

Traffic Accident Reporting Criteria of Principal Users in Illinois

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This research indicated that the emphasis in accident report forms should be on the recording of factual information, including accurate identification of the involved traffic units (persons and vehicles) and the location of the probable collision area to the nearest 100 ft. The time and date of the accident occurrence should be reported for legal, administrative, educational, and research purposes. The accident report should cover three types of accident circumstances: (a) the maneuvers and actions of each traffic unit before, at, and following impact; (b) unusual environmental conditions; and (c) accident results.

Immediate attention should be given to development of scales to indicate a quantitative estimate of personal injury and property damage. Studies should be directed toward the development of uniform accident reporting and summary forms which would be of more benefit to a majority of the user groups. The collection of specialized accident data for research uses is not a function of routine accident reports, but such data should be obtained on specifically designed forms. Accident statistical units should be strongly urged to utilize electronic data processing equipment and techniques to a greater extent.

•MANY TRAFFIC accident prevention programs have been based on records of traffic accidents. This concept is based on the theory that accidents tend to repeat and that, if it is possible to identify the factors contributing to accidents which have happened, it is possible through corrective steps to avoid the repetition of such occurrences in the future. Accident records also serve as a measure of the magnitude of the problem, thus enabling the public and government to determine the proper emphasis to be given to various facets of the problem. Similarly, continuous evaluation of records provides trend information so that progress or the lack of it can be measured.

Every national agency in the traffic safety field has acknowledged the significance of traffic accident records, and the use of these records was also recognized by the 1946 President's Highway Safety Conference and all succeeding conferences. Consequently, a section describing traffic accident records is included in the current Action Program of the President's Committee for Traffic Safety (1).

Increasing evidence indicates that traffic accident records in the United States are unsatisfactory. Some of the visible indications of difficulty can be identified as follows:

1. Incomplete or inconsistent national totals,
2. Duplication of effort and excessive costs,
3. Absence of the application of modern techniques for data processing,
4. Lack of inter-governmental or inter-bureau exchange and cooperation,
5. Failure to produce significant facts about accidents, and
6. Absence of a satisfactory rate basis.

The National Safety Council estimated that in 1965 there were about 12.5 million motor vehicle traffic accidents in the United States. It is presumed that at least half of these accidents were reported in some form to one or more of the many agencies, both public and private, which are directly interested in traffic accident data.

An individual driver involved in an accident of any consequence may be expected to file, at a minimum, a state traffic accident report and an insurance company report. Depending on local regulations and where the accident occurred, he might also be required to file reports with other authorities such as city police, county sheriffs, and toll authorities. If a commercial vehicle driver is involved in an accident, he might be required to file all of the above reports as well as other reports to his employer, to the state public utilities authority, and to the Interstate Commerce Commission. These accident reports vary in scope, detail, and the urgency for prompt reporting, depending on the interests of the different agencies. Such multiple reporting is, therefore, a problem to the motorist, who can become confused and overburdened with different reports, and to the various agencies, whose different interests may tend to decrease the accuracy and completeness of the reports prepared for their use.

The multiple reporting and the lack of uniformity in accident data collection and processing is depriving many agencies of much essential information. Before extensive efforts can be made to minimize the number of accident report forms and obtain greater uniformity in reporting, it is necessary that the reporting criteria for the different traffic accident data users be identified and coordinated wherever possible.

REVIEW OF LITERATURE

Although there have been many publications which discuss traffic accidents, only a few articles go into any detail about traffic accident record systems. "The Federal Role in Highway Safety" (2) devotes considerable attention to traffic accident records. This publication states:

Foremost and most obvious among the important measures of the status of safety on the Nation's highways is the traffic accident. The specific results of an accident—damage to property, or death or injury to people—have definite meaning to the individuals involved but, for appreciation of their full significance, accidents need much broader interpretation in terms of values to all society. Satisfactory appraisal of the wide range of tangible and intangible effects is well nigh impossible in statistical terms.*

But it is necessary, certainly, to dimension the traffic-accident problem in its relationship to highway transportation and the major characteristics of the population it serves. While a great deal of information is now collected and is useful for this purpose, unfortunately some of it is of questionable validity or value.

Another important publication is "Traffic Accident Records: A Section of the Action Program for Highway Safety" (1). This publication promotes the development and use of traffic accident record systems and also points up the need for increased standardization, simplification, and improvement of traffic accident record systems.

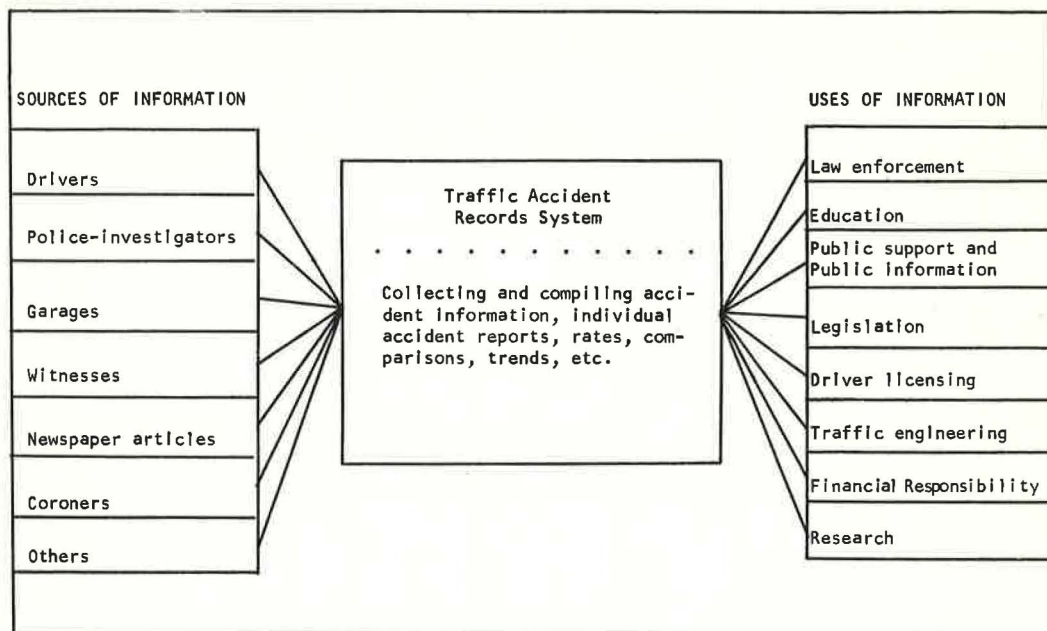
The most recent and most detailed report, "Improvement of the Present System of Traffic Accident Records" (3), was published in 1963. This comprehensive analysis contains many suggestions for improvement of traffic accident records. Other pertinent publications include manuals for compiling (4, 5) and using (6) traffic accident statistics. These and related publications will be referred to when appropriate.

Basic Purposes of Traffic Accident Records

Five distinct, basic purposes of traffic accident records have been identified by J. Stannard Baker (3). These are:

1. To have knowledge of traffic accidents as a cause of mortality, morbidity and economic loss;

*Underlining added for emphasis.



Source: President's Committee for Highway Safety, *Traffic Accident Records: A Section of the Action Program for Highway Safety*, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 1960, p. 7.

Figure 1. Traffic accident records system as outlined in the action program.

2. To point out where, when, and to whom traffic accidents are a critical problem;
3. To suggest lines of preventive action to be taken;
4. To measure the effect of accident-prevention efforts; and
5. To determine negligence or fault.

Users of Traffic Accident Records

The principal uses of traffic accident information and their sources were summarized in "Traffic Accident Records" as shown in Figure 1. Baker (3) has expanded the listing of traffic accident data users and identified the purposes for which each kind of user desires the information (Table 1). In discussing users of accident records, Baker states:

In the broadest sense, of course, the purpose of accident records is to meet needs for accident information of agencies with responsibilities for traffic safety. The purposes for which different agencies want information are not necessarily different, although the uses to which they put the information may be. For example, both engineers and enforcement officials want information about location of accidents. Both want it for purposes of determining where accidents are most critical; but one will use it for planning selective enforcement and the other for deciding what points in the road network will benefit most from traffic engineering treatment.

He later says:

Some agencies with responsibilities for traffic safety make little use of traffic-accident records for any purpose. Vehicle inspection comes to mind as one of these. In most of these cases available records contain little information to suggest preventive action. Furthermore, the records

TABLE 1
PURPOSES OF ACCIDENT RECORDS IN ACCIDENT PREVENTION FUNCTIONS

ACCIDENT PREVENTION	1. Cause of mortality, morbidity	2. Where, when, etc. critical	3. Suggest preventive action	4. Measure effect of effort	5. Determine negligence or fault
<u>Law enforcement</u>					
Police		X	X	X	
Courts				X	X
<u>Education</u>		X	X	X	
<u>Public information</u>	X	X	X	X	
<u>Legislation</u>	X	X	X	X	
<u>Driver licensing</u>					
Examination			X	X	
Improvement		X	X	X	X
<u>Engineering</u>					
Traffic engineering		X	X	X	
Highway design		X	X	X	
<u>Vehicle design</u>		X	X	X	
<u>Vehicle inspection</u>		X		X	
<u>Financial responsibility</u>	X				

are not good enough to demonstrate how effective specific safety measures really are. There seems to be a tendency in connection with accident records for those who want information to think of using only what is available and for records systems to think of producing only what is required.

Data Requirements

The basic accident data required by certain user groups were identified in "Traffic Accident Records" (1), as shown in Table 2. Baker (3) has developed a table (Table 3) which lists the special data requirements for each of the five basic purposes of traffic accident records. In discussing this table he states:

In such a table, indications of information needed are, of course, matters of judgement (sic) and therefore subject to minor disagreements, but they do serve to illustrate various possible demands on data collection systems. For example, very few facts about each accident are needed to know how traffic accidents compare in frequency with other causes of death; but to determine fault or negligence, data on many specific details of an accident may be required.

Specific needs for data are determined by special uses. Often these might be much more limited than those suggested by the chart of data

needed for various purposes (Table 3). For example, an investigation of the contribution to accidents of mechanical defects in automobiles, would entail very specific descriptions of a vehicle's mechanical condition before and after the accident; but usually few facts about the driver, road, and events of the accident.

Note that Table 3 includes only basic facts needed for various purposes, not conclusions based on the facts. Note also that many of the kinds of facts wanted, as shown in the list across the top, could be subdivided. For example, under detailed information on injury there might be listed the specific nature of the injuries, an estimate of their severity in terms of days of disability, breakdown of medical costs (important in settlement claims) and an evaluation of degree of permanent disability (important in workmen's compensation).

Sources of Traffic Accident Data

Possible sources of traffic accident data have been divided into five general categories by Baker (3). These categories have been identified and subdivided according to their relationship to the events and circumstances of the accident as listed in Table 4 and described below: *

1. Persons there when the accident occurred.

a. Drivers of vehicles involved and injured pedestrians. These are the most important people because they were responsible for direction and control of the traffic units involved.

b. Others involved are usually occupants of vehicles but may also be people accompanying pedestrians.

c. Bystanders and passers-by are people who were in a position to see important events of the accident even though they may not have done so. People who just heard the noise would not be included. Bystanders may have been afoot or in vehicles, standing or moving, and they may have been as much as 500 ft away at the time.

2. People arriving at the scene soon after the accident are those who came to the scene after the accident situation had been stabilized but before vehicles had been moved or the road cleared for traffic. They may have come unexpectedly or may have come to see what the disturbance was. Not included are people called to the scene for particular purposes.

3. People sent to attend the accident.

a. Police with specialized training for work with traffic accidents are generally men assigned to accident investigation units, or highway patrolmen with at least some special accident investigation training. If qualifications consisted only of instruction or experience in completing an accident report form, the police officer would not be in this class.

b. Other police include deputy sheriffs, park rangers and similar officers if they had no special training.

c. Firemen called to the scene.

d. Ambulance drivers and attendants may or may not have medical or first aid training. If police or firemen drive or accompany the ambulance, put them in this class only if their duties in connection with the accident relate to transporting dead or injured. Undertakers who go to the scene are in this category.

e. Tow-truck drivers and helpers include highway department, public utility, and similar employees who go to the scene to help clear the road or roadside.

f. Photographers and newspaper reporters are those who actually get to the scene of the accident before vehicles are removed. Amateur or professional photographers are included if they happen on the scene or go there on their own initiative before vehicles are moved.

*In accidents involving more than one traffic unit, there may be a separate source for some kinds of information for each traffic unit involved.

TABLE 2
BASIC INFORMATION REQUIRED OF ACCIDENT RECORDS SYSTEMS

DATA REQUIRED			Enforcement: assignment	Engineering: location, improvement	Education: summaries, rates, trends	Licensing: driver con- trol and improvement	Financial responsibility
For the accident	When	Year, month, day	X	X	X	X	(*)
		Hour of day	X		X		
	Where	State and jurisdiction	X	X	X	(*)	(*)
		Road or street	X	X		(*)	
		Location on road	X	X			
	What	Kind of district			X		
Surface condition			X				
Type of accident		X	X	X	X		
Severity of accident				X	X		
Highway type		X	X	X			
For each involved	Vehicle or Pedestrian	Direction approaching from		X			
		Movement planned	X	X			
		Vehicle type, if any			X		X
		Make, year, number, if motor vehicle					X
		Vehicle registration, if any					(*)
		Owner: name, address					(*)
		Insurer, Policy No., if any					(*)
		Policy expiration date					(*)
		Vehicle damage: description, amount					(*)
		Driver or pedestrian: name, address			X	(*)	(*)
		Driver or pedestrian: birth date, sex			X	(*)	(*)
		Driver license number, if any				(*)	(*)
		Policyholder: name, address					(*)
	Person Injured	Description of injuries					(*)
		Age, sex			X		
Name, address				X		X	
Non- vehicle damage		Description amount					(*)
		Owner: name, address					(*)

X = Administrative requirements for prevention purposes

(*) = Legal requirements to fulfill functions of law

Source: President's Committee for Highway Safety, Traffic Accident Records: A Section of the Action Program for Highway Safety, Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., 1960, p.8

TABLE 3

FACTS NEEDED FOR EACH OF FIVE BASIC PURPOSES OF ACCIDENT RECORDS

BASIC PURPOSES OF TRAFFIC ACCIDENT RECORDS (See more complete description of purposes elsewhere)	IDENTIFYING INFORMATION			DESCRIPTION OF RESULTS		DESCRIPTION OF EVENTS	DESCRIPTION OF ELEMENTS OF THE HIGHWAY TRANSPORTATION SYSTEM								DESCRIPTION OF THE TRIP
	Place	Time			Detailed		Vehicle		Road		Driver, pedestrian, etc.				
							Detailed	General	Specific	Gross	Detailed				
	Geographical area Highway, street Exact location	Day, month, year Hour	Name - driver, pedestrian	Fatal injury Severity	Injuries Vehicle damage Other property damage Final positions Marks on road, etc.	Travel direction, etc. Evasive action taken	General type	Design features Condition, age Special equipment Load - kind, weight Weight of vehicle	Neighborhood charac't Surface condition Raining, snowing, fog Light available Signs, signals, etc. Curves, grades, lanes	Alignment, etc. Access, land use Road surface Visibility Illumination Traffic control design Traffic density Parking situation	Age Sex Occupation License, restriction	Size, weight, etc. Driver, ped. cond'ion Knowledge Skill Socio-econ. status Attitude	Purpose of trip Time since starting Distance travelled Interruptions Urgency of mission Route choice		
1. Cause of mortality, morbidity	X	X		X X											
2. Where, when, etc. critical General Specific	X X X	X X X	X	X X		X	X	X X X X	X X X X X X X	X X X X X X X X	X X X X	X	X X		
3. Suggest preventive action Individual acc. Mass data	X X	X X		X X	X X X X X X X X X X	X X	X X X X X X X X X X X X	X X X X X X X X X X X X X	X X X X X X X X X X X X X X X X	X X X X	X X X X	X X X X X X X X X X X X X	X X X X X X X X X X X X		
4. Measure effect of effort General Specific	X X X	X X X X		X X		X	X X X X X				X X X X X X				
5. Determine negligence or fault		X X			X X X X X X	X X	X X X X X		X X X X X X X X		X	X X X X X X	X X X X X X X		
Provided in standard report	X X X	X X	X	X X		X	X		X X X X X		X X X X				

Source: "Improvement of the Present System of Traffic Accident Records", Traffic Institute, Northwestern University, Evanston, Illinois, June 1963., pp. 13a-14

TABLE 4

POSSIBLE FIRSTHAND SOURCES OF VARIOUS KINDS OF DATA FOR TRAFFIC ACCIDENT RECORDS

SOURCES OF INFORMATION FOR TRAFFIC-ACCIDENT RECORD (See more complete description of sources elsewhere.)		IDENTIFYING INFORMATION			DESCRIPTION OF RESULTS OF ACCIDENT		DESCRIPTION OF EVENTS	DESCRIPTION OF ELEMENTS OF HIGHWAY TRANSPORTATION SYSTEM INVOLVED IN ACCIDENT																				DESCRIPTION OF TRIP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Geographical area	Highway or street	Exact location	Day, month, year	Hour	Fatal injury	Severity rating	Injuries inflicted	Damage to vehicle	Other property damage	Final positions	Marks on road, etc.	Travel direction, etc.	Exclusive action taken	General type of vehicle	Design features	Condition, age	Special equipment	Load - kind, weight	Weight of vehicle	Curves, hills, lanes	Kind of neighborhood	Road surface condition	Raining, snowing, fog	Light available	Signs, signals, etc.	Road alignment	Access, land use	Road surface condition	Visibility condition	Road illumination	Traffic control design	Traffic density	Parking situation	Age	Sex	Occupation	License, restrictions	Size, weight, etc.	Driver condition	Knowledge	Skill	Socio-economic status	Attitudes	Purpose of trip	Time since starting	Distance travelled	Interruptions	Urgency of mission	Choice of route																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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O - Opportunity

R - Responsibility

T - Training

A - good

A - special

A - special

B - fair

B - general

B - general

C - poor

C - none

C - none

D - none (left blank;
see text for more detail)Source: "Improvement of the Present System of Traffic Accident Records",
Traffic Institute of Northwestern University, Evanston, Illinois,
June 1963, pp. 16a-17.

4. Later duties related to road, vehicles and people involved.

a. Special photographers called to make pictures of the site or of damage to vehicles include police who are called only to make pictures of the scene, but exclude police who make pictures as a duty in attending the accident.

b. Topographers, surveyors or others who are sent to map the site include police only if they have no other duties in connection with the particular accident.

c. Traffic engineers. Usually their duty is to determine whether traffic control devices were functioning properly. Included are highway maintenance people who repair damage to road, guardrails, traffic control devices, temporary barricades, etc.

d. Repair mechanics and wreckers who repair or disassemble for salvage damaged vehicles after removal from site of the accident.

e. Surgeons who treat injured.

f. Nurses who attend injured at home or in hospitals.

g. Medical examiners, pathologists and coroners are people who examine those people who die soon after an accident. If a coroner mainly transports the dead, consider him an ambulance driver or attendant.

h. Undertakers, morticians and embalmers may be able to give information on injuries. If they only transport the dead from the scene of the accident, consider them as ambulance drivers and attendants.

i. Fleet supervisors in charge of motor-vehicle fleets are from truck or bus companies and may examine road, drivers, or vehicles following an accident. They may have information about loads.

j. Claim investigators.

k. Attorneys anticipating litigation arising from the accident.

5. People who may have useful ancillary information.

a. Relatives, associates, and acquaintances, employers, and employees of persons involved.

b. Family doctors who are familiar with the condition of the driver or pedestrian before the accident. If they treat injuries, consider them surgeons.

c. Service station, bar, restaurant, and similar personnel who might have seen a driver or pedestrian before an accident.

d. Automobile repair and inspection personnel who might know the condition of the vehicle previous to the accident.

Three columns are shown for each type of information in Table 4. They are headed O, R, and T, for opportunity to obtain information, responsibility for obtaining information, and training in observing and recording. The degree of opportunity to get certain information is shown in the first column, O. This degree is shown by letters A, B, and C, which represent, respectively, good, fair, and poor.

The degree of responsibility and training for each person is shown in the next two columns, R and T. The letters A, B, and C represent, respectively, special, general, and none.

Therefore, the best source for any particular fact is marked AAA. Unsuitable sources are left blank.

Baker (3) has proposed that "five types of data collection should be recognized and provided for: (a) motor-vehicle mortality record, (b) basic accident record, (c) auxiliary reports, (d) special records for legal purposes, and (e) special records for technical purposes."

DESCRIPTION OF STUDY

Objective and Scope

The study, cosponsored by the Automotive Safety Foundation and the U. S. Bureau of Public Roads, was to consider in depth the various uses of traffic accident data by principal users in Illinois. The study's objective was to determine the accident data usage criteria (information needed, degree of accuracy, completeness and detail, allowable reporting delay, etc.) of the different data users. After the usage criteria

of these individual interest groups are identified and detailed, the criteria should be combined and correlated in order to establish data usage criteria for a universal traffic accident reporting system, or for better coordination of multiple systems.

In considering the users to be contacted, attention was given to all known user groups, but no effort was made to conduct a statistical evaluation of the usage of traffic accident data by each of the user groups. On the other hand, every effort was made to determine the usage criteria for those user agencies which are doing the most with the information and are best qualified to comment on the need and/or usage of other traffic accident information.

Methodology

In order to determine the accident record users' criteria in Illinois, a study team was appointed consisting of senior faculty members at the University of Illinois. The team members were Charles H. Bowman, Professor of Law; Dr. Marvin J. Colbert, Director of Health Service, and Associate Professor of Medicine, University of Illinois at the Medical Center, Chicago; Ellis Danner, Professor of Highway Engineering; A. E. Florio, Professor of Safety Education; Robert I. Mehr, Professor of Finance; Ervin H. Warren, Director of Police Training Institute; and John E. Baerwald, Director of Highway Traffic Safety Center and Professor of Traffic Engineering—Principal Investigator.

Most of the work of the study team was conducted during the summer and early fall of 1964. After preliminary agreement concerning study procedures, members of the study team individually contacted those agencies within their respective disciplines which appeared to be best qualified to comment on accident reporting criteria and accident record usage. A list of the agencies contacted by the individual members of the study team is included in the Appendix. It may be noted that agencies on all levels of government as well as private agencies with local to national interests were contacted. In general, only agencies operating within Illinois were contacted, and no attempt was made to obtain a statistically reliable sample.

After each member of the study team completed his investigation, he prepared a report which summarized the information he had obtained and formed the basis for his subsequent conclusions and recommendations concerning accident reporting criteria for the user groups contacted. These individual reports were reproduced and distributed to each member of the study team, and subsequent meetings and discussions resulted in the development of a group report and recommendations. The principal conclusions of the individual reports are summarized next. The complete individual reports are included in the final report of the research project (7).

SUMMARY OF INDIVIDUAL REPORTS

The individual reports were prepared by the members of the faculty study team after they had completed their interviews with the agencies within their respective disciplines. These reports followed the general format:

1. Professional uses of traffic data,
2. Professional requirements for traffic accident bits,
3. Professional reporting criteria for primary data, and
4. Discussion and recommendations.

In preparing the reports, the team members were asked to present their own evaluation of the accident reporting situation rather than merely reporting what they found during their field interviews. Therefore, in many cases the conclusions and recommendations contained in their reports are their own, reached as professional persons competent to discuss the particular interest group.

The following sections are intended to highlight the more important aspects of the individual reports.

Education, Research and Driver Licensing

The professional uses of traffic accident data by educators (especially on the college and university level) are to give prospective teachers a background of traffic accidents,

provide for an analysis of accident causation, and enable the interpretation of accident report information.

The driver licensing interest in traffic accident reports primarily relates to an attempt to correlate driver characteristics and behavior with accident causation. In addition to being interested in the typical information (who, what, where, when, why, and how) presently obtained from the accident report form, this professional user group would find the reports more useful if they:

1. Provided a means for reporting the attitude of the person involved;
2. Included questions that will show apparent causes of accidents and the relationship between cause and offense;
3. Provided additional information about the involved drivers, including:
 - a. Number of miles of driving experience and data of issuance, if it is the driver's first license,
 - b. Occupation and education, and
 - c. Nature and kind of driver education;
4. Were supplemented by a photograph of the accident scene and environment when the accident resulted in death or severe personal injury;
5. Included a description of specific legal action taken by the investigating officer and the results of testing for intoxication;
6. Provided more specific information concerning single car accidents;
7. Included a question concerning seat belt placement, both front and rear, and if the belts were being used at the time of the accident; and
8. Were so designed that they could be filled out by a check-off procedure and be tabulated by electronic data processing equipment.

Enforcement

Law enforcement agencies use data from individual accident investigation reports to ascertain as many facts as possible concerning an accident, to determine whether a violation of a law or city ordinance was committed, and if so, to secure evidence to support prosecution of the violator. They also assist state agencies in administering the Safety and Financial Responsibility Laws of the state.

Summary data of accidents which occur within the jurisdiction of the enforcement agency are used for "selective enforcement" assignment of personnel. Police department heads want to determine from accident summaries: (a) the high-accident frequency locations, (b) the times and types of accident occurrence, (c) the primary causes of accidents, and (d) the identity of persons involved in traffic accidents.

County sheriffs have begun to realize that traffic accidents and traffic control should be given some consideration by their office. However, no comprehensive planning for any traffic control program currently exists in any county in Illinois.

Ideally, police agencies should devote more time and effort both to accident investigation and accident reporting. To accomplish this requires more training, education, and research, not only for new officers, but also periodic "retread" schools to inform and inspire all uniformed personnel.

More study should be devoted to events or conditions leading up to the accidents. Furthermore, the police administrators must be convinced that today's traffic problems must be met and handled by the police to a much greater degree. Finally, they should be provided with the tools to do a good job—adequate budgets for necessary equipment and training, and adequate manpower.

The following types of traffic accident data should be collected and used by enforcement agencies:

1. Exact location of accident,
2. Date of accident,
3. Persons involved,
4. Persons killed or injured,
5. Type of accident,
6. Vehicle identification,

7. Weather and road conditions,
8. Traffic controls present,
9. Witness identification,
10. Complete diagram of scene,
11. Description and amount of property damages, and
12. Supplementary or follow-up reports.

Railroad personnel, as a rule, have little reported activity in traffic accident investigation or reporting. Apparently, railroad personnel never file an accident report with the State of Illinois or other states through which their lines travel.

Engineering

Highway engineers should use traffic accident data in many phases of the development of new highway facilities and the improvement of existing facilities. These uses should occur during the planning, design, and maintenance phases of normal activity. The following traffic accident data elements are recommended for highway engineering usage:

1. Location of accident,
2. Type of accident,
3. Nature of vehicle movements at time of accident,
4. Speed of vehicles involved,
5. General traffic conditions at time of accident,
6. Operational conditions affecting traffic movement,
7. Weather conditions,
8. Natural light conditions,
9. Road surface conditions, and
10. Accident result.

A great deal of related information should be obtained from other sources, such as existing records and field investigations.

Field investigations should be made at the locations of fatal accidents as soon as possible after accident occurrence, and a copy of the official report of such an accident should be received by the responsible highway engineering agency within three days after the accident. The exact location of each accident is the prime element in accident reporting for highway engineering uses. For traffic engineering usage, the most important bits of traffic accident information are the location of the accident and what happened.

When accident records are manually filed, they should be filed alphabetically by location, in order to be most useful to the traffic engineer. Otherwise, they should be coded and available through electronic data processing equipment. From a traffic engineering standpoint, it would be ideal if all traffic accidents could be reported, at least to include information concerning the location and what happened.

Because the traffic engineer generally does not have an opportunity to visit the accident site while the vehicles and accident debris are still present, it would be most helpful if the opinions of the investigating officers could be obtained. A number of clear and properly oriented photographs taken at the scene of particularly destructive accidents would also be of value to the traffic engineer. These photographs should be supplemented by accurate measurements of such things as skid marks, struck or damaged objects, and the final position of the vehicles.

Insurance

Insurance companies use traffic accident data for operational and educational uses. They need the following bits of traffic accident information:

1. Time and place of the accident;
2. Road and driving conditions at the time of accident;
3. Traffic violations involved in the accident;
4. Location of the involved vehicles;

5. Location, type, and length of skid marks;
6. Condition of vehicles before and after accident;
7. Condition of drivers before and after accident;
8. If pedestrians were involved, their condition before and after the accident, and their location and activity immediately before the accident;
9. Names and addresses of witnesses and where these witnesses were located at the time of the accident;
10. The names and extent of injuries to passengers in the vehicles involved; and
11. Description of the collision and of the parts of the vehicles that collided.

Perhaps no other user of traffic accident data needs more detail and greater accuracy in the prompt reporting of traffic accidents.

The insurance industry should work with the states in developing a uniform accident report that would be acceptable to all companies and all states, so that only one report had to be made out by each party involved in the accident.

Some way should be found to require that police take photographs at the scene of the accident. Diagrams on the accident report should show the paths of the involved vehicles, obstructions to driver vision, street grades, traffic controls, and the positions of vehicles at impact and when they came to rest.

Legal

The Illinois courts as such do not use traffic accident data, except when it may be presented by the party litigants. It has been estimated that 80 to 85 percent of the cases in our courts arise out of traffic accidents. The Illinois Court Administrator should use general group accident statistics for purposes of determining court case loads and trends.

The need of the county prosecutor for accurate and complete on-the-scene individual reports is immediate in all cases involving law violations. These reports should be received no later than 24 hours after the accident, and preferably within 8 to 12 hours. Group statistics are required quarterly to annually by the prosecutor in order to determine violation trends within his jurisdiction.

The courts need quarterly to annual group statistics to aid in evaluating individual violations for purposes of probation and sentence. The coroner's primary duty is to furnish reports to others in fatal cases. Therefore, when he is making his on-the-scene investigation, he needs an accurate description of how the accident happened in order to determine the cause of death.

Medical

Health agencies do not routinely utilize traffic accident data, but they do collect and utilize data under particular circumstances. Persons in health agencies do not have definite ideas about information they require regarding individual traffic accidents. The only data on individual accidents routinely collected by health agencies (usually only those agencies which are units of government) pertain to deaths from motor vehicle accidents. Health agencies do not believe the routine collection and utilization of traffic accident data is their primary responsibility. The only data routinely collected, those indicating the number of deaths from motor vehicle accidents, are probably not useful except to show the trend of motor vehicle fatalities and to identify the geographical areas of high and low incidence.

Special studies, conducted by or in cooperation with health agencies, should be encouraged. The potential uses of medical information pertinent to traffic accidents have hardly been tapped. Among the types of questions which may be answered through the use of traffic accident data are:

1. With what frequency does the use of drugs by drivers appear to be a factor in traffic accidents?
2. With what frequency do emotional factors in drivers appear to be a significant factor in traffic accidents?

3. With what frequency do physical disabilities in drivers appear to be an important factor in traffic accidents?

4. What is the effect of exterior design of vehicles on injuries, especially to pedestrians, in traffic accidents?

5. What is the effect of interior design of vehicles on injury to occupants?

It is not deemed feasible to correlate all possible medical data for every accident. Studies limited in location and time can and should be undertaken to answer specific medical questions. In most medical studies there is a need for care and detail in reporting, more than for speed; but reporting should not be delayed too long so that sources of information are unavailable or details are forgotten.

Motor Fleet

Motor fleet operators use traffic accident data in extensive safety education programs, which utilize information concerning accident causation, frequency, and severity. This information is obtained from an analysis and interpretation of the accident reports submitted by employees.

In addition to the information presently available on accident report forms, fleet safety supervisors also desire more accurate information concerning accident costs; a larger space on the report form for preparing diagrammatic sketches; and photographs of the accident which would be part of the report and would be taken by the police. Fleet operators find a wide variety of accident report forms in use throughout the country. They believe some uniformity would aid in accuracy and completeness of the reports.

Regulatory Agencies

The Interstate Commerce Commission does have its own investigators who make confidential reports concerning serious accidents.

The Illinois Commerce Commission is not concerned with motortruck accidents, but it is interested in those motor bus accidents which involve carriers subject to the regulations of the Commission. The railroad section is concerned with railroad grade-crossing accidents.

The Interstate Commerce Commission appears to be better equipped to investigate and study motor vehicle accidents, while the Illinois Commerce Commission seems to have a more routine interest. The latter group does not appear to be as interested in accident prevention as the former, probably because of the vast difference in the number of trained personnel available.

Safety Responsibility

The relatively simple accident reporting requirements for safety responsibility purposes would be easily satisfied if the accident reports for more intensive users, such as legal agencies, would be properly filled out and if a data processing network would be available for the interchange of information.

Traffic Safety Organizations

Traffic safety organizations are not accident data collection agencies. Therefore, they are dependent on tabulations and summaries prepared by other agencies. Their needs are usually satisfied by the routine tabulations prepared by regular accident data collection agencies. The interest of traffic safety organizations in accident data varies greatly between organizations. They are frequent advocates for the collection of "maybe" data.

DATA ANALYSIS

The individual reports filed by drivers and traffic accident investigators are the two main sources of traffic accident data. The driver reports constitute the majority of the reports received by the Bureau of Traffic, Illinois Division of Highways (the official

state collecting agency). Almost all reports received by enforcement and regulatory agencies are completed by police and other accident investigators from such agencies as the Interstate Commerce Commission and Illinois Commerce Commission. Insurance companies receive their information from the forms completed by their policyholders who have been involved in an accident. Many of the state driver reports are completed in part or in total by insurance agents who interview the policyholder.

The reports completed by investigating officers are generally more complete and reliable in specialized areas than those completed by the participating drivers. However, the validity of the investigator reports varies between different individuals and agencies.

In the reporting of an individual accident, the user groups are generally interested in the answer to the broad questions, Who? When? Why? Where? and How? In order to facilitate the collection and analysis of the study data, the different users of traffic accident data were divided into ten general categories:

1. Education (includes formal education agencies and such public information groups as safety councils),
2. Enforcement (state and local government and railroad police),
3. Engineering (emphasis on highway and traffic engineering),
4. Driver Licensing,
5. Safety Responsibility,
6. Insurance,
7. Legal (includes state and local interests with consideration to judicial, prosecution, and defense uses of accident data),
8. Medical,
9. Motor Fleet, and
10. Regulatory Agencies (includes state and federal commerce commissions and related regulatory bodies).

Individual Information Bits

The professional user group's interest in information bits from individual accident reports is summarized in Table 5. It may be noted that the educational and medical interest in individual accident data only refers to special studies rather than to routine accident reports, because these groups are either concerned with general summary tabulations or with individual data obtained in special studies such as the detailed information obtained in the Cornell crash injury investigations. Conversely, the enforcement, insurance, legal, motor fleet, and regulatory agencies' interest is in all types of information relating to the accident.

The driver licensing use of accident data is mainly in the areas of driver identification and accident causes. The items indicated as secondary in importance help to relate the driver to the particular accident and to determine driver responsibility. The safety responsibility interest is in the driver-vehicle owner identification.

Engineering use of traffic accident data is primarily concerned with identifying the physical circumstances of the accident including the location and time of occurrence, the accident description, site conditions, and certain causes.

Identification.—It is essential that all persons involved in an accident be accurately and completely identified. Basic information should include full name, address, age, and sex. The latter two items could be made available through reference to the driver's license number and issuing state of the driver or other persons involved (if they are licensed drivers). Similarly, much of the basic vehicle information can be obtained from motor vehicle registration records if the state and year of registration, license number, and vehicle make are available on the accident report. The vehicle make serves as a cross check on the accuracy of the reported license plate number.

One of the most frequent sources of error in traffic accident reports is the location of the accident. While the need for an accurate location designation varies between the different professional user groups, it is essential that the location be definitely identified so that the exact location of the accident can be found if further investigation is necessary for engineering, legal, or regulatory purposes. The problem of accurate

TABLE 5

PROFESSIONAL INTEREST IN INFORMATION BITS FROM INDIVIDUAL REPORTS

DATA USER	IDENTIFICATION				ACCIDENT DESCRIPTION				SITE CONDITIONS				CAUSES										SKETCH AND VEHICLE DESCRIPTION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	PERSONS (Names, Addresses, Etc.)	VEHICLE	LOCATION	TIME	VEHICLE AND PEDESTRIAN PATHS AND BEHAVIOR	SPEEDS (Prior to & at Impact)	EVIDENCE OF ACCIDENT	PERMANENT		TEMPORARY	UNUSUAL	CONDITION OF DRIVER AND PEDESTRIAN						DRIVER BEHAVIOR	PERES- TRIAN BEHAVIOR	CONDITION OF VEHICLE	UNUSUAL OCCURRENCE CONDITION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
								Existing Controls				Physical Features	Regulations (speed, parking, no passing, etc.)	Devices (lights, signals, markings)	Surface	Traffic Volume and Density	Light					Visibility		Construction or Maintenance Activity	Observations (animate or inanimate)	Others (crowd, emergency vehicles, etc.)	Physical Defects	Emotional Dis-Orders	General Observations																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Education	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S

P = Primary Interest
S = Secondary Interest
N = No Interest

☆ Special Studies Only
If no license plate required
a Primary Interest for automotive engineering only

location identification is especially great in rural areas where there are less opportunities to relate the accident scene to easily identified landmarks and terrain features. Engineering, insurance, and legal investigations are frequently made at various times after the accident debris has been removed from the scene. Skid marks can become obliterated and damaged property replaced so that unless accurate written records are made, which preferably should be supplemented by competent photography, the accident scene may not be accurately relocated.

The data and time of the accident are necessary to further identify the specific accident, to relate the accident to such environmental variables as light intensity and traffic flow conditions, and to invoke provisions of the Safety Responsibility Law.

Accident Description.—The accident description is an essential element of the accident report because it is here that all available information concerning the accident circumstances should be recorded. Information concerning vehicle and pedestrian paths and behavior, speed of vehicles, and physical evidence of the accident is necessary to a majority of the accident record user groups. While a high degree of accuracy and completeness is desirable, much of the desired information is either not provided on the report or cannot be provided because of the failure of the person completing the report to be able to recall or reconstruct all pertinent details prior to, during, and following the accident.

Participating drivers generally will not disclose improper or illegal behavior on their part, and impartial eyewitnesses are seldom present, or if present they are hesitant to admit their witness status because they do not want to become involved in any subsequent proceedings.

An inherent problem in attempting to obtain answers to non-factual, opinion-type questions is that the answers are more likely to be erroneous. Consequently, having conclusions and subsequent action based on such non-valid answers can be more harmful than if no answers at all were originally available.

Whenever possible the written report should be supplemented by good quality photographs. This is especially true of those accidents investigated by trained personnel, because a standardized set of photographs can minimize the amount of written information, serve as a cross check for reported data, and provide additional information about data not readily reported on a standard form.

Site Conditions.—If the accident scene is properly located, much of the information concerning the permanent site conditions such as physical features and existing regulations and controls should be available from other record sources. Therefore, the accident record should provide an opportunity to record the temporary and unusual site conditions which are variable and subject to change. Closed-type questions are partially applicable, but care must be taken in the choice of possible answers. Although an enumeration of the unusual conditions may not always lend itself to summary tabulations, it may contribute vital information concerning the accident circumstances.

Causes.—One of the principal reasons for maintaining accident record systems is to identify traffic accident causes. When viewed at the accident scene, many of these potential causes are subtle and intangible. Such things as the conditions of the driver and the pedestrian, especially relating to emotional disorders or distracting influences, cannot often be readily identified. Similarly, the condition of the vehicle immediately prior to the collision often cannot be determined because of the cursory examination given following the accident, coupled with the resultant damage to the vehicle.

Very few drivers will admit to having been operating a defective vehicle and unless competent testimony is available from other sources, it is frequently impossible to prove that the vehicle was being operated in a defective condition. In order to determine whether vehicle defects were present before the accident or had been caused or aggravated by the accident, it is necessary to go into detailed and often exhaustive examination by highly specialized personnel. Such examinations are very expensive and, therefore, are very limited in their application. On the other hand there is a definite need for procedures to be developed which would enable trained accident investigators to identify and spot-check principal failure points in order to make preliminary, rapid examination of these areas.

The Sketch and Verbal Description. — The sketch and verbal description of the accident are used to supplement the information contained in other parts of the accident report. It serves to coordinate the reported components of the accident and also to describe the accident factors which have not been previously recorded. The ability of the average driver to describe the accident by either a sketch or verbal description is rather limited, mainly because of his infrequent need for observing and recording traffic accidents coupled with his general lack of information concerning many of the factors relating to the accident. Consequently, the sketches and descriptions found in investigator reports are generally more complete and useful.

Group Data Requirements

There are two main types of group data usage of traffic accident information. The most common type consists of the routine statistical summaries which are compiled and distributed on a periodic basis. These summaries may be made for specialized uses on a daily and weekly basis. A more general distribution is given to summaries on a monthly, quarterly, semiannual, or annual basis. The purpose of this type of summary is to illustrate the magnitude of the accident problem and to indicate changes and trends. Many such summaries include comparable data for a similar period of the previous day or year.

The second, and more specialized, type of group data combines individual records for special analysis purposes. Traffic engineers, for example, collect all of the available records for a given location, and by analyzing these records they attempt to determine if any patterns exist due to the accidents that have occurred. These patterns might be indicated by a similarity in the paths of the vehicles involved, the time when most of the accidents occur, or by some other repetitive event. Enforcement officials use group statistics to plan their selective enforcement programs by determining the time-location-accident characteristics at locations with a high accident frequency.

Generalized group summary statistics are used for educational, insurance, legal, medical, and motor fleet purposes to determine accident frequency and trends. Much of the summary data can be used in public educational activities, as well as in driver education and motor fleet programs.

Summary statistics are desired for legal purposes to enable the prosecuting attorney and the courts to determine violation trends correlated with accident occurrence within their jurisdiction. This information permits improved coordination of the law enforcement activities and more informed recommendations to the court regarding probation and penalties. Group statistics concerning violations and accidents are of direct interest to the court administrator to enable him to evaluate trends and plan for necessary traffic court facilities, personnel, and possible assignment of judges.

In addition to keeping their own group statistics, insurance companies are also interested in summary statistics for the political jurisdictions in which they operate. State and national statistics are very useful if they can be compared with company statistics, in order to evaluate whether company experience is much different from the reported accident activity. A complaint heard from the insurance companies interviewed indicated the need for the establishment of a procedure for summarizing traffic accident data which would be of mutual benefit and which would be changed only infrequently.

Group accident statistics would be useful to insurance companies if these statistics could be broken down into several categories: age of drivers; age of cars; education of drivers; whether the drivers have had formal courses in driver education; the number of times the drivers had been involved in accidents; occupations of the drivers; and the marital status of the drivers. This information is also desired for educational uses. Insurance companies should be encouraged to pool their statistics and to publish information on a group basis, broken down into categories.

It would be desirable if the insurance industry would work with government agencies to develop a common summary form. Some of the group statistics could be used for loss prevention work and others for rating and underwriting purposes. Perhaps if greater equity could be achieved in rating, those driver groups who are responsible

TABLE 6
TIME REQUIREMENTS FOR THE RECEIPT OF INDIVIDUAL AND
GROUP REPORTS BY USER GROUP

Time Requirements	Education	Enforcement	Engineering	Driver Licensing	Safety Responsibility	Insurance	Legal	Medical	Motor Fleet	Regulatory Agencies
Urgency of receipt of individual report increases with severity		X	X			X	X		X	X
Immediately after accident occurrence		IA	IS (1)			IS (3)	IS (4)		IS (5)	IS (6)
Within 2 days						IS (3)				
Within 7 days	G	G	IS ^G (2)	IA	IA				G	
Within 14 days					IA					
Within 15 days										IS (6)
Within One Month	G	G	G	IA		G	G	G	G	
Quarterly	G		G	G		G	G	G	G	
Semi-Annually	G		G	G		G	G	G	G	
Annually	G	G	G	G		G	G	G	G	

IA = Individual reports of all reportable accidents

IS = Individual reports of specific accidents

- (1) Fatal and high local interest
- (2) Accessibility to all reports of accidents at high frequency locations
- (3) Insurants
- (4) Where an apparent legal violation has occurred
- (5) Employees
- (6) Public carriers as required by law or regulation

G = Group statistics (summaries, high accident frequency locations, tabulations, etc. See reports in Appendix C.)

for the greater percentage of accidents would be encouraged to modify their driving behavior in order to achieve a reduction in their insurance costs.

Time Requirements for Receipt of Reports

Obviously, enforcement and insurance agencies must be verbally informed immediately about the occurrence of accidents, which are required to be reported by law, ordinance, or policy provisions. These reporting time requirements were not reviewed by the study team. However, attention was given to the time requirements for the receipt of the completed individual traffic accident report forms and summary reports. As shown in Table 6, the time requirement varies considerably for the different professional data users.

TABLE 7
SECONDARY INFORMATION BEST OBTAINED FROM SOURCES
OTHER THAN ACCIDENT REPORTS

Information Bit	Source	
	Rural Locations	Urban Locations
Physical features of streets and highways	State and local highway and traffic engineering departments	Municipal street and traffic engineering departments
Physical condition on the roadway	State and local highway engineering departments (esp., maintenance unit)	Municipal street departments (esp., maintenance unit)
Intersection design features	State and local highway and traffic engineering departments	Municipal street and traffic engineering departments
Railroad grade - crossing design and control	Engineering department of railroads, state and local highway and traffic engineers, and the state commerce commission	Railroads, municipal street and traffic departments, state commerce commission
Traffic flow characteristics (vehicle volumes, types of vehicles, etc.)	State and local traffic and highway engineers	Municipal traffic engineering and street departments
Utilization of traffic control devices (sign, signals, markings)	State and local traffic engineers	City traffic engineer, public works directors, and police departments
Traffic laws and regulations	State traffic engineers, state police, and county enforcement and legal agencies	Municipal traffic engineering and street department, city police, and city attorney
Information Bit	Sources for Both Rural and Urban Locations	
Events or conditions leading to accidents (prevention factors)	Highway and traffic engineers, educators, and special studies	
Driver characteristics (age distribution, experience, etc.)	State Motor Vehicle Department (Driver License Division) and special study	
Physical condition of drivers or pedestrians (before and after accident)	Attending physicians and hospitals	
Fatal accident data (cause of death, etc.)	Attending physician, hospital, and coroner's report	
Driver statistics	Secretary of State and insurance company	
Driving records of persons involved in accident	Secretary of State	
Vehicle use trends, street and highway mileage and type (to develop trend data)	State and federal highway and traffic engineers, municipal street and traffic engineers, Secretary of State, and private and public safety organizations	
Mechanical defects of vehicles	Vehicle maintenance records, mechanics who had previously worked on vehicle, or individual owner.	
Vehicle design aspects (eg., interior design, reaction to collision forces, etc.)	Automotive engineers and motor vehicle manufacturers	
Actions of person(s) involved in accident	Witnesses to the accident and insurance reports if admitted as evidence or exhibits	
Factors leading to accidents	Highway and traffic engineers, medical personnel	
Supplementary photographs of accident scene	Insurance investigators, press or private photographers, and motor fleet organization investigators	
Character and cost of vehicle damage	Insurance company or garages doing repair work	
Amount and type of insurance coverage	Insurance agency or company	
Legal consequences, court action, etc.	State and city police departments, lawyers, court system	

The urgency for the prompt receipt of the written individual reports by legal, enforcement, insurance, engineering, motor fleet, and regulatory agencies increases with accident severity. Review of the completed report facilitates the making of administrative decisions concerning such subsequent actions as requiring follow-up investigations and the repair or replacement of damaged facilities.

Enforcement, engineering, motor fleet, and regulatory users also study the individual reports to identify and evaluate any accident causation factors, to ascertain if any laws or regulations were violated, and to make an initial determination of responsibility.

The time requirement for the receipt of summary reports is less critical. Most of the user groups are satisfied with routine schedules unless unusual tabulations are made as the result of special requests or the normal procedures identify conditions requiring further attention. For example, traffic and highway engineering agencies should be notified by the accident record-keeping unit when the accident frequency at a given location reaches a predetermined total within a specified time period.

Information Available Elsewhere

As previously mentioned, much of the information presently recorded on individual accident reports is, or should be, available elsewhere. Sources of some of the more commonly desired information bits are listed in Table 7. The scope, reliability, and availability of the different items varies between sources, and in some cases there are legal as well as physical limitations to its accessibility.

The development of a standardized accident reporting and analysis procedure, coupled with widespread adoption of electronic data processing equipment, will enhance the utilization of these secondary sources of pertinent information. Therefore, the application of electronic data processing procedures must be accelerated on a coordinated basis by all traffic accident data users, as well as by those service agencies which already routinely obtain data which are pertinent to traffic accident analysis and prevention programs.

The time spent by police and other accident investigators at the accident scene and in data processing must be reduced due to the combined effect of an increasing number of accidents requiring investigation, coupled with a much slower increase in available manpower.

Thus, more of the supplementary data concerning such items as driver characteristics (age, sex, driving record, etc.) and the physical design of the roadway (pavement width and type, alignment, roadside development, etc.) and vehicle (type of body, model, etc.) must be made readily available through a coordinated data processing system.

CONCLUSIONS

The emphasis in the driver and routine investigator accident report forms should be on the recording of factual information. Asking drivers to express opinions when they report accidents is not beneficial because of the strong possibility of biased or erroneous answers.

Although the opinions of investigators would be of interest to engineers, educators, and other data users, the time and experience required to develop valid opinions is not always available, and many investigators are hesitant to express opinions because of the possibility of being subpoenaed to testify in court proceedings. Therefore, the development of investigator opinions concerning accident causation should be the subject of subsequent, rather than the initial, investigation.

The information recorded on the individual report forms should include accurate identification of the involved traffic units (persons and vehicles). The information about involved persons (drivers, injured persons, and witnesses) should include their full name, address, operator's license number and issuing state, age and sex, nature of injuries, relationship to accident (i.e., driver or passenger in vehicle number X, pedestrian, etc.), and location and/or activity at the time of the accident.

The information about involved vehicles should include the license number, issuing state, and year; vehicle identification number; vehicle manufacturer or make; model (vehicle type); model year; and vehicle owner's full name and address.

As motor vehicle administration offices are revamped to fully utilize modern electronic data processing procedures, it will be possible to further reduce the required identification data. For example, driver identification will usually just require the driver's license number and state of issuance, along with the full name as a cross check against the driver's license number. Pedestrians and other human traffic units who cannot be identified by a driver's license number will in all probability have some form of national identification number such as a social security number. Although the United States Internal Revenue Service currently uses the social security number as a means of individual identification, there are indications that a more definite type of identification number assignment will have to be developed because of the ease with which an individual can obtain multiple social security numbers.

Similarly, the minimum vehicle identification will be the vehicle license, issuing state, year of issuance, and vehicle identification number. Most American vehicle manufacturers now follow a standard sequence in their vehicle identification number which includes letters and numerals to indicate the vehicle manufacturer, model (vehicle style and/or type), model year, assembly plant, and sequential production number. Therefore, correct designation of the vehicle identification number could minimize the related vehicle description.

The location of the probable collision area (as indicated by vehicle placement, damaged property, accident debris, etc.) should be designated with the distance measured to a readily identified landmark or permanent object. The measurement should be accurate to the nearest 100 ft. However, accident sites within 100 ft of an intersection can be identified with respect to the intersection, but should not be identified as intersection accidents unless they actually occurred within the intersection proper.

The political subdivision in which the accident occurred should also be identified. The exact location of each accident is of prime concern to highway and traffic engineering agencies. The city of Chicago has a coding system by house numbers and streets which gives excellent location results on the electronic data processing printouts. Authorities responsible for operating expressways and rural highways should develop a uniform system to aid the reporting person in accurately locating accidents on the reports.

The adoption of uniform local road identification systems (8), coupled with reference to such semipermanent objects as numbered utility poles, will facilitate accident site identification on rural routes which are not in a numbered or otherwise identified highway system. Identification of accident sites on freeways and expressways would be facilitated if tenth-of-a-mile indications were installed on delineator supports to supplement mile postings, so that the measurements can be made more readily from these permanent indicators.

After the injured persons are taken care of, the next major effort at an accident site is to clear the roadway so that traffic can resume under at least near-normal conditions. Therefore, vehicles and other accident debris may be moved before any record can be made of their location in respect to the impact area. Subsequent investigations would be expedited if the final positions of the vehicles and pertinent other material were marked on the pavement by means of a pressurized spray paint. For example, the tire locations and vehicle corners can be quickly indicated and the vehicle can then be removed. Except under very poor surface conditions, the spray paint should remain visible at least for a few days and thus be available for follow-up studies.

In some jurisdictions another location problem is encountered—location of all the accident records relating to accidents which have occurred at a specific location. In urban areas where the accident records are manually filed, they should be primarily filed alphabetically by location (9), rather than chronologically or in some other manner.

The time and date of the accident occurrence should be reported for legal, administrative, educational, and research purposes. This information facilitates the identification of a particular accident and provides an index to those conditions which vary with time (available light, traffic volumes, etc.). Summaries of accidents which include listings of accident frequency for different time periods (month, day, and hour) are very useful in planning enforcement activity and developing educational programs to alert drivers to critical driving periods.

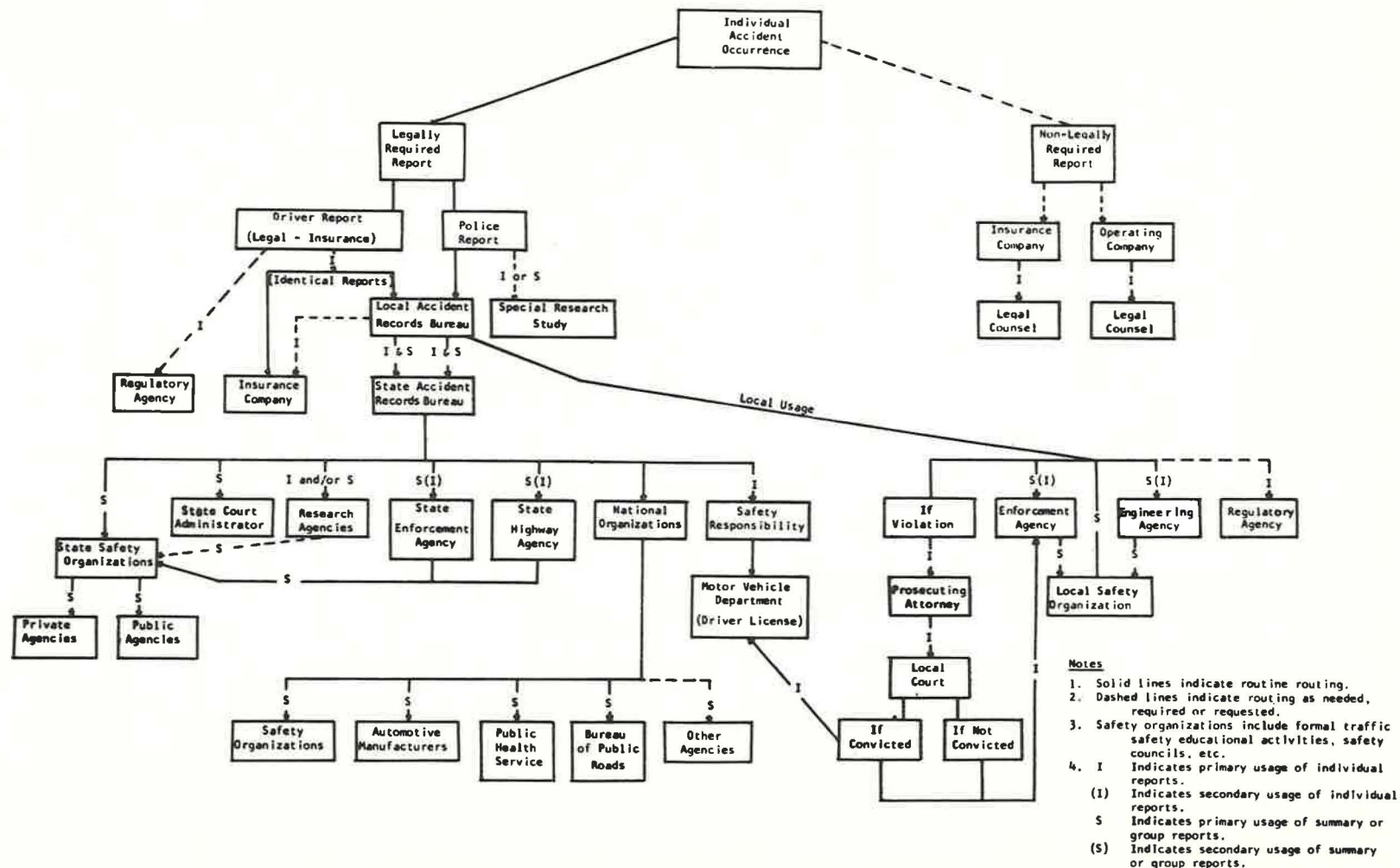


Figure 2. Flow chart of recommended written traffic accident reporting system.

The accident report should cover three types of accident circumstances: the maneuvers and actions of each traffic unit prior to, at, and following impact; unusual environmental conditions; and accident results. In addition, maneuvers and actions of each traffic unit can best be shown by photographs and sketches. Unusual environmental conditions should be reported for such variables as weather (rain, snow, fog, etc.), roadway (pavement failure, obstacle, temporary traffic controls, etc.), pavement surface (ice, loose gravel, chuck holes, etc.), and traffic (special event traffic, unusual vehicle type, stalled vehicle, etc.).

The accident results should include descriptions of personal injury (person injured, apparent extent and nature of injuries, relationship to accident or position in vehicle, etc.), property damage (apparent extent and nature of vehicle damage, description of other damaged property, etc.), and final position of traffic units.

In reporting the accident circumstances, the emphasis should be on obtaining all available information that is unusual, variable, and not available elsewhere. Such reporting will be facilitated by the use of closed-type, precoded questions. This type of answer is desirable if electronic data processing equipment is used. Topics which lend themselves to closed-type questions are: weather conditions, pavement surface conditions, and type and angle of collision.

The increased use of data processing equipment will enable the use of data which are routinely provided elsewhere, thus minimizing the recording of data on the accident report form.

Immediate attention should be given to development of scales to indicate a quantitative estimate of personal injury and property damage, thus facilitating more accurate reporting of these types of accident results. England's Road Research Laboratory has developed a scale for estimating the damage sustained by motor cars after a single impact with another vehicle or object (10). Development of these descriptive scales will facilitate the establishment of a reasonable relationship between injury expectation and vehicle damage—a subject of direct concern to doctors, automotive engineers, and educators.

Standard procedures for photographing accident scenes should be developed so that the amount of written descriptive material can be minimized. Standard operating procedures should specify which accident types should be photographed (i.e., fatal, serious injury, public passenger carriers, etc.). The types of views to be taken should be determined and specified (i.e., front, sides, and rear of vehicles—when damaged; vehicle placement; approach views toward accident scene for each involved driver; skid marks and other accident debris; etc.). The photo technique should provide for the inclusion of measurement reference points so that the scaling of information from the photographs will be made easier and more accurate. In addition to being pertinent to legal and insurance uses, these photographs will be of value for research and educational purposes.

A study should be made of the possibility of modifying the driver report form, which is required by law to be filed for certain types of accidents, so it will also satisfy the insurance reporting requirements. The development of a common form would tend to minimize public objection to the tedious problems commonly associated with filling out a traffic accident report form. An added advantage would be that both the public agencies and the insurance company would have the same information, and the possibility of different reporting to each interested agency would be done away with.

The flow of traffic accident reports should follow that shown in Figure 2. It may be noted that the official part of the driver report form, which is identical to that prepared for insurance company usage, is routed via the local accident records bureau to the state bureau. Such routing, which presumes the establishment of a local bureau, would provide local officials with a more accurate current evaluation of accident occurrence in their area, and would facilitate the completion of reports by the involved drivers. Errors, incomplete or conflicting answers, or other types of improper reporting could be checked out much more readily by having an official review of the report at the local level. In the case of legally reportable accidents, local residents would probably submit the legal copy directly to the accident records bureau and the insurance copy to their insurance agent. Non-local persons could be informed of the

location of the local records bureau by the investigating officer, if there is police investigation, or by the local insurance company representative.

The collection of specialized accident data for research use is not a function of routine accident reports. Such data should be put on forms specifically designed for that purpose. Although it may be argued that the addition of one or two items to a traffic accident report form in order to obtain research data would not materially increase the reporting and tabulation time, experience has shown that this is an undesirable way to obtain research data. One reason is the questionable validity of the answers, and another is the probability that related information is not always available on the forms. Hence, the possibility of standardizing variables is minimized.

Another advantage of having specialized research forms is that the persons completing the forms usually will have the benefit of special instructions, and hopefully they will pay more attention to completing the form than they might if it were just a routine matter.

Studies should be directed toward the development of uniform accident summary forms which would be of more benefit to a majority of the user groups. Insurance interests should be encouraged to pool their statistics within their industry and to work with appropriate governmental and private agencies to permit a better exchange of information.

Summary reports of accident data should receive wider distribution to qualified official and private user groups. Through increased exposure and usage of the summary data, the other user groups will be better qualified to suggest any changes or additional tabulations which may be desirable.

Accident statistical units should be strongly urged to utilize electronic data processing equipment and techniques on a greater, accelerated scale. An increasing number of both small and large governmental units are converting to data processing equipment. By sharing the processing equipment with other governmental uses (such as purchasing, taxation, etc.), the cost of using such equipment for accident data analysis is minimized.

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I also wish to acknowledge the unselfish service provided by Wayne T. Gruen, Research Assistant, Department of Civil Engineering, University of Illinois, who served as secretary of the study team, and the stenographic personnel of the Highway Traffic Safety Center.

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Appendix

AGENCIES CONTACTED

City Agencies

Champaign-Urbana Public Health District, Champaign; City of Champaign: Traffic Engineering Department; City of Chicago: Board of Education (Department of Safety), Chicago Transit Authority, Department of City Planning (Transportation Planning Division), Department of Streets and Sanitation (Bureau of Street Traffic), Police Department; City of Decatur: Police Department; City of Peoria: Health Department, Police Department; City of Springfield: Police Department.

County Agencies

Cook County: Circuit Court, County Coroner, Highway Department (Design Division, Executive Offices, Research Division, Traffic Engineering Division, Traffic Safety Committee), Sheriff's Office; Macon County: Sheriff's Office; Peoria County: County Coroner, Health Department, Sheriff's Office, State's Attorney; Richland County: Highway Department; Sangamon County: Sheriff's Office, State's Attorney.

Private Agencies

Allstate Insurance Company, Skokie; American Medical Association, Chicago (Committee on Medical Aspects of Automotive Safety); Armor & Company, Chicago (Automotive Safety Division); Central Motor Freight Association, Chicago; Chicago Motor Club, Chicago (Safety and Traffic Engineering Department); Citizens Traffic Safety Board, Chicago; Continental Casualty Insurance Company, Chicago; Country Mutual Insurance Company, Bloomington; Illinois Central Railroad, Chicago (Railroad Police); State Farm Mutual Automobile Insurance Company, Bloomington.

State Agencies

Illinois Attorney General's Office, Springfield; Illinois Commerce Commission, Springfield: Motor Bus Division, Railroad Division; Illinois Court Administration, Springfield, Chicago; Illinois Department of Public Health; Illinois Division of Highways: Bureau of Design, Springfield, Paris, Bureau of Maintenance, Springfield, Paris, Bureau of Planning, Springfield, Bureau of Traffic, Springfield, Paris, Safety Responsibility Section, Executive Offices, Springfield, Expressways Division, Chicago, Office of Traffic Safety, Springfield, Operations Division, Chicago; Illinois Secretary of State's Office: Division of Development and Research (including driver licensing); Illinois State Police, Springfield; Illinois State University, Normal: Safety and Driver Education Department; Illinois Superintendent of Public Instruction: Department of Safety and Driver Education; Southern Illinois University, Carbondale: Center for Safety; University of Illinois, Urbana: Motor Fleet Division.

Federal Agencies

Interstate Commerce Commission: Bureau of Motor Carriers, Chicago; Department of Commerce: Bureau of Public Roads, Regional Office, Homewood.

Discussion

EDMUND J. CANTILLI, Engineer of Traffic Safety, Research & Studies, The Port of New York Authority—I found this to be an excellent report, long-needed in the field, imaginative in concept and thorough and competent in execution. My problem would be if it does not become the basis for standardization of accident reporting, not only in Illinois, but throughout the United States. But that is hardly a criticism of the paper.

To begin with, I am glad to see that an omission by the President's Committee on Highway Safety is corrected in this report. Table 2 indicates that hour of day, severity of accident, and vehicle type are not needed for engineering purposes. This is corrected in Table 5.

On the subject of location of accidents: at the Port Authority we have developed a coding system based on arbitrarily designated homogeneous areas, such as inter-sections, the area immediately before and beyond a point of divergence, etc., such that accidents can be expected to be of similar nature, or related to a single road feature. Of course, this is no help on long tangent sections or long curves, where finer detail is required. On our bridges and at the airports we have numbered lightpoles; within our tunnels we have engineering stationing marks along the tunnel walls at 100-ft intervals. The New York Thruway, the New Jersey Turnpike, and the Garden State Parkway all have mileposts and tenth-of-a-mile markers. In addition, all overpasses on the Turnpike are so marked. The Garden State Parkway doubles and triples its spaced delineators on curves, and New York City has numbered light poles on its expressways.

The point made about the possibility of getting a record of the investigator's opinion is well taken. We have recognized this problem for some time and we are trying to devise some method for obtaining this information without its being made part of the official record.

The report states, "...it would be ideal if all traffic accidents could be reported...." Amen. I would like to say that we at the Port Authority feel we have made a good approach to this desirable goal, probably because our facilities, limited in size, are well patrolled by police officers. Perhaps this hoped-for situation will come to pass through the use of electronic (or other) scanning equipment, including television, and eventual automatic recording of location, positions of vehicles on contact, position of vehicles at rest.

I note the opinion that there is need for "...development of scales to indicate a quantitative estimate of personal injury and property damage...." This same point was made in 1959 in "The Federal Role in Highway Safety," in which it was "...recognized that the number or rate of accidents is not sufficient in itself, because there exist vastly different degrees of accident severity." Reference was made to my paper on this subject, in which a scale was proposed. At the present time we in the Port Authority are using a modified version of this same severity scale to good advantage.

In conclusion, I would repeat that this study should be the base upon which the possibilities for standardization of accident reporting procedures should be explored. As a traffic engineer, I have tended to see only my own needs, and this report puts those needs in proper perspective with the requirements of the other users of accident records.

CHARLES S. MICHALSKI, Director, Traffic Accident Data Project, National Safety Council—At least one authority has identified five distinct, basic purposes of traffic accident records. These are:

1. To have knowledge of traffic accidents as a cause of mortality, morbidity and economic loss.
2. To point out where, when, and to whom, traffic accidents are a critical problem.
3. To suggest lines of preventative action to be taken.
4. To measure the effect of accident prevention efforts.
5. To determine negligence or fault.

Assuming that this list is complete, we have here a set of general specifications for a traffic accident data system. As it is customary to design a machine or system from specifications furnished by a would-be user or group of users, it would appear that this would be a logical approach to the design of a traffic accident data system. However, there seem to be obstacles that preclude application of this logic as we understand it.

Uses of data obtained from traffic accident reports are so numerous and so varied that any one design which would satisfy all needs would be extremely complicated. Furthermore, users are not always aware of all the information that could be reasonably collected and put into the system. In addition, collectors are not always aware of all the user needs. In view of this lack of understanding, the evaluation of user needs for traffic accident data is a difficult task.

In his formal report, Professor Baerwald shows four major headings under which information on traffic accidents is entered: (a) identification; (b) accident description; (c) site conditions; and (d) causes. While there should be no real problem with the nomenclature of the first three headings, there are reservations with regard to "causes." Few, if any, existing reporting systems can be said to reveal causes of accidents. A more appropriate heading would be "attendant circumstances."

User groups may agree on major headings and even some of the subheadings under which accident data are entered. However, there is considerable divergence of opinion on information bits which should be solicited under subheadings. For example, under the general heading of "identification" it is desirable to describe persons, vehicles and locations. In identification of persons there is agreement on the need for names and addresses of people involved. However, beyond this point, desires vary considerably. Some authorities require a description of the driver license, while others require a description of the person's physical features, still others require name and address of employers and other references. The same problem exists with respect to vehicles involved. Frequently a description of the location of the accident requires supplementary information in terms of descriptions of nearby landmarks and road features. These items, which are generally of little consequence to the accident prevention program, may appear to need little effort to acquire. In total, however, they may add significantly enough to the reporting task to cause quality of the more meaningful parts of the report to suffer. In many cases more than half of an investigator's written effort is devoted to identifications.

Under the heading of "accident description" there is general agreement on items pertaining to maneuvers and paths of vehicles and pedestrians involved in accidents. However, there are questions as to the description of accident severity. In most jurisdictions severity of accidents is described in one of the following terms: fatal, non-fatal injury, and property damage. Many agencies subdivide non-fatal injuries in accordance with the three classifications established by the Committee on Uniform Accident Statistics of the National Safety Council's Traffic Conference. There is dissatisfaction with the system because of precedence that certain accidents are given under the present classification. For example, an accident which results in complaints of pain and superficial property damage takes precedence, in the minds of many, over an accident where there was severe property damage and no personal injury. Likewise, a fatal accident resulting from a relatively minor collision takes precedence over most other accidents, in effect, it could be regarded of no more importance, as far as preventative measures are concerned, than any other accident.

Under "site conditions" it is customary to describe such elements as the weather, road surface condition, light and visibility. These are temporary or changing conditions. However, many agencies require full description of physical features of the roadway, traffic regulations, traffic control devices and other permanent features. In most instances this information is available in official records and it seems redundant to require that this information be entered in the accident report form. However, in view of problems encountered in identification of locations, officials insist on description of site to verify location.

The heading "attendant circumstances" covers behavior of driver and pedestrian, condition of vehicle and unusual occurrences or events. This is the most critical area of the accident report. While it does not pinpoint causes, it furnishes clues to causes. Unfortunately, this area is also the weakest part of the reporting system. There is no general agreement on what kind of information should be obtained on the condition or attitude of the driver. Violation ascribed to the driver is generally based on deep-rooted informal policy, rather than evidence. Few officers have sufficient training to detect mechanical defects and few, if any, are competent to describe the condition of a driver or pedestrian. This is the realm in which specialists or technicians are required, but within the present means, the most optimistic outlook is that only a small proportion or sampling of the traffic accidents can ever be scientifically investigated.

A consensus is developing that basic reporting systems be developed to yield data essential to the activities of prime users of case reports and groups of case reports, and that the basic system be supplemented by in-depth systems designed to develop specific information on selected circumstances of the accident. In this way police officers could be trained to look for specific vehicle defects without the necessity of having complete automotive engineering training. The same analogy would apply in cases where data are required on physical or personality traits of drivers involved. Officers would not need a complete education in psychology or medicine to detect carefully defined traits or defects.

Supplemental studies such as these may be carried on by several agencies at the same time, and it would not be necessary to make universal application to yield satisfactory mass statistics on problems that are not being defined in current reporting systems.

JACK L. NOBLITT, Assistant Chief Engineer for Planning and Research, Oklahoma Department of Highways—How long has it been since the accident report form has had major changes made in it? In this age where much information is out of date before it is printed, we have retained an inadequate accident report form whose only virtue is that it is basically uniform among the states. Professor Baerwald's project is an important first step in attempting to modernize our accident report system, and particularly the accident report forms.

It is indeed strange that in a country where we have been killing and maiming more and more people and have been working harder and harder to solve the traffic safety problem, we have not kept the accident report form updated. Traffic safety is one of our most important national problems, and the accident records system is the very foundation of the traffic safety program. Consequently, the accident report form is the single most important item in the accident records system. It is indeed time that the necessary research be conducted and our accident reporting be modernized.

Baerwald brings out many of the improvements which should be made in the accident report form. Such things as reducing the number of forms which must be filled out, making the accident report form more easily coded for use in data processing, along with the use of closed-type precoded questions, will all assist in making the accident report form more valuable in the reduction of traffic accidents. Baerwald lists three basic phases of the accident reporting problem: (a) the drivers involved in accidents must file several reports containing much information, and yet this information is of little value in accident prevention because it is usually biased; (b) reporting officers, although unbiased, are too few in number and do not have enough time to report every

accident; and (c) the many people responsible for preventing accidents, the accident report users, want an infinite amount of information accurately and promptly reported. This study would have satisfied better the need for a modern report form if less attention had been given to the third phase of this problem—the needs of the accident report user—and more attention given to the first two parts of the problem, the accident reporting problems. Perhaps other research covering the other two parts of the problem is being, or will be, conducted in the near future. This study alone will not generate the support nationally that is necessary to modernize the accident report form.

Another area which will have to be thoroughly studied is the assignment of priorities to the information which is to be included on the accident report form. Since the ultimate goal of our traffic safety program is the reduction of highway accidents, and the greatest value of accident records lies in their tremendous potential to assist in this reduction, it would certainly seem that priority should be given to the accident information which makes the greatest contribution toward our goal of reducing accidents.

The last point I would like to mention is that, even though some type of information is desired by an accident data user, it must be practical to obtain. For example, some data users would like to know the speed of the vehicle when the accident occurred. It is almost impossible for the person in the field to accurately know this fact or even closely estimate it. This type of data cannot be included on the accident report form.

In summary, it was high time that somebody undertook a major research project toward the modernization of the accident report form and Baerwald, his sponsors, and his associates should be congratulated for doing so. However, additional research will be needed to serve as the basis for revising the accident report form. Further study will have to be made of such items as manpower and time limitations in the field, the assigning of priorities to types of information sought, and the practical aspects of obtaining the data.

JOHN E. BAERWALD, Closure—As indicated in each of the discussions, the investigation reported in this paper covers only one phase of a much-needed review of the whole traffic accident reporting system. Fortunately, the Traffic Accident Data Project, under Mr. Michalski's direction and with the cooperation of numerous national agencies, is currently engaged in such a comprehensive study.

Mr. Cantilli pointed out the various ways in which the location of accidents can be facilitated. He also described some of the other pioneering work of the Port Authority in the field of accident investigation.

The use of the term "attendant circumstances" instead of the term, "causes," as proposed by Mr. Michalski, is an excellent suggestion. However, the important fact is not what this section of the accident report is called, but rather what information should and can be practically reported to describe the conditions which may have contributed to the accident causation.

Mr. Noblitt identified other areas of research which are necessary for the improvement of procedures for traffic accident data collection and utilization.