

Legal Issues Concerning the Use of Photo-Radar

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As part of a study on the potential use of photo-radar equipment on high-speed, high-volume roads, the Virginia Transportation Research Council conducted research on the legal issues raised by the use of photo-radar technology. A historical review of speed enforcement technology was conducted, starting with the time-distance method of speed enforcement and continuing through modern photo-radar technology. The various legal issues related to the use of photo-radar devices, both in staffed and unstaffed modes, are examined. In particular, potential constitutional challenges to the use of photo-radar, the admissibility of photographs produced by photo-radar under the pictorial testimony theory and the silent witness theory, requirements for legal service, and the need for federal approval for unstaffed use of photo-radar systems are discussed. Model enabling legislation for implementing photo-radar technology is provided.

In recent years, many police agencies have been forced to operate with less staff because of reduced local funding. This puts the time of police officers at a premium. Since their other duties have remained largely the same (and in many cases have increased), officers and their supervisors must prioritize their duties and devote the majority of their time to activities that they believe most affect the public good. Thus, although speed enforcement is not altogether ignored, the time devoted to it is often limited. This frustrates local officials, since they recognize the dangers to the public caused by speeding drivers.

In some localities, enforcement officials face escalating speed problems that they cannot address by use of the usual speed enforcement techniques. As high-speed, limited access highways are widened and traffic volumes increase on these roads, it becomes extremely difficult to stop vehicles safely to issue "speeding tickets." Under such conditions, normal speed enforcement is difficult, if not impossible. In addition, roadside citation of drivers is time-consuming, and thus many violators escape detection. Since a driver's perceived risk of being cited for a speeding violation is a powerful deterrent, reduced enforcement threatens the ability to control speeds. Against this backdrop, law enforcement officials and traffic experts alike have suggested that photo-radar may provide an effective speed enforcement technique as well as a strong deterrent to speed violations.

Photo-radar is an automated speed enforcement device that uses Doppler radar to detect a vehicle that is traveling over a threshold speed. The device photographs the vehicle, its license plate, and, with certain equipment, the face of its

driver. The time, date, location, travel speed, and posted speed are automatically listed on the photograph for evidentiary purposes. Moreover, the equipment can be operated with or without a police officer present. "Unstaffed" photo-radar units have operated in Europe for many years. In the United States photo-radar equipment has been successfully deployed in the "staffed" mode in Pasadena, California, and Paradise Valley, Arizona, for several years under local ordinances. Photo-radar thus far has been used only on a community basis. Suggestions to expand its use to Interstate highways in Maryland and Virginia justify an evaluation of the constitutional, legal, and evidentiary issues associated with photo-radar use.

PURPOSE AND SCOPE

The purpose of this study is to examine the constitutional, evidentiary, and legal issues associated with the use of photo-radar devices. A secondary objective is to draft sample enabling legislation for the implementation of photo-radar technology.

With this in mind, the scope of this study is necessarily limited. It does not address the cost or the benefits of photo-radar, nor does it comment on the ultimate feasibility of photo-radar outside of considering the legality of its use.

HISTORY OF PREVIOUS SPEED ENFORCEMENT AND PHOTO-RADAR TECHNOLOGY

Many people approach the use and evaluation of photo-radar as if it were a new and uniquely invasive technology. In fact, photo-radar equipment is simply the combination of several pieces of previously existing equipment—camera, radar, and electronic controls—all of which have been used either together or separately in enforcement and prosecution of offenses for many years. The validity and reliability of these older forms of speed enforcement technology had to be proved to both the police and the courts before general acceptance. Thus, it is important to consider the use of photo-radar in the context of (a) the history of previous speed enforcement technology and (b) the history of photo-radar technology.

History of Speed Enforcement Technology

In the past, the introduction of a new and innovative speed enforcement technology often generated a negative reaction.

The public's distrust of the use of high technology by enforcement officials is often evidenced by claims that the technology is simply another attempt by "Big Brother" to invade their lives. When radar was first introduced in the 1950s, *Time Magazine* ran an article headlined "Big Brother Is Driving," the text of which characterized radar as being "as invisible as the Thought Police in Orwell's chiller [1984]" (1). The use of radar was also challenged as being unconstitutional (2). The history of speed enforcement is replete with examples of new enforcement techniques; subsequent negative public reaction and resistance; and, assuming survival through legal challenges, ultimate acceptance.

Time-Distance Method

The use of the first known method of speed enforcement dates back to 1902 in Westchester County, New York. This system was composed of three dummy tree trunks set up on the roadside at 1-mi intervals. A police officer with a stopwatch and a telephone was concealed in each trunk. As a speeding vehicle passed the first trunk, the hidden police officer telephoned the time to the second police officer, who recorded the time at which the vehicle passed him and then computed its speed for the mile. If the vehicle was exceeding the speed limit, the officer telephoned the third police officer, who proceeded to stop the vehicle by lowering a pole across the road (3). The tree trunk method was subject to hearsay objections in court because officers had to testify regarding the time statements of other officers, since there was no way to observe the vehicle over the entire distance (4).

This is an early example of the time-distance method of speed enforcement. Time-distance measurements are computed by measuring the time taken to traverse a distance of known length (5). Several methods of speed enforcement employ the time-distance principle. Pavement markings or mirror boxes that are observed by police officers with a stopwatch have replaced dummy tree trunks, and two-way radios between patrol cars or aircraft have replaced the telephone system, but the technique remains much the same (6).

The speedwatch, also referred to as the Prather speed device, was one of the first electric timers to employ the time-distance principle (7). This device consisted of two rubber tubes that were stretched across a street a known distance apart. The tubes were connected to two switches, which were in turn connected to a control panel containing a stopwatch, a switch, and a reset button. A police officer was positioned to observe both tubes, and when a vehicle approached, he flipped the switch to activate the first tube. On contact with the tires of the vehicle, the switch in the first tube started the stopwatch, which was stopped when the vehicle hit the second tube. The stopwatch was scaled to reflect the speed of the vehicle (8). The speedwatch is believed to have been accurate to within 2 mph, and the officer's testimony concerning his observation of the speeding vehicle and the accuracy of the instrument was admissible in most courts (9).

The most recent technique employing time-distance measurements is the visual average speed computer and recorder (VASCAR). VASCAR is a computerized system that computes the speed of a car by measuring the distance between two fixed markers and the time taken to travel it, thereby

giving the observing police officer a quick, easily readable speed determination (10).

In 1947, only one state used a time-distance device (11), but by 1970, 34 states used at least one—the majority using VASCAR or aerial surveillance (12). Because time-distance devices have been categorized as "speed traps," their use has been prohibited in at least two states: California and Washington (13).

Pacing

Another widely used method of speed enforcement in the 1940s was pacing (14). Police officers paced a speeding vehicle by following it for a specified distance and observing the speedometer of the police vehicle to calculate the average speed of the paced vehicle over the distance. In 1947, 20 percent of the states required pacing before apprehension of a speeding driver (15). A large percentage of states used unmarked cars, identifiable only by decals, or motorcycles as pacing vehicles (16). Because pacing depends on the accuracy of the pacing vehicle's speedometer, many states adopted the use of calibrated speedometers and regulations defining the frequency with which speedometers must be calibrated (17).

Tachograph

The tachograph, also referred to as a tactograph or tachometer, was a speed enforcement method used by trucking companies to control the speed of truck drivers. The tachograph contained a clock with a paper dial attached to the driveshaft or transmission of the truck. The dial recorded the speed of the truck at any given time (18). The chart produced by this device was used to corroborate the testimony of the arresting officer (19); ironically, however, it was often admitted into evidence to prove the innocence of the implicated driver (20).

Radar

Police radar was introduced in the late 1940s and early 1950s. Although generally referred to as "radar," police radar is not technically radar. True radar has the ability to measure an object's distance, direction, and size as well as its speed, but police radar measures only speed. Police radar operates according to the scientific principle known as the Doppler effect: the frequency of sound waves (or microwaves) being emitted by or reflected from an object will vary in direct relation to the speed of the object itself. The Doppler effect is noticeable in everyday life in the rising and falling of a car horn's pitch as the car approaches and passes. Police radar transmits microwaves at a set frequency. When the microwaves are reflected from a vehicle, the frequency of the returning microwaves shifts because the vehicle is in motion. This shift in the original frequency, the Doppler shift, is measured by the radar device, which converts the signal into a measurement of the vehicle's speed.

An early hurdle encountered by police radar (hereinafter called radar) was evidentiary in nature. Before judicial notice

was taken of the underlying principle involved, courts required that an expert witness testify as to radar's accuracy and reliability (21). The Virginia Supreme Court was among the first courts to take judicial notice of radar's underlying principle, thereby eliminating the need for expert testimony (22). However, testimony as to the accuracy of the particular machine used to detect the violation is still required in Virginia.

Constitutional questions have also arisen in radar cases, as they invariably do whenever a new scientific technique becomes useful in enforcement (23). A Virginia statute providing that radar evidence constitutes *prima facie* evidence of speeding was found to be constitutional under the Fourteenth Amendment of the U.S. Constitution (24). The defendant in the case argued that the provision was tantamount to his being presumed guilty (25). However, the court held that the defendant was still presumed innocent under such a standard (26). A Pennsylvania due process claim based on the alleged instantaneousness of the machine's determination and the potential for error was likewise denied (27). In denying that claim, the court noted the complete absence of cases holding the use of radar for speed measurement to be unconstitutional (28). Cases raising the issue of a citizen's constitutional right against self-incrimination have likewise been unsuccessful (29).

History of Photo-Radar Technology

Law enforcement's latest innovative technology for the enforcement of speed laws is photo-radar. Photo-radar equipment combines a camera and radar with electronic controls to detect and photograph a speeding vehicle. The unit can photograph the driver's face and the front license plate if deployed to photograph oncoming traffic, or the rear license plate if deployed to photograph receding traffic. The license number of the speeding vehicle is extracted from the picture, and a citation is sent to the registered owner of the vehicle. The radar used in photo-radar equipment operates on the same Doppler principles as the radar used by police.

Although photo-radar is a relatively new technology in the United States, it is not the first speed detection device to use a camera. In 1910, a device known as a photo speed recorder was used in Massachusetts (30). The photo speed recorder consisted of a camera, synchronized with a stopwatch, that took pictures of a speeding vehicle at measured time intervals. The speed of the vehicle was determined by a mathematical calculation based on the reduction in size of the vehicle in the photograph as it moved farther away from the camera. This photographic evidence was held admissible by the Supreme Judicial Court of Massachusetts, and the scientific approach was judged more reliable than eyewitness testimony because it did not rely on the "fluctuations of human agencies" (31).

However, in 1955, the unattended use of the photo-traffic camera (Foto-Patrol) was prohibited in New York because of the difficulty in identifying the driver of the vehicle (32). The Foto-Patrol device, a camera mounted on the side of the road actuated by an electronic impulse when passed by a vehicle traveling in excess of a predetermined speed, took a picture of the rear license plate only, making it impossible to identify the driver. The court was unwilling to adopt the presumption

that the driver was the registered owner of the vehicle, absent any corroborating evidence, and prohibited the use of Foto-Patrol unless it was staffed by an attending officer available to stop and identify the driver on the spot (33).

The problem of driver identification was resolved by the Orbis III (Orbis) system introduced in the late 1960s (34). Orbis operated much like an advanced Prather speed device that used a camera (35). The contacts the vehicle ran over were 72 in. apart and connected to a computer that triggered the camera, which was set up to capture the vehicle's front license plate and the driver's face if the vehicle's speed exceeded a preset limit (36). When Orbis was introduced, it encountered a unique form of resistance (37). To avoid being recognized, people would speed by the Orbis machine wearing a Halloween mask (38). Orbis was abandoned for administrative reasons (39). However, research did not identify any cases that successfully challenged Orbis on legal grounds, and a study prepared for the U.S. Department of Transportation indicated that the device was probably constitutional (40).

It is uncertain whether photo-radar will be accepted by the public. Previous speed enforcement techniques usually gained acceptance if the technology proved accurate, and if they survived the initial constitutional and evidentiary challenges. However, even after a technology gains acceptance, drivers have often undertaken efforts to thwart the technology's effectiveness. One example of a popular form of resistance to speed detection technology is the use of a radar detector. Radar detectors sound a warning to the driver when they detect the microwave signal emitted by the radar unit. Drivers have also tried using other methods to avoid being caught speeding by radar (41). These methods included using transmitters designed to disrupt the radar signal, putting nuts and bolts in the hubcaps, painting the fan blades with aluminum paint, and attaching hanging chains to the undercarriage of the car (42). There is even a 160-page book entitled *Beating the Radar Rap* (43). Photo-radar will no doubt encounter many, if not all, of these methods of resistance. However, if photo-radar is proven to be accurate and if it is able to withstand the initial legal challenges, it should gain acceptance as an effective tool in speed enforcement.

Furthermore, there is evidence that the public may support photo-radar use in residential settings. In Pasadena, California, and Paradise Valley, Arizona, where photo-radar has been used in residential settings on local, non-Interstate roadways, a majority of respondents in public survey polls have been in favor of photo-radar use. However, one must interpret these findings in light of the fact that more than 90 percent of those cited for speeding in these two locations are nonresidents.

LEGAL ISSUES

Constitutional Issues

If there is one constant in speed enforcement, it is that drivers will contest speeding citations. Because constitutional attacks are easily fashioned to assert nearly any position, it can be expected that implementation of photo-radar in a state will generate constitutional challenges to its use. However, although constitutional attacks are easily levied, they are not necessarily successful. Current jurisprudence supports the

constitutionality of photo-radar despite potential challenges to its use.

Although an attack might be leveled against photo-radar on the grounds that photographs produced by photo-radar violate the automobile operator's zone of privacy (44), such an assertion does not reflect the scope of the zone of privacy. The first explicit discussion of a right to privacy by the U.S. Supreme Court appeared in *Griswold v. Connecticut* (45), in which the appellants challenged a Connecticut statute prohibiting the distribution of birth control information to married persons (46). The court held that the Connecticut statute was unconstitutional, concluding that the marital relationship was such that it belonged within a class of fundamental rights deserving of special protection and that the Connecticut statute unnecessarily intruded into the relationship (47).

But the zone of privacy is narrowly construed. The rights falling under the zone of privacy are "limited to those which are 'fundamental' or 'implicit in the concept of ordered liberty'" (48). The activities found by the Supreme Court to fall within the zone of privacy include "matters relating to marriage, procreation, contraception, family relationships, and child rearing and education." (49). Placing a right within the zone of privacy limits the state's regulatory power over the activity (50). The operation of an automobile simply does not fall within the category of fundamental rights protected by the zone of privacy. To the contrary, the Supreme Court considers a person's expectation of privacy in an automobile to be quite limited, and automobile operation is properly subject to significant state regulation (51).

Another possible attack against photo-radar could be made under the Fourth Amendment right to be free from unreasonable searches (52) on the grounds that photo-radar photographs constitute a Fourth Amendment search. Therefore, photo-radar use is subject to the Fourth Amendment's probable cause and warrant requirements. Under the Fourth Amendment, a person has a constitutional right to freedom from unreasonable search and seizure in circumstances where the person has a reasonable expectation of privacy (53). This constitutional right is protected through the requirement that a police officer have probable cause and a warrant in order to engage in certain types of searches (54).

Unless a person exhibits a reasonable expectation of privacy under the circumstances, the Fourth Amendment warrant and probable cause requirements are not triggered (55). However, a person has a lowered expectation of privacy in an automobile (56). Moreover, "what a person knowingly exposes to the public" receives no "Fourth Amendment protection" (57). For this reason, in *United States v. Knotts*, the Supreme Court upheld the warrantless placement by law enforcement officers of a beeper in an automobile to monitor the vehicle's movements (58). According to the Supreme Court, a person traveling in an automobile on public roads has no reasonable expectation of privacy in his or her movements, since this information is knowingly exposed to all who care to look (59). Likewise, photo-radar merely photographs that which a person knowingly exposes to the public while driving—the person's likeness. Because of this, the use of photo-radar violates no reasonable expectation of privacy and, therefore, is not subject to the Fourth Amendment warrant and probable cause requirements.

A further claim that might be raised against photo-radar is that its use chills the freedom of association found by the

Supreme Court to be implied by the First Amendment (60). Such a claim asserts that both drivers and passengers might avoid traveling in vehicles with individuals with whom they would normally associate to avoid being officially observed and photographed by photo-radar (61). This argument misconstrues the scope of associational rights. The Supreme Court has delineated two types of associational rights: (a) freedom of expressive association and (b) freedom of intimate association (62). The freedom of expressive association protects organization within groups for the exercise of First Amendment rights, such as freedom of speech and religion (63). The freedom of intimate association is an outgrowth of the privacy doctrine and protects an individual's right to engage in intimate relationships without threat from excessive governmental regulation (64).

Speed enforcement through photo-radar technology does not compromise freedom of expressive association for two reasons. First, a claim that photo-radar use might prevent certain individuals from traveling with persons with whom they would normally associate will not support a claim for infringement of freedom of expressive association. A showing "of specific present objective harm or a threat of specific future harm" to associational rights and First Amendment rights is necessary to support a freedom of expressive association claim when government regulations will only indirectly affect the exercise of First Amendment rights (65). In *Laird v. Tatum* (66) and *Donohoe v. Duling* (67), the activities of the plaintiffs' lawful political groups were under surveillance. The *Laird* plaintiffs argued that surveillance by U.S. Army observers of the activities of the political groups had a chilling effect on their First Amendment right to free speech and freedom of association (68). The plaintiffs in *Donohoe* claimed that the taking of pictures by uniformed police officers of persons involved in demonstrations violated the demonstrators' First Amendment rights (69). The Supreme Court in *Laird* held that a claim of a hypothetical chilling effect on First Amendment and associational rights would not support a freedom of expressive association claim if the government regulation did not directly prohibit First Amendment activity (70). Thus, the *Laird* and *Donohoe* courts held that, where government activity prevents exercise of First Amendment rights indirectly, a freedom of expressive association claim requires a specific showing of an objective present harm or threatened future harm (71).

Second, the freedom of expressive association claim against photo-radar is far weaker than the claims presented in *Laird* and *Donohoe* since photo-radar speed enforcement is not solely directed at groups organized for the purpose of exercising First Amendment rights. Freedom of expressive association protects association only for the purpose of exercising First Amendment rights (72). Successful freedom of association claims involve government regulations targeting the activities of particular groups organized specifically to exercise First Amendment rights (73). The only group targeted by photo-radar would be speeding drivers, who certainly do not represent an organized group, much less a group organized for First Amendment purposes.

Moreover, photo-radar use will not provide a basis for a freedom of intimate association claim. Although the boundaries of intimate association remain largely undefined, as an outgrowth of the zone of privacy, it has been used to strike down regulations that interfere with certain marital and fa-

mial relationships (74). Successful freedom of intimate association claims involve statutes that directly interfere with marital and familial relationships (75). The connection between photo-radar use and association through intimate relationships is attenuated at best. Photo-radar clearly does not prevent individuals from engaging in intimate relationships with family members or any other person for that matter and, therefore, does not implicate the freedom of intimate association.

An equal protection claim based on the fact that not all speeders would be detected by photo-radar and cited for speeding would also most likely fail (76). To launch a successful equal protection claim, the plaintiff must prove that the standard used to select the claimant for enforcement "was deliberately based on an unjustifiable criterion such as race, religion, or other arbitrary classification" (77). The inability to prosecute all violators will not provide the basis for an equal protection claim (78). Because a photo-radar unit requires 1 sec to reset itself after photographing a violator, not all speeding drivers passing through the photo-radar field would be detected. Thus, not all those violating the speed laws receive the same treatment. Since the determination of who is missed by photo-radar and who is caught is based on the technical abilities of the system and not on an intentional decision to discriminate on the basis of a suspect classification, an equal protection challenge to the use of photo-radar would almost certainly fail.

Finally, because a citation for a speeding violation detected by photo-radar must pass through a development process and is issued through certified mail, there is a delay between the time of the violation and the issuance of a citation that could undercut efforts by a violator to prepare a legal defense. For this reason, a ticketed driver could assert that photo-radar use constitutes a denial of due process of law. Currently, the cities of Paradise Valley, Arizona, and Pasadena, California, which use photo-radar, have circumvented due process claims by issuing citations within a given time period following the offense and by deploying signs providing considerable warning of approaching photo-radar units. Still, photo-radar is subject to a due process claim on the grounds that the element of delay hampers the ability to gather witnesses and evidence and thus to prepare a proper defense.

However, the delay involved in citing an alleged violator using the photo-radar process is relatively short, reducing the possibility that a defendant will lose access to witnesses or evidence. Access to evidence with photo-radar may, in fact, be better than with a conventional stop since photo-radar creates a photographic record of the scene where the speeding violation occurred. Further, in *United States v. Delario* (79) the defendant argued that a preindictment delay of more than 1 year constituted a denial of due process. The court found that the argument lacked merit and held that the defendant would have to show that the delay was a deliberate attempt by the government to gain a tactical advantage and had resulted in actual and substantial prejudice (80). Because the delay involved in issuing photo-radar citations cannot reasonably be viewed as an attempt by the government to gain a tactical advantage, case law suggests that a due process claim against photo-radar is also likely to fail.

If constitutional attacks against photo-radar are unsuccessful, a ticketed driver might pursue civil liability against the state under the common law right of privacy. The common

law right of privacy is a tort action created by state courts permitting recovery of damages for an invasion of privacy as defined by state law (81). A state law action for invasion of privacy might be brought against the use of photo-radar on the basis that the unauthorized taking of a person's photograph constitutes an invasion of privacy (82). A common law right of privacy claim against a local government for the use of photo-radar is likely to fail for several reasons.

First, courts have repeatedly held that an individual's privacy must yield to the reasonable exercise of a state's police power (83). Included within the state's police power is the authority to photograph persons charged with a crime (84). Thus, in *Downs v. Swann*, the Maryland Court of Appeals rejected a claim for invasion of privacy against the Baltimore Police Department on the grounds that photographing and fingerprinting a suspect charged with a crime did not violate the suspect's right of privacy (85). As long as the police department neither published the pictures nor gave the pictures of suspects not yet convicted to a rogue's gallery, the police department was not subject to the common law right of privacy (86). Second, state courts have indicated that there is no invasion of privacy under the common law right of privacy if the photographing of an individual by a law enforcement agency does not violate a reasonable expectation of privacy under the Fourth Amendment (87). These opinions suggest that a law enforcement agency may photograph whatever a person knowingly exposes to the public without violating the common law right of privacy.

Finally, certain states do not recognize the common law right of privacy (88). The law of such states does not countenance a damages action against a law enforcement agency for the use of photo-radar photographs in speed enforcement. Thus, in those states not recognizing a common law right of privacy, and even in those states that do, no tort action should lie against the use of photo-radar.

Evidentiary Issues

Photo-radar devices detect speeders by radar and then photograph the front or rear license plate of the vehicle and, in most cases, the driver. In Pasadena, California, and Paradise Valley, Arizona, police officers are always present when the devices are in operation. If the registered owner of the vehicle challenges the citation, the attending officer testifies in the court proceeding as to the accuracy of the background scene depicted in the photograph and compares the likeness of the driver in the photograph to the registered owner. No appellate challenges regarding evidentiary issues have occurred in either locality.

A photograph is usually admitted into evidence under the pictorial testimony theory. Under this theory, photographic evidence is admissible only when a witness has testified that it is a correct and accurate representation of relevant facts personally observed by the witness (89). However, it is not necessary that the witness be the actual photographer (90). The witness is required to know only about "the facts represented or the scene or objects photographed, and once this knowledge is shown he can say whether the photograph correctly and accurately portrays these facts" (91). Prosecutors in Pasadena and Paradise Valley have proceeded under the pictorial testimony theory when introducing photo-radar pho-

tographs into evidence. Because their photo-radar devices are attended by police officers, the officers can testify in court that the photographs are accurate representations.

For any proposed system for use on the Beltway, it is likely that the device will be attended by a police officer. If unattended use is anticipated, a different theory must be used to admit the photographs into evidence. This newer theory of admission is referred to as the "silent witness" theory (92). Under this doctrine, photographs constitute "substantive evidence" in the sense that photographic evidence alone can support a finding by the trier [of fact]" (93). Thus, under the silent witness doctrine, "photographic evidence may draw its verification, not from any witness who has actually viewed the scene portrayed on the film, but from the reliability of the process by which the representation was produced" (94). The silent witness theory, however, is not accepted in all jurisdictions (95).

In those jurisdictions that accept the silent witness theory, it will be necessary to address potential reliability problems associated with the use of the photo-radar system. The unstaffed use of the photo-radar system poses a reliability problem since tampering with the system would be possible. However, this difficulty could be remedied by producing evidence that tampering does not affect the accuracy of the system or that tampering did not occur in the situation in question.

One other reliability issue may arise in connection with the use of the photo-radar system. In some instances, more than one vehicle may be shown in the same photograph, thereby creating difficulty in determining which of the drivers was speeding. Charles Ollinger, Town Attorney for Paradise Valley, explained that this difficulty is easily resolved. Older photo-radar cameras have a 29-degree field angle; the newer models have a 22-degree field angle. The radar equipment has a 5-degree field angle. On the photograph taken by the photo-radar device, the portion of the photograph containing the radar field can be distinguished. Thus, the car in that portion of the photograph is the speeding vehicle detected by the radar system. Some photo-radar systems use a template, which is placed over the picture, to identify the speeding vehicle when there is more than one vehicle in a photograph.

Requirements for Legal Service

Some of the photo-radar systems under consideration use a procedure by which the company providing the photo-radar service mails the speeding citation to the residence of the alleged offender.

Legislative action would assist in the implementation of photo-radar as a viable speed detection system. Specifically, the adoption of statutes that provide for service of traffic citations by mail would facilitate implementation, as would codification of the silent witness theory of admissibility for photo-radar photographs.

Federal Approval for Unattended Use

It is presently anticipated that the photo-radar units will be attended by police officers, at least initially. However, the photo-radar units are capable of operating unattended. Radar

equipment operates at frequencies that fall within the area the Federal Communications Commission (FCC) has designated as Radio Location Service. Radio Location Service refers to the band of radio frequencies that are used to determine speed, direction, distance, or position for purposes other than navigation (96). During a telephone conversation on April 1, 1991, Eugene Thompson of the FCC's Rules and Regulations Bureau stated that FCC policy presently prohibits the use of unattended radar equipment when the return radar signal is not being used for some purpose. The example cited was the practice of emitting a constant radar signal for the purpose of triggering drivers' radar detectors. Mr. Thompson indicated that the FCC's policy on this use of unattended radar is documented in public notices dating back to 1978. Mr. Thompson stated, however, that the FCC's policy prohibiting unattended radar would not apply to the use of photo-radar since a photo-radar unit uses the return radar signal to trigger the unit's camera. Mr. Thompson also stated that the state police, as a public safety agency, would not need to receive a waiver or special permission from the FCC to use the photo-radar units in the unattended mode.

MODEL PHOTO-RADAR STATUTE

The enabling legislation for photo-radar was drafted with two important objectives in mind. First, the legislation allowing photo-radar use should be limited until its use gains acceptance by the courts and the motoring public. Second, the legislation must address the myriad constitutional and evidentiary issues posed by the introduction of photo-radar. By embodying these principles in the enabling legislation, a statute is produced that not only ensures fair application of the technology but also provides guidance for law enforcement officers and state courts in interpreting the law. As an example, the model legislation given in the Appendix was drafted for Maryland, but the principles involved would apply to many other states as well.

Proposed Maryland Code Section 26-201(n)(i) restricts the use of photo-radar to Capital Beltway speed enforcement by the State Police and limits its duration with a sunset clause that expires in 1994. Limiting the scope, duration, and control of photo-radar increases its attractiveness to a legislature by emphasizing that the legislation is intended to address the specific problem created by speeding drivers.

Sections 26-201(h)(3) and (4) of the Maryland legislation adopts guidelines for admissibility of photo-radar evidence. The statutory requirement that the photograph be of sufficient quality to identify the driver will aid implementation of the statute in two ways. First, it will signal to the legislature that the purpose of the statute is to target those drivers who are speeding on the Beltway, not to impose strict liability on the registered owners and lessees of photographed vehicles. Second, by providing a guideline for law enforcement officers as to the quality of picture required for admission of photo-radar evidence, the statute will minimize the charging of individuals for violations a court might dismiss. Requiring the police officer who actuated the photo-radar equipment to testify about the camera placement and accuracy of the scene depicted satisfies the rule of evidence that someone must testify that the photograph is an accurate representation of the scene

portrayed. However, if unstaffed photo-radar is used, the legislature should codify the silent witness theory.

Sections 26-201(h)(5) and (6) accomplish the same objective as a rebuttable presumption that the registered owner or lessee is the driver of the photographed vehicle while avoiding the ruling under *Sandstrom v. Montana* (97) that use of a rebuttable presumption in an element of a criminal offense is unconstitutional since it shifts the burden of proof from the state to the defendant. Section (5) under the model statute imposes liability on the registered owner or lessee of the photographed vehicle for violation of the statute, but Section (6) provides an affirmative defense to a registered owner or lessee who identifies the driver at the time of the violation.

The provisions under Section 26-201(h)(7) in the model statute create a mechanism for targeting the actual driver of the photographed vehicle once the registered owner or lessee identifies the driver. This will also aid passage by indicating to the legislature that the only individuals who will be charged with violation of this statute are speeding drivers and recalcitrant owners and lessees. Section 26-201(h) will also aid the passage of this legislation by providing lesser sanctions for those violators detected by photo-radar as compared with those sanctions imposed for speed violations detected by police officers. This emphasizes that the goal of this legislation is speed reduction, not the creation of technologically advanced speed traps.

Section 26-201(h)(8)(I) outlines the procedures for citation of registered owners, lessees, and drivers. In providing the additional procedures for the citation of identified drivers, this section enhances the process for ticketing speeding drivers, furthering the objective of speed reduction. More important, this section's provision that citations be sent by certified mail preempts a potential constitutional challenge by ensuring that the alleged violator is given adequate notice of any violation.

As written, this legislation presents a coherent policy for the implementation of photo-radar equipment. It confronts the variety of legal issues arising from the introduction of such an innovative technology. Furthermore, it does so by providing significant constitutional and evidentiary protection to alleged violators as well as guidance to the legal system on the adjudication of violations detected by photo-radar.

APPENDIX

MODEL STATUTE

A Bill Entitled

AN ACT concerning

Vehicle Laws—Photo-Radar Devices—
Speeding Citations

For the purpose of requiring a police officer who, based on evidence obtained by means of a photo-radar device, has probable cause to believe that the driver of a vehicle has exceeded the posted speed limit, to mail a citation to the registered owner of the vehicle and to keep a copy of the citation; charging the registered owner, lessee, or identified

driver of the vehicle with violation of this Act; providing that certain requirements relating to the signing of a citation by the person charged do not apply to a citation issued under this Act; defining a certain term; making stylistic changes; and generally relating to the issuance of citations for speeding based on evidence obtained by photo-radar devices.

By repealing and reenacting, without amendments,
Article—Transportation
Section 21-807
Annotated Code of Maryland
(1987 Replacement Volume and 1989 Supplement)

By repealing and reenacting, with amendments,
Article—Transportation
Section 26-201 and 26-203
Annotated Code of Maryland
(1987 Replacement Volume and 1989 Supplement)

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That the Laws of Maryland read as follows:

Article—Transportation
21-807.

In each charge of a violation of any speed regulation under the Maryland Vehicle Law, the charging document shall specify:

(1) The speed at which the defendant is alleged to have driven;

(2) If the charge is for exceeding a maximum lawful speed, the maximum speed limit applicable at the location; and

(3) If the charge is for driving below a minimum lawful speed, the minimum speed limit applicable at the location.
26-201.

(a) A police officer may charge a person with a violation of any of the following, if the officer has probable cause to believe that the person has committed or is committing the violation:

(1) The Maryland Vehicle Law, including any rule or regulation adopted under any of its provisions;

(2) A traffic law or ordinance of any local authority;

(3) Title 9, Subtitle 2 of the Tax—General Article;

(4) Title 9, Subtitle 3 of the Tax—General Article;

or

(5) Article 56, Sect. 148 of the Code.

(b) A police officer who charges a person under this section, except for a violation of Title 21, Subtitle 8 of this article detected by a "photo-radar device," shall issue a written traffic citation to the person charged. A written traffic citation should be issued by the police officer or authorized representative of any other state agency or contractor designated by the State for any violation of Title 21, Subtitle 8 of this article detected by a "photo-radar device" as described in this section.

(c) A traffic citation issued to a person under this section shall contain:

(1) A notice to appear in court;

(2) The name and address of the person;

(3) The number of the person's license to drive, if applicable;

(4) The State registration number of the vehicle, if applicable;

(5) The violation charged;

(6) Unless otherwise to be determined by the court, the time when and place where the person is required to appear in court;

(7) A statement acknowledging receipt of the citation, to be signed by the person;

(8) On the side of the citation to be signed by the person, a clear and conspicuous statement that:

(i) The signing of the citation by the person does not constitute an admission of guilt; and

(ii) The failure to sign may subject the person to arrest; and

(9) Any other necessary information.

(d) Unless the person charged demands an earlier hearing, a time specified in the notice to appear shall be at least 5 days after the alleged violation.

(e) A place specified in the notice to appear shall be before a judge of the District Court, as specified in Sect. 26-401 of this title.

(f) An officer who discovers a vehicle stopped, standing, or parked in violation of Sect. 21-1003 of this article shall:

(1) Deliver a citation to the driver or, if the vehicle is unattended, attach a citation to the vehicle in a conspicuous place; and

(2) Keep a copy of the citation, bearing [his] the officer's certification under penalty of perjury that the facts stated in the citation are true.

(g)(1) A law enforcement officer who discovers a motor vehicle parked in violation of Sect. 13-402 of this article shall:

(i) Deliver a citation to the driver or, if the motor vehicle is unattended, attach a citation to the motor vehicle in a conspicuous place; and

(ii) Keep a copy of the citation, bearing the law enforcement officer's certification under penalty of perjury that the facts stated in the citation are true.

REFERENCES

1. Big Brother Is Driving. *Time Magazine*, Vol. 28 (November 23, 1953).
2. E. C. Fisher, *Legal Aspects of Speed Measurement Devices* 19 (1967).
3. *Id.* at 1.
4. *Id.* at 2.
5. D. K. Witheford, *Speed Enforcement Policies and Practice* 36 (1970).
6. *Id.*
7. Fisher, *supra* note 2, at 6.
8. *Id.* (citing *City of Webster Groves v. Quick*, 323 S.W.2d 386, 388-389 (Mo. Ct. App. 1959)).
9. 7A Am. Jur. 2d *Automobile Highway Traffic* -373 (1980).
10. D. K. Witheford, *supra* note 5, at 37.
11. W. S. Smith and C. S. LeCraw, Jr., *Traffic Speed Enforcement Policies* 26 (1948).
12. D. K. Witheford, *supra* note 5, at 37.
13. Fisher, *supra* note 2, at 54; Cal. Veh. Code—40801-804; Wash. Rev. Code—46.61-470.
14. D. K. Witheford, *supra* note 5, at 34.
15. Smith and LeCraw, *supra* note 11, at 21.
16. D. K. Witheford, *supra* note 5, at 34.
17. *Id.* at 35; 7A Am. Jur. 2d, *supra* note 9, at 371.
18. Fisher, *supra* note 2, at 9.
19. *State v. Dantonio*, 18 N.J. 570, —, 115 A.2d 35, 37 (1955).
20. *People v. Martindale*, 6 Misc. 2d 85, 162 N.Y.S.2d 806 (1957).
21. Fisher, *supra* note 2, at 24.
22. *Dooley v. Commonwealth*, 198 Va. 32, —, 92 S.E.2d 348, 350 (1956).
23. Fisher, *supra* note 2, at 19.
24. *Id.* at 45.
25. *Id.*
26. *Id.*
27. *Commonwealth v. Gideon*, 28 Pa. D. & C.2d 157 (1962).
28. *Id.*
29. Fisher, *supra* note 2, at 19.
30. *Id.* at 4.
31. *Commonwealth v. Buxton*, 205 Mass. 49, 91 N.E. 128 (1910).
32. *People v. Hildebrandt*, 308 N.Y. 397, —, 126 N.E.2d 377, 379 rev'g 204 1116, 129 N.Y.S.2d 48 (1954).
33. Fisher, *supra* note 2, at 8; 7A Am. Jur. 2d, *supra* note 9, at -373, 373-74.
34. Traffic Monitoring Technologies, *Legal Information Package: Photocop Photo-Radar* (1990).
35. S. C. Smith, *Giving Big Brother the Birdie* 103 Car and Driver (August 1989).
36. *Id.*
37. *Id.*
38. *Id.*
39. *Id.*
40. Glater, *Legal Issues Raised by Orbis, A Motor Vehicle Speed Detection Device Taking Photos of Speeders* 1 (1973).
41. Fisher, *supra* note 2, at 14.
42. *Id.* at 15.
43. Lankard, Book Review, 12 *Autoweek* (September 17, 1990) (reviewing D. Smith and J. Tomerlin, *Beating the Radar Rap* (1990)).
44. Glater, *supra* note 41, at 7.
45. *Griswold v. Connecticut*, 381 U.S. 479 (1965).
46. *Id.* at 480.
47. *Id.* at 485-86.
48. *Paul v. Davis*, 424 U.S. 693, 713 (1976), *reh'g denied*, 425 U.S. 985 (1976); *Roe v. Wade*, 410 U.S. 113, 152 (1973), *reh'g denied*, 410 U.S. 959 (1973).
49. *Paul*, 424 U.S. at 713; *Roe*, 410 U.S. at 152-153.
50. *Paul*, 424 U.S. at 713.
51. *New York v. Class*, 106 S. Ct. 960, 965 (1986).
52. Glater, *supra* note 41, at 12.
53. *Katz v. United States*, 389 U.S. 347, 353 (1967); *United States v. Knotts*, 103 S. Ct. 1081, 1084-1085 (1983).
54. *Katz*, 389 U.S. at 357.
55. *Knotts*, 103 S. Ct. at 1084-1085.
56. *Id.* at 1085.
57. *Katz*, 389 U.S. at 351.
58. *Knotts*, 103 S. Ct. at 1084-1085.
59. *Id.* at 1085.
60. Glater, *supra* note 41, at 14.
61. *Id.* at 14-15.
62. McKenna, *Freedom of Association or Gender Discrimination? New York State Club Association v. City of New York*, 38 Am. U.L. Rev. 1061, 1064-1065 (1989); Note, *State Power and Discrimination by Private Clubs: First Amendment Protection for Nonexpressive Associations*, 104 Harv. L. Rev. 1835, 1842 (1991).
63. McKenna, *supra* note 62, at 1065; *Roberts v. United States Jaycees*, 468 U.S. 609, 622 (1984); *NAACP v. Alabama*, 78 S. Ct. 1163, 1171 (1958); *Moore v. City of East Cleveland*, 97 S. Ct. 1932, 1954 (1977) (Stewart, J., dissenting).
64. McKenna, *supra* note 62, at 1067.
65. *Laird v. Tatum*, 408 U.S. 1, 11-14 (1972), *reh'g denied*, 409 U.S. 901 (1972).
66. *Id.*
67. *Donohoe v. Duling*, 465 F.2d 196 (4th Cir. 1972).
68. *Laird*, 408 U.S. at 2-3.
69. *Donohoe*, 465 F.2d at 197.
70. *Laird*, 408 U.S. at 13-14.
71. *Id.*; *Donohoe*, 465 F.2d at 204.
72. McKenna, *supra* note 62, at 1065; Harvard, *supra* note 62, at 1843.
73. See *NAACP v. Alabama*, 78 S. Ct. 1163 (1958) (Action by the Alabama Attorney General to obtain the membership lists of the

- National Association for the Advancement of Colored People (NAACP) held violative of the freedom of expressive association); *NAACP v. Button*, 83 S. Ct. 328 (1963) (Virginia Chapter 33, which prevents solicitation of legal business by an attorney, is violative of the freedom of expressive association when applied to the NAACP); *Kusper v. Pontikes*, 94 S. Ct. 303 (1973) (Illinois law, which prevented a person who has voted in a primary election of a particular party from voting in a primary election of another party for 23 months, violates the freedom of expressive association).
74. McKenna, *supra* note 62, at 1067.
 75. See *Moore v. City of East Cleveland*, 97 S. Ct. 1932 (1977) (Invalidating a city ordinance that prohibited family members who were not members of the nuclear family from inhabiting the same residence on the basis of freedom of intimate association); compare *Village of Belle Terre v. Boraas*, 416 U.S. 1 (1974) (affirming the validity of a zoning ordinance preventing unrelated adults from living in the same residence from a freedom of intimate association challenge). Note that, in *Roberts*, the Supreme Court indicated that the right of intimate association could extend to regulations interfering with intimate relationships outside the family context, *Roberts*, 468 U.S. at 620, although successful freedom of intimate association claims have thus far involved only impediments to familial relationships.
 76. Glater, *supra* note 41, at 22-28.
 77. *Id.* at 25 (citing *Oyler v. Boles*, 368 U.S. 448, 456 (1962)).
 78. See *Sims v. Cunningham*, 203 Va. 347, _____, 124 S.E.2d 221, 225-226 (1962).
 79. *United States v. Delario*, 912 F.2d 766 (5th Cir. 1990).
 80. *Id.* at 769 (citing *United States v. Carlock*, 806 F.2d 535 (5th Cir. 1986)).
 81. 62A. Am. Jur. 2d *Privacy* §31 (1990).
 82. Letter from Crawford C. Martin, Att'y Gen. of Tex., to Hon. A. Ross Rommel (Sept. 14, 1970) (opinion on legality of Orbis III use); Letter from Frank J. Kelly, Att'y Gen. of Mich., to Noel C. Bufe (Sept. 8, 1971) (opinion on legality of Orbis III use); Glater, *supra* note 41, at 18.
 83. 62A Am. Jur. 2d *Privacy* §205 (1990); *Downs v. Swann*, 11 Md. 53, _____, 73 A. 653, 655 (1909).
 84. 62A Am. Jur. 2d *Privacy* §205 (1990); *Walker v. Lamb*, 254 A.2d 265, 266 (Del. Ch. 1969), *aff'd*, 259 A.2d 663 (Del. 1969); *Downs*, 11 Md. at _____, 73 A. at 655-6.
 85. *Id.*
 86. *Id.* at _____, 73 A. at 656.
 87. *Jeffers v. City of Seattle*, 23 Wash. App. 301, _____, 597 P.2d 899, 907 (1979); *Brenon v. State of New York*, 31 A.2d 766, _____, 297 N.Y.S.2d 88, 89 (1969).
 88. *Brown v. American Broadcasting Co., Inc.*, 704 F.2d 1296, 1302-1303 (4th Cir. 1983); *Bohdan V. Alltool Mfg. Co.*, 41 N.W.2d 902 (Minn. App. 1987); 62A Am. Jur. 2d *Privacy* §6 (1990).
 89. C. McCormick, *McCormick on Evidence* §214 (1984).
 90. G. Lilly, *An Introduction to the Law of Evidence* §13.3 (1987).
 91. C. McCormick, *supra* note 61, at 671.
 92. *Id.* at 672; G. Lilly, *supra* note 62, at 520.
 93. G. Lilly, *supra* note 62, at 520.
 94. C. McCormick, *supra* note 61, at 672.
 95. *Id.*
 96. 47 C.F.R. §90.101(F) (1990).
 97. *Sandstrom v. Montana*, 442 U.S. 510 (1979).

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