Administration (NHTSA) funded a two-year test of photo radar in New Jersey. Although photo radar was not a new technology, it had been used in only a few communities in Arizona, California and Texas. The grant-funded project was implemented in three phases. The first phase called for advance warning for motorists through electronic message boards stating that the cameras were in use. The next phase comprised the basic operations of the project, including clocking the motorist, photographing, and tracing the vehicle and drivers. The final phase was the enforcement or mailing the tickets.

In 1995, the Federal Highway Administration (FHWA) established the Stop Red Light Running Program, designed as a community safety program. The campaign, still in effect, provides state and city agencies with educational materials designed to help reduce red light running. The National Stop on Red Week is celebrated annually during the first week of August. State and city enforcement agencies observe the week by displaying safety messages along roadways, conducting press conferences, and passing out "Stop on Red" posters featuring professional athletes.

The Federal Highway Administration and NHTSA jointly published *Red Light Camera Systems Operational Guidelines* in 2005. The nonregulatory guidelines were designed to help state and local governments develop effective red light camera programs. The document provided information about engineering, public education and enforcement strategies.

STATE ACTION

Twenty years ago, no jurisdiction in the United States used automated enforcement to enforce traffic laws. Today, more than 400 communities nationwide use it. City and local governments in Alabama, Arizona, California, Colorado, Delaware, Florida, Georgia, Illinois, Iowa, Louisiana, Maryland, Massachusetts, Missouri, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Virginia, Washington and the District of Columbia use cameras. In most cases, state legislatures have passed enabling statutes that allow city and local governments to use the cameras (Figure 1). Laws vary from state to state; some authorize statewide enforcement, while others permit its use only in certain communities. Although Florida, Iowa, Ohio and South Dakota do not have specific statutes, cameras are used in certain cities.



State laws regarding automated enforcement generally establish guidelines for municipal governments. A 2009 Alabama law authorizes the city of Montgomery to use automated enforcement for red light running. Montgomery and a few other municipalities had city ordinances approving red light cameras, but the state law validated the ordinances. Provisions in these automated enforcement laws generally allow enforcement agencies to ticket the vehicle owner by mail. The New York law makes registered vehicle owners responsible, regardless of who was driving the vehicle at the time of the offense.

During the 2009 and 2010 legislative sessions, lawmakers in nearly 30 states considered bills relating to automated enforcement. Some states, such as Florida and Hawaii, considered adopting new automated enforcement programs, while others debated bills to amend automated enforcement laws. A few states introduced legislation to prohibit automated enforcement altogether.

Florida and Hawaii bills introduced in 2010 would establish photo red light detector programs. Hawaii's bill failed to pass out of committee, but Florida's HB 325 passed the Legislature. The law requires the Florida Department of Transportation to administer the program. Cities and counties must enact ordinances allowing use of red light cameras at certain intersections. Use of red light cameras in some Florida municipalities to issue traffic citations has been challenged in court. The city of Aventura, Fla., began issuing red light camera tickets in 2008. A motorist filed suit, arguing that Florida state law requires the Legislature, not cities, to pass traffic laws. The judge ruled that the motorist's traffic citation issued because of the red light camera was void, but he did not say the city had to stop using the cameras. Appeals in the case were pending until passage of HB 325. The law now allows Aventura and other Florida cities to legally issue red light camera tickets.

In the last two years, several automated enforcement bills have been introduced in the Illinois legislature. Some bills addressed growing concerns by motorists that red light and photo radar cameras are used solely to generate revenue. A *Chicago Tribune* series about red light cameras in April 2009 showed citations issued to motorists who did not stop for the required number of seconds before turning right on red. The *Tribune* also noted that citations were issued if the vehicle stopped, but the front of the vehicle passed the crosswalk line. A 2010 resolution encouraged municipalities with red light cameras to not issue tickets to motorists who properly execute right turns at red lights. Illinois legislators also introduced, but did not pass, a bill to lower the maximum fine for an automated enforcement violation. A bill to require municipalities that use red light cameras to provide the recorded image of the violation to the alleged violator on a website was signed by the governor on July 9, 2010.

The Arizona Department of Public Safety began installing traffic cameras in September 2008, and the Legislature proposed changes to the state's current statute in 2010. House Bill 2338 and Senate Bill 1018 passed and were signed by the governor in May 2010. One provision in the new law requires all yellow traffic signal lights to last three seconds. The law also requires that speed cameras not be placed within 600 feet of a posted speed limit change.

The fines and penalties for automated enforcement citations vary from state to state. In New York and Virginia, a red light running citation carries a \$50 fine. In Arizona, both red light running and speed violations come with a \$165 fine. Delaware considered increasing the maximum fine for a red light violation from \$75 to \$100, but the bill did not pass out of committee. Most states do not assess driver's license points against motorists who receive an automated enforcement citation.

In 2009, Maine, Mississippi and Montana passed laws that prohibit counties or municipalities from using automated enforcement. Mississippi's law required cities or counties using photo enforcement to stop by October 2009. Under a Montana law, photo enforcement at rail grade crossings is allowed, and Maine law allows photo enforcement of toll booths. In 2010, Florida, Illinois, Missouri, Louisiana, South Dakota and Tennessee introduced bills prohibiting red light camera use statewide.

Opponents of red light and speed cameras argue that states and cities use them as revenue generators. The Insurance Institute for Highway Safety (IIHS) stated that revenue is generated from

finer paid by drivers who continue to break the law and run red lights, just as drivers are fined for any other traffic violations. In 2007, The International Association of Chiefs of Police (IACP) passed a resolution recognizing problems with automated enforcement programs that are not carefully planned, implemented or operated. To avoid concerns about automated enforcement being a revenue generator, the IACP offers guidelines to improve automated enforcement programs and ensure they are used primarily to improve traffic safety.

EVIDENCE OF EFFECTIVENESS

Red light cameras have been shown to reduce both red light violations and crashes. An IIHS study in Oxnard, Calif., showed that red light violations dropped 42 percent after cameras were installed. Another IIHS study found that red light violations in Philadelphia were reduced by 36 percent following increased yellow light timing; the addition of red light cameras reduced red light violations by 96 percent. The most recent data released from the city of Dallas, Texas, shows that intersection crashes caused by red light running fell by an average of 61 percent, and intersection crashes of all types fell by an average of 30 percent. The effectiveness of red light cameras in reducing red light running and crashes has been questioned in recent years by University of Southern Florida researchers. One study claimed red light cameras increased crashes by making motorists stop abruptly and not clear the intersection.

CONCLUSION

According to the National Highway Traffic Safety Administration, 40 percent to 45 percent of all crashes occur at intersections. Due to a lack of resources, many cities and local governments often are unable to effectively enforce some traffic laws. By using automated enforcement, cities and communities can enforce laws that help keep their roads and intersections safe without diverting law enforcement personnel from other areas. Some see this type of enforcement as an invasion of privacy or simply a revenue generator. Twenty-five states and the District of Columbia have passed legislation to address city and local government use of automated enforcement.

SELECTED RESOURCES

AAA Foundation for Traffic Safety, <http://www.aaafoundation.org/>

Insurance Institute for Highway Safety, <http://www.iihs.org/research/qanda/rlr.html>

International Association of Chiefs of Police, <http://www.theiacp.org/PoliceServices/ExecutiveServices/ProfessionalAssistance/RedLightCameraSystemSpecifications/tabid/249/Default.aspx>

Federal Highway Administration, <http://safety.fhwa.dot.gov/intersection/redlight/>

National Highway Transportation Safety Administration, <http://www-nrd.nhtsa.dot.gov/Pubs/811170.PDF>

Statenet.com.



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