AN ANALYSIS OF THE POTENTIAL LEGAL CONSTRAINTS ON THE USE OF SPEED MEASURING DEVICES

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16. Abstract

An analysis was made of the potential legal constraints on the use of existing and proposed devices for measuring vehicle speeds. Some of the proposed devices are "remote" in nature and would operate without a police officer being present.

Examination of current law reveals that existing devices, especially radar devices, for the most part face no substantial constraints. However, the use of such devices as VASCAR and stop watches, which are based on time-distance measurements, are prohibited by law in a few states.

The use of proposed remote-observation devices is constrained by laws governing speed prosecutions; the chief constraint is that to obtain a conviction, driver must be personally identified and proved responsible.

In states that have prima facie rather than absolute maximum speed limits, the utility of the speed measurement devices is somewhat limited. Neither existing nor proposed devices can measure the factors--such as weather, road conditions, or traffic flow--under which a given vehicle speed would be unreasonable.

Constraint resolution strategies include: presenting expert testimony to establish the validity of nonradar measurement principles; amending laws that restrict or prohibit the use of certain devices; and using remote-observation devices as the basis for issuing warning letters to, rather than prosecuting violators; and using devices only to enforce absolute maximum speed limits.

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1.0 INTRODUCTION

This is one of a series of volumes concerned with the legal constraints that can arise in conjunction with the implementation of highway crash countermeasures. It is specifically concerned with speed detection and measurement devices and systems (referred to in this volume as speed measuring devices, or SMDs). These devices might also include capabilities to automatically record information sufficient to identify the speeding vehicle, and to be operated remotely with or without human attendants.

The research and analysis leading to the preparation of this volume was conducted by staff of the Policy Analysis Division of The University of Michigan Highway Safety Research Institute (HSRI) for the National Highway Traffic Safety Administration (NHTSA) under Contract Number DOT-HS-7-01536.

1.1 Purpose of Volume

Many of the legal issues that might constrain implementation of SMDs as well as other countermeasure programs have their roots in basic aspects of the American legal system, and involve complex issues of U.S. constitutional law and U.S. Supreme Court interpretations of that law. Thus, in any discussion of the legal issues and the potential constraints that they pose must deal with the constitutional principles governing the subject. However, to treat the material in a rigorous legal manner would be beyond the scope of this paper. It is not designed to provide legal advice. Rather, it is designed for use by public safety officials and highway safety planners as a guide that will permit them to identify problem areas in countermeasure program implementation for discussion with their legal counsel.

Within this context, the purpose of this document is to provide a brief but relatively comprehensive review of possible legal constraints that might be encountered in using SMDs. It is designed: to identify

important legal issues, show how they might arise; estimate their significance as constraints on the use of SMDs, suggest methods that might be employed to resolve those constraints; and provide insights into the legal feasibility of these devices.

1.2 Description of SMDs

A variety of speed measuring devices either currently exist or are under development. Typical of these devices are the radar speedmeter, VASCAR, the Prather Speedwatch, and ORBIS III. Other SMDs can be developed or postulated using the technology of existing devices.

1.2.1 Radar Speedmeter. The radar speedmeter (police radar) is the most widely used and well known of the speed measurement devices. It consists of a microwave transmitter and receiver and an internal calculating capability. In operation, this device transmits a directional microwave signal toward the vehicle. Upon striking the vehicle, the signal is reflected back to the receiver. Because there is a difference in the velocities of the signal and the vehicle, the frequency received at the receiver is slightly different than the transmitted signal--the frequency difference being quantitatively related to the vehicle speed (Kopper 1955). Using the frequency differences, this device calculates the speed of the vehicle and indicates the computed speed on a meter, a digital readout, or a printed paper readout. Present versions of the radar speedmeter must be operated with someone in attendance.

1.2.2 VASCAR. VASCAR is an acronym for Visual Average Speed Computer and Recorder, a mechanical speed measuring device. The unit is connected to the speedometer cable of the vehicle in which it is installed. A distance switch is activated to start a counter that counts the revolutions of the speedometer cable over a specified length of road, which permits the internally contained computer in the device to calculate the distance the vehicle traveled. To use this device, the operator activates a switch when a suspect vehicle enters the measured roadway zone and deactivates it when the vehicle leaves the zone. The

computer than calculates and displays the average speed of the vehicle (Darwick 1977, pp. 50-51; Rudd 1973). Key to the successful operation of VASCAR is the operator's ability to activate and deactivate it at the moment the vehicle enters and leaves the measured roadway section; timing errors in activating or deactivating the device will result in distortion of calculated speed results.

1.2.3 Prather Speedwatch. The Prather Speedwatch is a device containing two rubber-encased roadway sensors placed a measured distance apart in the roadway, perpendicular to the direction of travel. The sensor tubes are connected through a cable to a panel containing a set of switches and a stopwatch. When a vehicle approaches the first sensor tube, the officer operating the equipment sets a switch that activates the device. When the front wheels of the vehicle strike the first sensor tube the stopwatch is automatically activated; when the front wheels strike the second sensor tube, the stopwatch is deactivated. The elapsed time shown on the stopwatch is then used to calculate the average speed of the vehicle between the two sensor tubes. This device is designed so that only one vehicle will be clocked after the first sensor tubes activate the stopwatch (Fisher 1967a, pp. 6-8).

1.2.4 ORBIS III. ORBIS is a device containing a speed measuring device and a camera (Glater 1973, pp. 2-4). It is triggered and deactivated by pressure sensitive sensors encased in rubber tubes, similar to those used with the Prather Speedwatch. As with the Speedwatch, this device calculates the speed of a vehicle over a measured section of roadway. If the vehicle travels either faster or slower than a preset speed limit, the camera, using infrared film and an infrared flash illuminator, photographs the front of the vehicle. The scene photographed includes the license plate of the vehicle, the faces of the front-seat occupants, and a superimposed image of the date, time, location of the incident, and the speed of the vehicle. This device is designed to operate automatically. After each triggering and photo event, ORBIS requires approximately four seconds for recharging of the infrared flash unit.

1.2.5 Other SMDs. A variety of other speed measuring devices have been designed or proposed, and other SMDs can be postulated. Among those currently in existence are: the radar speed gun, a portable radar system mounted in a rifle-like configuration and carried by the operator, which operates on the same principles as the vehicle-mounted police radars (Darwick 1977, pp. 133-34); and the Visual Speed Indicator, a device, automatically triggered by two spaced magnetic loops imbedded in the roadway, which indicates the speed of vehicles passing over the loops by an illuminated sign placed over the roadway (Hunter, Bundy, and Daniel 1976).

Devices that can be postulated include: automatically-operated, radar-triggered devices similar to ORBIS; and devices that use videotape cameras to record images of the speeding vehicle and its occupants, and the speeding data. It can be assumed that if interest develops in devices of this type, other, more sophisticated equipment employing advanced technology components would be introduced.

1.3 SMD Employment Scenarios

Two major functions are currently provided by speed measuring devices. The first function is simply to warn drivers that they are exceeding the set speed limit. Devices serving this function normally employ illuminated displays positioned over the highway. The second, more common, function is to detect vehicles violating speed limits and acquire information that can be used to prosecute their drivers.

The legal issues that can arise from the use of SMDs will depend on the situations in which these devices are employed. More specifically, legal issues will arise from the operating characteristics of a particular device, the mode in which a device is employed, or both. Thus, potential employment scenarios for SMDs must consider both their operating characteristics and employment modes.

1.3.1 Operating Characteristics. In general, speed measuring devices can be characterized in three ways: the manner in which the device is

triggered; the type of information generated by the device; and whether the device is directly or remotely operated. For purposes of analysis, the SMDs discussed earlier fall into the following categories:

1.3.1.1 Triggering Systems

- time measurments over a measured roadway distance (VASCAR, ORBIS, Prather Speedwatch, Visual Speed Indicator); or
- direct speed measurement (Radar Speedmeter, radar gun)

1.3.1.2 Information Presentation

- no permanent record, such as a meter or digital readout (Radar Speedmeter, radar gun, Visual Speed Indicator, Prather Speedwatch, VASCAR); or
- permanent record, such as hard copy digital readout, graph, photograph, or videotape (ORBIS, Radar Speedmeter)

1.3.1.3 Direct/Remote Operation

- direct operation (Radar Speedmeter, radar gun, VASCAR, Prather Speedwatch); or
- remote operation (ORBIS, Visual Speed Indicator)

1.3.2 Mode of Employment. The modes in which these devices would be used depend on the specific devices involved and the uses to which the information generated by them would be put. Thus, two distinct modes of employment present themselves:

1.3.2.1 Direct Observation. The device is operated with a police officer present, and the information generated is used as a basis for prosecuting violators.

1.3.2.2 Remote Observation. The device is operated with no police officer present, and the information generated is used as a basis for one or more of the following actions:

- prosecuting the driver, by issuing him a warrant or citation;
- sending a warning letter to the registered vehicle owner, notifying him of the violation and cautioning him about future violations involving his vehicle;
- summoning the vehicle owner to appear before the driver licensing authority for an interview; and
- prosecuting the vehicle owner, by holding him vicariously liable for the driver's speeding violation.

1.4 Content of Volume

The remainder of this volume is organized into three sections. Section 2.0 identifies and discusses the legal issues that can arise from the employment of speed measuring devices, the potential legal constraints that derive from those legal issues, and the significance of those constraints. Section 3.0 discusses approaches that can be employed to remove or resolve those constaints. Section 4.0 discusses the general feasibility of SMDs in light of identified constraints, and makes recommendations concerning the use of SMDs.

2.0 IDENTIFICATION AND DISCUSSION OF THE LEGAL ISSUES AND POTENTIAL LEGAL CONSTRAINTS ASSOCIATED WITH THE USE OF SMDs

This section identifies the principal legal issues and potential law-based constraints raised by the use of speed measuring devices. These include: the constitutional authority to use SMDs; the evidentiary requirements for proving vehicle speed; and the procedural requirements governing speed law enforcement. The significance of the law-based constraints derived from these legal issues, on the use of both direct-observation and remote-observation SMDs, will then be discussed.

2.1 Constitutional/Statutory Authority to Use SMDs

States and localities may, in the exercise of their police powers, regulate the speed of motor vehicles; thus, speed laws have uniformly been upheld as constitutional by the courts (1). There exist two types of speed laws (Fisher and Reeder 1974, pp. 135-38). The first of these is the so-called "basic speed rule" which prohibits driving at speeds greater than reasonable and prudent under the conditions (2). The second type of speed law defines an absolute maximum statewide speed limit. These laws prohibit speeds in excess of the posted limits; any such speed is by itself sufficient to convict the driver of a speeding violation. Currently the laws of a majority of states impose absolute maximum speed limits (3).

In all states where the basic speed law is in force, it is supplemented by posted maximum speed limits. Such limits may be either absolute maximum limits, as defined above, or prima facie limits. Exceeding a prima facie limit is evidence that the vehicle was traveling at a speed greater than that which was reasonable and proper for the circumstances; however, that speed is not by itself sufficient to convict the driver. In the past, a number of states had used basic speed laws supplemented by prima facie speed limits (4). However, the energy crisis and the resulting federal legislation (5) has resulted in all states enacting maximum speed

limits of 55 mph, and most of these new limits have been absolute (6). Thus, in most states, the speed law currently consists of a basic speed law and an absolute maximum speed limit of 55 mph. Additionally, a number of states have also enacted prima facie speed limits, below the state absolute maximum limits, which apply to such designated areas as school zones (7).

As a general rule, where speed laws specify speed limits in terms of a definite number of miles per hour, courts have upheld such laws (8). Courts have normally--but not invariably—held that basic speed laws do not suffer from indefiniteness; however, basic speed laws that are accompanied by prima facie or absolute maximum speed limits are less likely to be attacked as indifinite than basic speed laws without such limits (9).

2.1.2 Authority to Use SMDs to Enforce Speed Laws. Few constitutional limitations have been encountered with existing speed measuring devices (Rudd 1973; Fisher 1967a; McCarter 1967; Forkosch 1959) (10). With respect to SMDs not yet in wide use by police agencies, such as ORBIS, and new devices currently being developed, questions relating to their constitutionality must await the development of specific case law before they will be resolved. However, some initial analysis has been made of ORBIS and other devices that could be used in a remote fashion; this analysis has concluded that such devices would not infringe constitutional, statutory, and common law privacy rights, violate the prohibition against unreasonable searches and seizures, restrict freedom of association, or deny equal protection of the laws (Glater 1973, pp. 6-28).

2.1.3 Statutory Restrictions on the Use of SMDs. Although the employment of a particular speed measuring device may not violate any constitutional provision, statutory restrictions on its use might exist. For example, a number of states have enacted statutes defining and outlawing "speed traps." The purpose of such legislation is to curb abuses of radar and other SMDs, especially by local authorities. Some statutes attempt to prevent abusive enforcement procedures by specifying where and by

whom radar devices may be used (Comment 1974, pp. 446-48). Other statutes require the posting of signs warning drivers that radar and other SMDs may be present; some statutes also specify where these signs are to be placed, or where in relation to those signs radar devices may be employed (Comment 1974, pp. 447-48) (11). A few states have adopted statutory definitions of "speed traps" and have prohibited their use (Comment 1974, p. 448) (12). Under these statutes, a speed trap is defined as a measured distance of roadway over which a vehicle is timed; from this time-distance relationship a vehicle's speed can be determined. Still other states have enacted statutes governing the manner in which specific devices are to be used. These statutes commonly govern the evidential use of the information generated by the specific SMDs and the manner in which such evidence can be used at trial, such as whether the information is considered prima facie evidence of speeding, or the conditions under which the evidence is admissible at trial (13). Such statutes, when applicable to mechanical and electronic devices, also tend to eliminate the requirement for expert testimony with respect to the technical characteristics of the device. In a number of states, these statutes also permit the warrantless arrest of a suspected speed violator on the basis of the information derived from the device (14).

2.2 Scientific Validity and Reliability of SMDs

Although regulation of vehicle speed is within the state's police power, and the use of speed measuring devices by itself raises few constitutional issues, there exist legal issues that concern the scientific validity and reliability of these devices. Unless a particular device is a valid and reliable means of proving vehicle speed, it will not be accepted by courts as evidence of speed-law violations and thus will be of little value in enforcing speed laws (Cleary 1972, pp. 514-17).

In general, there are two methods to prove that a speed law has been violated. The first method is to offer opinion evidence by a witness who, although not necessarily an expert, has had some experience in observing rates of speed or has some other satisfactory basis for his opinion (Forkosch 1959). The second method is to offer evidence obtained from

mechanical or electronic speed measuring devices. The advantage of the latter method is obvious: the witness, however qualified, is subject to cross-examination and rebuttal evidence that questions the accuracy of his judgments; on the other hand, an SMD is capable of producing an accurate, objective measurement of vehicle speed.

For the most part, the scientific validity and reliability of SMDs are functions of the technologies employed in the design and the physical configuration of particular devices. Thus the admissibility in a legal proceeding of information generated by SMDs will largely depend on two factors: the views of state courts concerning the acceptability within the scientific community of the technologies used; and the willingness of those courts to permit decisions to be made on the basis of evidence derived from SMDs. A full discussion of the technical factors and performance characteristics required to make information generated by SMDs admissible in a legal proceeding is beyond the scope of this volume. However, it is believed that a brief discussion of the basic elements for admissibility, and the manner in which some courts have dealt with current SMDs, would provide insight into the evidentiary problems that might be encountered with these devices.

Before information generated by any SMD can be introduced as evidence in a legal proceeding, the scientific validity and reliability of the device must be established (Cleary 1972, pp. 514-17). The technical theories and principles upon which the device operates must be shown to be generally recognized and accepted within the scientific community, and the device itself must be shown to operate in a mechanically reliable fashion. When a particular device is first used, expert testimony will be required at every legal proceeding at which information generated from the device is introduced as evidence. The expert witness must be familiar with the technical theories and principles on which the operation of the device is based, and must be professionally qualified to lay a foundation for the introduction of evidence obtained from the device. As the use of a particular device becomes more widespread and its validity and reliability become more apparent, courts begin to take judicial notice of the device and the use of expert witnesses at each proceeding will no

longer be necessary (Cleary 1972, pp. 763-66).

However, even in proceedings where expert testimony is introduced or the court has taken judicial notice of the general validity and reliability of the principles underlying an SMD, a foundation still must be laid before evidence gathered from a particular device will be admitted. Specifically, it must be shown that the device being relied upon was in good mechanical condition at the time it was used, and that its operator (if any) was properly trained (McCarter 1967).

Judicial notice of the validity and reliability of the radar speedmeter was first taken by the New Jersey Supreme Court in 1955 (15). Since that time, almost all states that permit the use of radar have accorded the device judicial notice, either through court decisions or through legislation (Rudd 1973). On the other hand, although VASCAR has been used in most states, and may be admitted a evidence in a trial if the proper expert testimony is introduced (16), only a small minority of states have accorded it judicial notice (17). The Prather device has been admitted—with appropriate expert testimony--as evidence in a number of states (18), but again, only a minority of courts have accorded the device judicial notice (19). Courts in two states--Illinois and New Jersey--have considered whether to take judicial notice of the radar gun. The Illinois court, finding no significant differences between the speed gun and conventional radar speedmeters took judicial notice (20), and the New Jersey court suggested that the speed gun would be given judicial notice if evidence were introduced to show that it operated on the same physical principles as the radar speedmeter (21). Evidence gathered from a photographic SMD, known as the "Foto-Patrol," was admitted into evidence by one court but judicial notice was not accorded the device (22).

Even where a device has been judicially noticed, or where the validity and reliability of a device have been established by expert testimony, there will remain technical problems associated with the device, and these may raise legal issues (Comment 1974, pp. 444-45). These include, in the case of the radar speedmeter, the inherent difficulties in ensuring that the speedmeter is focused on the appropriate speeding vehicle, the effects of reflections from dense foliage and vegatation along the side of the

roadway, and the influence of severe vehicle vibrations and nearby radio transmitters on its operation. In the case of VASCAR, technical problems include whether the operator accurately triggered and deactivated the timers used with the device; in the case of ORBIS, the Prather Speedwatch, or similar devices, potential difficulties could arise from the placement of the roadway sensors. Any of these difficulties could provide a basis for attacking the accuracy of a particular speed measurement device; this, in turn, could detract from its weight as evidence at trial.

In sum, there are several possible obstacles to the introduction in a legal proceeding of a speed measurement obtained from an SMD. The first of these is establishing the validity and reliability of the device itself. Once this is accomplished, it is next necessary to show the proper working order and correct operation of the particular device.

2.3 Procedures Governing Enforcement of Speed Laws and Adjudication of Violators

There are presently two methods of enforcing and adjudicating speed laws. The first of these takes place through the traditional criminal process, namely arrest (or citation) and trial of the suspected violator. The use of the term "criminal process" is potentially misleading; this is because the legal status of a speed-law violation varies from state to state. In many states, speeding violations are still considered misdemeanors, that is, crimes punishable by up to one years of imprisonment. In other states (23) speeding violations are classified as "violations," "petty offenses," "quasi crimes," and the like, and retain some but not all characteristics of crimes. Finally, several states (24) recently have made speeding offenses "civil infractions," thus eliminating their criminal character. However, even where speeding is no longer a crime, traditional criminal processes are still used to initiate legal actions against speed-law violators (25).

The second enforcement and adjudication method takes place through the administrative system, or driver licensing authority. Drivers who are identified as serious or habitual traffic violators, or whose competence to drive safely is suspected, may be summoned to appear before an official

of the licensing authority for a hearing or interview. Following the interview, the authority may choose to take action against the driver, such as revoking or suspending his license (26). The procedural restrictions governing both of these methods will be set out in this section.

2.3.1 Criminal Procedure. To prosecute a driver for a speeding violation it is first necessary to obtain the court's jurisdiction over him. Where a driver commits an alleged violation in a police officer's presence, the officer may arrest the driver without a warrant (Fisher 1967b, pp. 180-187). At present, speed violations normally occur in the presence of police officers and the warrant requirement poses no difficulty. However, some of the SMDs discussed in this volume are to be operated remotely; thus, violations will by definition occur outside an officer's presence (27). Although some states permit a police officer to arrest an individual for a violation occurring outside his presence, the officer must have reasonable grounds to believe that the individual committed the violation.

Normal procedure in minor traffic cases--including most speeding cases--is for the driver to be issued a citation in lieu of arrest. The citation does not itself give the court jurisdiction over the driver. Rather, it commands the driver either to come into court and answer it, or forego a trial of the charges by paying the fine; if the driver fails to answer the citation, a warrant is then issued for his arrest (Fisher 1967b, pp. 84-86).

If an arrest warrant is required, one will be issued by a magistrate—that is, some member of the judiciary--provided he makes an independent determination that there exists probable cause to arrest the violator (Fisher 1967b, pp. 100-102). To constitute probable cause, the facts presented to the magistrate must be sufficient to create in the mind of a reasonably cautious and prudent person the idea that a crime has been committed and that the person accused was the one who committed the crime (28). In minor traffic cases, such as speeding, the offending driver may be issued a summons to appear in court in lieu of being arrested and brought into custody. The summons, like the arrest warrant, confers on the court jurisdiction over the driver (Fisher 1967b,

pp. 120-123).

Arrest or summons of a suspected speeding driver charges him with the offense. However, to obtain a speeding conviction the prosecution must prove in court that a violation had occurred. Where speeding is a criminal offense, proof beyond a reasonable doubt normally must be shown (29); in some states, where the offense has been "decriminalized," the proof need only be "clear and convincing," or even a "prepondence" (majority) of the evidence (30).

The first element that must be proved is that the driver in fact drove the offending vehicle. Second, the offending vehicle's speed must be established. Third, the speed limit on the road where the alleged violation occurred must be shown: this includes proving the maximum speed limit (if any) then in force; and if the limit were not an absolute maximum, it also requires evidence that the driver's speed was not reasonable and prudent under the circumstances. Thus, in states where absolute maximum speed limits are set by the statute, the prosecution need only concern itself with the actual vehicle speed. In basic speed law and prima facie states, however, the prosecution must also present evidence of other factors showing the vehicle's speed was not reasonable and prudent under the circumstances (Fisher and Reeder 1974, p. 137).

In sum, the requirements of criminal procedure are the following: first, obtaining the court's jurisdiction over the driver; and second, proof at trial of the driver's identity, the prevailing speed limit, and the driver's own speed.

2.3.2 Administrative Procedure. In most states, driver licensing and regulation is under the control of the driver licensing authority, an administrative agency that has some sanctioning authority. Because the agency's sanctioning powers are limited by statute, questions are raised as to whether the licensing authority can sanction an individual on the basis of recorded information obtained from remotely operated SMDs.

In most states the licensing authority can take action against a driver only in specific situations defined by statute, such as multiple traffic crashes or convictions of traffic law violations. In general, such

situations are well-defined, objective events, usually evidenced by some official record (31). In some other states, upon sufficient information and for good cause, the licensing authority may require a driver to appear for an interview with an official of the licensing authority (32). Should the driver refuse to appear, specific sanctions are authorized. Thus, the circumstances under which an individual may be summoned before the driver licensing authority depend on state law.

2.4 Application of Legal Issues to SMD Use

The legal issues relating to constitutional and statutory authority, scientific validity and reliability, and law enforcement procedures, which were discussed in this section, raise potential law-based constraints to the use of some of the speed measuring devices discussed in the volume. This section identifies and discusses the specific constraints that may affect the use of remote-observation and direct-observation SMDs, respectively.

2.4.1 Remote Observation Devices. Only those devices that are capable of recording information about specific speeding vehicles could be used as remote speed measuring devices. Thus, only ORBIS-like devices that take photographs, video recordings, or some similar record of the vehicle could be employed for this purpose. At a minimum, such devices would be required to record the date, time, and place of the incident, the speed of the vehicle, and the registration plate of the vehicle. The use of remote-observation SMDs will give rise to a number of potential law-based constraints, including: statutory prohibitions of speed traps; the necessity of obtaining evidence of road conditions where the speed limit is a basic or prima facie law; obtaining jurisdiction over suspected violators; and identifying the driver for the purpose of taking criminal or administrative action against him.

2.4.1.1 System Triggering Issues: Speed Trap Prohibitions. Assuming that the issues of scientific validity and reliability, proper functioning, and proper operation have been resolved, the first legal issue is concerned

with the triggering system used to activate and deactivate the device. Remote-observation devices employing spaced sensors placed in the road would be barred in states that prohibit the use of speed traps; in contrast, devices using radar speedmeters, guns, or switches probably would not be considered speed traps in those states (33).

2.4.1.2 Basic or Prima Facie Speed Limit Issues. Assuming the information gathered from a remote-observation SMD is admissible at the criminal trial of an alleged speed violator, a second potential constraint could arise with respect to the use of remote devices in areas in which speeds are governed by basic or prima facie speed limits. Since no officer would normally be available to testify as to factors and conditions that made the recorded speed of the vehicle unreasonable and improper at the time of the incident, it would be difficult to prove all of the elements required to convict the driver of a speeding offense. On the other hand, this issue would not arise where absolute speed limits are posted. Although this constraint would not preclude the use of a remote device, it could limit its use as a law-enforcement tool in prima facie speed law states.

2.4.1.3 Apprehension of Suspected Speed Law Violators. As pointed out earlier, enforcement of speeding violations—regardless of whether they are classified as misdemeanors, violations, or civil infractions—initially involves either the driver's apprehension on sight or the subsequent issuance of a warrant or summons. Even though a driver not observed speeding by a police officer could be prosecuted, it is essential that he be identified first.

A remote-observation SMD, such as ORBIS, is capable of recording a speeding vehicle's front registration plate. This, however, may not be sufficient to identify the alleged speeding driver. In the United States, a variety of individuals, such as relatives and employees, may drive the owner's vehicle. Thus, whether such limited recorded information would be sufficient to issue a warrant or summons is unclear.

Even if a remote SMD is capable of photographing the vehicle's front

seat occupants as well as its registration plates, identification of the offending driver for the purpose of issuing a warrant or summons remains an immensely difficult task. One possible method is to examine the photographs maintained by the driver licensing authority. However, even assuming that state law authorizes the keeping of such a photograph file (34), the practical difficulties of searching a file--time and expense, plus the quality of the photographs on file—could be prohibitive. Thus, it is questionable whether the information generated by a remote-observation SMD could support the issuance of a warrant or summons.

Should a driver licensing authority attempt to use data generated by a remote-operation SMD, it would face the same difficulties in identifying the offender as would the police and courts. The licensing authorities of most states also would face an additional constraint, mentioned earlier, namely that a driver cannot suffer license sanctions unless well-defined and objective events--such as crashes or convictions—occur. Since data from a remote-observation SMD is by no means a "conviction" it may not by itself support administrative sanctions in all states.

2.4.2 Direct Observation Devices. All of the devices described in Section 1.0 could be used as direct observation devices, that is, devices that could be operated with a police officer present. In such an operational mode, assuming that issues of scientific validity and reliability, prior functioning and proper operation have been resolved, few problems should be encountered with the use of most devices. In states where "speed traps" are outlawed by statute, none of the SMDs that use road sensors separated by a measured distance or which effectively time a vehicle over the distance would be permitted; thus, VASCAR, ORBIS, the Visual Speed Indicator, the Prather Speedwatch, and other such devices would be precluded in such states. On the other hand, radar speedmeters, the radar gun, and devices triggered by radar switches would not be precluded since these are not considered speed traps.

Few problems should be encountered in using the information generated by such devices at trial, either in prima facie or absolute maximum speed law states. The speeding data provided by the device would be admissible

to prove the vehicle's speed, and the officer attending the device would be available to testify as to other factors and circumstances that made the recorded speed unreasonable and imprudent under the circumstances.

2.5 Summary

The potential law-based constraints, arising from legal issues raised in connection with the use of speed measuring devices, include the following:

- establishing the scientific validity and reliability of SMDs not based on the same principles as the judicially noticed radar speedmeter;
- the existence of state statutes prohibiting "speed traps," which preclude the use of certain SMDs;
- obtaining evidence relating to such factors as road conditions, weather, traffic, and time of day when necessary to prove a violation of a basic or prima facie speed law; and
- identifying, from data provided by a remote-observation SMD, the offending driver so that action may be taken against him.

The latter issue also includes the issue of whether a vehicle owner can be held or presumed liable for a speeding violation in cases where the offending driver cannot be identified.

Methods of removing or resolving these constraints will be discussed in the next section.

3.0 APPROACHES TO CONSTRAINT RESOLUTION

The constraints that have been identified might pose significant barriers to the use of certain speed measuring devices. It is the purpose of this section to discuss possible approaches that might be employed to resolve these constraints. With respect to the problem of identifying an offending driver from data generated by a remote-operation SMD, two proposed solutions involving substantive law changes are also discussed: holding a vehicle owner vicariously liable for the driver's speeding violations; and presuming the owner to be responsible for violations committed with his vehicle.

3.1 Establishing the Scientific Validity and Reliability of SMDs

As pointed out earlier, only the radar speedmeter has universally been accorded judicial notice, but there are indications that devices which operate on principles similar to the speedmeter also will gain eventual judicial recognition. Novel SMDs will initially require expert testimony at speeding trials before they will be accepted as evidence of speed; should they be accepted by courts as scientifically valid and reliable, they also will be accorded judicial notice. Thus, the lack of judicial notice makes the employment of a novel SMD to enforce speed laws a costly and time-consuming matter. This constrant is best resolved by verifying the scientific basis of its operation and by establishing its accuracy through experimentation, before its use in speed-law enforcement is attempted.

3.2 Statutory Prohibitions of "Speed Traps"

A small number of states prohibit, by statute, the use of time-distance speed measurements. In these states the use of ORBIS, the Prather Speedwatch, and similar devices using spaced sensors placed in the roadway will be precluded. This constraint cannot be removed without making appropriate statutory changes.

3.3 Obtaining Evidence Proving Violation of Basic or Prima Facie Speed Laws

Where evidence is gathered by an SMD to prove violation of either a basic speed law or a prima facie speed limit, it must be shown--in addition to the vehicle's speed itself--that the measured speed was not reasonable and proper under the circumstances. Thus, evidence of road conditions, weather, and traffic density must be introduced at the speeding trial. Because the SMDs themselves, as currently conceived, do not have such capability, the SMD data might require corroborating testimony. This poses no problem when direct-observation devices are used, since the operator could observe and testify to these matters. However, when remote-operation SMDs are used, their effectiveness in proving that measured speeds were unreasonable or improper will be limited. Modification of SMDs to record traffic or weather data, for instance, could limit the impact of this constraint.

3.4 Identification of Speed-Law Violators For Law-Enforcement Action

Essential to any criminal or administrative action against a speed-law violator is that he be identified. As pointed out, however, the use of remote-observation SMDs normally will result in identification of the owner but not the driver. Owing to a fundamental principles of the Americal legal system favoring personal responsibility for wrongdoing, and discouraging punishment of individual for the acts of others (35), action frequently cannot be taken against the owner (because his personal responsibility for the violation cannot be established) or against the driver (because he cannot be identified). There exist, however, several potential strategies to resolve this constraint, including two substantive law changes: first, holding the vehicle owner vicariously liable for any violations committed with his vehicle; and second, presuming that the vehicle owner was in fact the offending driver. Because the vicarious-liability approach is the subject of another volume in this series (Ruschmann et al. 1979), it will not be discussed here, other than to note that it would require amending existing laws in almost all states; even then, it might be rejected by courts as a violation of due process of law,

especially in states that categorize speeding as a criminal offense.

An owner-driver presumption also would, in most states, require substantive law changes and raise due process problems. Generally speaking, a presumption is an inference of the existence of one fact drawn from the proof of the existence of another fact (Cleary 1972, pp. 802-806). Courts and legislatures have created numerous legal presumptions, for example: that the possessor of property is the owner (36); that a letter properly addressed, stamped, and mailed was duly delivered to the addressee (37); and that official actions by public officers and judicial officials have been regularly and legally performed (38). Generally, they are used in situations where one party has greater access to information than another, and where the burden of proving or disproving a fact based on such information would be extremely difficult for the other party (Cleary 1972, pp. 806-11).

There are two types of presumptions. The first type are conclusive presumptions; once certain facts are proven, the inferred facts are conclusively recognized as true, and no evidence contradicting the inferred facts will be recognized. The second type of presumptions are rebuttable; these permit, but do not require, the inference to be made, and contradicting evidence may be introduced.

Conclusive presumptions may be used in civil actions, but are not permitted in criminal cases. This is because held, since in a criminal case the trier of fact, that is, the judge or the jury, cannot be compelled to find against the defendent as to any element of the crime (39). Any presumption permitted to be used in a criminal case must therefore be rebuttable; even then, presumptions will be examined very critically with respect to the inferences drawn from the proven facts.

When rebuttable presumptions are applied in criminal cases, appellate courts will critically review the "natural relationships" between the inferred and the proven facts, within the context of the seriousness of the crime charged. Presumptions that the registered owner of a vehicle is responsible for parking violation, a "civil" offense in most states, have been upheld in most states (40). Although most courts recognize that the relationship between owning a vehicle and driving it is sufficiently close

to support an owner-driver inference (41), some courts have refused to invoke the inference unless one has been created by statute. Courts also consider the possible impact of a presumption on the owner's Fifth Amendment privilege against self-incrimination (42): when the owner is forced to testify to rebut the presumption, courts are more likely to find that the presumption violates the privilege (43). With respect to owner-driver presumptions in speeding prosecutions only one reported case (44) was found; in that case the court overturned the presumption on the grounds that no legislation created the presumption and further, that it was unnatural to conclude, from the fact of owning a vehicle, that the owner drove it.

Other than to enforce parking regulations, owner-driver presumptions have not been widely used (45); and in those states that have attempted to use such presumptions to enforce traffic laws, courts have taken a critical view toward them. While the owner-driver presumption is a possible means of resolving the constraint posed by failure of an SMD to identify a speeding driver, its validity is uncertain, and depends on the attitudes of counts. It is possible that the recent trend toward classifying speeding as a "civil infraction" might cause courts to recognize the validity of owner-driver presumptions (46). This is because "decriminalizing" speed violations eliminates imprisonment as a possible sanction, and also reduces the burden of proof; both are factors that weigh in favor of permitting owner-driver presumptions.

Assuming that neither vicarious liability nor an owner-driver presumption is available in a particular state, remote-observation SMDs still might be employed and still might have deterrent effect. For example, police authorities might choose to track down a small number of flagrant speed violators--such as drivers who exceed the posted speed limit by more than fifteen miles per hour--and give wide publicity to their prosecution. It is also conceivable that some drivers who receive summonses for speed violations detected by remote SMDs would choose to plead guilty rather than challenge their identification by the device. However, in those states that have established less stringent standards for proving guilt of traffic violations, convictions based on SMD-generated

data could be easier to obtain than in states that characterize speeding as a crime or quasi-crime. It should be noted that police and driver licensing authorities are not limited to using traditional sanctioning modes against drivers or owners. Warning letters to registered vehicle owners--especially if the owners are commercial enterprises that employ drivers for business purposes—might have a significant deterrent effect; warning letters also could make drivers more aware that remote-observation devices are being used (47). Thus, remote-observation SMDs should, in spite of existing law-based constraints, be of some value in producing compliance with speed laws.

3.5 Summary

Four legal constraints that may hamper the use of certain speed measuring devices have been identified. They are: the requirement that the scientific reliability and validity of SMDs be established; the existence of statutory prohibitions against "speed traps"; the evidentiary requirements of proving violations of basic or prima facie speed laws; and the inability of remote-observation SMDs to identify offending drivers.

Assuming that a proposed SMD is an accurate instrument for measuring vehicle speeds, the first constraint can be resolved by presenting expert testimony sufficient to convince a court to judicially notice the device.

The second constraint applies only in a few states; however, where it does apply, it will preclude the use of SMDs—direct or remote--that rely on spaced sensors placed in roadways. This constraint cannot be resolved without statutory change.

The third constraint principally affects remote-observation SMDs which, as currently designed, cannot record all of the factors that determine whether a measured vehicle speed is reasonable under the circumstances. Other than by enacting legislation imposing absolute maximum limits, this constraint can be fully resolved only by making remote-observation devices capable of recording weather and other data as well as vehicle speed measurements.

The fourth constraint, that of personally identifying the driver, limits

the effectiveness of remote-observation SMDs in deterring speed violations. Under current laws governing the prosecution of speeding violators, a conviction, or--in some instances--initiating a prosecution, might not be justified on the basis of data generated by the remote-observation device. Similar constraints would apply to the use of remote-observation SMD data in administrative proceedings. Because these devices do not readily identify the driver, possible resolution strategies include holding the owner vicariously liable or, by the use of presumptions, forcing the owner to identify the driver. Both of these approaches require the modification of existing laws; moreover, even if modifications are made to adopt these approaches, vicarious liability and owner-driver presumptions are likely to be contested on constitutional grounds, especially in states where speeding is characterized as a criminal offense. Still, remote-operation SMDs could be used to pursue flagrant speed-law violators for the purpose of sanctioning them, as the basis for issuance of warnings, of simply to promote public awareness of speed-law enforcement.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Constitutional authority exists both for the regulation of vehicle speeds and for the use of electronic and mechanical speed measuring devices. The use of SMDs is, however, restricted by state statutes and regulations, as well as rules of evidence governing the admissibility of SMD-generated data in court proceedings. In addition, the constitutional and statutory procedures that govern the prosecution of speed violators also restrict the use of data obtained from these devices.

Laws governing the prosecution of speed violators will especially restrict the use of remote SMDs as a basis for sanctioning drivers. While changes in the substantive law—such as vicarious liability and owner-driver presumptions—are possible, such changes will not eliminate the law-based constraints identified here. In spite of these constraints, remote SMDs could be of at least limited value in sanctioning violators, and also could deter speed violators through other means, as supporting the issuance of warning letters. On the other hand, the constraints identified in this volume would not seriously restrict the use of direct-measurement SMDs. In any event, whether—and how effectively--a particular SMD could be used raises issues of state and local law; thus, a planner contemplating the use of an SMD should examine carefully all applicable state and local laws.

Thus, we conclude that the legal feasibility of each particular SMD would depend on its technical characteristcs, whether it is operated directly or remotely, and, most importantly, on the state and local laws governing or affecting its use. In general, SMDs are legally feasible.

FOOTNOTES

1. 7 AM. JUR. 2d Automobiles and Highway Traffic §§ 180-91 (1963).

2. UNIFORM VEHICLE CODE § 11-801 (1972). Representative state statutes imposing basic speed laws include the following: ALA. CODE § 32-5-91(a) (1975); ARK. STAT. ANN. § 75-601(a) (Supp. 1977); CAL. VEH. CODE § 22352 (West Supp. 1978); COLO. REV. STAT. § 42-4-1001(1) (Cum. Supp. 1976); MASS. ANN. LAWS ch. 90, § 17 (Michie/Law. Co-op Supp. 1978); N.J. STAT. ANN. § 39:4-98 (West 1973); OHIO REV. CODE ANN. § 4511.21 (Page Supp. 1977); OR. REV. STAT. § 487.465 (1977); R.I. GEN. LAWS § 31-14-2 (1968); TEX. REV. CIV. STAT. ANN. art. 6701d, § 166(a) (Vernon 1977); and UTAH CODE ANN. § 41-6-46 (Supp. 1978).

3. Representative statutes imposing absolute maximum speed limits include the following: CONN. GEN. STAT. ANN. § 14-219(2) (West Supp. 1978); DEL. CODE ANN. tit. 21, § 4169(a) (Cum. Supp. 1978); GA. CODE ANN. § 68A-802 (1975); HAWAII REV. STAT. § 291C-102 (1976); IDAHO CODE § 49-681 (Supp. 1978); ILL. ANN. STAT. ch. 11, § 601(b) (Smith-Hurd Supp. 1978); IND. CODE ANN. § 9-4-1-57(b) (Burns Supp. 1978); IOWA CODE ANN. § 321.285 (West Supp. 1978-79); KAN. STAT. ANN. § 8-1558 (Supp. 1978); and KY. REV. STAT. § 189.390 (Supp. 1978).

4. A number of states maintain statewide prima facie speed limits. Representative statutes include the following: MASS. ANN. LAWS ch. 90, § 17 (Michie/Law. Co-op Supp. 1978); N.H. REV. STAT. ANN. § 262-A:54 (Supp. 1978) [55 mph national maximum only]; TEX. REV. CIV. STAT. ANN. art. 6701d, §§ 169B(a), 169B(j) (Vernon 1977); and UTAH CODE ANN. § 41-6-46 (1970). The National Committee on Uniform Traffic Laws and Ordinances has, since 1956, recommended an absolute speed limit in place of a prima facie limit. See, TRAFFIC LAWS ANNOTATED § 11-801.1 (1972).

5. 23 U.S.C.A. § 154 (West Supp. 1978).

6. As of December 1978 all 50 states had complied with the federal legislation mandating the national maximum 55 mph speed limit. Representative statutes include the following: ARK. STAT. ANN. § 75-601(b) (Supp. 1977); CAL. VEH. CODE § 22348(a) (West Supp. 1978); COLO. REV. STAT. § 42-4-1001(7)(b) (Supp. 1976); OHIO REV. CODE ANN. § 4511.21(k) (Page Supp. 1978); and OR. REV. STAT. § 487.475 (1977).

7. See, e.g., MICH. COMP. LAWS ANN. §§ 257.627 (1977).

8. Annot., 6 A.L.R. 3d 1326, 1330-31 (1966).

9. Compare, State v. Brown, 97 R.I. 115, 196 A.2d 133, 136 (1963) with State v. Campbell, 97 R.I. 111, 196 A.2d 131 (1963); see also, Annot., 6 A.L.R. 3d 1326, 1331-37 (1966).

10. Dooley v. Commonwealth, 198 Va. 32, 92 S.E.2d 348, 350 (1956) [holding that the use of radar measurements, as prima facie evidence of speed, does not violate due process of law].

11. See, e.g., the following: MONT. REV. CODES ANN. § 32-2150.3 (1975); and VA. CODE § 46.1-198.2 (1974).

12. CAL. VEH. CODE § 40801-40804 (West 1979); WASH. REV. CODE ANN. § 46.61.470 (1970).

13. See, e.g., FLA. STAT. § 316.1905 (1978); and ME. REV. STAT. ANN. tit. 29, § 1254 (1978). However, legislative determinations that results obtained from an SMD are prima facie evidence of speed must not violate due process of law; specifically, they must be both reasonable and rebuttable. In this regard see, Dooley v. Commonwealth, 198 Va. 32, 92 S.E.2d 348, 350 (1956) [radar speed measurement]; see also, Commonwealth v. DiFrancesco, 458 Pa. 188, 329 A.2d 204, 207-210 (1974) [blood alcohol levels].

14. MONT. REV. CODES ANN. § 32-2150.2 (1947); OHIO REV. CODE ANN. § 4511.091 (Page 1973); OR. REV. STAT. § 487.500 (1977); and VA. CODE § 46.1-198 (1974).

15. State v. Dantonio, 18 N.J. 570, 115 A.2d 35 (1955); see also, Annot., 47 A.L.R. 3d 822 (1973); and Cleary, E.W., ed. 1972. McCormick's Handbook on the law of evidence. 2d ed. pp. 514-17. St. Paul: West Publishing Company. One recent and widely-publicized decision, State v. Aquilera, (Dade Cty., Florida, County Court, May 7, 1979) disputed the capability of radar to establish vehicle speeds beyond a reasonable doubt; however, it is unlikely that other courts will follow the reasoning of this case.

16. City of St. Louis v. Martin, 548 S.W.2d 622 (Mo. Ct. App. 1977); People v. Leatherbarrow, 69 Misc. 2d 563, 330 N.Y.S.2d 676 (Erie County Ct. 1972).

17. State v. Finkle, 128 N.J. Super. 199, 319 A.2d 733, 737 (App. Div. 1974), cert. denied, 423 U.S. 836 (1975).

18. Typical decisions include: Carrier v. Commonwealth, 242 S.W.2d 633 (Ky. 1951); People v. Kenney, 354 Mich. 191, 92 N.W.2d 335 (1958); City of Webster Groves v. Quick, 323 S.W.2d 386 (Mo. Ct. App. 1959); People v. Asheroff, 12 Misc. 2d 10, 174 N.Y.S.2d 525 (Nassau County Ct. 1955); and State v. Clark, 272 N.C. 114, 157 S.E.2d 621 (1967).

19. People v. Charles, 15 Misc. 2d 401, 180 N.Y.S.2d 635, 638 (Orange County Ct. 1958); People v. Duskin, 11 Misc. 2d 945, 174 N.Y.S.2d 527, 529-30 (Nassau County Ct. 1958).

20. People v. Donohoo, 54 Ill. App. 3d 375, 369 N.E.2d 546 (1977).

21. State v. Boyington, 153 N.J. Super. 252, 379 A.2d 486 (App. Div. 1977).

22. People v. Pett, 13 Misc. 2d 975, 178 N.Y.S.2d 550 (Garden City Police Justice's Ct. 1958). A familiar photographic device is the Regiscope, which is used in check-cashing transactions. The Regiscope photographs the check and the person cashing it. Cases upholding the use of Regiscope photographs in bad-check prosecutions include Sisk v. State, 236 Md. 589, 204 A.2d 684 (1964), and State v. Tatum, 58 Wash. 2d 73, 360 P.2d 754 (1961).

23. A number of states have eliminated imprisonment as a possible sanction for certain moving traffic-law violations. In this regard one should see, the following provisions, which are typical: CAL. VEH. CODE §§ 40000.1--40000.28 (West Supp. 1978) [eliminating imprisonment except for convictions of serious offenses, and third and subsequent convictions of minor offenses]; OHIO REV. CODE ANN. §§ 2929.21(D) (Page 1975), 4511.99(D) (Page Supp. 1979) [eliminating imprisonment for first convictions of minor offenses]; and the Florida, New York, and Rhode Island statutes cited below.

24. Typical statutes decriminalizing traffic-law adjudication include the following: FLA. STAT. §§ 318.11 et seq. (1978); N.Y. VEH. & TRAF. LAW §§ 155, 225-228 (McKinney Supp. 1978-79); and R.I. GEN. LAWS §§ 31-41-1—31-41-5, 31-43-1—31-43-7 (Supp. 1977).

25. State v. Clayton, 584 P.2d 1111 (Alaska 1978); State v. Miller, — N.H. —, 348 A.2d 345 (1975).

26. See, e.g., MICH. COMP. LAWS ANN. § 257.320(d) (1977), which sets out the grounds on which the driver licensing authority may summon a driver for a reexamination.

27. Statutes permitting warrantless arrest for offenses, committed outside an officer's presence, include the following: ILL. ANN. STAT. ch. 38, § 107-2 (Smith-Hurd 1970); KAN. STAT. ANN. § 22-2401(c)(2) (1974); N.Y. CRIM. PRO. LAW § 140.10 (McKinney 1971); TEX. CODE CRIM. PRO. ANN. art. 14.03 (Vernon 1977); and WIS. STAT. ANN. § 968.07 (West 1971). Some of these provisions apply only to arrests for "crimes" or "breaches of the peace" and might not extend to minor traffic-law violations. In any event, these statutes require that the officer have at least reasonable grounds to believe that the suspect has committed an offense.

28. Dean v. State, 205 Md. 274, 107 A.2d 88, 92-93 (1954).

29. In re Winship, 397 U.S. 358, 364 (1970).

30. See, e.g., N.Y. VEH. & TRAF. LAW § 227(1) (McKinney Supp. 1978-79) ["clear and convincing"]; and N.D. CENT. CODE § 39-06.1-03(4) (Supp. 1977) ["fair preponderance"].

31. MICH. COMP. LAWS ANN. § 257.320(a) (1977) contains a statement of the grounds on which a driver may be summoned to appear for a reexamination of his fitness to operate a vehicle.

32. CAL. VEH. CODE §§ 13950-13953 (West Supp. 1978); ME. REV. STAT. ANN. tit. 29, § 2241 (Supp. 1977).

33. People v. Beamer, 130 Cal. App. 2d 874, 279 P.2d 205 (1955); State v. Ryan, 48 Wash. 2d 304, 293 P.2d 399 (1956).

34. See, e.g., MICH. COMP. LAWS ANN. § 257.307(b) (1977) [drivers' photographs may not be retained on file by any enforcement agency].

35. See, e.g., United States v. Park, 421 U.S. 658 (1975) [requiring the vicarious party to be in some "responsible relation" to the individual committing the criminal act].

36. See, e.g., OR. REV. STAT. § 41.360(11) (1977).

37. Employer's National Life Insurance Co. v. Willits, 436 S.W.2d 918, 921 (Tex. Civ. App. 1968).

38. S.S. Kresge Co. v. Davis, 277 N.C. 654, 178 S.E.2d 382, 386 (1971).

39. Commonwealth v. Pauley, 368 Mass. 286, 331 N.E.2d 901, 905-906, appeal dismissed, 433 U.S. 887 (1975).

40. People v. Bigman, 38 Cal. App. 2d 733, 100 P.2d 370, 372-73 (1940); City of Chicago v. Hertz Commerical Leasing Corp., 71 Ill.2d 333, 375 N.E.2d 1285, 1288-91, cert. denied, --- U.S. ---, 99 S.Ct. 315 (1978); Commonwealth v. Kroger, 276 Ky. 20, 122 S.W. 2d 1006, 1009 (1938); City of St. Louis v. Cook, 359 Mo. 270, 221 S.W.2d 468, 470-71 (1949); Cantrell v. Oklahoma City, 454 P.2d 676, 680 (Okla. Crim. App. 1969), cert. denied, 396 U.S. 1010 (1970); and City of Portland v. Kirk, 16 Or. App. 329, 518 P.2d 665 (1974). Ordinances purporting to impose vicarious absolute liability on the vehicle owner for parking violations were overturned as unconstitutional in State v. Jetty, --- Mont. ---, 579 P.2d 1228 (1978); and City of Seattle v. Stone, 67 Wash. 2d 886, 410 P.2d 583 (1966); but see, Kinney Car Corp. v. City of New York, 58 Misc. 2d 365, 295

N.Y.S. 2d 288, 291 (Sup. Ct. 1968), aff'd. mem., 28 N.Y.2d 741, 269 N.E.2d 829 (1971) [upholding city law making vehicle lessor jointly and severally liable with the lessee for parking violations].

41. See, e.g., State v. DeBiaso, 6 Conn. Cir. Ct. 297, 271 A.2d 857 (App. Div. 1970); State v. Jordan, 5 Conn. Cir. Ct. 561, 528 A.2d 552 (App. Div. 1969); State v. Knudsen, 3 Conn. Cir. Ct. 458, 217 A.2d 236 (App. Div. 1965); Commonwealth v. Pauley, 368 Mass. 286, 331 N.E.2d 901 (1975); and State v. Kay, 151 N.J. Super. 255, 376 A.2d 975 (Mercer County Court 1977).

42. U.S. CONST. amend. V. This provision was made applicable to the states in Malloy v. Hogan, 378 U.S. 1 (1964). It should be noted that an owner-driver inference does not by itself violate the Fifth Amendment; see, Barnes v. United States, 412 U.S. 837 (1973). It is only when a driver is compelled to testify as a condition of avoiding conviction that a violation occurs; see note 43 below.

43. People v. Hoogy, 277 Mich. 518, 269 N.W. 605, 606-607 (1938) [owner-driver presumption in parking case overturned]; Commonwealth v. Slaybaugh, 468 Pa. 618, 364 A.2d 687, 690 (1976) [leaving the scene of a traffic crash].

44. People v. Hildebrandt, 308 N.Y. 397, 126 N.E.2d 377 (1955).

45. See, e.g., CONN. GEN. STAT. ANN. § 14-107 (West Supp. 1979); MASS. ANN. LAWS ch. 90, § 2 (Michie/Law. Co-Op 1975); and PA. STAT. ANN. tit. 75, § 6342 (Purdon 1977).

46. See, e.g., VanOster v. Kansas, 272 U.S. 465 (1926) [vehicle owner subject to forfeiture of vehicle for prohibition violation committed by another using his vehicle]; and Kinney Car Corp. v. City of New York, 58 Misc. 2d 365, 295 N.Y.S. 2d 288, 291 (Sup. Ct. 1968), aff'd mem., 28 N.Y.2d 741, 269 N.E.2d 829 (1971) [vicarious liability partially justifiable on account of New York law providing that parking violators are not subject to imprisonment].

47. In a field test of that device in Arlington, Texas, significant reductions in vehicle speeds resulted from the use of ORBIS III. This occurred even though during the test period only fourteen citations were issued as compared with 231 warning letters. In addition, the system was activated during only about twelve percent of the test period (Vought Missiles and Space Company undated). These results suggest a significant short-term deterrent effect resulting from relatively little activity directed toward sanctioning.

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