

Automated Enforcement for Speeding and Red Light Running

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Speeding and red light running are traffic violations that cause significant problems for highway safety. Both violations are major contributors to fatal crashes:

- ◆ According to the National Highway Traffic Safety Administration (NHTSA), speeding was a factor in almost one-third of all fatal crashes nationwide in 2011 (1).

- ◆ In crashes that involved red light running in the United States in 2011, 714 people were killed, and an estimated 118,000 were injured (2).

Enforcement, however, can be effective in preventing both of these dangerous driving behaviors. States and local agencies can use automated enforcement to reduce the prevalence of excessive speeding and red light running and can improve roadway safety for all users.

Agencies that operate successful automated enforcement programs provide valuable models. By understanding what makes a program successful, other agencies can improve or start their own programs. The National Cooperative Highway Research

Effective enforcement of laws against speeding red light running can decrease injurious crashes and increase road safety.



Digital photo radar vans—above, in Portland, Oregon—are among the enforcement techniques explored in NCHRP Report 729.

Program (NCHRP) has published NCHRP Report 729, *Automated Enforcement for Speeding and Red Light Running*, which examines successful automated enforcement programs and explores the factors contributing to success; the report also describes and draws lessons from the experiences of programs that were not successful (3). The research project performed a comprehensive assessment of automated speed and red light running enforcement activity in the United States and Canada.

Guidelines for Success

The guidelines presented in NCHRP Report 729 span the initiation and operation of an automated enforcement program that will enhance safety, garner public support, adequately use resources, and have a strong legal foundation. The guidance applies both to agencies that currently have programs and to those interested in starting a program. The following provides a brief overview of the guidelines.

Problem Identification

The first step is to determine if a traffic safety problem exists and to confirm that red light running or speeding is causing crashes. This helps the stakeholders establish a communication strategy to help the community understand the problem and the



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potential solutions. Jurisdictions should rule out other contributing factors that may increase the occurrence of violations, such as improperly timed traffic signals or limited sight distance, because these may require countermeasures other than enforcement.

Planning

Before installing or deploying a system, a jurisdiction must undertake several planning steps to establish an automated enforcement program. The planning stages are critical to the success of the program. First, a jurisdiction must obtain authorization; the enabling legislation varies from state to state. Next, determine the lead agency and the other entities that should be involved.

A variety of groups within an agency or department of transportation can operate an automated enforcement program, but the police department is recommended for the role of lead agency. Because the camera programs are a function of enforcement, this logical organizational structure has proved successful for many programs, particularly in collaborating with other agencies within the jurisdiction.

Although one agency should lead the automated enforcement effort, many jurisdictions involve several agencies in the development and management of the program. The other agencies should be able to contribute their perspectives and concerns early in the process, to ensure a truly collaborative approach to reducing speeding and red light running. Agencies that should be involved in the planning and operations of the program include the police department, the traffic engineering department, the department of motor vehicles, and the court system.



In Portland, advance warning signs of photo enforcement are posted at city limits. Informing the public is a crucial step in implementation.

Creating an enforcement program within a jurisdiction may necessitate the establishment of a new traffic unit or the hiring of personnel to oversee the program. This will depend on the size of the program and the lead agency. Agency personnel will be needed to manage and oversee the program, as well as to respond to public and media requests for information.

The agency should maintain control of the program and not delegate management and oversight to the vendor or contractor. Nonetheless, the agency should take advantage of the expertise and resources of private company personnel. This balance will affect the agency's staffing.

Informing the Public

Informing the public about the program is key, particularly about the location of the camera installations, the process for adjudication of citations, and the use of the revenue, as well as how the program will be evaluated in terms of its effect on violations and crashes. A warning period before the full implementation of an automated enforcement program, in conjunction with a comprehensive public information campaign, has proved effective.

During the warning period, which should last at least 30 days, the jurisdiction operates the cameras and sends warning notices in lieu of citations. The warning period also allows the lead agency to work out any glitches in the system before citations are issued.



A police officer uses a speed gun to enforce traffic laws in Washington, D.C.

PHOTO: WAWAN VOTIA, FLICKR



PHOTO: AMERICAN TRAFFIC SOLUTIONS, INC.

Camera Installation

The most defensible and successful programs are based on a clearly identified safety need and an engineering analysis. A formal, documented process helps identify the most effective locations for deployment. A two-stage process is recommended: an initial screen to identify sites from data and statistics; then an engineering and feasibility analysis of the flagged sites.

Violation Data Collection and Adjudication

The location of the license plates on a vehicle—as well as the responsibility of the driver or the owner for the penalty—will determine what kind of images of the vehicle are needed—front, rear, or both. In addition to the images, a citation should include other relevant data such as the time, date, and location.

Information from red light cameras should include the amount of yellow time displayed before the red signal, the duration of the red signal at the time of the image, the date and time of the violation, and the location of the violation. For speed cameras, the data bar should include the speed of the vehicle, the posted speed limit, the date and time of the violation, and the location of the violation.

A violator who has received a citation in the mail usually has the option to contest it in court. A jurisdiction should be open to precourt meetings between a police officer and an individual who wants to contest a citation. These meetings often can resolve the issue and often result in a paid ticket, saving time and court costs.

Before the installation of red light or speed cameras, an initial screen to identify sites and an engineering and feasibility analysis are recommended.

Vendor Contract, Payment, and Fines

After establishing system specifications, jurisdictions should solicit vendors through a competitive bidding process. The specifications should stipulate agency control of the program and should avoid favoring a single vendor or proprietary technology. A flat fee structure for the payment of vendor services is the most acceptable arrangement from the public's perspective, because the fee paid to the vendor is not dependent on the number of citations.

The fines for red light and speed violations documented on camera will depend on the state's enabling legislation, which may specify the fines and types of penalties. The allocation of the proceeds from the automated enforcement program, including surplus funds, should be identified and communicated at the start of the program, because this can become a subject of contention and a target for criticism by the media. Unless the legislation specifies otherwise, any revenue remaining after payment for the cost of the program should be allocated to high-way safety functions.

Program Monitoring and Problem Intervention

Program monitoring should be conducted on two levels. The program's operation should be monitored daily; regular reviews can help identify and resolve concerns before the public, the media, or others raise the problems. The program also should be monitored on a regular, longer-term basis—such as annually—to identify the effect on crashes. If an annual evaluation is not affordable, an evaluation should be conducted one year after the program's initiation and then semiregularly, such as every three years.

When technical issues are identified, the system should be taken offline immediately; a faulty mobile unit for automated speed enforcement should be removed from the field. A multidisciplinary review team—including the program manager plus staffers from enforcement, traffic engineering, and public works—should meet in the field to assess the problem and discuss possible solutions. A collaborative approach to solving the problem speeds resolution.



Photo-enforced warning sign for right turns in Virginia Beach, Virginia. Transparency is key to public acceptance of enforcement programs.

Keys to Success

When used appropriately, automated enforcement can be a valuable tool to prevent speeding and red light running. Agencies seeking to implement an automated enforcement program should learn from the experiences of other agencies. At a minimum, a program should have the following qualities:

◆ *Open to the public*—The public must have knowledge, awareness, and assurance about the systems. Transparency and accessibility are important to the success of the program and to general public acceptance.

◆ *Motivated by safety*—Properly identifying red light running or speeding as the cause of crashes is critical to establishing a program. A program that is not motivated by safety will not succeed.

◆ *Strong enabling legislation*—Enabling legislation should be tailored to the local community needs and to legislative constraints. The legislation should provide authority for operating an automated traffic enforcement program without attempting to specify every component of the program.

◆ *Repeatable*—A well-run automated enforcement program should be repeatable at all stages, from initiation to site selection and evaluation. A program with well-documented, repeatable processes will help gain the trust and respect of the public and will encourage neighboring jurisdictions to follow the same protocol.

◆ *Monitored and evaluated*—Regular monitoring should evaluate the performance and operation of the program. Monitoring can help determine if the goals of the program are being met, ensure that the systems are operating correctly, and identify any conditions that may have changed that would require a modification to a system or to the program.

The guidelines in NCHRP Report 729 can help agencies looking to start an automated enforcement program or to improve a current program. Automated enforcement, however, should only be used as a supplement to traditional engineering, enforcement, and education countermeasures, never as a replacement for these measures. Officers should continue to provide traditional enforcement at locations equipped with automated enforcement.

References

1. *Traffic Safety Facts, 2011 Data: Speeding*. National Highway Traffic Safety Administration, Washington, D.C., 2013.
2. Red Light Running. Insurance Institute for Highway Safety. www.iihs.org/iihs/topics/t/red-light-running/topicoverview. Accessed September 12, 2013.
3. Eccles, K., R. Fiedler, B. Persaud, C. Lyon, and G. Hansen. *NCHRP Report 729: Automated Enforcement for Speeding and Red Light Running*. Transportation Research Board of the National Academies, Washington, D.C., 2012. <http://www.trb.org/main/blurbs/167757.aspx>.



For more information on NCHRP Report 729, visit www.trb.org/main/blurbs/167757.aspx.



Information collected by a red-light camera includes a vehicle's license plate; time, date, and location; and the duration of yellow and red signals.