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**Automated Enforcement of
Red-Light Running & Speeding Laws in Minnesota:
Bridging Technology and Public Policy**

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Automated Enforcement of Red-Light Running & Speeding Laws in Minnesota: Bridging Technology and Public Policy

Final Report

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Preface

Traffic crashes are a major public health and public-policy challenge throughout the United States, but it's something of a mystery why the public response to the carnage and associated financial costs remains muted. By any objective measure, something more needs to be done to stem the extraordinary losses due to motor vehicle crashes on American streets and highways.

According to the National Transportation Safety Board (NTSB), motorists and their passengers killed or injured in traffic crashes create major economic losses for society beyond the untold pain, disruption and human misery that crashes cause. In addition are the billions of dollars in property damage, plus the costs of emergency services and law enforcement costs due to motor vehicle crashes. The NTSB reports that society pays for nearly three-fourths of the losses through higher insurance premiums and taxes, but those dollar costs alone fail to reflect the total costs to society, or the opportunity costs that crashes impose on all of us.

This report reviews the use of technology to provide automated enforcement of traffic laws around the world and across the United States, especially red-light running and speeding, and continues with a focus on Minnesota.

Minnesota presents distinctive law-enforcement challenges from different factions of the political arena.

- Minnesota was the last state to adopt the .08-percent standard for driving while intoxicated (2005).
- Minnesota had a mandatory helmet law for motorcyclists—and rescinded it (2006).
- In 1986, Minnesota adopted a mandatory seat belt law. However, this was only a *secondary* seat belt law—meaning that police officers first had to stop motorists for another moving violation before citing them for not wearing a seat belt. Even relative to that time, it fell short of what many states had already insisted on, and it was only in 2009 that the law finally became a *primary* seatbelt law, allowing police officers to stop motorists for that direct purpose.

The use of automated enforcement to tag red-light runners and speeders is increasingly common across the United States and around the world. In this report we review the evidence and suggest how Minnesota can improve safety, cut deaths and injuries, and reduce the costs of accidents using automated enforcement.

Some citizens resent laws requiring that they take reasonable measures to protect themselves despite the fact that their negligence often imposes high costs on others as well as on themselves when they get hurt. Meanwhile others harbor (and express) a fundamental resentment of what they term “intrusive government” at all levels and the rules that they impose. In other words, *linking automated enforcement technology with effective and politically acceptable public policy presents genuine public safety and public-health challenges.*

Executive Summary

This report reviews the wide range of economic, political, technical and law-enforcement challenges and issues associated with the authorization and use of automated enforcement (AE) technologies for enforcement of red-light running and speeding laws in the United States. In addition, it summarizes the specific challenges facing Minnesota in putting these technologies to work to reduce the enormous costs associated with violations of traffic laws that contribute to motor vehicle crashes.

Chapter 1 summarizes the facts of the high cost of traffic crashes and their links to impaired and inappropriate driver behavior. A major and sustained effort—*Toward Zero Deaths* (TZD) on Minnesota roads—is underway as one approach to reducing crashes and their impacts on society.

Chapter 2 discusses the problem of red-light running, and the use of camera systems and other automated enforcement technologies that are available and used around the U.S. and across the world to identify and tag violators. It summarizes the legal basis needed to authorize the use of these systems in local law-enforcement jurisdictions.

Chapter 3 focuses on speeding, speed limits, and speed management programs. It examines the use of automated enforcement systems, and presents a series of case studies of effective applications of AE technologies to curtail speeding and reduce crashes linked with speeding.

Chapter 4 reviews the short life of the Minneapolis “Stop-on-Red” program that operated in 2005 and part of 2006 until it was halted by court order because there was no state law authorizing the City of Minneapolis to install and operate this or any other kind of “PhotoCop” system. It also reviews the yellow-light-phase controversy as well as assertions that the application of PhotoCop enforcement in Minneapolis was tinged with ethnic-racial bias.

Chapter 5 summarizes the history of the litigation that flowed from the case of Daniel Kuhlman, which led eventually to the Minnesota Supreme Court ruling that Minneapolis lacked the statutory authorization to implement automated enforcement of traffic laws, specifically red-light running.

Chapter 6 reviews a sample of the diverse political cultures across the United States and how they lead to the prohibition or the authorization of automated enforcement of traffic laws in different states and locales.

Chapter 7 identifies the various debates over automated enforcement: safety vs. revenue raising; what is private behavior and what is public behavior; what are appropriate procedures that must be followed when using automated enforcement; how reliable are the technologies; and how does the acceptance of automated enforcement depend on local attitudes and values.

The report concludes in Chapter 8 with a primer on the pros and cons of what steps are needed to authorize and implement automated enforcement of traffic laws in Minnesota.

A series of appendices provides the legal background needed to understand the possibilities and the obstacles to the implementation and use of automated enforcement of traffic laws.

Chapter 1: Background

The High Cost of Traffic Crashes

Traffic crashes remain a major problem across the United States. According to the National Transportation Safety Board (NTSB), motorists and their passengers killed or injured in traffic crashes create major economic losses for society, in addition to the untold pain, disruption and human misery that crashes cause. The NTSB reports that society pays for nearly three-fourths of those losses through higher insurance premiums and taxes, estimating that in Wisconsin in 2006, for example, each fatality costs \$1.2 million, and each injury about \$62,400 for a one-year total cost of \$2 billion for that state alone [1]. This report focuses on automated traffic law enforcement using “PhotoCop” cameras and radar speed enforcement, and provides information and guidance to the State of Minnesota that can lead to actions to reduce traffic deaths and injuries on city streets and highways throughout the state. The parts of the report include:

- Review of how automated traffic law enforcement reduces motor vehicle crashes;
- Description of Minnesota’s *Toward Zero Deaths* (TZD) Program;
- How electronic surveillance appears to modify driving behavior;
- The PhotoCop experience in Minneapolis;
- Legal frameworks that apply to the use of PhotoCop and other automated enforcement technologies;
- Politics surrounding the introduction and use of automated enforcement technologies;
- Technical issues associated with automated enforcement technologies; and
- Conclusion and recommendations for the State of Minnesota.

Traffic crashes are a much-studied problem with a general public consensus on their causes and consequences. On the other hand, there is less agreement from state to state and from locale to locale on what to do about them because of legal and political obstacles that stand in the way of deploying specific countermeasures.

At the national level, motor vehicle traffic fatalities totaled 42,642, with 2,575,000 injuries in 2006, with an economic cost of crashes estimated at \$230 billion for the year. Although the rate of deaths *per vehicle mile traveled* (VMT) has dropped slightly over the past decade to 1.42 per 100 million VMT, the steady rise in VMT has kept the annual death toll at unconscionably high levels—820 per week, plus weekly injuries of almost 50,000. [2]

Among crashes of all severities, one out of four occurs at an intersection, and of those most occur in urban areas. An almost equal number (23 percent) occur off roadways, with rollovers in rural areas the most common. Half of the passenger car fatalities in 2006 occurred as a result of frontal impact with another motor vehicle (32 percent), or side impact with another motor vehicle (18 percent). For light trucks, the rates are similar: frontal impacts (37 percent) and side impacts (9 percent). Red-light running is a major cause of crashes, deaths, injuries and property damage at signalized intersections. In 2003, for example, up to 1,000 Americans were killed, and 176,000 injured due crashes related to red-light running. [3]

The National Highway Traffic Safety Administration’s (NHTSA) approach to reducing deaths and mitigating injuries due to traffic accidents focuses on the “Haddon Matrix,” which arrays human factors, vehicle characteristics, and environmental characteristics against pre-event, event (i.e., the crash), and post-event conditions as a way to evaluate measures to avoid crashes or reduce their impacts (Table 1):

Table 1: Haddon Matrix

	Human Factors	Vehicle Characteristics	Environmental Conditions Type of setting (city, suburb, rural); road, weather, traffic conditions
Pre-Event	<ul style="list-style-type: none"> • Prevention • Driver behavior • Driver Training • Behavior Impairment 	<ul style="list-style-type: none"> • e.g., Volvo’s forward collision warning system 	
Event		<ul style="list-style-type: none"> • Improved crash worthiness • Better cars: brakes, tires, etc. • Crash avoidance; advanced technologies • Injury mitigation (air bags, seat belts, steering wheels, etc.) 	
Post-Event			<ul style="list-style-type: none"> • Rapid emergency medical response, e.g., On-Star notification

Source: [4]

Between 1960 and 2007, NHTSA estimates that 328,551 lives have been saved due to technical interventions such as seat belts, collapsible steering wheels, and air bags. Yet despite dramatic improvements in modern cars that reduce the severity of accidents while cutting deaths and mitigating injuries when accidents do occur, the fact remains that when it comes to the causes of crashes, 90 percent of them are due to at least one driver-related factor. [5] In other words, advanced technologies help prevent crashes and reduce their severity, but driver behavior—specifically red-light running and speeding—remains the major key to improved safety.

Driver Behavior and Traffic Safety

The major way to reduce traffic crashes is to modify driver behavior. As red-light running increased in the 1990s, interest developed among law enforcement personnel in finding out who the red-light runners are, where offenses occur, and what interventions might reduce this dangerous driver behavior. In response, a national telephone survey was administered to 5,024 U.S. respondents in summer 1999 to supply data for the national “Stop Red-Light Running Week” in September of that year. The survey focused on driving behavior in ten states (Ala., Ariz., Calif., Colo., Fla., Mich., N.J., N.Y., S.C., Texas) of special interest to the survey’s sponsor. [6] Based on national data, a profile of the typical red-light runner emerged:

- Is younger, driving alone, and is in a rush to get to work or school, in the morning, on weekdays;
- Is employed in blue-collar, low-tech jobs, jobs requiring less education, or is unemployed;
- Is more than two miles from home, and is more likely to have been ticketed for red-light running in the past;
- Is not necessarily frustrated with traffic conditions [7].

Red-light runners were also found to be less likely to use safety belts, and tend to have an above-average number of driving violations on their records. It was anticipated that red-light runners might be typical aggressive drivers, but the 1999 survey did not confirm that expectation.

Overall, over half (56 percent) of respondents reported running red lights, and almost one in five (19 percent) reported running at least one red light in the last ten encountered:

- Males (65 percent) were more likely to run red lights than females (50 percent);
- Parents with children ≤ 19 years of age were more likely to run red lights (66 percent) than were parents with older children (41 percent);
- Non-parents’ percentage (65 percent) was essentially the same as parents with younger children;
- Red-light running correlated well with age, with the youngest drivers (18-25) reporting the highest rates (75 percent), while the oldest group (over 65) the lowest (35 percent);
- Red-light running was reported as significantly more likely when drivers were alone (26 percent) than when they were with passengers (16 percent) or with children (5 percent).

With respect to drivers’ reasons for red-light running on urban streets and roads, researchers expected them to include feeling rushed, frustrated, and concerned about time.

- When late and nearing an intersection with a signal about to turn red, almost three of ten (29 percent) reported a tendency to speed up to beat the light;
- Those who slowed or stopped were motivated by safety (58 percent), fear of a crash (11 percent), obeying the law (15 percent), or a sense that it was the right thing to do (8 percent);
- Those speeding up to beat the light explained that they were in a rush (35 percent), to save time (34 percent), or frustration over having to stop again (12 percent), while a few (3 percent) enjoyed the thrill of beating the light;

- The biggest source of frustration reported were discourteous drivers (44 percent) and congestion (21 percent);
- Many fewer were annoyed by drivers violating the law (13 percent) or too many stop lights (4 percent).

The final questions inquired whether respondents considered red-light running to be dangerous (Table 2):

Table 2: Percentage of Respondents who Believed that Red-Light Running was Dangerous or a Problem

	Believe Red-Light Running is a Problem	Believe Red-Light Running is Dangerous
Red-Light Runners	81.3	98.6
Never Run Red Lights	77.9	99.0
Overall	79.8	98.8

Source: [8]

In this national survey with over 5,000 responses, it was plain that respondents believed that red-light running was dangerous and was a problem. Although more respondents felt that red-light running was dangerous than felt that it was a problem, other questions in the survey revealed that drivers—whether red-light runners or not—believe that red-light running was often a choice with few legal consequences.

When red-light runners were asked to suggest ideas for modifying red-light running behavior, it became clear that about half (48.8 percent) favored law enforcement solutions, although about one in four offered no suggestions [9]:

- No suggestions: 23.1 percent
- Education: 15.2 percent
- Police enforcement: 14.2 percent
- Increased fines: 13.1 percent
- Photo enforcement: 11.5 percent
- Changed signal timing: 2.8 percent
- Driver clinics: 1.5 percent
- Other: 18.6 percent

Researchers concluded that self-reported data may be questioned because respondents often have a tendency to present themselves in a favorable light. As a result, self-reported data, while useful, can be little more than a proxy for drivers' measured behaviors. Thus, they concluded, "it is very likely that red-light running is more frequent than reported here [10]."

At the same time that red-light running has been increasing, many cars have become smaller and safer leading some to worry that too much technology could lead to driver over-reliance on those technologies. The obvious conclusion is that improved driver behavior and improvements in automobile technology must go forward together to save lives and reduce injuries. Every year, 3 million crashes at intersections alone yield 9,100 fatalities and 1.5 million injuries [11]. Other crashes occur in other settings, urban and rural, due to excessive speed, driver distractions or impairment, and other causes. Because about one-third of all traffic fatalities occur in speeding-related crashes in the United States, many transportation authorities and a substantial fraction of the lay public believe that automated enforcement of traffic laws could sharply cut these numbers.

The two main applications of automated traffic enforcement in the U.S. are to control red-light running and to monitor motor vehicle speed. Cameras recording red-light running were in use in 23 states in 2006, and authorized for statewide use in 14 states. In the same year, automated speed enforcement was in use in freeway work zones, school zones, residential intersections, and on freeways in Arizona, Washington, D.C. In three states, automated enforcement is authorized (but not used) for use at railroad grade crossings. Ten states (Ariz., Calif., Colo., Iowa, Md., N.M., N.C., Ohio, Ore., Tenn.) and the District of Columbia use speed cameras in cities [12].

From limited evidence it appears that speed cameras affect driver behavior. In Washington, D.C., six months after speed cameras were put to use, average speeds at camera sites dropped over 10 percent, and the proportion exceeding the speed limit by more than 10 miles per hour dropped over 80 percent [13]. But what may work in general can vary substantially depending on local circumstances. Traffic control is a state responsibility, and the federal system of government in the United States means that each state (and Washington, D.C.) sets its own rules for automated enforcement. States differ in their willingness to permit individual rights (to violate traffic laws with impunity) to trump collective rights (to the safe use of streets and roads). These differences are manifest in state legislatures where vocal opponents of tighter enforcement often drown out safety initiatives based on automated enforcement.

Reactions to automated enforcement can be hostile or even violent. A driver in Manchester, England, blew up a "fake" camera. In Canada, a photo radar van was vandalized. In Hong Kong, drivers hoping to avoid citations for traffic violations covered their license plates, while in Australia some drivers resorted to using false and defaced license plates to escape citations [14]. Despite sporadic challenges to the use of automated enforcement, the Federal Highway Administration and the National Highway Traffic Safety Administration prepared guidelines for their installation and their use [15]:

- *Red Light Camera Systems: Operational Guidelines* (January 2005)
- *Automated Speed Enforcement System Operational Guidelines* (January 2007)

These efforts were supplemented by efforts initiated by the Insurance Institute for Highway Safety, a Washington, D.C.-based advocacy group with industry support [16]:

- The National Campaign to Stop Red Light Running [17],

and also by university-based research [18]:

- David K. Willis. *Speed Cameras: An Effectiveness and Policy Review*. Center for Transportation Safety. Texas A&M University (May 2006).

Toward Zero Deaths (TZD) on Minnesota Roads

Traffic laws and their enforcement aim at reducing traffic crashes, injuries and death. Many crashes occur at suburban intersections, but almost half of crash fatalities occur on rural roads in greater Minnesota. Mn/DOT's Toward Zero Deaths (TZD) initiative goes beyond enforcement and advances a four-pronged approach focused on education, high-visibility law enforcement, improved highway and traffic engineering, and faster and more effective emergency services. The need for public support of these initiatives was stated succinctly by Bernie Arseneau, then Mn/DOT's then-State Traffic Engineer:

“We have to personalize the traffic-safety issue and get people to realize that when someone dies in a crash or is seriously injured, dozens of people are affected for a long time, and sometimes for a lifetime [19].”

This report focuses specifically on red-light running, mainly at urban intersections and speed-related crashes, mainly in rural areas. There are many other ways to mitigate intersection crashes, modern roundabouts, being one traffic control device that can improve safety and operational efficiency at intersections and widely used in Europe and around the world [20]. On rural roads, engineering solutions to improve the design and safe operation of highways highway intersections include:

- Improved lighting to reduce nighttime crashes;
- Intelligent systems, e.g., dynamic speed-display signs and dynamic curve warning systems;
- Improved sight lines;
- Safety wedges on pavement edges enabling a vehicle to transition from the paved lane to the shoulder area and back with little or no loss of control, thereby reducing crashes linked with road edge run-off;
- Signing;
- Roadway edge treatments like rumble strips and striping [21].

Summary

The enormous cost of traffic crashes is clear, but how to reduce them is less obvious. In Minnesota, the TZD program is one response, with the aim of reducing crashes through driver education and law enforcement, engineering improvements, and improved emergency response.

The NHTSA estimated in 1997 that about one-third of all motor vehicle crashes and two-thirds of the resulting deaths could be attributed to aggressive driving [22]. The costs that motor vehicle crashes impose on society can be reduced through improved engineering of streets and roads, traffic control, and motor vehicle improvements. They can also be reduced through modification of driver behavior.

This report examines the use of automated enforcement technologies to reduce red-light running—mainly in urban areas, and to curtail unlawful speeding—mainly on rural highways. Background information comes from around the U.S. and around the world, but the policy focus is on the State of Minnesota and the state’s TZD program.

The next two chapters discuss the red-light running problem and how it is addressed around the United States, and describes opportunities for using automated enforcement to control red-light running and enforce speed limits. Chapters 4 and 5 examine the short-lived Minneapolis experience with automated enforcement of red-light running—the PhotoCop program—and the legal and political questions that it raised. Chapter 6 and 7 reviews the political and legal aspects of automated enforcement of traffic laws, while Chapter 8 discusses what will be needed to establish a political and legal basis for bridging technology and public policy in order to introduce automated enforcement of traffic laws in Minnesota.

Chapter 2: Red-Light Running

Red-Light Camera Systems: Operational Guidelines

Recognizing that red-light running is one of the major causes of crashes, deaths and injuries at signalized intersections, the Federal Highway Administration and NHTSA support a comprehensive approach to intersection safety that focuses on engineering improvements, driver and public education, and stepped-up law enforcement aimed at preventing red-light running and improving intersection safety [23].

The principal factors contributing to red-light running include driver behavior, intersection design and operation, vehicle characteristics, and weather conditions. Driver behavior, mainly speeding and aggressive driving, is the most important factor associated with red-light running. A yellow light prompts some drivers to speed up hoping to pass through the intersection without stopping, but if they misjudge the timing they enter against the red light. Inattentiveness due to fatigue, conversation, eating, using phones or other electronic devices also distract drivers who see the signals late (or not at all) and run the red light [24].

Intersection design and operation can foster red-light running when a down-hill grade or short-phase yellow light means inadequate stopping distances, when motorists get confused due to hard-to-see roadside obstacles, or when traffic control devices are hidden by obstructed lines of sight. Congested traffic at rush hour leads to delays that frustrate drivers and promote unsafe and aggressive driving. A further source of driver frustration that can lead to aggressive driving and red-light running is inappropriate signal-phase timing, for which a variety of engineering solutions exist. Heavy vehicle loads mean that additional time is needed to stop on yellow. Red-light running can be intentional, or unintentional as when a brief yellow phase means that under certain conditions there is insufficient time and distance to stop before entering the intersection. Weather condition was uncorrelated with red-light running in one study, but bad weather may distract drivers or increase stopping distances. In addition, morning and afternoon sun glare, along with dust, may interfere with motorists' timely observation of traffic signs and signals [25].

Determining Whether There is a Problem

The first step in determining if a red-light camera system or other enforcement countermeasures is to be used is to establish clearly whether red-light running and crash problems exist in the jurisdiction in general, or at specific intersections in particular. Once the nature of the problem—if any—is defined, the appropriate countermeasures can be deployed. High crash rates at specific intersections, information on violations from law enforcement personnel, along with complaints from motorists and the general public are helpful, but hard data on intersection-specific safety and right-angle crashes are essential, and are available from standard sources [26]. Red-light running and citation data could be used when crash data are unavailable, but this is generally not recommended because data may come from targeted intersections only, and criteria used to issue citations may vary from one officer to another.

Driver behaviors and traffic conditions that can contribute to red-light running can be recorded by video surveys or field observations. Traffic-, signal-, and intersection-characteristics data are often available from state and county highway departments, and from local traffic engineering

and public works departments. State and local agencies can solicit comment from motorists and the public to identify problem intersections.

A state or locale that is considering the use of a red-light camera system should carry out an engineering study to identify the specific factors contributing to red-light running, then identify the right countermeasures that could be implemented (engineering, education, enforcement) to address the crash problem [27].

Countermeasures

There are four main classes of countermeasures that can mitigate red-light running. First is a set of *engineering improvements* at and near problem intersections [28]. The first two are usually done before or in conjunction with the next two. They include:

- Modifying traffic signal timing, especially the length of yellow and all-red interval times, to enhance traffic flow given traffic conditions;
- Improving signal head visibility by increasing size of signal lamps and enlarging signal back plates, especially on east-west streets where morning and afternoon sun angles can reduce visibility;
- Adding signal heads, especially for multi-lane roads to reduce the risk of red-light running when a lone signal is blocked by a truck or bus;
- Providing an all-red interval for all traffic to provide time for vehicles already in the intersection to proceed through and clear the intersection while holding cross-traffic;
- Lengthening the yellow phase, within appropriate traffic engineering guidelines, which can significantly reduce inadvertent red-light running;
- Advance warning with signs and yellow flashing beacons at signalized intersections, especially on high-speed roads with curved approaches or those on steep grades;
- Adjusting the approach speed in combination with determining the appropriate length of the yellow phase;
- Coordinating traffic signals so that platoons of vehicles move smoothly through multiple intersections;
- Installing vehicle detection devices to hold the green signal for a maximum allowable time to permit vehicles at the end of platoons to enter and clear a signalized intersection safely;
- Removing signals from low-volume intersections and replacing with alternative intersection designs or other forms of traffic control;
- Removing on-street parking within 200 feet of intersections to provide clear views of signs, signals, pedestrians, cross traffic; and finally
- Improving the intersection configuration to smooth traffic flow.

A second component of a red-light running reduction program is a well-crafted public information and education campaign. Its aim is to help motorists and the public to understand the safety issues linked to red-light running.

An effective campaign defines the red-light running problem, explains the danger, publicizes actions underway to mitigate red-light running, explains the fatality and injury consequences, and highlights the emotional and economic toll [29]. It also underscores indirect economic costs that include lost worker productivity, higher insurance premiums, and medical costs.

A third component of a red-light running reduction program is traditional law enforcement, which supports and reinforces a red-light running education campaign. Automated enforcement using red-light cameras systems can enhance traditional enforcement in various ways [30]:

- A single officer monitoring both the signal and motorist;
- Separate officers, one observing violations and a second pursuing offenders;
- Multiple signal head enforcement whereby a device on the backside of a traffic signal permits an officer to observe red-light violations and respond with greater safety;
- Random enforcement, with officers moving from location to location and providing vivid evidence of enforcement; and
- Targeted enforcement over a specific time period at problem locations.

The fourth approach to curtailing red-light running involves the installation and use of automated enforcement technologies.

Implementation of Red-Light Camera Programs

Red-light camera systems work best and enjoy the highest levels of community support where they form one element in an overall traffic safety management program [31]. A successful program begins by careful identification of problem locations based on crash data, citations issued for red-light running, and public input. Key first steps in planning and implementing a red-light camera program include:

- Establishing a broad-based committee to define program objectives and monitor results;
- Defining operational needs in terms of program objectives;
- Identifying the legal basis and requirements in state law for the implementation of an automated enforcement program;
- Assessing options for responsibility for the various stages in system procurement and system operation—whether state or local agency or outsourced to a private contractor; and
- Establishing a public awareness and information campaign.

Enabling Laws

Among the most challenging obstacles to installing an automated enforcement program is establishing a solid basis in state law, the absence of which led to the suspension of the Minneapolis PhotoCop program in 2007. The National Committee on Uniform Traffic Laws and Ordinances (NCUTLO) developed an Automated Traffic Law Enforcement Model Law, which offers clear guidance to states considering the adoption of automated enforcement technology [32, Appendix A]. This model law and efforts to pass a similar law for Minnesota are addressed in full in a later chapter. Enabling state law should address these topics [33]:

- Purpose of the automated enforcement law;
- Jurisdictions to which it applies;
- Limits on where and for what reasons automated enforcement will be deployed;
- Citation procedures;
- Circumstances under which a violation is judged a civil violation (i.e., no points assessed; no mark on driving record);
- Limits on civil penalties;
- Consequences for not paying civil penalties;
- Rules of evidence and defenses;
- Requirement of a public information campaign;
- Rules on uses of revenues generated by the automated enforcement system; and
- Rules for implementing procedures for citations, trials, and collection of penalties, with restrictions on delegations of authority to equipment vendors, service providers, and other non-government institutions and employees.

At present there are two approaches that states have adopted for deploying and operating red-light cameras systems. The first holds the driver responsible for the violation, but there must be unambiguous photographic evidence that identifies the driver and vehicle. This evidence is provided by two cameras: one recording the rear license plate of the car running the red light, and a second photo recording the face of the driver. In this type of application, a method must be provided to allow the vehicle owner to certify that he or she was not the driver at the time of the violation [34]. In addition, citations issued this way have the same status as those issued by an officer, that is, to be moving violations, with points assigned, insurance rate consequences, and holds on vehicle registrations and/or driver license renewal when fines go unpaid [35].

The second approach holds the registered vehicle owner responsible for the red-light violation based on a single photograph of the vehicle's license plate, usually from the rear. States that adopted legislation authorizing automated enforcement in this manner authorize its use in local jurisdictions, or permit local agencies to enact ordinances that allow automated enforcement through red-light systems [36].

But whether or not all legal and public relations steps are followed carefully and completely, objections persist on the part of a significant minority to the very concept of automated enforcement of red-light running and speed-limit enforcement. For some who object, it is indicative of a continued resistance to a collective consensus codified in law and passed by elected representatives. It also indicates a decision on their part as to as to which laws will be observed and under what circumstances [37]. For others who object, automated enforcement is seen as simply a financial grab by local jurisdictions short of revenue and unwilling to raise taxes and fees.

System Procurement Options

The state or a local agency has the option of undertaking all aspects of an automated enforcement operation and citation process, but more commonly they outsource selected functions to a private

contractor according to terms specified in the state's enabling legislation. Automated-enforcement equipment may be contractor owned and operated, or agency-owned and operated, or some combination of the two. It is inappropriate for vendor compensation to be based on the number of citations issued, just as it is inappropriate for a private contractor to determine the locations of automated-enforcement installations or the terms of operation because of the appearance of a conflict of interest [38].

To summarize, decisions must be made regarding the division of responsibility between (1) the state and/or the local agency, and (2) the private contractor on the following [39]:

- Project planning and management (1);
- Public information program (1 or 2);
- Equipment ownership (1 or 2);
- Design and installation (1 or 2);
- Check plans, inspect installations (1);
- Operation and maintenance (1 or 2);
- Decision to issue citation (1); [Note: Only a qualified law-enforcement officer should be authorized to issue citations, and only after review of evidentiary material by the officer.]
- Citation data processing (1 or 2); and
- Violator inquiries (1 or 2).

Chapter 3: Automated Enforcement of Speed Limits

There is a lengthy literature going back many years on the problem of speeding and speed management on our nation's highways. The Insurance Institute for Highway Safety (IIHS) and other organizations have surveyed and summarized this literature, focusing on speeds and speed limits, law enforcement of speed laws, variations in speed limits among jurisdictions, government-issued guidelines for speed limits, and automated speed-enforcement programs and their evaluation.

Speed and Speed Limits

Speeding is involved in about a third of all fatal crashes. It kills about 1,000 Americans each month, and imposes economic costs of over \$40 billion annually. Although many drivers exceed posted limits at least occasionally, the crashes and speeding violations of younger drivers—especially males 16 to 19 years of age—are much more likely to be related to speed than is the case for drivers of other ages [40].

Speed variation and speed itself both are problems. Research from the 1950s on two-lane rural roads and subsequently updated showed that vehicles going much faster or much slower than average were more likely to be involved in crashes, while severity of crashes increased with speed. Risk of death and severe injury is a direct exponential function of speed—not speed differences, but many differences in travel speeds are difficult to avoid because of the slower speeds of turning or merging vehicles and higher speeds of the other vehicle magnify this problem [41].

Speed limit laws have traditionally been the province of states, although Congress forced states to reduce speeds on rural Interstates to 55 miles per hour in 1973. Maximum national speed limit rules were relaxed in 1987 and repealed entirely in 1995 [42]. As the rules were relaxed and states raised speed limits to 70 miles per hour or higher on some stretches of their highways, average speeds and highway fatalities traceable to speed rose sharply. For example, on California urban freeways, where speed limits rose from 55 to 65 miles per hour, the percentage of motorists going faster than 70 miles per hour rose from 29 percent to 41 percent. In 2007, the IIHS measured travel speeds on Interstates in eight metropolitan areas (Albuquerque, Atlanta, Boston, Denver, Los Angeles, Omaha, Tampa, and Washington, D.C.) and found that the average speed of passenger vehicles exceeded the speed limit in all eight. In the Los Angeles test segment, 86 percent of passenger vehicles exceeded the 70 miles per hour limit, and 35 percent traveled faster than 80 miles per hour [43].

IIHS studies showed that deaths on rural Interstates in 1989 rose 25 to 30 percent after states raised the 55 miles per hour speed limit in 1987. About two-thirds of the increase was linked with increased speed, with the rest linked to increased travel.

A complication that arises when speed limits are set is that regardless of the level a certain percentage of drivers will consistently exceed it. Some argue that setting the speed limit so that 85 percent would be in compliance would reduce the need for enforcement and reduce crash risk by narrowing variation among vehicle speeds. The trouble is that the 85th percentile is a moving target that increases when speed limits are raised, so if speed limits go up to meet a current 85th-percentile speed, a higher new 85th-percentile speed will soon occur [44].

There is no good evidence that higher (or lower) speed limits would reduce crashes. Some experts favor lower speed limits for large trucks than for cars and other vehicles. Lower limits for trucks means that stopping distances will be closer to those of lighter vehicles. They allow passenger vehicles to pass them more easily and safely.

Speeding and Law Enforcement

The traditional approach to speed limit enforcement involved police officers observing a violation, then stopping the offending driver and issuing a citation. A second and more recent approach uses various technologies to record the violation and mail a citation to the vehicle owner. The technologies include the following:

- Radar guns that measure speed of a targeted vehicle;
- Laser devices (also called LIDAR—light distance and ranging), which can pinpoint vehicles in heavy traffic and measure their speed;
- Speed cameras (also called photo radar), using radar signals to trigger cameras that photograph speeding vehicles;
- VASCAR, a vehicle average speed calculator and recorder, which measures and displays the speed of a vehicle traveling a known length of roadway;
- Aerial speed measurement by which law-enforcement officers in light aircraft measure vehicle speeds between pavement markings, a technique rarely used today if at all [45].

Traffic and violations have been increasing faster than the number and availability of law-enforcement officers, inviting the use of technology to expand the reach and effectiveness of speed-law enforcement. Radar is accurate and highly reliable, although the widespread use of radar detectors by motorists can thwart radar's use as an enforcement tool. Research shows that drivers using radar detectors intend to drive faster than posted speed limits, and are consistently over-represented among the fastest speeders. Courts have upheld restrictions on the use of radar detectors, and the U.S. Department of Transportation has banned their use in commercial vehicles engaged in interstate commerce. Few other countries permit vehicle drivers to use them [46]. Lasers cannot be detected by radar detectors, so they can be a highly effective law-enforcement tool.

Several surveys report that a majority of drivers support the use of automated speed enforcement, but a significant minority opposes them. A NHTSA review of 13 published studies reported substantial reductions in injury crashes for both fixed speed cameras and mobile speed camera programs [47].

Variations in Speed Limits across the United States

Setting speed limits is a state and local responsibility, which has led to considerable variety across the United States. On rural Interstates, speed limits vary between 65 and 75 miles per hour, with several states imposing lower limits for trucks. Limits on urban Interstates vary between 50 (Hawai'i) or 55 and 75 miles per hour (Idaho). Separate limits are often imposed for other limited-access roads and for other roads. Congress repealed the National Maximum Speed

Limit in 1995, and 32 states subsequently raised limits to 70 miles per hour or higher on some highway segments [48].

Speed Management: Program Guidelines

Although the responsibility for setting speed limits on different classes of roads rests with the states, NHTSA issued specific "Uniform Guidelines for State Highway Safety Programs" [49]. The guidelines describe in detail the components that a state's speed management program should contain along with criteria that program components should meet.

Speeding is understood as a national problem, but effective management of countermeasures remains a local responsibility. According to NHTSA guidelines, balanced speed management programs include the following:

- Defining clearly the relationships linking speed, speeding, and safety;
- Applying roads design and engineering measures to foster appropriate speeds;
- Setting safe and reasonable speed limits for each class and segment of road;
- Installing enforcement initiatives along with technologies that effectively address speeders while deterring speeding;
- Deploying marketing and educational messages that target high-risk drivers; and
- Engaging the cooperation, support, and leadership of traffic safety stakeholders [50].

Automated Speed Enforcement: A Summary

A recent review of the literature on the benefits and barriers to automated speed enforcement in the United States covered the following:

- Background on the implementation of automated speed enforcement;
- Research on safety and financial effects of programs;
- Legal restrictions on implementation of automated enforcement t programs;
- Methods for eliciting support by citizens, special interest groups, elected officials, and government agencies; and
- Evaluation of key programs design options, including issues related to owner vs. driver liability, manned and unmanned systems, mobile vs. fixed systems, visibility, location, enforcement thresholds, program management, and revenue distribution [51].

As this review and summary makes plain, automated enforcement of speeding laws is a complex, many faceted enterprise. Each state and each local jurisdiction faces major hurdles in attempts to bridge public policy objectives and application of automated law enforcement technologies in order to improve highway safety by reducing speeding and cutting the economic costs that speed-related crashes entail [52].

Recent Experience of Automated Enforcement of Speed Limits

The technologies available today for automated enforcement are numerous, and many are highly effective. Their deployment, however, encounters a host of legal and political challenges. Many motorists like to drive faster than they should, and raise serious objection to measures to slow them down. Many state and local jurisdictions would like to deploy automated enforcement systems, but all require state-level enabling legislation. So bridging the gap between what technology makes possible and what public policy will allow remains a challenge.

Most automated enforcement laws and programs are aimed at red-light violations, but the use of automated enforcement for speeding violations is increasing. As summarized above, automated speed-limit enforcement systems are activated when a vehicle is observed exceeding the limit by a specified threshold. Various studies demonstrated that implementing speed cameras reduced speeding by a significant degree [53]. Some jurisdictions treat automated enforcement citations like parking tickets, holding the registered vehicle owner liable, with no points or notation on a driver's record.

Authorizing legislation and restrictions on the use of automated enforcement technology in states where it is used vary widely from state to state. Among the states and the District of Columbia (including Minnesota), 26 have no law allowing automated enforcement. Most states that allow automated enforcement authorize its use only for red-light enforcement, while some that authorize it for red-light enforcement also permit its use for monitoring speeding violations, and some also permit automated enforcement for tracking violations at railroad grade crossings. About half dozen states specifically prohibit the use of photo enforcement or speed cameras or else impose narrow restrictions on the locations (e.g., school zones) or jurisdictions where they are authorized [54].

Photo-radar enforcement has been in widespread use in about 40 foreign countries since the 1970s, but it was implemented only in the 1990s in the United States and then only sporadically. A number of nettlesome legislative, judicial, and community-acceptance issues surround the use of photo radar for enforcing speed limits and reducing crashes.

The term "photo radar" means a device that detects speeders by means of radar or laser devices, and captures an image to identify the violator [55]. By means of license-plate imaging the vehicle's registered owner receives a speeding citation. The issues surrounding the use of photo radar for automated enforcement of traffic laws are mainly legal and constitutional considerations such as privacy rights, protection against unreasonable searches and seizures, equal protection of the laws, and the creation of vicarious liability for owners who let others use their vehicles.

The hard evidence supporting the effectiveness of photo-radar enforcement is positive and generally persuasive. A 1995 Transportation Research Board study concluded that the use of photo radar for speed limit enforcement reduced speeding from a few percentages points to almost 20 percent, but that the methodologies used were not always reliable [56].

A synthesis of safety research related to speed compared the effectiveness of mobile patrol vehicles and stationary patrol vehicles, of aerial enforcement on cars and trucks, of radar and laser speed monitoring, and other forms of automated enforcement. Law enforcement found that laser guns were notably more effective than radar in identifying speeding motorists. They also found that speeders identified via laser enforcement were four times more likely to have a radar

detector in the vehicle than those tagged without radar. In addition, they tended to be traveling at the highest speeds [57].

Research on the effectiveness of speed-feedback indicators, which display speed on a variable message display, shows that they prompt drivers to slow down through the placement site, but then return to their previous speed.

Public information and education campaigns appear to be of limited value unless they are closely linked with an enforcement or engineering program emphasizing public safety over citing motorists and collecting fines [58]. A public information and education campaign tied to targeted traffic-enforcement signs erected just prior to an enforcement period seems to work to cut speed while improving public impressions toward law enforcement and yielding safer driving habits [59].

Although it may seem self evident, a preponderance of research, albeit some of it of uneven quality, demonstrates that crash risk is lowest when vehicles move near the average speed of traffic, and increases for vehicles moving much faster—or much slower—than average [60]. It appears that adjusting speed limits on low- and moderate-speed roads has little or no effect on speed and thus has little or no effect on crashes. This finding suggests that drivers travel at speeds they feel are reasonable and safe for the road and traffic regardless of the posted speed limits. On freeways and other high-speed roads, however, speed-limit increases generally lead to higher speeds and crashes. Most speed-related crashes involve speed too fast for conditions, suggesting that variable speed limits that adjust with traffic loads and environmental conditions could yield net benefits [61].

Automated Enforcement: the Scottsdale Experiment

A sample of cases from Arizona and California illustrate the political, technical and financial issues that challenge the implementation of automated enforcement. We first look at Scottsdale, a suburban city on the northeast edge of Phoenix. A series of freeways lace around and through the greater Phoenix area, with vehicle collisions frequent during peak traffic periods [62]. The Arizona Department of Public Safety launched several aggressive traffic enforcement programs in recent years, including Operation Maximum Impact, primarily on Arizona Route 101, often called Loop 101. Between 2002 and 2005, the program sought to cut the frequency of motor vehicle collisions by targeting impaired drivers and those driving at excessive speed during off-peak traffic periods.

During 2005, law enforcement prepared an automated speed-enforcement (ASE) system on a 51-mile stretch of northern Loop 101 around Phoenix. The ASE test segment had three lanes of traffic plus a continuous transition lane in each direction. After Loop 101 was completed as a freeway in 2002 several locations averaged 120,000 vehicles per day by 2005. Speed limit was 65 miles per hour.

As the population of Phoenix, Scottsdale and other cities in the area grew fast after 2000, population growth led—not surprisingly—to double-digit annual percentage increases in traffic volumes and freeway crashes. In response to more crashes and citizen complaints about speeding, the City of Scottsdale received permission from the Arizona Department of Transportation to conduct the ASE test on the stretch of Loop 101 that drivers and editorial writers called “a dangerous racetrack.” The test ran from January to October 2006. In the first

month, prior to enforcement, law enforcement issued 16,257 warnings. During the eight-month enforcement period from February through October, the city issued 90,344 ASE citations to vehicles traveling at or over the threshold speed for ticketing of 76 miles per hour [63].

What difference did ASE make in crashes during the project period? The record from this small experiment is mixed. Pre- and post-test analysis showed 14 percent fewer crashes (i.e., 40 fewer) in 2006 than in 2005, including a 16 percent drop in property-damage crashes (34 fewer), and a seven percent drop in personal-injury crashes (7 fewer). [64] These results are hard to evaluate, though, because although the Department of Public Safety (DPS, which includes the Highway Patrol) did not have an ASE system in place in 2004 or 2005, it had conducted several aggressive enforcement campaigns on Loop 101 in both years that had been associated with notable reductions in crashes, damage, and injuries in those years just prior to the ASE project in 2006. A western segment of Loop 101 served as a control during the ASE project. That control segment had more crashes of all types than the ASE segment. Further analysis of the ASE project that looked at crash data by hour of day and day of week and crash causes yielded interesting but mixed results. It seems possible that the ASE system was responsible for the reduction for the decrease in crashes but those reductions cannot be explained unambiguously by the results of this limited study.

Speed-Law Enforcement in California

Several cities in California examined the legalities and cost-effectiveness of photo radar, speed display boards, and speed humps. These efforts were responses to challenges created by congestion, speeding, and resulting accidents with their exceptionally expensive direct and indirect costs.

San Jose. The city initiated the Neighborhood Automated Speed Compliance Program (NAS COP) in 1995. It started with deployment of a photo-radar system on residential streets that had serious speeding problems. It evolved into a full-time speed-compliance program by 1998. A van with equipment was staffed by a civilian employee who operated the camera and acted as a witness. Citations were mailed to registered owners who had the choice of complying or contesting the violation.

Pasadena. The city used photo radar in the 1980s to enforce speed limits but discontinued its use in 1992 because it was not authorized by the motor vehicle code. In addition, there were invasion of privacy claims and difficulty validating offenders. Moreover, the system generated tickets automatically without trained law enforcement personnel staffing the system, a procedure that was not authorized [65].

Culver City and Oakland. These cities also tried to use photo radar but the effort ceased because, like Pasadena, it ran afoul of California's motor vehicle code. At that time, the code addressed red-light photo enforcement specifically but not photo radar for speeding. Speeding citations issued by unmanned photo radar systems were not specifically authorized.

On the public policy side of the debate over automated enforcement, there is endless local controversy with claims and counter claims running rampant. For example, the American Automobile Association has opposed the use of photo-radar surveillance systems for speed control asserting that "there has been no conclusive evidence that shows photo radar to have

been effective at reducing speeds. Its effectiveness at reducing speeds has been shown to be no greater than a speed display board and far less cost-effective” [66].

Rancho Palos Verdes. In a comparison of speed humps (bumps), photo radar, and speed display boards, the Rancho Palos Verdes City Council concluded that photo radar could be a useful method of speed control, but was not cost effective and was not authorized by the state. Speed display boards are economical, but effective only when used along with police enforcement. Among the three options, speed bumps—costly to install but cheaper to maintain—were judged to be the preferred traffic-calming method. They slowed traffic much more than photo radar and were more economical [67].

Use of Speed Cameras across the U.S.: A Summary

At the end of 2006, the Insurance Institute for Highway Safety (IIHS, an “independent nonprofit, scientific, and educational organization dedicated to reducing the losses—deaths, injuries, and property damage—from crashes on the nation’s highways”) reported that cities in ten states and the District of Columbia were using speed cameras (Ariz., Calif., Colo., Iowa, Md., N.M., N.C., Ohio, Ore., Tenn., Washington, D.C.). Common factors associated with the successful implementation of automated speed enforcement included:

- Used when obvious safety problems existed;
- Engineered speed limits were judged to be appropriate;
- Police, politicians, transport industry, and businesses supported the effort;
- Appropriate technology was used;
- Police were involved in issuing citations at some point in the process;
- Equipment vendors received a fair return;
- Net revenues were used to improve safety and improve traffic flow;
- Advance warning signs were used;
- Careful measurement of the impacts of automated enforcement was carried out before and after deployment;
- Accurate publicity was distributed about automated enforcement;
- Automated-enforcement programs started small, and built public support [68].

Chapter 4: The Minneapolis Photo-Cop Experience

The preceding section provided a selective overview of national and international law-enforcement efforts aimed at improving traffic safety and reducing the appalling levels of deaths, injuries and property damage on the nation's roadways. This section reviews the short-lived Minneapolis "Stop-on-Red" Photo-Cop experiment to curtail red-light running. As a case study it explores the steps needed in Minnesota in order to provide a legal and publicly acceptable basis for the implementation of automated enforcement technologies to curtail red-light running, and to enforce state and local speed laws [69].

On the face of it, the facts support firm action to reduce traffic crashes and to modify the driver behaviors that contribute to them. In 2006 there were 78,745 reported traffic crashes in Minnesota, with 494 fatalities, and over 35,000 injured at an estimated \$1.5 billion cost to the state [70]. Driver behaviors cited most often as leading to crashes are—in order—driver inattention or distraction, failure to yield right of way, and illegal or unsafe speed. In fatal crashes, illegal or unsafe speed is cited most frequently as the main contributing factor.

The challenge of improving traffic safety in Minnesota differs by location. At the widest scale, 141 of Minnesota's road and highway fatalities in 2006—or 29 percent—occurred inside the seven-county core of the Twin Cities metropolitan area, which has 54 percent of the state's population. The remaining 71 percent occurred in the 80 counties of Greater Minnesota, with only 46 percent of the population [71]. At the local level, Minneapolis law enforcement had known for years that a disproportionate share of serious accidents occurred at specific intersections. It was this understanding that prompted the Minneapolis Police Department to introduce automated photo enforcement to modify driver behavior at problem intersections, to reduce red-light running, and thereby improve public safety.

The evidence that intersection safety is a serious problem in the U.S. is consistent over time and from place to place [72]. Engineering countermeasures, many of them described earlier, can go far to improve safety, but law enforcement is still essential [73]. This conclusion motivated the Minneapolis Police Department to launch its photo-cop experiment with automated enforcement of traffic laws.

The Minneapolis Photo-Cop Program (2005-06)

As automated enforcement of traffic laws became more common in the U.S. and around the world, Minnesota undertook a study of photo enforcement in 1995, with wet-film cameras in Minneapolis and St. Paul, and along freeway construction zones [74].

On 3 September 2004, the City of Minneapolis enacted an ordinance authorizing the use of an automated traffic law enforcement system with which registered owners of "motor vehicles depicted in photographs of alleged red-light violations are guilty of a petty misdemeanor, regardless of whether they are driving their vehicles when photographed" [75]. In July 2005 the city began enforcing the Minneapolis Code of Ordinances Section 474.640 by using a camera to record violations. Citations were mailed to registered owners of the vehicles caught red-light running and violating the red-light ordinance. The citations carried a fine of \$142 (\$67 fine; \$72 court surcharge; \$3 law library fee). With the citation, the vehicle owner received written instructions stating why the citation had been issued and laying out two options for responding.

The first option was for owners who had not been the actual driver at the time of the violation, and instructed the owner to fill out an “identify new driver” coupon and mail it back to the Minneapolis Police Department. The second option, for drivers who decided to plead guilty and pay the fine, included instructions on options for paying the fine. Finally, the instructions informed the vehicle owners that if they decided to plead not guilty and contest the citation, they were obligated to appear in person before an administrative hearing officer [76].

According to the Minneapolis Police Department, after the enabling ordinance was approved by the city council, the police department worked with the city engineer to develop a plan for camera installation. A camera vendor-operator (RedflexTraffic Systems) was selected, the system was installed at ten locations, and the cameras were turned on [77].

When a vehicle entered the intersection after the signal turned red, a sensor embedded in the roadway and linked with the video camera recorded the vehicle for 12 seconds while the violation occurred. The camera captured only the rear of the vehicle because the city council had objected to cameras also capturing the front of the vehicle and driver’s face. The rear photo and license number were linked with state records, and the citation was issued. Dozens of cited vehicle owners objected to the new method of ticketing, although one could look up on the web and see the violation. They argued, “It’s not my car” or “It’s not me driving” [78].

In eight and a half months (end of 2005 into 2006), 25,000 citations were issued—twice the volume expected and completely overwhelming the city office overseeing the program. The numbers of citations issued at the ten automated enforcement locations equaled one-third of all citations issued in Minneapolis in a typical year.

Project Goal: Change Driver Behavior

The express purpose of the Minneapolis program was to improve traffic safety by encouraging safer driving habits at accident-prone intersections. Notices were erected at intersections with cameras. Pictures of the intersections were put on the web, and instructions were provided in six languages besides English.

Police Department Support

When discussions began about deploying photo-cop in Minneapolis, the then Chief of Police Robert Olson wanted to go ahead, although some senior officers inside his department were skeptical. The heads of the department’s traffic unit went before the transportation committee of the city council and presented a PhotoCop proposal, with support of Chief William McManus, Olson’s successor, who supported proceeding with the plan. The City Attorney’s office researched the use of automated enforcement technology and concluded that there was a sound legal basis for moving forward.

Following the city council’s approval of the enabling ordinance, the head of the traffic unit, Lt. Gregory Reinhardt, was given the job of overseeing the implementation of the automated enforcement program. The capital and installation cost of the PhotoCop installation was \$150,000 per intersection. When Chief McManus left his post for a position elsewhere, his successor, Chief Tim Dolan expressed publicly his support for the city’s PhotoCop “Stop-on-Red” program [79].

A spokesman for the Police Union expressed skepticism about the photo-cop program, asserting that it would take police jobs away, but there was no evidence offered to support that claim. The union did favor capturing some share of ticket revenue for improvements in public safety, but some expressed the view that the “police department should not be making money for use in law enforcement.” Of the gross revenue of \$3.1 million collected from fines during the operation of the program over eight and a half months, the Redflex contractor was paid \$500,000 to \$600,000. The contract was for a fixed annual fee of \$976,000 per year, based on a fixed fee per camera [80].

The Minneapolis photo-cop program did raise questions for which there were no obvious answers, for example (1) why are there some intersections where there are many violations but few accidents? And (2) why do some intersections have few violations but many accidents? These questions also arose in other cities using automated enforcement programs but answers appear to be location specific, such as variations in driver skill and behavior from place to place, patterns of traffic control at intersections near the intersection under study, variations in intersection design, and the length of yellow phase as a function of traffic flow, along with phase length at the intersection compared with phase length at nearby intersections.

The Yellow-Light Phase Controversy

There has been research along with debate over the relationships among yellow-light phase length, red-light running, crash rates, and safe traffic flow. If the yellow phase is too short, rear-end crashes rise. Although the research has clarified sound principles underlying the realities of how multiple variables interact, design guidelines based on the principles are not always followed. Moreover, each intersection is unique in its design and operation. Each is located within a specific and dynamic traffic network, and within a specific neighborhood setting with its distinctive characteristics of origins and destinations and its socioeconomic and physical features.

One school of thought, summarized from a variety of sources in the following quotes, holds that finding the optimal length of the yellow-light phase for a problem intersection is an empirical question that can be settled by a careful and systematic experiment that can implicitly account for the setting, and prevailing traffic conditions [81]:

“Reductions in red-signal violations from increasing the yellow at any camera site are easily ascertained by increasing the yellow in small amounts and letting the camera document the results of doing so. This simple process is not expensive, is not time consuming and it obviates the ambiguities and uncertainties that are inherent in all yellow-time calculations and philosophies. It seems that a red-light camera (a safety device), when one is installed, should be used first to establish optimal yellow to mitigate supposed dangerous conditions and that this should be done before camera enforcement commences. If red-light cameras are truly for safety, they should be used to their fullest capability in this regard, including engineering aspects before actual enforcement begins.”

“A second method exists to establish optimal yellow for a specific camera site. ... (S)tatistically evaluate the initial camera violation date (during pre-enforcement periods) for time of entries after yellow onset (yellow time plus time was red when violation

happened), plot the result and pick the yellow time amount needed to eliminate/minimize the red-signal violation” [82].

In the Minneapolis program, there was no attempt to modify yellow-light phases or to carry out any research on the results of doing so [83]. The typical yellow phase was an unusually long 11 to 12 seconds at the photo-cop intersections. It was understood that the length of the yellow phase would have to be a function of traffic volumes and average speeds. So extending the yellow phase (without shortening the red or green phases) would mean fewer cycles per time period, which might increase congestion. Vendors (as is practice in installations in other cities) were instructed that they could not change the yellow phase.

Minneapolis surveyed automated enforcement in other cities when designing its program. For example, it was alleged that San Diego adjusted the yellow-light phase with an eye toward revenue raising, but Minneapolis could not do that. Some vendors of automated enforcement technologies (e.g., Siemens) sold an entire package of services including issuing citations, but Minneapolis chose not to go that far.

Finally, the police department held several public meetings to explain the program and its aim to improve driver behavior and public safety, and in retrospect reflected that it might have been wise to hold more, but at the same time speculated that more meetings might have enhanced conflict over program deployment [84].

The Question of Racial and Ethnic Bias

After the Minneapolis photo-cop program had been operating for a while, a question arose whether the use of the cameras at problem intersections was wielding a disproportionate impact on one class of drivers—specifically on members of minority ethnic groups. Many of the cameras were at downtown intersections, but most were near major freeway access/egress points. Intersections had been selected on the basis of their disproportionate high number of crashes, but the choice of locations for the cameras may have led to a disproportionate impact on certain subsets of drivers for the following reasons:

- Drivers near freeways or major thoroughfares tend to speed up when gaining access, or are slow to slow down when they come off those roads;
- When the Twin Cities freeway routes were delineated in the 1950s, they tended to be routed through areas of low-income property (e.g.; Near North Minneapolis, Rondo Street in St. Paul, Phillips Neighborhood in South Minneapolis); and
- Low-income, ethnic-minority households tend to live in low-value housing, which happens to be located disproportionately near freeways and freeway access points [85].

Taken together, these reasons alone may account for an above-average share of the citations going to minority ethnic drivers, even assuming that the likelihood of red-light running differs little if at all among drivers, an assumption that can be questioned but for which the Minneapolis photo-cop program provided no data. It may be a coincidence that low-income and minority drivers were disproportionately tagged, but then it may not be a coincidence. We do not know.

Other Observations on the Minneapolis Program

Some critics of the Minneapolis photo-cop program argued that it “eliminated officer discretion” and magnified the chances of discrimination in tagging red-light violators. This objection was interpreted by some critics to mean that “the cameras are more fair and that’s unfair” [86].

After Minneapolis installed the photo-cop cameras, some other cities in the metropolitan area wanted them as well—Bloomington, St. Paul, Rochester, and Lakeville. On the other hand, Duluth was clear in its opposition to adopting photo-cop. Some cities might be able to afford two to four cameras, but each installation is expensive and hard to pay for itself on a cash-flow basis. The major financial benefits of photo-cop are reckoned in terms of fewer crashes, less property damage, fewer injuries and deaths, lower automobile insurance rates, reductions in emergency service demand, and so forth, none of which translates directly into extra cash to support the program.

By all accounts, the Minneapolis photo-cop program worked—in the sense that it achieved its stated objectives—but was declared illegal by the Minnesota Supreme Court (discussed below). Despite the enabling legislation introduced in the Minnesota House of Representatives (also discussed below), the photo-cop initiative was seen mainly as a Minneapolis effort. Some members of the legislature favored the enabling legislation, and some opposed it. There seemed to be no middle ground on the topic, with strong objections coming from both Democrats and Republicans. Legislators assert that people wish to be left alone in their cars, and consider the photo-cop to be excessively intrusive. By their expressed attitudes they seemed to deny that driving on public streets and roads is a social act with social implications. The apparent majority opposition to the enabling legislation—although it never reached the floor for open debate—is consistent with other measures for which Minnesota has been a puzzling outlier:

- Minnesota was the last state to adopt the .08-percent blood-alcohol level rule for driving under the influence;
- Minnesota has been among the last to adopt a mandatory seat belt law;
- Minnesota had a mandatory helmet law for motorcyclists like most states, but rescinded the law—even though the high costs of head injuries from motorcycle accidents are widely imposed on others;
- Minnesota has relatively few state troopers patrolling the highways compared with other states—although to be fair the state has a large area (rank 12 of 50), with an average-sized population, an above-average number highway miles per capita to patrol, and an above-average number of highway miles to maintain (only four states have more: Calif., Ill., Kan., Texas) [87];
- As in many other states, there is a fear on the part of some to make full use of new technologies, such as automated enforcement of speed laws and red-light running [88].

From the evidence, it seems clear that despite its progressive traditions and communitarian propensities, Minnesota has fallen behind many other states in taking advantage of technologies that can reduce accidents, save lives, cut property damage, and lower societal costs due to traffic crashes.

Chapter 5: Legal Challenges to the Minneapolis “Stop on Red” Photo-Cop Program

The Case of Daniel Kuhlman, Ticketed by Photo-Cop, 17 August 2005

On 17 August 2005, Daniel Kuhlman received in the mail a “Complaint” (i.e., a citation) and “Notice to Appear” from the Minneapolis contractor, Redflex Traffic Systems, Inc., of Scottsdale, Ariz., charging him with violating Minneapolis’s automated traffic law enforcement system ordinances, with an image captured at the intersection of West Broadway and Lyndale Avenue North in Minneapolis [89].

Kuhlman subsequently pled not guilty and trial was scheduled for 21 December 2005. A week before the trial date, he submitted a motion to dismiss the complaint that had been filed against him. Through his attorneys, Kuhlman argued that:

- (1) the Minneapolis ordinances were invalid because they conflicted with state law, and
- (2) the ordinances violated due process rights of registered motor vehicle owners.

The Minneapolis ordinance defined a vehicle owner to be “the person or entity identified by the Minnesota Department of Public Safety, or registered with any other state vehicle registration office, as the registered owner of a vehicle, or a lessee of a motor vehicle under a lease of six (6) months or more” [90].

In a memorandum in support of Kuhlman’s motion to dismiss the charges, his volunteer attorneys from the Minnesota office of the American Civil Liberties Union advanced the following arguments:

- The Minneapolis automated traffic law enforcement system ordinances were invalid because they conflicted with state law, and because the City of Minneapolis lacked the legal authority to adopt and enforce the ordinances;
- That there was an “impermissible conflict” between the Minneapolis ordinances and Minnesota statutes because, among other things “Minnesota lacks enabling legislation permitting a city to enact an ordinance altering imposition of liability for a red-light violation from the driver to the owner [91];
- That none of the attempts by the Minnesota Legislature since 2001 to pass automated traffic law enforcement system enabling legislation has been successful [92];
- That the Minneapolis automated traffic law enforcement system ordinances are unconstitutional because they violate the substantive due process rights of motor vehicle owners by, among other things, exposing them to liability for the acts of another; and by requiring that the owner must show that he or she was not the owner at the time of the violation;
- That the ordinances violated procedural due process rights of registered owners “by depriving them of the presumption of innocence (i.e., by presuming that the owner was the driver) by relieving the prosecution of its burden to prove every element of the alleged violation beyond a reasonable doubt, by shifting the burden of proof to the accused, and by compelling an accused to testify in his or her own defense [93].

- That although the Minneapolis ordinances define a violation as a “petty misdemeanor,” the potential exists for enhancement of the charge to that of a “misdemeanor” with a “myriad of adverse consequences resulting from a conviction [94];
- That nothing in the Minneapolis ordinances indicates “a preference for a civil prosecution”... rather, the “references in the ordinances to the ‘prosecution’ of violations and registered owners being found ‘guilty of a petty misdemeanor,’ indicate a preference for a criminal label ... (and) ... demonstrate the criminal nature of Minneapolis’s automated traffic law enforcement system ordinances” [95].

On 14 March 2006, Minnesota 4th Judicial District Judge Mark S. Wernick granted Kuhlman’s motion to dismiss the traffic citation charge. On the same day, attorneys for the City of Minneapolis submitted a letter to the court requesting that the court order granting Kuhlman’s motion to dismiss the charge be stayed for five days “in order to determine whether to perfect an appeal. Judge Wernick concluded that his court order, “unless reversed, will have a critical impact on the outcome of the trial,” so he granted the city’s request and stayed his order until the end of business on 21 March 2006 [96].

Kuhlman’s Brief to the Minnesota Court of Appeals

The Kuhlman case then moved to the Minnesota Court of Appeals with the State of Minnesota as appellant and Kuhlman as respondent. Kuhlman’s attorneys presented and expanded the version of the brief that had been presented to the district court, elaborating their earlier arguments, namely:

- (1) Minnesota statutes preempt municipalities from enacting ordinances that shift liability for red-light violations from drivers to vehicle owners [97].
- (2) Municipal ordinances that shift liability for red-light violations from drivers to owners are invalid because they conflict with state law [98].
- (3) The Minneapolis ordinances are not severable because it is apparent that the Minneapolis City Council would not have imposed liability for red-light violations on vehicle owners without creating an innocent-owner defense [99].
- (4) The Minneapolis automated traffic-law enforcement system ordinances are unconstitutional because they violate the due process rights of vehicle owners [100].

The final section of the brief summarized case law pertaining to automated traffic law enforcement systems [101].

The Court of Appeals issued its decision on 22 September 2006, holding that the Minneapolis ordinance was “in conflict” with the Minnesota Highway Traffic Regulation Act for two reasons. It violated the act’s uniformity requirement, and it reduced the state’s burden of proof in prosecutions for traffic-signal violations [102]. The court noted that the case was basically a controversy over the division of power between individual cities and the state. It decided that because the Minneapolis ordinance was inconsistent with the state’s Traffic Regulation Act and because it changes the burden of proof provided by the state statute, the Minneapolis ordinance was invalid.

In a concurring opinion, Judge Willis wrote that the ordinance (Section 474.660 (a)(1)) requires “not the submission of an affidavit that the owner or lessee of the vehicle was not the driver at the time of the violation” but rather an affidavit that the owner or lessee was not the “owner or lessee of the vehicle at the time of the alleged violation” and submission of “the current address of the person operating the vehicle at the time of the violation.” “This creates an impossible burden,” he wrote, “...the provision makes no sense” [103].

The same day the Court of Appeals issued its decision against the city, the local press trumpeted, “Appeals Court Refuses to Give Photo-Cop Program a Green Light” [104]. Reviewing the history of the case and court actions, the story concluded that “as many as 160 other cities use red-light enforcement systems like the one Minneapolis tried” [105]. The brief story failed to comment on the differences in state enabling laws, or the details of local ordinances and how they differ from place to place.

City of Minneapolis and State Attorney General Appeal to the Minnesota Supreme Court

Within days of receiving the decision of the Court of Appeals, the Minneapolis City Attorney’s office asked the Minnesota Supreme Court to review the lower court’s rulings that had turned off the city’s eight-month photo-cop “Stop on Red” program [106]. The *St. Paul Pioneer Press* recalled that the program had been suspended in March by the district court, which prevented St. Paul from launching a similar program. It quoted the Minneapolis city attorney’s office statement that there had been a 31-percent decrease in the number of crashes at 10 intersections monitored by the cameras during the eight months, and that about 25,000 tickets had been issued during the program’s operation [107].

The State of Minnesota’s appeal to the Minnesota Supreme Court presented the following issues for review, as summarized in March 2007 by the Supreme Court Commissioner’s office [108]:

- (1) Whether Minnesota Statutes §169.022 (2006) preempts the city’s authority to enact the automated traffic law enforcement system;
- (2) Whether the automated enforcement system is authorized under Minnesota Statutes §169.04 (2006), which allows cities like Minneapolis to “regulat(e) traffic by means of police officers or traffic control signals;
- (3) Whether the automated system can be enforced by severing section 474.660 of the Minneapolis Code of Ordinances, which places the burden on the owner of the vehicle to name the driver, from the remaining sections of the ordinances [109].

Attorneys for both the proponents and detractors of the “Stop on Red” photo-cop program argued their positions before the Minnesota Supreme Court on 12 March 2007. “It’s our position that we have the authority,” said Mary Ellen Heng, assistant city attorney. “When (car owners) lend their vehicles, they’re already facing some risk of a traffic violation coming down” [110].

Meanwhile Howard Bass, an ACLU attorney, countered that the “program wrongly assumes the owners of the cars captured running red lights are also the ones behind the wheel. ... Under state law, drivers are liable for running red lights,” he said, “but under the ordinance it’s registered owners who are liable” [111].

Supreme Court Rules Minneapolis Ordinances Invalid

The Supreme Court issued its decision on 5 April 2007, following the same line of argument presented in the appellate court's decision [112]. It held that "the Minneapolis Code of Ordinances sections 474.620 to 474.670 are invalid because they are in conflict with the Act (i.e., Minnesota Traffic Regulations), specifically with Minnesota Statutes §169.06, subd.4(a), and Minnesota Statutes §169.002. The court affirmed the appellate court decision.

The state had argued that there were compelling public safety considerations that underlay the ordinance. It pointed out that numerous accidents occur as a result of red-light running violations, and that they often lead to "serious injuries, death, extensive property damage, and high insurance costs."

The court said that it did not mean to minimize these considerations, but wanted to clarify that they were not relevant to the presumption-of-guilt analysis upon which their analysis and decision rested. Instead, the court said, these considerations are appropriately addressed by the legislature. What followed was the introduction of HF1058 by Minnesota House of Representative member Paul Thissen, a measure discussed in the last section of this report.

Minneapolis Petitions District Court to Stay Fines Already Paid on Guilty Pleas

After the Minnesota Supreme Court in its April 2007 decision affirming the Court of Appeals decision striking down the Minneapolis Ordinance that authorized the "Stop on Red" photo-cop program, a number of motorists who had been cited under the program and had pled guilty, petitioned the Hennepin County District Court to re-open their cases. As of 18 September 2007, 97 defendants who had pled guilty had filed motions to re-open their paid citations. As of the same date, 61 others who had entered into diversion agreements, had met with a hearing officer and had signed agreements to suspend the prosecution of their citations for various reasons, although most of them had paid the \$142 fine and prosecution costs.

In response, the state argued that, in the cases of the 97, "defendants who paid the citations have entered guilty pleas to the charge and should not be allowed to withdraw the guilty plea after sentence" [113]. In the cases of the 61, the state argued that "defendants who entered into an agreement to suspend prosecution (CWOP—canceled without prejudice) received the benefit of the agreement and should not be allowed to have the agreement voided" [114].

In his decision, issued on 2 October 2007, Hennepin County District Judge Mark Wernick found that the 147 people who had asked that their cases be reopened (some of the 158 did not ask) should get their fines returned because the Minnesota Supreme Court had found the use of photo-cop camera enforcement program to be illegal. An additional 15,000 to 20,000 others had already paid their citations, so a question remained whether they would also get a refund, their records cleared, and how that might happen. Judge Wernick ruled that in the case of the 147, because the city collected the fines, it would be up to the city to return them even though the money had already been split with the county [115].

Within days, the City of Minneapolis announced that it would not appeal Judge Wernick's ruling, but that decision applied only to the 147 who contested their convictions. It remained unclear what would happen in the cases of the 15,000 to 20,000 who received citations and had paid their fines [116].

Chapter 6: Politics Surrounding Automatic Enforcement of Traffic Laws

Automated enforcement of traffic laws seemed like a good idea to local governments around the country, but it led to unanticipated consequences. Travelers are surprised to receive citations in the mail for reported violations they may not recall. Rental car companies receive citations, then bill customers and add a processing charge, annoying the customer who may not recall the violation [117].

Some states and municipalities may feel so much pressure to avoid tax hikes and to raise revenues from fines that they reclassify red-light and speeding citations issued through automated-enforcement technologies as minor violations like parking tickets so as to avoid assigning points to a driving record. More than the enhanced revenue prospects, though, is law enforcement's concern to improve safety by cutting motor vehicle crashes. The problem is that speeding is common because many drivers view it as acceptable behavior even though it is a major contributing factor in motor vehicle crashes.

West Valley City, Utah

Critics of automated enforcement say that what is needed instead is (1) better road engineering and traffic control, and (2) law enforcement that cracks down on manifestly unsafe driving. The case of Utah portrays the challenge facing a state that tried to authorize automated enforcement. In the early 1990s, West Valley City, Utah, implemented a photo-radar accident reduction program by means of an automated speed-enforcement system. [118] During the first nine months of the program, law enforcement reported 300 fewer traffic accidents compared with the same period a year earlier. The drop of 17 percent in accidents was especially notable compared with the 70 percent increase that had occurred during the previous decade. Besides the savings due to fewer crashes, law enforcement estimated a savings of 1,000 man-hours responding to traffic accidents and filing reports.

During January to June 1992, the photo-radar unit monitored speed of over 310,000 vehicles, tagging the 4,414 (1.4 percent) of drivers exceeding the posted limit by at least 11 miles per hour. The city concluded that the program fulfilled its promise to increase compliance and lowered the numbers and severity of traffic accidents, saving lives, suffering, and dollars of property damage.

Utah Legislative Defeat of Expanded Automated Enforcement

The Utah story along with one from San Jose, Calif., are two examples of scores of similar accounts of how photo enforcement of red-light running and radar enforcement of speed laws produced measurable results in terms of compliance with traffic laws [119]. Nevertheless, when Rep. Rosalind J. McGee of the Utah Legislature tried in 2005 to modify the motor vehicle code to facilitate automated enforcement of traffic laws, her bill was sent to what the press termed a "killer committee" and dealt a death blow there even though, she reports, it had some strong support [120]. Highlights of her bill included the following:

- License plates may not be covered;
- A peace officer need not be present when photo radar is used;

- Automated enforcement can be used only where highway signs note that automated enforcement may be used;
- Automated red-light enforcement is authorized;
- Jurisdictions authorizing photo radar or automated red-light enforcement are required to provide and ensure that certain procedures are followed regarding dismissal and appeal of a citation, for example when the vehicle owner is not the driver;
- Contractor compensation based on citations issued or revenue generated is prohibited;
- Citations issued by automated enforcement are not reportable violations, and points may not be assigned [121].

A similar bill was introduced in the Minnesota Legislature (HF3863, 85th Session, 2007-08) by Rep. Paul Thissen, but like the Utah bill it died in committee [122].

Arizona's Debate over Automated Enforcement of Speed Laws

Meanwhile in Arizona, Governor Janet Napolitano pushed to roll out photo-assisted radar enforcement of speed laws statewide [123]. The coverage of the bill in the *Arizona Daily Star* (29 February 2008) elicited dozens of intemperate comments for and against the measure, illustrating the controversial nature of automated enforcement regardless of how such programs are designed and implemented. As the press commented sarcastically, "State lawmakers are moving to give a break to speeders, as long as they don't drive really fast and don't do it often" [124]. The Arizona bill had these features:

- Reduced from three points to one the penalty for speeding up to 11 miles per hour over the limit; eight points in a year would send the driver to traffic survivor school; and 12 points means license suspension;
- Gave speeders one free pass each year, i.e., the first violation each year would not be reported to insurance companies;
- Protected drivers caught by multiple photo-radar cameras near one another on state roads; all violations within five miles or 20 minutes of one another would be reduced to a single citation; and
- Forbade issuing photo-radar citations unless the violation was witnessed by a law-enforcement officer (n.b., it was unclear whether the witnessing could be via a filmed record, or would have to be via observation on the scene in the field).

Law-enforcement spokespersons and State Farm Insurance Company supported the existing (stricter) law while several legislators seized the occasion to express their violent opposition to automated enforcement itself. For example, Rep. Sam Crump (R-Anthem) announced, "I welcome any opportunity to stick my finger in the lens of photo radar, because I can't stand it" [125]. The State Farm lobbyist, in opposing the easing of rules, pointed out that studies showed that the number of times people get tickets for speeding is a good predictor of whether they are likely to get into an accident.

A major source of objection to the governor's endorsement of the automated-enforcement law was her plan to put photo radar on highways throughout the state and direct the revenues from

finest to the state's general fund. Existing law had permitted the cameras, but a change in law was needed so the revenues could go into the state's general fund. Under the existing law, revenues from citations go to the city or county where they are issued. The governor had said that automated enforcement was about safety, not revenue, but her critics and critics of automated enforcement remained unconvinced.

Political Cultures in the United States

While states like Arizona debate the merits and shortcomings of automated enforcement, other state and local areas have moved forward with enabling legislation.

State of Washington. Following several years of study, the 2005 Washington state legislature authorized the use of automated traffic safety cameras [126], a move that was accompanied by the implementation of programs in Seattle, Spokane, Tacoma, and five other local jurisdictions in the state between 2005 and 2007 [127].

Success in Washington, D.C. and Maryland. In the 1990s, Washington, D.C. ranked among the top-20 large U.S. cities in fatalities resulting from crashes caused by red-light running. In 1999 the metropolitan police department partnered with Lockheed Martin IMS to implement a red-light photo-enforcement program [128]. The program was judged a considerable success and was followed by a successful automated-enforcement program in Montgomery County, Md., using speed cameras. In 2008, the Maryland House of Delegates passed speed-camera legislation allowing all Maryland jurisdictions to use automated-enforcement technology. Proponents argued that automated-enforcement enabling legislation helps reduce accidents and makes roads safer while freeing law enforcement to fight more serious crimes. In heated debates opponents claimed that the cameras infringe on civil liberties, and carry the potential to be abused by local jurisdictions trying to increase revenues by setting up speed traps [129].

Speed Management in Illinois Highway Work Zones. Finally, in addition to the mixed record in the United States of authorizing, installing, and operating automated enforcement for red-light running and speed management within municipalities, counties, and state highways, there remains the special challenge of speed control within highway construction work zones. Motorists represent over 90 percent of fatalities in work zones. The state of Illinois stepped up enforcement of photo-speed enforcement in work zones with a new law in 2004. On average, the state has 7,000 work-zone crashes per year, resulting in 2,600 injuries and 33 fatalities, with an average of two worker fatalities.

The Illinois work-zone application uses vans with a speed-indicator device triggered by a separate radar that communicates vehicle speed to the motorist to provide one last opportunity to slow down before the camera radar is triggered. If the vehicle fails to slow down, the camera radar is triggered, and the camera records a photo of the driver and the vehicle license plate and tickets are mailed to the vehicle owners. State police staff the vans [130].

Chapter 7: Ongoing Debates over Automated Enforcement

Some localities like Minneapolis began an automated enforcement program to curtail red-light running only to learn that state law did not permit such local action. Some states, like Arizona, Maryland, and Washington passed laws enabling local use of automated enforcement of speed limits and red lights but leave it to cities and counties to install the automated-enforcement systems. At present, about half the states allow automated enforcement, but in all states automated enforcement remains a contentious issue for many reasons.

The Problem of False Accusations

One group of objections includes those falsely accused of red-light running because they were not driving the car when it was cited. This type of violation requires the car owner to prove his or her innocence, which the Minnesota Supreme Court ruled unconstitutional. Another group objects when they receive a citation for a car they do not own, again requiring them to prove innocence at their own expense [131]. In London, this problem is exacerbated by a jump in thieves stealing or counterfeiting license plates to escape liability when cameras record a violation [132].

Safety vs. Revenue

Some, like the lobbying group the National Motoring Association, argue that the real motive behind automated enforcement is to make money, not to protect the public, a claim that has some credence given the public statements of Arizona's governor [133]. There is no debate that dangerous drivers put others at risk, and that data clearly show that automated enforcement of traffic laws can reduce crashes, injuries and deaths. If revenues from automated enforcement are used to improve public safety with any excess going to general revenues at the state, county and city—so that there is no direct financial link between the governmental unit that enforces the law and the revenues from the fines and court costs—this objection does not carry weight. Despite such safeguards, however, strident claims and attacks on elected leaders favoring automated enforcement continue [134].

What is Private?

Another objection is that automated enforcement of speed laws, red-light running, and other violations is too intrusive—that it allows law enforcement to act as “Big Brother” spying on law-abiding citizens [135]. But photo enforcement and speed-radar cameras are not general surveillance cameras. They are triggered only when a violation occurs, and collect no more information than is needed for law-enforcement purposes. “Opponents of photo enforcement raise the privacy issue with the general public, but not in court. This is very likely because the law is well settled that there is no privacy interest in what is routinely and regularly displayed in public” [136].

Procedural Issues

Some opponents of automated enforcement claim that offenders are entitled to immediate notice when they commit an offense. But statutes of limitation dictate the time interval within which notice of the offense must be delivered. Without a violation of any statute of limitations that applies there is no requirement or guarantee that a driver will be charged contemporaneously with an offense. In fact, citations are often issued days or weeks after an investigation of a crash is concluded [137].

Reliability of Technologies

Some claim that photo-enforcement cameras and radar or laser technologies make mistakes. However photo enforcement has been used in Europe for more than 25 years and in the United States for more than 15 years, and has been shown to be reliable.

On the positive side of the debate are those around the world and across the U.S. who support automated enforcement including safety engineers at the U.S. Department of Transportation and the Federal Highway Administration. The Insurance Institute for Highway Safety has been a prominent advocate, along with (of course) the many vendors of photo enforcement equipment and services [138]. A private, non-commercial web site [www.photocop.com] provides over 250 pages of text summarizing many sides of the automated enforcement debate, including guidance for communities embarking on a photo-enforcement system for red lights, speed limits, as well as toll roads, rail crossings, and high-occupancy vehicle (HOV) lanes. In addition, a national campaign is underway urging the federal government to encourage states to adopt automated traffic enforcement laws [139].

Public Attitudes and Values

In the final analysis, improving traffic safety depends largely on attitudes and values that guide driver behavior. Engineering solutions go far in helping move traffic efficiently and safely, but the rest of the job depends on reasonable rules and their enforcement. The National Highway Traffic Safety Administration (NHTSA) has periodically updated its assessment of the public's attitudes and behaviors regarding speeding. For example, in 1998 it conducted a national survey, which reported that 71 percent of the general public favored the use of automated devices for speed enforcement, and 76 percent believed that the use of automated enforcement reduced speeding-related accidents [140]. That survey also showed:

- Females were 15 percent more likely than males to favor automated enforcement;
- 20 percent liked automated enforcement because it proved a violation;
- 19 percent liked automated enforcement because it raised driver awareness, and fewer law officers were needed for traffic law enforcement; and
- 26 percent disliked automated enforcement because it “invaded privacy.”

Four years later, in 2002, NHTSA sponsored another survey that found:

- 68 percent of the general public believed that the use of automated enforcement of speed limits was good for anyone driving at least 20 miles per hour over the limit;

- 78 percent favored automated enforcement in school zones;
- 56 percent favored photos taken of the driver from a front view,
- 23 percent favored photos of the rear license plate only [141].

Beginning in 2008, NHTSA intended to administer a project in which selected sites would incorporate both traditional law enforcement and use of automated enforcement of speed limits in the demonstration area. The project was expected also to include a public information and education campaign focused on speeding and driving safety. An aim of the project is to measure changes in public attitudes about speeding and driving behavior that result from both the enforcement effect and the information-education campaign [142]. While the new NHTSA effort proceeds, local debate over automated enforcement continues, ranging from grudging acquiescence that it is necessary and a good idea [143] to fear that it goes too far in eliminating judgment and discretion [144], which brings us back to Minnesota and local prospects for automated enforcement of traffic laws at the state and local levels.

In conclusion, there remain many sides of the debate over automated enforcement of traffic laws. For example, a careful literature review of the effectiveness of red-light camera systems in reducing crashes found that study quality varied and that estimates of the safety effect of red-light-running programs vary considerably—but all reported reductions [145]. Most results seem to support a conclusion that automated enforcement reduces right-angle crashes and can increase rear-end crashes. However the review identified methodological problems in the studies that tend to undermine policy conclusions [146]. Nevertheless, a careful study published by the Federal Highway Administration concluded that even though the reduction in right-angle crashes due to the operation of red-light camera systems was associated with an increase in rear-end crashes, the use of red-light camera enforcement yielded “a modest aggregate crash-cost benefit” [147]. In other words, the trade-off is worth it if the goal is to reduce fatalities and injuries. Furthermore, net benefits are likely to be most beneficial at intersections where there are relatively few rear-end crashes and many right-angle ones.

Chapter 8: Automated Enforcement of Traffic Laws in Minnesota: What Will it Take?

Overview

Automated enforcement of red light laws has demonstrated its effectiveness in reducing traffic violations and motor vehicle accidents [148]. At present, more than 25 states and one territory have either passed enabling legislation to enforce red-light-running laws with camera technologies or are contemplating doing so. In addition, some local communities are using red-light-camera technologies based on permissive local ordinances. Similar but less intensive initiatives are underway for automated enforcement of speed limit laws.

The Federal Highway Administration (FHWA) supports these initiatives with grants to test and evaluate red-light-running automated enforcement using digital and film cameras, with initial reports showing success with the technology and a reduction in red-light-running crashes. These results mirror findings from previous studies conducted since the early 1990s: automated enforcement of traffic laws works; it reduces violations; cuts the number of accidents; saves lives; reduces injuries; reduces property damage and insurance costs; and cuts demands on law enforcement and emergency services. Nevertheless, despite the demonstrated successes, it is a rocky path to implementing automated-enforcement programs [149].

Since the case for automated enforcement on the basis of its effectiveness appears to be a strong one, based on the experience in the United States and other countries, the steady trend toward increased utilization of automated enforcement seems likely to extend to states where it is not used at present—including Minnesota. In states where automated enforcement has been proposed but not yet authorized and used, a series of issues and objections have routinely been raised, each of which in one place or another has been satisfied, as summarized by the Insurance Institute for Highway Safety, an advocacy group that endorses automated enforcement [150].

U.S. Court Decisions Concerning Automated Enforcement of Traffic Laws: A Summary

A summary of court decisions addressing issues relevant to camera enforcement includes:

- (1) Decriminalization of moving violations cited by automated enforcement, and substituting a civil-penalty system, is authorized.
- (2) The procedural adequacy of using photographs in an administrative hearing as satisfying the requirements of due process is endorsed.
- (3) The use of administrative-hearing officers in contested automated-enforcement cases does not violate the separation of powers doctrine (i.e., legislative, judicial), provided that administration actions are subject to judicial review.
- (4) Governments may delegate the operation of an automated-enforcement system to contractors, provided that the local unit of government retains the right to oversight and control, and to evaluate the contractor's performance.
- (5) The equal protection clause is not violated when persons prosecuted under traditional enforcement have trial rights while those cited via camera enforcement do not.

- (6) Under certain circumstances it is permissible to authorize the use of a citation to prove a violation.
- (7) Several state courts decided that it does not violate due process to create a rebuttable presumption that the vehicle in violation of a traffic law was driven by the owner, although in the Kuhlman case the Minnesota courts decided otherwise when the Minneapolis ordinances were found to be in conflict with state law (although the Minnesota court took no position on the validity or the invalidity of photo enforcement of traffic laws).
- (8) Any privacy concerns raised against the use of photo enforcement of traffic laws are outweighed by public-safety concerns.
- (9) Objections to photo enforcement are sometimes based on the claim that they are designed to raise revenues, but this objection is neutralized by rules on levels of fines and court costs, separation of the agency doing the enforcement (e.g., a city) from the agency gathering the revenues (e.g., county, state) and the uses to which the revenues are put (e.g., enhanced public safety; expanded law enforcement).
- (10) Mail service of a citation addressed to the vehicle's registered owner is sufficient [151].

The Canada Safety Council published in 2007 another extensive review of the hundreds of studies of the effectiveness and cost effectiveness of automated enforcement systems (photo, radar, laser) in Canada, Europe, Australia, and the United States, with endorsement by the World Health Organization [152]. Yet despite the demonstrated effectiveness of automated enforcement and court rulings allowing its implementation, studies continue in part to provide political ammunition and support for hesitant legislators facing deeply divided constituencies.

Deaths increase on Interstate highways where higher speed limits are posted, making it important that speed limits are enforced [153]. It is especially important that speed be regulated on non-Interstate roadways, mainly in rural areas. A North Carolina study reported that 86 percent of speeding-related fatalities occur on rural roads [154].

Aside from the savings of many sorts that accrue when automated enforcement of red-light running and speeding leads to fewer crashes, the revenues from fines and court costs can be set to recover all direct costs of automated enforcement, with extra revenues available for enhanced public safety and law enforcement programs [155].

Implementation of Automated Enforcement of Traffic Laws

As described early in this report and summarized here, there are a series of crucial steps to follow in a successful implementation of an automated enforcement program to curtail red-light running and speeding. The first concerns engineering modifications of roads and intersections to make them safer. Among these considerations are the proper installation and operation of traffic signals. The Institute of Transportation Engineers has issued guidelines for the proper installation and operation of signals [156].

Engineering guidelines argue that traffic signals should not be installed unless one of the warrants specified by the Manual on Uniform Traffic Control Devices (MUTCD) has been satisfied. But the satisfaction of a warrant is not in itself justification for a signal. A traffic engineering study must be conducted to determine whether the traffic signal should be installed.

The installation of a traffic signal requires sound engineering judgment, and must balance the following, sometimes conflicting goals:

- Moving traffic in orderly fashion;
- Minimizing delay to vehicle operations;
- Reducing crash-producing conflicts; and
- Maximizing capacity for each intersection approach.

Poorly located or inappropriately operated signals can encourage red-light running. A signal unwisely installed in response to local pressure and in conflict with MUTCD warrants, runs the risk of trading one kind of hazard for another one, potentially more serious.

After engineering issues have been resolved, and a decision has been made to proceed with an automated enforcement system to enforce traffic laws, the following steps must be followed as outlined earlier [157]:

- (1) Establish working partnerships linking police, transportation departments, the judiciary, the state legislature, the media, and other jurisdictions that are planning to develop and deploy automated enforcement programs.
- (2) Pass appropriate enabling legislation at the state level [see Appendix D], and then adopt appropriate local ordinances [see Appendix A].
- (3) Establish a statewide public-education program in support of automated enforcement of red-light running and speed laws.
- (4) Select appropriate automated-enforcement technology with special attention to costs of acquisition, operation, maintenance, reliability, and evidentiary credibility [158].
- (5) Involve the judiciary in planning the automated-enforcement program;
- (6) Clarify privacy issues.
- (7) Establish reasonable and defensible lag times between the time of the recorded infraction and the time of receipt of the citation.
- (8) Design a revenue-collection, allocation and use system that is publicized and that can withstand public scrutiny.
- (9) Engage traffic engineers to ensure that automated enforcement of red lights at a particular intersection is compatible with a red-light enforcement application, or needs to be modified.
- (10) Make sure that the selection of intersections and roadways for automated enforcement has been based on good traffic-safety data. When problem intersections and stretches of roadway have been identified, consult with traffic engineers to ensure that traffic violations are due to behavioral breaches and not the result of engineering design shortcomings.

Minnesota: Next Steps

It appears that most courts continue to affirm the constitutionality of automated enforcement of traffic laws. [81, Appendix B] Meanwhile public opinion polls and law enforcement agencies across the country support automated enforcement by substantial majorities. What remains to open the door for automated enforcement in Minnesota is appropriate enabling legislation by the Minnesota legislature.

During the 85th Minnesota legislative season (2007-2008), Rep. Paul Thissen (District 63A) representing part of Southwest Minneapolis and north-central Richfield introduced House File 1058: “A bill for an act relating to motor vehicles; authorizing automatic enforcement of official traffic-control devices; amending Minnesota Statutes 2006, sections 169.01, by adding subdivisions; 169.06, by adding a subdivision; proposing coding for new law in Minnesota, chapter 169” [Appendix D]. Thissen’s bill had eleven authors. It was referred first to the House Public Safety and Civil Justice Committee, which voted seven to six against the bill, with critics raising concerns about privacy issues, and whether cities would use the fines as a money-making effort. The House bill was discussed by other committees as well, but failed to reach the floor for final action.

A companion bill, Senate File 1071, sponsored by Sen. Scott Dibble (District 60) from Southwest Minneapolis, titled “Automated Traffic Control Enforcement” was approved by a (party-line) vote of 11 to five in the Senate Transportation Committee [Appendix E]. It was sent on to the Senate Finance Committee and the Senate Judiciary Committee, but did not reach the floor for final action.

At the end of March, 2007, it was clear to sponsors in both the House and the Senate that the bills would not succeed due to criticism from both ends of the political spectrum over privacy issues raised by the automated- technology and photo-cop technology. Rep. Thissen commented, “This is an effective tool for making streets safe, but it was hard to get that point made. There is this feeling about privacy in this state from two different sides that’s really strong” [82, pp. 1-2].

The conclusion from this survey of automated-enforcement efforts seems to be that when they are implemented with community support, based on carefully drawn enabling legislation and local ordinances, they represent a valuable tool that makes roads safer by reducing crashes, injuries, and fatalities. Their use reduces property damage, cuts the cost of insurance for motor vehicle owners, and can reduce the net cost of traffic law enforcement.

Although support for automated enforcement is substantial in all parts of the United States, opponents have been vocal, strident, and disingenuous in their opposition. From the flood of comments on blogs, testimony in courts, and op-ed pieces in newspapers, it is clear that many drivers are simply unwilling to observe traffic laws, preferring to judge for themselves what constitutes appropriate driver behavior when it comes to red lights or speed limits. The widespread use of radar detectors is clear evidence of a premeditated willingness to evade the law.

Some other opponents of automated enforcement charge that it is a transparent effort to raise revenues in the face of other efforts to hold the line on taxes—a charge that is easy to defend in some cases, such as in Arizona and New Mexico. Automated enforcement of traffic laws will require effective community education; legislative support, along with a clear rejection of

misleading “privacy” arguments; and a transparent separation of the financial side of automated enforcement programs from the public safety side.

These efforts to bridge the promise of automated enforcement technologies with the challenge of public policy are not easy, but they are worth the effort. The gains for the many will be great, but the costs to the few will be worth it.

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“Take a closer look at the three “hosts” (of the National Campaign to Stop Red Light Running): ACS, Redflex, and Nestor Traffic Systems.

Those are three of the biggest red-light ticket camera corporations in the country.

The National Campaign to Stop Red Light Running positions itself as a public safety organization when in fact it’s funded by ticket camera corporations and run by a public relations firm in their employ.

This is an organization that has spearheaded the push for red-light cameras across the country. This is an organization that stands side-by-side with legislators at their press conferences. This is an organization that is frequently quoted as an unbiased source by the media.

It’s clear to anyone who digs a little deeper that The National Campaign to Stop Red Light Running is judged by many as a sham organization that functions as a lobbying arm for the ticket camera industry.” <http://www.motorists.org/blog/red-light-cameras/national-campaign-to-stop-red-light-running-is-a-sham-organization/>

[160] M. Brunswick, PhotoCop Busted in Legislature, *StarTribune* (30 March 2007), pp. 1-2.
<http://www.startribune.com/politics/11757771.html>

Appendix A

Automated Traffic Law Enforcement Model Law

The objective of automated traffic law enforcement is reduced traffic crashes and improved adherence to traffic laws through the use of photographic and electronic technology as a supplement for traditional traffic law enforcement. This type of enforcement should be used at high crash sites, at other high-risk locations, or in situations where traffic law enforcement personnel cannot be utilized, either due to the pressing needs of other law enforcement activities or where inherent on-site problems make traditional law enforcement difficult.

Automated traffic law enforcement is not intended to replace traditional law enforcement personnel nor to mitigate safety problems caused by deficient road design, construction or maintenance. Rather, it provides enforcement at times and locations when police manpower is unavailable or its use raises safety concerns.

The model law imposes only a civil fine for traffic law violations enforced via an automated traffic law enforcement system and relies on an initial presumption of guilt. This approach is not new as it is typically utilized for the enforcement of parking law violations. As with parking violations, traffic law violations resulting from automated traffic law enforcement are not recorded in drivers' licensing files for possible point assessment or licensing action. Indeed, any attempt to unfavorably influence persons' driving privileges, through the use of this system, could raise due process of law concerns.

This model law contains provisions to insure that automated traffic law enforcement is not used as a revenue generator. Compensation paid for an automated traffic law system is to be based only on the value of the equipment or the services provided. Compensation for services or equipment is not to be based on the revenue generated by the system.

To help further this goal and improve highway safety, this model law provides that revenue derived from automated traffic law enforcement may be utilized solely to fund highway safety functions.

Automated Traffic Law Enforcement Model Law

§ 1 Legislative Purpose

This legislation authorizes automated traffic law enforcement at high crash or other high-risk locations where on-site traffic law enforcement personnel cannot be utilized, either because of insufficient manpower or inherent on-site difficulties with enforcement by police officers. The objective of automated traffic law enforcement is reduced traffic crashes resulting from improved adherence to traffic laws achieved by effective deterrence of potential violators that could not be achieved by traditional law enforcement methods.

Automated traffic law enforcement is not intended to replace traditional law enforcement personnel, nor is it intended to mitigate problems caused by deficient road design, construction or maintenance. Rather, it provides enforcement at times and locations when police manpower is unavailable, difficult to utilize safely, or needed for other priorities.

§ 2 Applicability of law

The State, a county, or a municipality may utilize an automated traffic law enforcement system to detect traffic violations under State or local law, subject to the conditions and limitations specified in this Act.

§ 3 Limitations on Use of Automated Enforcement

Automated traffic law enforcement systems may be utilized only at locations with high incidences of violations or with high crash rates due to violations, where it is impractical or unsafe to utilize traditional enforcement, or where traditional enforcement has failed to deter violators. In determining deployment of automated traffic law enforcement systems, the judgment of the administering agency, when using due diligence in evaluating the suitability of potential deployment sites, including consideration of site violations and crash data, shall be controlling on where and when to install automatic traffic law enforcement systems.

Before issuing citations based on surveillance by an automated traffic law enforcement system, a traffic engineering analysis of the proposed site shall be conducted to verify that the location meets highway safety standards. An automated traffic law system may not be used as a means of combating deficiencies in roadway design or environment.

§ 4 Citation and Warning Notice

(a) Pursuant to this section, an agency shall mail to the owner a citation, which shall include:

- (1) The name and address of the registered owner of the vehicle;
- (2) The registration number of the motor vehicle involved in the violation;
- (3) The violation charged;
- (4) The location where the violation occurred;
- (5) The date and time of the violation;
- (6) A copy of the recorded images;
- (7) The amount of the civil penalty imposed and the date by which the civil penalty should be paid;
- (8) A signed statement by a technician employed by the agency that, based on inspection of recorded images, the motor vehicle was being operated in violation of a traffic control device;
- (9) A statement that recorded images are evidence of a violation of a traffic control device;
- (10) Information advising the person alleged to be liable under this Act:
 - (A) Of the manner, time, and place in which liability as alleged in the citation may be contested; and
 - (B) Warning that failure to pay the civil penalty or to contest liability in a timely manner is an admission of liability and may result in denial of renewal of vehicle registration.
 - (C) Except as provided in §7 (f) (2), a citation issued under this section shall be mailed no later than 2 weeks after the alleged violation.

(b) An owner who receives a citation pursuant to the provisions of this Act may:

- (1) Pay the civil penalty;
- (2) Elect to stand trial for the alleged violation; or

- (3) Specify the person who was operating the vehicle at the time of the violation, including the operator's name and current address.

§ 5 Violations

Unless the driver of the motor vehicle received a citation from a police officer at the time of the violation, the motor vehicle owner, or the driver if subsection 7 (f) (2) is applicable, is subject to a civil penalty not exceeding \$() if the motor vehicle is recorded by an automated traffic law enforcement system. A violation for which a civil penalty is imposed under this Act is not a moving violation for the purpose of assessing points and may not be recorded on the driving record of the owner or driver of the vehicle.

§ 6 Failure to Pay Penalty or Contest Violation

If a person charged with a traffic violation as a result of automated traffic law enforcement does not pay the civil penalty resulting from that violation, the department of motor vehicles may refuse to reregister any motor vehicles owned by that person.

§ 7 Rules of Evidence and Defenses

(a):

- (1) Based on inspection of recorded images produced by an automated traffic law enforcement system, a citation or copy thereof alleging that the violation occurred and signed by a duly authorized agent of the agency shall be evidence of the facts contained therein and shall be admissible in any proceeding alleging a violation under this section.
- (2) Adjudication of liability shall be based on a preponderance of evidence.

(b) The court may consider in defense of a violation:

- (1) That the motor vehicle or registration plates of the motor vehicle were stolen before the violation occurred and not under the control of or in the possession of the owner at the time of the violation;
- (2) Evidence satisfactory to the Court that the person named in the citation was not operating the vehicle at the time of the violation;
- (3) With respect to an alleged red light violation, evidence that the driver of the vehicle passed through the intersection when the light was red:
 - (A) In order to yield the right-of-way to an emergency vehicle; or
 - (B) As part of a funeral procession;
 - (C) The vehicle had not illegally crossed the required stopping point.
- (4) Any other evidence or issues that the Court deems pertinent.

(c) In order to demonstrate that the motor vehicle or the registration plates were stolen before the violation occurred and were not under the control or possession of the owner at the time of the violation, the owner must submit proof that a police report concerning the stolen motor vehicle or registration plates was filed in a timely manner.

(d) In order to demonstrate that the person named in the citation was not the violator, the person so named in the citation shall provide evidence satisfactory to the Court,

specifying the person who was operating the vehicle at the time of the violation, including the operator's name and current address.

(e) If the person named in the citation is an owner of a commercial vehicle with a registered gross weight of 10,000 pounds or more, a tractor vehicle, a trailer operated in combination with a tractor vehicle or a passenger bus, in order to demonstrate that he or she was not the violator, that person shall, in a letter mailed to the Court by certified mail return receipt requested:

(A) Swear that the person named in the citation was not operating the vehicle at the time of the violation; and

(B) Provide the name, address, and driver's license identification number of the person who was operating the vehicle at the time of the violation.

(f):

(1) If the court finds that the person named in the citation was not operating the vehicle at the time of the violation or receives evidence identifying the person who was driving the vehicle at the time of the violation, the clerk of the court shall provide to the agency issuing the citation a copy of the evidence identifying who was operating the vehicle at the time of the violation.

(2) Upon receipt of evidence from the court that a person other than the one initially charged was operating the vehicle at the time of the violation, an agency may issue a citation to that other person so identified. A citation issued under this paragraph shall be mailed no later than 2 weeks after receipt of the evidence from the court.

§ 8 Public information

A public information campaign must precede the issuance of citations using an automated traffic law enforcement system. An integral part of an automated traffic law enforcement program is a community-wide information campaign to inform the driving public. This public information campaign shall continue throughout the life of automated traffic law enforcement program and may be funded from revenues derived from the program. The goal of the automated traffic law enforcement program is reduced traffic crashes achieved by deterrence of violations, not the issuance of citations or the generation of revenues.

§ 9 Payment for Automated Traffic Enforcement System

The compensation paid for an automated traffic law system shall be based on the value of the equipment or the services provided. It may not be based on the revenue generated by the system.

§ 10 Use of Revenues Derived from Automated Enforcement

No portion of any fine collected through the use of automated traffic law system may be utilized as general revenue of the implementing jurisdiction. Revenue derived from automated traffic law enforcement shall be utilized solely to fund highway safety functions and projects, which may include the cost of automated enforcement programs. Automated enforcement program costs that may be funded by revenues derived from citation fines are limited to equipment acquisition, installation and replacement, program administration, public information campaigns and education, and periodic program evaluations of compliance, public awareness and impacts on highway safety.

§ 11 Adoption of Implementing Procedures

In consultation with local governments, the chief judge of the (insert name of the appropriate state, county or municipal court) shall adopt procedures for the issuance of citations, the trial of civil violations, and the collection of civil penalties under this Act. Thresholds established for determining violations and protocols for establishing acceptable evidence of committed violations shall be established and documented by the public agency responsible for administering the automated enforcement program. This authority may not be delegated to equipment vendors, service providers or other private sector institutions or employees.

§12 Program Evaluation

Within three years of the establishment of an automated traffic law enforcement program, the implementing jurisdiction shall initiate a formal evaluation of the program to determine the program's impact on highway safety. That evaluation shall be completed within (one year).

§13 Definitions

"Agency" means any public organization of the State or a political subdivision that is authorized to issue citations for a violation of State vehicle law or of local traffic laws or regulations.

"Automated traffic law enforcement system," means a device with one or more sensors working in conjunction with:

- (1) A red light signal to produce recorded images of motor vehicles entering an intersection against a red signal indication; or
- (2) A speed measuring device to produce recorded images of motor vehicles traveling at a prohibited rate of speed; or
- (3) A device to produce recorded images of motor vehicles violating railroad grade crossing signals; or
- (4) Any other traffic control device if the failure to comply with it constitutes (Insert appropriate language from the state code that enumerates safety-related moving violations).

"Automated traffic law enforcement program" means the utilization of one or more automated traffic law enforcement systems to issue citations for civil violations of traffic law.

The "Manual on Uniform Traffic Control Devices" means the national standard for all traffic control devices installed on any street, highway or bicycle trail open to public travel in accordance with 23 U.S.C. 109(d) and 402(a).

"Owner" means the registered owner of a motor vehicle or a lessee of a motor vehicle under a lease of 6 months or more.

- (1) "Recorded images" means images recorded by an automated traffic law enforcement system on:
 - A Two or more photographs;
 - B Two or more microphotographs;
 - C Two or more electronic images; or
 - D A videotape;

(2) Showing the motor vehicle, and on at least one image or portion of tape, clearly identifying the registration plate number of the motor vehicle.

(g) A "traffic control device" means any sign, signal, marking, channelizing and other device in conformance with the Manual on Uniform Traffic Control Devices and used to regulate, warn or guide traffic, placed on, over, or adjacent to a street, highway, roadway, pedestrian facility, or bicycle path by authority of a public body or official having jurisdiction.

Source: National Committee of Uniform Traffic Laws and Ordinances

<http://www.ncutlo.org/autoenforce622.htm>

Appendix B

Photo-Red-Light Enforcement Legal Considerations

Federal Highway Administration, National Highway Traffic Safety Administration. Guidance for Using Red Light Cameras. (20 March 2003)

<http://64.233.167.104/search?q=cache:wmZk9iKeOmAJ:www.nhtsa.dot.gov/people/injury/enforce/guidance03/Guidancereport.pdf+red+light+enforcement+of+traffic+laws,+legal+considerations&hl=en&ct=clnk&cd=4&gl=us>

NOTICE

The National Highway Traffic Safety Administration (NHTSA) and the Federal Highway Administration (FHWA) has compiled and distributed this information as a guide only. This material is not intended to be a complete treatment of every jurisdiction's laws and court decisions related to photo red light enforcement. Instead, this material includes highlights and examples of court decisions, and discusses issues that users engaged in photo red light enforcement should consider.

*Due to the dynamic nature of law enforcement and the evolution of technology, it is important that each department review this information to verify that it is consistent with applicable, current state and local law and regulations, and with department policy and procedure. **This information is NOT intended to substitute for the advice of legal counsel.** You should speak with your legal advisor, and/or local prosecutor, about the sufficiency of your department's manual, policy, curriculum, and training program on this subject. This material should not be used as the sole basis for compliance with any law or regulation, and **departments should NOT rely on this material as a legal defense** in any civil or criminal action. Remember that new court decisions and amendments to the law could change the material in this appendix.*

Photo red light enforcement is a relatively new law enforcement tool. Thus, case law is not well established. Although the few cases involving photo red light raised constitutional issues, the decisions were based upon procedural grounds, never answering the ultimate question – is it constitutional? The ruling on the Motion to Dismiss citations issued under San Diego, California's photo red light program (now under appeal), found the program constitutional. However, this ruling is not binding and only provides insight into the court's reasoning.

Automated speed enforcement, a relatively new enforcement tool as well, shares common legal issues with photo red light enforcement – such as the registered owner presumption, notice, procedural, constitutional issues, etc. Most automated speed cases have also tended to avoid constitutional questions. Some issues (e.g., chain of custody, service of process issues, registered owner presumption) have been addressed, but these decisions tend to be highly fact-dependent and/or are based on State statutes.

Many questions remain. The answer to these questions may be gleaned from cases not specific to automated enforcement. Existing case precedent dealing with evidentiary issues of older enforcement techniques will shape the use of automated enforcement evidence in the future.

Law enforcement will use the same criminal procedures as are applicable to the collection (search and seizure), preservation (chain-of-custody), and discovery of other types of evidence.

It is most important to note that although the courts will borrow from established case law to determine case law regarding automated enforcement, the path will most likely be contorted.

The law is known for nuances. Thus, subtle distinctions between photo red light programs may affect a court's decision and produce seeming inconsistencies.

Most importantly, the classification of the photo red light violation, as either a civil or criminal violation, will dramatically effect decisions. Similarly, as in the San Diego photo red light program, the enabling statute may impact the admissibility of the evidence (see page 17 for enabling statutes). A State's surrounding body of law and the manner in which the program is conducted will also impact the viability of the photo red light program and the success or failure of challenges to the program. Without assessing merit, following are some of the issues that may be generated by photo red light enforcement.

Procedural Issues

- Authentication of photographs
- Chain of evidence of photographs
- Compliance with enabling statutes
- Foundation: Device reliability (maintenance, checks for accuracy, training of personnel involved in the process)
- Misuse or dissemination of photographs
- Municipal drafting
- Notice – compliance with applicable state rules for service
- Proper notice of use of photo red light enforcement (signs)
- Standing – who can bring an action, when, and where

Substantive

- Administration of the program violates Fourteenth Amendment Due Process rights
- Confrontation rights (6th Amendment right)
- Equal Protection (disparate treatment for public, police, rental, corporate, out-of-state vehicles, motorists cited by police)
- Fifth Amendment right to remain silent (for statutes requiring affidavit as to who was driving)
- Mailing a citation that requires appearance is a seizure subject to the Fourth Amendment
- Photographing a motorist is a search subject to the Fourth Amendment
- Pre-charging delay (delay between the violation's occurrence and receipt of notice) – Fourteenth Amendment Due Process
- Presumption that the registered owner is the driver impermissibly shifts the burden of proof
- Privacy – violation of State privacy laws

- Revenue generation: selection criteria for photo red light enforcement, light phase timing
- Substantive Due Process – Privacy

The above are all issues that are likely to continue to be the subject of legal review and refinement. Monitoring their long-term clarification through legal proceedings is to be advised for all jurisdictions adopting red light camera enforcement systems. Appendix A reviews current relevant case law examples and in doing so illuminates the types of issues that have been raised.

Photo Red Light Case Law Synopsis

***Dajani v. Governor of Md.*, No. CCB-00-713, 2001 U.S. Dist. LEXIS 982 (D. Md. Jan. 24, 2001) (unreported)**

Facts: The defendant was charged with a photo red light violation and convicted. In this jurisdiction, photo red light violations are civil and not considered moving violations. Insurance companies may not consider the convictions.

Issue: The defendant appealed to the Federal district court, requesting the court declare the statute unconstitutional. The defendant alleged the photo red light statute violated the Sixth Amendment’s Confrontation Clause and the Fourteenth Amendment’s Due Process Clause.

The court upheld the conviction on procedural matters (lack of Federal jurisdiction and lack of standing) without comment on the constitutional issues. The Fourth Circuit Court of Appeals affirmed the District Court’s decision. (*Dajani v. Governor of Md.*, No. 01-1179, 2001 U.S. App. LEXIS 17303 (4th Cir. 2001).

***Kovach v. District of Columbia*, 805 A.2d 957 (D.C. 2002)**

Facts: The defendant paid, without contesting, a photo red light citation. Subsequently, the police department “decided to remove the camera because it was observing an inordinate number of people running the light, which was confusing to motorists.” *Id.* at 959. Outstanding fines were dismissed, but those motorists who had paid were not reimbursed.

Issue: The defendant appealed, alleging the District’s decision to forgive some, but not all, violations violated the Fifth and Fourteenth Amendments. The court upheld the conviction because “in failing to contest the infraction, appellant effectively acknowledged liability for running the red light.” The court also rejected the defendant’s argument that the confusing placement of the stoplight created “manifest injustice.” The defendant “has no standing to challenge the decision unless . . . he was confused . . .” *Id.* at 962- 63.

***Structural Components Int., Inc. v. City of Charlotte*, No. C0A102-200 (N.C. Ct. App., Nov. 19, 2002) (unreported – not final until expiration of rehearing period)**

Facts: The president of Structural Components received a photo red light citation for one of its vehicles. In this jurisdiction, violations are civil. Structural Components contested the violation at a “review hearing.”

Issue: Upon conviction, Structural Components (plaintiff) filed suit in the superior court alleging negligence (by failing to establish reasonable guideline, failure to govern the program in a reasonable manner, and failure to provide a reasonable appeals process) and civil rights violations (State/Federal due process and equal protection).

Upon defendant's (the City and Lockheed Martin) motion to dismiss, the court determined it lacked jurisdiction and dismissed the action. Structural Components appealed. The appellate court affirmed the trial court's dismissal on procedural grounds (waiver of the negligence action for failure to properly state issue in appeals brief and, because one cannot recover monetary damage for a procedural due process violation involving a civil penalty, failure to state a claim).

The court noted the proper avenue to challenge the constitutionality of the statute was by certiorari to the superior court (which Structural Components had not used) and the present statutory scheme provided an adequate method for challenging the legality of the program.

***City of Commerce City v. Colorado*, 40 P.3d 1273 (Colo. 2002)**

Issue: Commerce City challenged whether the Colorado statute (COLO. REV. STAT. § 42-4-110.5 (2002)), which authorized the photo red light program, infringed upon the City's "home-rule" powers. Noting that the program involved a "mix" of state and local concerns and, where conflicts arose, State concerns prevail, the court affirmed the validity of the program.

People v. John Allen (In re Red Light Camera Cases), No. 57927SD (Cal. Super. Ct. Aug. 2001) (order denying motion to dismiss) (available at <http://freedom.gov/auto/cases/sdmotion.asp>). *This case remains under appeal. This order is presented to illustrate issues that may arise with photo red light enforcement.*

Facts: Defendants in a photo red light case filed a motion to dismiss alleging failure to comply with the authorizing statute (section 21455.5 of the California Vehicle Code). In this jurisdiction, the violation is criminal and a conviction is entered onto the driver's license record.

Issue #1: The defendants contended the photo red light program was not operated by a government agency in cooperation with a law enforcement agency as required by the authorizing statute.

The court noted "once the construction process was begun, there was very little City involvement." The City did not inspect the project when complete and the "entire process of installation and calibration of the camera equipment, putting film into the cameras, unloading the cameras, developing the film, maintaining the camera equipment, and reviewing the photographs to make the initial determination as to whether or not there was a violation and whether the alleged violator can be identified, is done by Lockheed Martin. Further, once Lockheed determines that a citation will not [be] issue[d], that decision is not reviewed by the City.

If Lockheed decides a citation should [be] issue[d], it reviews Department of Motor Vehicles' information . . . prints the citation, including printing the signature of the sergeant in charge of the program on the citation. The first time the City becomes involved is when the police department receives the citation which has already been printed." The police review copies of the photographs and the digital information to determine whether the citation should be issued. If a citation is issued, Lockheed mails it . . ."

The court found the City had "no involvement with, nor supervision over, with the ongoing operation of the system" and "[t]he Legislature did not contemplate such a lack of

participation by the City” when it authorized a government agency to “operate an automated enforcement system.” Thus, the program violated the statute.

Issue #2: The defendants contended the signs were inadequate. The statute required signs “clearly indicating the system’s presence, visible to traffic approaching from all directions.” The posted signs were 24” by 30.” Based upon testimony of police officers as to the signs visibility and the lack of evidence drivers were not able to see the signs, the court found the signs adequate.

Issue #3: A related statute (section 40520 of the California Vehicle Code) required photo red light violations to be accompanied by an affidavit of non-liability, information as to what constitutes non-liability, information as to the effect of executing the affidavit, and instructions for return. The defendants alleged this procedure was “unconstitutional because it requires innocent people to testify against each other.”

The court noted the section was a legislative attempt to prevent blanket immunity for corporate and rental agencies vehicles and provides a method for the registered owner who is not driving to avoid liability. Without elaboration, the court determined the statute compliant with due process and “a legitimate exercise of the police power in an attempt to issue citations to the actual driver who violated the red light.”

Issue #4: The California Penal Code (section 959.1) requires pleadings (citations) be sworn before an officer entitled to administer oaths. The defendants alleged that “no officer swears to the facts because the signature is affixed electronically before it is sent to the police and the officer who reviews the citation is not the sergeant whose signature appears on the citation.” The reviewing officer merely stamps his ID number below the signature.

The court noted that pleading defects (i.e., minor errors in the pleading document) that do not prejudice a substantial right do not justify dismissal.

Issue #5: The defendants argued that because the City did not comply with statutory provisions regarding the “operation” of the program, all citations must be dismissed. In making its determination the court looked at the following issues.

Issue #5A: Was the delegation of authority constitutional? Although, the City had delegated the tasks of evidence collection and determining who will not be cited to Lockheed Martin, the police retained the “ultimate authority to determine who will be prosecuted.” Thus, the delegation was not unconstitutional.

Issue #5B: Is the fee paid to Lockheed Martin a contingency fee and if so, what is the legal effect? Because Lockheed’s payment was contingent upon a conviction, the fee was deemed a contingency fee.

The court indicated that Lockheed was “supposed to be a neutral evaluator of the evidence” and “should not have a financial interest in the outcome.” The court reasoned that because the statute mandated a government agency “operate” the program, the purpose was to guarantee, “information obtained from the red light cameras would be trustworthy. The potential conflict created by a contingent method of compensation further undermines the trustworthiness of the evidence which is used to prosecute the red light violations.”

Issue #5C: Does the delegation, without statutory authority, which operates on a contingent fee basis violate due process such that it requires a dismissal of pending actions?

The court noted that the threshold question in a due process challenge to executive action is whether the behavior is “so egregious, so outrageous, that it may fairly be said to shock the contemporary conscience.” In this case, the court held the conduct did not rise to that level.

Issue #5D: Is the photo red light evidence admissible?

The court indicated that “where evidence is obtained from sources subject to legislative standards, there should be substantial compliance.” The court noted that “there is no authority in the Vehicle Code for unsupervised private operation of a red light camera system. Therefore, there is not substantial compliance with the safeguards required by the statute. Such a lack of authority, combined with the collection-based compensation, result in evidence lacking foundation. Without foundation, the evidence is not relevant and is not admissible.”

Accordingly, the court did not grant the motion to dismiss, but rather granted a motion to exclude the evidence.

Office of the Attorney General of the State of Texas, Opinion No. JC-0460, 2002 Tex. Op. Atty. Gen. 20 (2002).

Issue: Could a city pass an ordinance authorizing a photo red light program and could violations be civil, rather than criminal?

Based on Texas law (which deemed red light violations criminal), the Attorney General opined a city could authorize a photo red light program to identify violators, but could not make violations civil.

Office of the Attorney General of the State of Tennessee, Opinion No. 01-004, 2001 Tenn. AG LEXIS 6 (2001) (available at <http://www.attorneygeneral.state.tn.us/op/2001/OP/OP4.pdf>).

Issue: The Attorney General’s Office was tasked with determining whether, pursuant to inherent police power, a city had authority to enact ordinances allowing photo-enforcement.

Without addressing specific constitutional issues, the Attorney General’s opinion concluded that the use of photo-enforcement did not conflict with any State statute. In a footnote, the opinion noted photo-enforcement has “generally been viewed as a permissible exercise of State and local government police power which is not violative of Federal or State constitutional provisions.”

Office of the Attorney General of the State of Nebraska, Opinion No. 00001, 2000 Neb. AG LEXIS 1 (2000) (Available at <http://www.ago.state.ne.us/opinion/index.html>).

The Attorney General’s office was tasked with assessing the constitutionality of proposed legislation involving photo red light enforcement. The Attorney General offered the following opinions:

Issue #1: Procedural Due Process: The proposed legislation permitted a defendant to contest the violation in a county court and assumed that proper notice would be provided. Thus, the Attorney General opined the proposed legislation would comply with the procedural due process requirements of reasonable notice and an opportunity to be heard.

Issue #2: Substantive Due Process: Substantive due process guarantees individuals protection from arbitrary government action. The Attorney General noted that due process is satisfied if the government has the power to act on the subject matter, if they did not act capriciously or in a discriminatory manner, and if there was a reasonable relationship to a proper governmental purpose.

The Attorney General opined that the proposed legislation complied with substantive due process because protecting public safety is a proper subject matter and the legislation was rationally related to that interest.

As to the registered owner presumption, the Attorney General opined this was also a “proper exercise of the State’s police power” similar to holding the registered owner of a parked vehicle liable.

Issue #3: Equal Protection: The Attorney General noted the similarities of the Nebraska and U.S. Constitution in that equal protection challenges not involving a suspect class or fundamental right are tested only for rationality. A Nebraska Supreme Court decision (*State v. Michalski*, 221 Neb. 380, 377 N.W.2d 510 (1985)) had held that driving is not a fundamental right, and that drivers were not a suspect class.

The Attorney General opined that the classification would be between two types of drivers: (1) those individuals cited directly by an officer who receive a criminal penalty, and have the conviction recorded on their driver’s license; and (2) those individuals cited by the photo red light program who are subjected only to civil penalties and no recordation on their driver’s license.

The Attorney General noted that, although the purpose of the legislation was not set forth, the apparent purpose was to reduce the hazards of running red lights. Thus, the Attorney General concluded that, given the “wide latitude” and deference to the legislative process, the legislation met the rational basis standard and the proposed law would comply with Equal Protection rights.

Red Light Camera Systems: Related Automated Enforcement Case Law Synopsis

***Oregon v. Dahl*, 57 P.3d 965 (Or. Ct. App. 2002).**

Facts: An officer operating a photo radar unit photographed the defendant’s vehicle exceeding the posted speed limit. The defendant was the only registered owner. The officer observed the violation, but did not affect an enforcement stop and could not identify the driver. At trial, a witness commented that the defendant failed to provide a sworn certificate of innocence as permitted by statute.

Issue #1: The defendant contended the Oregon statute which establishes a presumption that the registered owner of a vehicle is the driver impermissibly shifts the burden of persuasion.

An Oregon statute (OR. REV. STAT § 153.030.1) provides that unless excepted, criminal procedure laws apply to traffic violations. However, a different statute (OR. REV. STAT § 153.076.2) provides that traffic violations must be proved by a preponderance of the evidence (a civil standard). Because this statute authorized a civil standard of proof, the court reasoned a civil standard also applied to the presumption. Therefore, the burden shift was permissible.

Issue #2: The defendant contended that, even if the violation is civil, the Oregon presumption statute violated due process standards.

The court noted that both U.S. Supreme Court (*Bandini Petroleum Co. v. Superior Ct.*, 284 U.S. 8 (1931)) and Oregon State court decisions required a “rational connection” between the fact proved and the ultimate fact presumed. The defendant argued that “vehicles usually have more than one key, licensed drivers outnumber registered vehicles, and vehicles commonly are borrowed or stolen, all of which indicate that vehicles are often driven by someone other than their owner.”

The court, although acknowledging that vehicles are often driven by non-owners, found that “it is not irrational for the legislature to presume that vehicles are often driven by owners” and “we need not decide what facts are more likely to be true; the rational connection test does not require adoption of the best or most persuasive explanation.” Thus, the Oregon statute did not violate due process. *Id.* at 968-969.

Issue #3: The defendant contended a witness reference to her failure to submit a sworn certificate of innocence violated her statutory and constitutional right to remain silent.

The Fifth Amendment provides that no person “shall be compelled *in any criminal case* to be a witness against himself.” The court indicated that the defendant had failed to identify how she could have been exposed to any criminal responsibility. Thus, “her constitutional right was not implicated.” *Id.* at 969.

Section 810.439 provides a defendant in a traffic violation case an opportunity to avoid trial by submitting a certificate of innocence. The defendant may disregard that opportunity. The court “assumed without deciding” that the witness’s comment impermissibly infringed on the defendant’s statutory right, however, the court also stated “there was no indication that the trial court relied on that testimony in making its decision.” Thus, the court found the defendant was not prejudiced by the comment. *Id.*

***McNeil v. Town of Paradise Valley*, No. 01-17003, 2002 U.S. App. LEXIS 17306 (9th Cir. Aug. 12, 2002).**

Not Published – Check with Court Rules. The case is presented to illustrate issues that may arise with photo red light enforcement.

Issues: McNeil appealed the district court’s dismissal of alleged civil rights and Racketeer Influenced and Corrupt Organizations Act (RICO) violations premised on the issuance of an automated speed citation. The facts and basis for these contentions was not clearly set forth. However, it appears that McNeil contended the mailing of a traffic citation to the registered owner was a seizure and the process was in violation of due process.

Without elaboration, the court found municipalities cannot constitute a RICO enterprise. Further the court indicated that, because a seizure requires intentional physical control, the mailing of a citation is not a seizure. As for the due process claim, the court indicated that the challenge to the citation in municipal court was sufficient.

***Oregon v. Clay*, 29 P.3d 1101 (Or. 2001).**

Facts: An officer operating a photo radar unit photographed the defendant’s vehicle speeding. The officer did not effect an enforcement stop and did not know the identity of the driver in the radar photo.

Subsequently, a citation was issued and mailed to the defendant. The defendant did not appear at trial, but rather was represented by counsel. No evidence was presented on behalf of the defendant.

The State presented no direct evidence that the defendant was the registered owner, but rather relied on witness testimony and an “official duty” presumption to establish the defendant as the registered owner. Upon being found guilty, the defendant appealed, contending the State had failed to prove that she was the registered owner of the vehicle. The Oregon Court of Appeals upheld the conviction and the defendant appealed to the State supreme court.

In this jurisdiction, the registered owner is presumed to be the driver – see Oregon Law 1995, Chapter 579, sections 1-3 later codified to Oregon Revised Statutes §§ 810.438-810.439. Oregon statute section 811.123 requires proof that a particular person was speeding.

Issue: The defendant contended there was insufficient evidence to permit the trier of fact to find that she was the registered owner of the vehicle.

The court indicated that it did not “perceive any evidentiary basis . . . that would permit a trier of fact to find that the defendant was the registered owner of the speeding car.” *Id.* at 1103. The percipient witness could not identify the driver and there was no evidence to conclude the defendant was the registered owner (which would have invoked the presumption that the registered owner was the driver).

The court indicated that because an officer had the authority, not a duty, to send the citation, the presumption that an “official duty had been performed” was not applicable. Because they could not prove the notice had been mailed to the registered owner, they could not prove the defendant was the registered owner. Because they could not prove that the defendant was the registered owner, the presumption that the registered owner was the driver was not applicable.

Red Light Camera Systems

***Oregon v. Weber*, 19 P.3d 378 (Or. Ct. App. 2001).**

Facts: An officer operating a photo radar unit observed the defendant’s vehicle speed. The unit photographed the vehicle. Subsequently, the defendant was mailed a citation.

Issue #1: The defendant contended the inscription (indicating vehicle speed) on the photograph was impermissible hearsay.

The court indicated that, by statutory definition (Oregon Evidence Code 801), hearsay is a statement by a declarant and a declarant is a person who makes a statement. A machine, not a person, made the inscription on the photograph. Thus, the hearsay rule is inapplicable.

Issue #2: The defendant contended the court should have excluded the photograph on chain-of-custody grounds because the State offered no evidence as to “who picked up the film from the station, what happened to the film, how it was handled, or what was done to it prior to the citation and photograph being returned to the police station six days later.”

The court indicated that, “given the totality of circumstances, the trial court was well within its discretion in determining that there was no appreciable likelihood of alteration or tampering and that no further foundation was required.” *Id.* at 381-82.

Issue #3: The defendant contended the automated speed enforcement unconstitutionally shifts the burden of proof of the offender identity.

The court ruled the defendant had failed to use the proper judicial procedure to preserve this issue.

Issue #4: The defendant contended the time delay (between the occurrence of the violation and the mailing of the notice) violated her Fourteenth Amendment due process rights.

The court indicated that “for a precharging delay to give rise to a due process violation, a defendant must show both substantial prejudice to his right to a fair trial and that the delay was done intentionally to gain a tactical advantage.” The court found the defendant failed to establish the State intentionally delayed the notice to gain a tactical advantage. *Id.* at 385.

***Bentley v. West Valley City*, 21 P.3d 210 (Utah 2001).**

Issue: Plaintiffs, who received automated speed enforcement citations, sought reimbursement of fines alleging the automated-enforcement program violated Utah Code section 41-6-52.5. None of the plaintiffs had challenged the program during the criminal proceedings.

The court ruled on procedural grounds finding the plaintiffs failed to assert an “actionable civil theory under which criminal fines are recoverable.

***Anchorage v. Baxley*, 946 P.2d 894 (Alaska Ct. App. 1997).**

Facts: The defendants received automated speed enforcement citations. At trial, numerous witnesses testified to the reliability of the speed enforcement device. However, the trial court found the witnesses’ financial interest in the acceptance of speed enforcement units tainted their credibility. The magistrates found that, absent independent corroboration as to the reliability of the device, results were not admissible.

Issue: The city appealed seeking a ruling that automated speed enforcement evidence was admissible without corroboration.

The court indicated the case was moot because “we would only review the magistrates’ decision to determine whether the evidence presented would allow a reasonable fact finder to conclude that the municipality had failed to prove its case.” And, given the magistrates’ dim view of the witnesses’ credibility, no reversible error occurred. *Id.* at 598-99.

***West Valley City v. McDonald*, 948 P.2d 371 (Utah Ct. App. 1997).**

Facts: The defendant received an automated speed enforcement citation and requested a jury trial.

The State amended the complaint to a lesser charge (which did not warrant a jury trial). Subsequently, the defendant was convicted.

Issue: The defendant appealed claiming that reducing the charge deprived her of her statutory right to a jury trial.

The court upheld the conviction.

***Tonner v. Paradise Valley Magistrate’s Court*, 831 P.2d 448 (Ariz. Ct. App. 1992).**

Facts: An automated speed enforcement citation was mailed to General Motors Acceptance Corporation (GMAC), the registered owner. GMAC forwarded the notice to Tonner and

mailed a copy of its transmittal letter to the court. The court reissued the notice to Tonner. Tonner failed to reply or appear.

The court entered an order for a civil sanction (fine).

Issue: Tonner filed an action to vacate the sanction arguing lack of personal jurisdiction based upon improper service of notice.

The court indicated that under Arizona civil procedure rules (ARIZ. R. CIV. P. 4.1c), service is not complete unless acknowledged. As Tonner failed to reply, service was not complete. Without service, the court lacked jurisdiction by which to sanction Tonner.

Office of the Attorney General of the State of South Carolina, (No Opinion No.) 2002 S.C. AG LEXIS 209 (2002).

The Attorney General re-evaluated the use of automated traffic enforcement and concluded that “general case law and other authority reviewed herein support the conclusion that a properly drafted statute authorizing use of photo-radar or similar forms of automated traffic enforcement would pass constitutional muster. These authorities have reviewed automated traffic enforcement from a variety of constitutional perspectives including the Due Process and Equal Protection Clauses, the 4th amendment’s protection against unreasonable searches and seizures, the 6th amendment’s right to present an adequate defense, as well as the federal and State constitution’s right to privacy.

The general consensus is that automated traffic enforcement is constitutional.”

“Of course, the constitutionality of any statute authorizing automated traffic enforcement would depend, in part, upon a well drafted statute.”

See also:

1. Office of the Attorney General of the State of Mississippi, Opinion No 2000-0068, 2000 Miss. AG LEXIS 113 (2000) indicated that, prior to implementing a photo red light program, a municipality would need statutory authority allowing citation of the registered owner of a violator’s vehicle.
2. Office of the Attorney General of the State of South Carolina, 1996 S.C. AG LEXIS 54 (1996) regarding municipalities use of photo-radar in South Carolina. Though the opinion notes that no State statute prohibited photo-radar enforcement, the Attorney General nevertheless expressed concerns about the registered owner presumption, concluding that the Legislature was the appropriate authority to authorize use of the presumption.
3. Office of the Attorney General of the State of Montana, 45 Op. Atty Gen. Mont. 7 (1993) regarding a municipality enacting a photo-radar ordinance. The Attorney General’s opinion noted “a presumption exists that legislative acts are constitutional” and “the constitutionality of a proposed legislative act is not an appropriate subject for an Attorney General’s Opinion.”
4. Office of the Attorney General of the State of Alabama, 239 Op. Atty Gen. Ala. 52 (1995) regarding the use of photo radar devices. The Attorney General indicated that, “while the use of such devices is legal, the use of such devices to mail speeding citation to motorists would not comply with substantive or procedural requirement of Alabama law.”

5. Office of the Attorney General of the State of Georgia, No. 82000-7, 2000 Ga. AG LEXIS 13 (2000) concluding the “Home Rule Act” allowed municipalities to enact photo enforcement programs.
6. Office of the Attorney General of the State of Georgia, No. U2000-12, 2000 Ga. AG LEXIS 23 (2000) concluding counties may enact ordinances permitting photo enforcement and whether such devices may be used within the State highway system.
7. Tarr, Andrew N. J., *Picture It: Red Light Cameras Abide by the Law of the Land*, 80 N.C. L. REV., 1879 (2002).
8. Lehman, Mark. *Are Red Light Cameras Snapping Privacy Rights?* 33 U. TOL. L. REV., 815 (2002).
9. Naumchi, Steven Tafoya, *Review of Selected 1998 California Legislation, Transportation and Motor Vehicles: Stop Photographic Enforcement of Red Lights*, 30 MCGEORGE L. REV., 833 (1999).
10. Stanek, Thomas M., Comment, *Photo Radar in Arizona: Is it Constitutional?* 30 ARIZ ST. L.J., 1209 (1998).

Appendix C

Code of Ordinances, City of Minneapolis

Codified through Ord. No. 2008-Or-049, enacted June 20, 2008.

**Included in the Charter is: Ord. No. 2008-Or-014, adopted February 29, 2008.
(Supplement No. 36)**

474.560. Obedience to through streets and stop intersections. The city council may designate through streets or highways and erect stop or yield signs at entrances thereto or may designate any intersection as a stop or yield intersection by erecting like signs at one or more entrances to such intersection. With reference to state trunk highways, the city council may designate through highway or stop or yield intersections only with the consent of the commissioner.

- (a) Every driver of a vehicle shall stop at any such stop sign or at a clearly marked stop line before entering an intersection except when directed to proceed by a police officer or traffic-control signal.
- (b) The driver of a vehicle shall stop as required by this section at the entrance to a through highway and shall yield the right-of-way to other vehicles which have entered the intersection from the through highway or which are approaching so closely on the through highway as to constitute an immediate hazard, but the driver having so yielded may proceed, and the drivers of all other vehicles approaching the intersection on the through highway shall yield the right-of-way to the vehicles so proceeding into or across the through highway.
- (c) The driver of a vehicle shall likewise stop in obedience to a stop sign, as required herein, at an intersection where a stop sign is erected at one or more entrances thereto although not a part of a through highway, and shall proceed cautiously, yielding to vehicles not so obliged to stop which are within the intersection or approaching so closely as to constitute an immediate hazard, but may then proceed.
- (d) The driver of every vehicle on any highway in this city shall bring such vehicle to a complete stop before crossing or entering upon an intersecting highway, where and when there is in place on the approaches to or within such intersecting highway any light, sign, standard or marking upon which appears the word "STOP" or the words "STOP, SCHOOL."
- (e) Folding type stop signs erected at any designated school crossing location, may be operated and used to regulate traffic so as to require a stop during the hours between 7:45 a.m. and 4:15 p.m. on those days the school is in session. (Code 1960, As Amend., § 409.030)

State law references: Similar provisions, M.S. § 169.20, Subd. 3. 474.570--474.610.
Reserved.

Editor's note: 90-Or-130, § 1, adopted May 11, 1990, repealed §§ 474.570--474.610. Prior to such repeal, said sections pertained to obedience to yield signs, duty to yield to emergency vehicles, right-of-way and duties of drivers re funeral processions, stopping and yielding upon emerging from alley or driveway, and controlled access roadways, and were derived from Code 1960, as amended, §§ 409.040--409.080; and 76-Or-103, § 1, adopted July 9, 1976.

474.620. Definitions. *Agency* means the law enforcement agency primarily responsible for traffic control.

Automated traffic law enforcement system means an electronic system consisting of a photographic, video or electronic camera and a vehicle sensor installed to work alone or in conjunction with an official traffic controller and to automatically produce photographs, video or digital images of each vehicle violating a standard traffic control signal.

Owner means the person or entity identified by the Minnesota Department of Public Safety, or registered with any other state vehicle registration office, as the registered owner of a vehicle, or a lessee of a motor vehicle under a lease of six (6) months or more.

Recorded image means images recorded by an automated traffic law enforcement system on:

- (1) Two (2) or more photographs;
- (2) Two (2) or more microphotographs;
- (3) Two (2) or more electronic images;
- (4) Videotape; or
- (5) Any other medium; and which show the rear of the motor vehicle and, on at least one (1) image or portion of tape, clearly identify the registration plate number of the motor vehicle. (2004-Or-104, § 1, 9-3-04)

474.630. Traffic control signal. (a) Whenever traffic is controlled by traffic control signals exhibiting different colored lights, or colored lighted arrows, successively one (1) at a time or in combination, only the colors green, red and yellow shall be used except for special pedestrian signals carrying a word legend or symbol. The lights shall indicate and apply to drivers of vehicles as follows:

(1) *Green indication:*

- a. Vehicular traffic facing a circular green signal may proceed straight through or turn right or left unless a sign at such place prohibits either such turn. But vehicular traffic, including vehicles turning right or left, shall yield the right-of-way to other vehicles and pedestrians lawfully within the intersection or an adjacent crosswalk at the time such signal is exhibited.
- b. Vehicular traffic facing a green arrow signal, shown alone or in combination with another indication, may cautiously enter the intersection only to make the movement indicated by such arrow, or such other movement as is permitted by other indications shown at the same time. Such vehicular traffic shall yield the right-of-way to pedestrians lawfully within an adjacent crosswalk and to other traffic lawfully using the intersection.

(2) *Steady yellow indication:*

- a. Vehicular traffic facing a circular yellow signal is thereby warned that the related green movement is being terminated or that a red indication will be exhibited immediately thereafter when vehicular traffic shall not enter the intersection, except for the continued movement allowed by any green arrow simultaneously indicated.
- b. Vehicular traffic facing a steady yellow arrow signal is thereby warned that the protected vehicular movement permitted by the corresponding green arrow indication is being terminated.

(3) *Steady red indication:*

- a. Vehicular traffic facing a circular red signal alone shall stop at a clearly marked line, but if none, before entering the crosswalk on the near side of the intersection, or if none, then before entering the intersection and shall remain standing until a green indication is shown, except as follows:
 1. The driver of a vehicle which is stopped as close as practicable at the entrance to the crosswalk on the near side of the intersection or, if none, then at the entrance to the intersection in obedience to a red or stop signal, and with the intention of making a right turn may make such right turn, after stopping, unless an official sign has been erected prohibiting such movement, but shall yield the right-of-way to pedestrians and other traffic lawfully proceeding as directed by the signal at said intersection; or
 2. The driver of a vehicle on a one-way street which intersects another one-way street on which traffic moves to the left shall stop in obedience to a red or stop signal and may then make a left turn into said one-way street, unless an official sign has been erected prohibiting the movement, but shall yield the right-of-way to pedestrians and other traffic proceeding as directed by the signal at said intersection.
- b. Vehicular traffic facing a steady red arrow signal, with the intention of making a movement indicated by the arrow, shall stop at a clearly marked stop line, but if none, before entering the crosswalk on the near side of the intersection, or if none, then before entering the intersection and shall remain standing until a permissive signal indication is displayed. (2004-Or-104, § 2, 9-3-04)

474.640. Violation. If a motor vehicle is operated in violation of section 474.630 and the violation is detected by a recorded image taken by an automated traffic law enforcement system, the owner of the vehicle or the lessee of the vehicle is guilty of a petty misdemeanor. Notwithstanding any other law, a peace officer may issue a citation to the owner or lessee of the vehicle through the United States mail. (2004-Or-104, § 3, 9-3-04)

474.650. Citation. When a violation, as set forth by section 474.640, is detected by an automated traffic law enforcement system, the agency shall, within twenty-one (21) days of the violation, mail to the owner a citation, which shall include:

- (1) The name and address of the registered owner of the vehicle.
- (2) The registration number of the motor vehicle involved in the violation.
- (3) The violation charged.
- (4) The location where the violation occurred.
- (5) The date and time of the violation.
- (6) A copy of the recorded images.
- (7) The fine amount and the date by which the fine should be paid.

- (8) A signed statement by a technician employed by the agency that, based on inspection of recorded images, the motor vehicle was being operated in violation of a traffic control device.
- (9) Information advising the person alleged to be liable under the ordinance:
 - a. Of the manner, time, and place in which liability as alleged in the citation may be contested in the district court; and
 - b. Warning that failure to pay the penalty or to contest liability in a timely manner may result in a suspension of the owner's driving privileges. (2004-Or-104, § 4, 9-3-04; 2005-Or-049, 6-17-05)

474.660. Evidence. (a) In the prosecution of a violation, as set forth by section 474.640, captured by an automated traffic law enforcement system, prima facie evidence that the vehicle described in the citation was operated in violation of this section, together with proof that the defendant was at the time of such violation the owner or lessee of the vehicle, shall constitute in evidence a rebuttable presumption that such owner or lessee was the person who committed the violation. The presumption shall be rebutted if the owner or lessee:

- (1) Provides a sworn affidavit delivered by United States mail to the city or agency that he or she was not the owner or lessee of the vehicle at the time of the alleged violation and provides the name and current address of the person operating the motor vehicle at the time of the violation; or
- (2) Submits a copy of a police report showing the vehicle had been reported as stolen in a timely manner before the date of the violation.
 - (b) If the city or agency finds that the person named in the citation was not operating the vehicle at the time of the violation or receives evidence under paragraph (a)(1) of this section identifying the person driving the vehicle at the time of the violation, the city or agency shall issue a citation to the identified driver through the United State mail, no later than fourteen (14) days after receipt of this information. (2004-Or-104, § 5, 9-3-04)

474.670. Severance. If any section, sentence, clause or phrase of sections 474.620 to 474.660 is held invalid or unconstitutional by any court of competent jurisdiction it shall in no way affect the validity of any remaining portion of these sections. (2004-Or-104, § 6, 9-3-04)

474.680--474.700. Reserved.

474.710--474.760. Reserved.

Editor's note: 90-Or-130, § 1, adopted May 11, 1990, repealed §§ 474.710--474.760, which sections pertained to driver's signals, and which were derived from Code 1960, as amended, §§ 410.010--410.040, 410.070, 410.080.

474.770--474.780. Reserved.

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Appendix D

**Minnesota Legislature, House File No. 1058, 1st Engrossment
85th Legislative Session (2007-2008): “An Automated Traffic Law
Enforcement System for Minnesota”**

H.F. No. 1058, 1st Engrossment - 85th Legislative Session (2007-2008) Posted on Mar 21, 2007

A bill for an act relating to motor vehicles; authorizing automatic enforcement of official traffic-control devices; amending Minnesota Statutes 2006, sections 169.01, by adding subdivisions; 169.06, by adding a subdivision; proposing coding for new law in Minnesota Statutes, chapter 169.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. Minnesota Statutes 2006, section 169.01, is amended by adding a subdivision to read:

Subd. 92. **Automated traffic law enforcement system.** "Automated traffic law enforcement system" means an electronic system consisting of one or more cameras and one or more motor vehicle sensors, which are installed to work in conjunction with an official traffic-control signal and designed to produce recorded images of motor vehicles entering an intersection or turning at an intersection in violation of an official traffic-control signal.

Section 2. Minnesota Statutes 2006, section 169.01, is amended by adding a subdivision to read:

Subd. 93. **Recorded images.** "Recorded images" means images recorded by an automated traffic law enforcement system on (1) two or more photographs, (2) two or more microphotographs, (3) a videotape, or (4) any other electronic medium.

Section 3. Minnesota Statutes 2006, section 169.06, is amended by adding a subdivision to read:

Subd. 4a. **Violation; penalty for owner or lessee.** (a) If a motor vehicle is operated in violation of subdivision 4 and the violation is detected through the use of an automated traffic law enforcement system, the owner of the vehicle or the lessee of the vehicle is guilty of a petty misdemeanor.

(b) This subdivision does not apply to:

- (1) an owner who provides to a local police authority a police report documenting that the motor vehicle operated in violation of subdivision 4 was stolen;
- (2) a lessor of a motor vehicle operated in violation of subdivision 4, who provides a written lease agreement documenting the name and address of the lessee; or
- (3) an owner who provides to a local police authority documentation of a transfer of interest in the motor vehicle operated in violation of subdivision 4, if the transfer occurred before the violation and complies with section 168A.10.

(c) This subdivision does not prohibit or limit the prosecution of the driver of a motor vehicle for a violation of subdivision 4.

(d) The owner or lessee of a motor vehicle operated in violation of subdivision 4 may not be convicted under this subdivision if the driver of the motor vehicle is convicted as defined in section 171.01, subdivision 29, for the same violation.

(e) A violation under this subdivision does not constitute grounds for revocation or suspension of the owner's or lessee's driver's license and may not be recorded by the Department of Public Safety on the violator's driving record.

Sec. 4. [169.062] SIGNAL VIOLATION DETECTED WITH AUTOMATED TRAFFIC LAW ENFORCEMENT SYSTEM.

Subdivision 1. **Local authority.** (a) Any local authority may implement a program to allow police officers to issue a citation to a motor vehicle owner or lessee when a motor vehicle is operated in violation of section 169.06, subdivision 4, and that violation is detected through the use of an automated traffic law enforcement system.

(b) A program established under this section must:

- (1) be limited to the enforcement of official traffic-control devices;
- (2) require inspection and certification by a police officer of the recorded images before a citation may be issued;
- (3) provide that citations issued pursuant to section 169.06, subdivision 4a, may be issued through the United States mail and, if mailed, must be postmarked within 21 days of the violation;
- (4) require signage notifying drivers that an automated traffic law enforcement system is in place to detect traffic signal violations. All signage required by this subdivision must be placed and maintained in conformity with the requirements of section 169.06, subdivision 3; and
- (5) require a local authority, before installing cameras and sensors at an intersection, to conduct an engineering review of the intersection that:
 - (i) identifies safety problems in the intersection;
 - (ii) determines that an automated enforcement system is an appropriate solution for the safety problems identified; and
 - (iii) determines whether measures such as road improvement, improved signal visibility, or traffic signal timing changes would be appropriate solutions for the identified safety problems.

Subd. 2. **Fines.** Any local authority participating in the program shall impose a fine for a violation of section 169.06, subdivision 4a, that is equal to the fine for a violation of section 169.06, subdivision 4. All fines collected for a violation of section 169.06, subdivision 4a, must be credited to the general revenue fund of the local authority where the violation occurred. The court shall impose the fees and surcharges provided by law.

Subd. 3. **Data.** A contract with a private person to establish and operate a program pursuant to this section must comply with section 13.05, subdivision 11. The private person may use the data gathered only for purposes of operating and administering the program.

Subd. 4. **Contract.** A contract with a private entity for operation of a program under this section must not base payment to the private entity on the number of citations issued.

Section 5. EFFECTIVE DATE.

Sections 1 to 4 are effective the day following final enactment.

Appendix E

**Minnesota Legislature, Senate File No. 1071 -
Automated Traffic Control Enforcement (Scs1071a-1 Amendment)**

Author:

Senator D. Scott Dibble

Prepared by:

Bonnie Berezovsky, Senate Counsel (651/296-9191)

Krista Boyd, Fiscal Analyst (651/296-7681)

Date:

March 9, 2007

Section 1 defines "automated traffic law enforcement system" in the traffic regulations chapter of statute. The system includes cameras and sensors that work with traffic-control signals and produce images of a vehicle entering, or turning at, an intersection in violation of the traffic-control signal.

Section 2 defines "recorded images" in the traffic regulations chapter of statute. "Recorded images" are recorded by an automated traffic law enforcement system on at least two photographs or microphotographs, a videotape, or other electronic medium.

Section 3 imposes a petty misdemeanor penalty on the owner or lessee of a vehicle that is operated in violation of the statute requiring obedience to traffic-control signals. The following are exempt from automated enforcement penalties:

An owner who documents that the vehicle was stolen;

A lessor who provides a lease agreement documenting the lessee's name and address;

And

An owner who documents a pre-violation transfer of the vehicle in compliance with statutory title transfer requirements.

This section does not limit the prosecution of the vehicle's driver for failure to obey traffic-control signals. If the driver is convicted, the owner or lessee may not be convicted.

A violation of this section does not constitute grounds for revocation or suspension of the owner's or lessee's driver's license, and is not recorded on the violator's driving record.

Section 4, Subdivision 1, authorizes a local authority to implement an automated traffic law enforcement program, which:

- Enforces only official traffic-control devices;
- Requires an officer to inspect and certify the recorded images before issuing a citation;
- Allows citations to be issued by mail, postmarked within 21 days of the violation; and
- Requires signage to notify drivers of the presence of the automated system.

Subdivision 2 provides that a fine for an automated enforcement traffic signal violation must be the same as a fine for a police-enforced traffic signal violation. Fines for automated enforcement signal violations are deposited in the general fund of the local authority where the violation occurred. Fees and surcharges are as provided by law.

Subdivision 3 makes a contract with a private entity to operate an automated enforcement program subject to the privatization section of the data practices law. The private entity has all the privacy responsibilities a government entity would have in operating the program. Data gathered may be used only to operate and administer the program.

Section 5 makes this act effective the day following final enactment.

Last review or update: 03/20/2007