

# Traffic Supervision and Road Safety

J. STANNARD BAKER  
Director, Research and Development  
Traffic Institute  
Northwestern University, Evanston, Illinois

Traffic supervision usually means the traffic work of police. Most people agree that traffic supervision is very important in preventing traffic accidents. Police activity, as it relates to highway safety, is a primary consideration in this paper.

Perhaps traffic supervision may best be described as the elastic or flexible element in traffic safety programs—the work that fills in the gaps and plugs the holes left by the safety efforts of other agencies. Sometimes traffic supervision is what holds the traffic safety program together. Perhaps this idea can be expressed better in another way: if road builders provided the best possible streets and highways for safety, if car manufacturers and owners did the same for vehicles, and if driver educators and license authorities arranged to have all drivers fully qualified at all times, there would surely be little need for traffic supervision.

Two contrasting examples in connection with roads and streets will illustrate how traffic supervision adjusts to needs. Forty years ago, recognizing the need for traffic control devices, Detroit police established a traffic engineering department to install traffic signals and signs, mark parkings, establish speed limits, and indicate parking restrictions. Nobody else in the city was doing this. Today these functions are performed by traffic engineers in Detroit and elsewhere. On the other hand, newly built limited-access roads have been so completely engineered that traffic supervision on them is largely assistance to motorists with relatively little need for police activity of essentially accident-prevention nature.

Traffic supervision has three main functions: (1) traffic law enforcement (2) traffic direction (3) traffic accident reporting and investigation. Each of these functions contributes to highway safety directly and also by enhancing the safety efforts of other agencies.

In discussing such activities, it is not necessary to make a fine distinction between work which prevents accidents and that which keeps

traffic moving efficiently because it is generally conceded that smoothly moving traffic contributes importantly to highway safety.

### *Traffic Law Enforcement*

The primary aim of enforcement is managing drivers. Most drivers at one time or another need reminding, such as enforcement can give, of how they should behave. But the main concern of traffic law enforcement agencies is the small percentage of drivers who repeatedly need to be deterred from proscribed behavior for their own safety and that of other highway users. The reasons for not complying completely with traffic laws and regulations are by no means clearly known, but appear to fall into four general categories: (1) *Ignorance*—does not know what he is supposed to do. (2) *Willful misconduct*—violates knowingly. (3) *Inadvertent misconduct*. (4) *Knowing misconduct in emergency*.

The second category, willful misconduct, may not have the greatest accident potential because of the alertness of the violator but it is peculiarly the responsibility of police and courts to make apprehension and penalization much more to be reckoned with by these violators than accidents that their misbehavior may contribute to.

Police work is at best a clumsy and costly remedy for the first category, ignorance. The violator may be ignorant of general rules of driving such as legal speed limit or of requirements at a particular point such as zoned speed or prohibited turns. In the first case group and book instruction is more effective than individual lessons by officers on the street. In the second case, ignorance is usually the result of faulty communication with the driver by signs and so is primarily an engineering matter.

Enforcement has a closer relationship to engineering than most engineers realize. The ultimate effectiveness of many traffic control measures, from one-way streets to parking restrictions, usually depends on the motivation to observe and conform produced by active traffic law enforcement. We tend to forget this because the enforcement inducements have been applied so long that we have come to think of them as "voluntary" but for the small unruly percentage of drivers, slackening of enforcement is permission to misbehave. Then, many others are persuaded by the example of the few that law violation is harmless.

### *Traffic Direction*

Traffic direction is also an important, but usually unacknowledged, supplement to engineering. Many an inadequate signal installation

has been backstopped daily by police assigned to direct traffic at that point. With more versatile equipment and more effective design, this is fortunately becoming less necessary in most places. But there will probably always be the need for police manpower to handle emergencies and special events. The former before they can receive engineering attention, and the latter to carry out the engineer's plan for traffic movement and parking supervision. The ultimate goal of both traffic engineers and police should be the greatest service in traffic control and direction at the least total cost in taxes and traffic accidents.

Police work with accidents has important implications in accident prevention. Most directly, prompt, and proper police supervision immediately after the accident can prevent disabled vehicles and inquisitive bystanders on the roadway from being an unavoidable hazard to approaching traffic. Police at the scene can also minimize the severity of the accident by extinguishing or preventing fire, by securing prompt and competent medical attention for the injured, and by preventing pilferage.

#### *Traffic Accident Reporting and Investigation*

The greatest contribution to safety by police activity in connection with accidents is indirect. It is the production of data on accidents. Data can be had from drivers involved, but they are not generally satisfactory. In the first place, such data are likely to be highly inaccurate with respect to location and rarely afford useful information on final position of vehicles, character and extent of tire marks, or condition of control devices. Furthermore, drivers' reports are likely to be biased. Finally, drivers' reports of single-vehicle accidents are quite likely to be incomplete—why report an event that concerns no one else? Insurance company reports are sometimes suggested as a source of traffic accident data, but so long as there are many companies insuring motorists in an area, it will be difficult without objectionable legislation to compile satisfactory reports from this source. That leaves us dependent on police for information.

Police data, therefore, tell us most of what we know about the traffic accident problem and what success or lack of success we are experiencing in its mitigation.

But police accident reports have special significance for the highway and traffic engineer—if he will use them. They permit the engineer to know where on the road network accidents are occurring with unusual frequency and will at least give clues as to why they occur at these points. With the advent of the U. S. Bureau of Public Roads' program of Spot Improvement, this source of accident data for highway

departments has been given new importance. Justification for matching funds for spot improvement is most effectively presented in terms of specific accident experience.

The transmission of accident data from police officer who makes the original report to the engineer who must consider safety in his road design is rarely as effective as it ought to be or easily could be. This information conduit is often clogged with bureaucratic obstacles and full of leaks due to indifference and noncooperation. It often takes, therefore, what seems to be unnecessary pressure to get the facts from their source to those who should be using them.

Actually, the amount of information required for engineering purposes is not great—usually not more than a fifth of the items appearing on the customary police accident report. The most important bit of data is the location of the accident—the exact location. But accident-records systems fail more frequently with respect to location data than in other ways. Engineers don't use the police accident data because location information is insufficient. Police don't try to get better location data because nobody uses it. Two recent experiences will illustrate both aspects of the problem. Out-of-control accidents on a three-mile road having 20 curves and less than a third of its length in tangents were to be analyzed. Nearly all police reports located the accidents by distance in miles and tenths from a junction at one end of the route. Apparently these distances were usually guessed, rather than measured, because the location indicated often placed the accident in the middle of a straight section, whereas the diagram and description clearly indicated it was in a curve. In the other instance, to facilitate police reporting on a section of the interstate system, each delineator between mile posts was marked in hundredths of a mile. But in the highway department, there was no map or other means of matching the recorded locations with changes in alignment, road structures, or other features.

In terms of accident prevention, we are still far from realizing in road design the full potential of accident data gathering capabilities of traffic supervision agencies.

It would be wrong not to warn of an important limitation in accident information which can be produced by traffic supervision as now practiced. However much we wish it were possible, we cannot expect police traffic accident reports to yield reliable and complete data on traffic accident causes. Factual information relating to observable circumstances may be reliably had, if necessary, in much greater detail than at present; but the complex deductions and evaluations required to determine the combination of contributing factors which produced

a particular accident are beyond the scientific and technical capabilities of present accident investigation personnel. Do not construe this appraisal as an indictment of police traffic supervision. It would be unfair to criticize police for shortcomings in accident investigation until full use is made of what information is now, or can be made, available with existing capabilities

### *Other Functions of Traffic Supervision*

It is extremely difficult to evaluate the effectiveness of traffic supervision in preventing traffic accidents. There are numerous examples in which improved traffic supervision has clearly resulted in reduction of accidents. Reductions appear to be especially significant when the quality as well as the quantity of enforcement is increased. Quality is represented by such techniques as selectivity that concentrates effort at times and places where experience shows that accidents are most frequent.

Traffic police can also report to other agencies conditions which require attention to prevent accidents. Traffic signal lamps which are out and signs which have been damaged are customarily reported this way. But police are likely to be familiar with what happens out on the road and often have practical and useful ideas about what can be done to improve conditions. Police generally feel that their suggestions are unwelcome. Some certainly involve unwarranted expense and some are quite impractical. But useful understandings can be worked out about what ideas are acceptable and how they may be most easily communicated. Where this has been done, hazardous road conditions can often be remedied before a long series of accidents and possibly lawsuits have forced the condition to the attention of those who can do something about it. Police reports to licensing authorities about drivers of questionable qualifications can serve the same purpose.

### *Effects of Nonpolice Agencies*

The effect of enforcement on driver behavior and the resulting accidents are modified immensely by activities of nonpolice agencies. Especially important is what courts do. There can be no question that severe and prompt penalties multiply the effectiveness of police patrol in controlling behavior and accidents. Driver improvement by licensing authorities also reinforces police activity. Driver education helps enforcement: if drivers have been well taught how to behave, police effort can be concentrated on dealing with those whose violations are willful rather than due to ignorance.

There is good reason to believe that driver behavior patterns in traffic change slowly and are influenced by many things. Once general patterns favorable to safety have been established, traffic law enforcement can doubtless be lessened. But we are probably still far from optimum behavior and the ensuing happy day when law enforcement will be virtually unnecessary. For example, with autopsies showing that more than one-half the drivers killed in accidents had been drinking, it will still be a long time before it becomes unthinkable to drive after drinking.

Thus, for some time to come, traffic supervision will have to take up the slack and plug the holes in the total traffic safety program as best it can.