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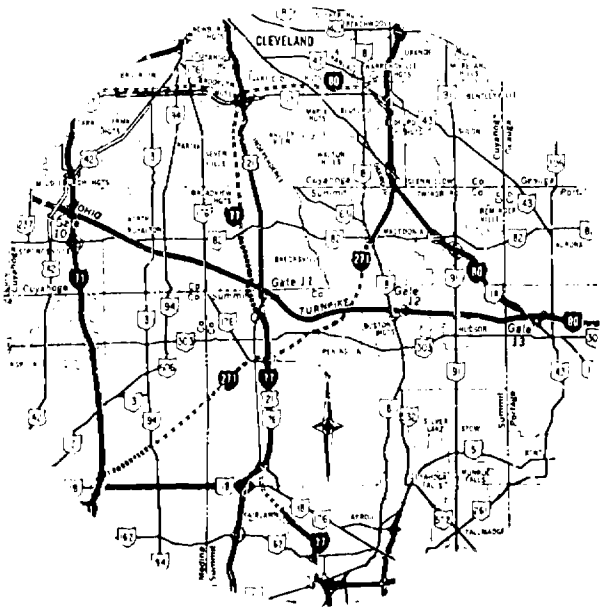
ABSTRACT

This second volume of a four-volume report covers manpower needs in motor vehicle inspection and registration, motorcycle safety, driver education, driver licensing, traffic court, and codes and laws. Aspects of training such as staffing, student recruitment, enrollments, facilities, equipment, and curriculum are discussed. Course outlines are appended. This volume is part of a series on highway safety activities available as VT 013 312-013 315 in this issue. (BH)

EXPANSION OF VOCATIONAL-TECHNICAL PROGRAMS TO ACCOMMODATE HIGHWAY SAFETY MANPOWER REQUIREMENTS

Volume II



THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY

EXPANSION OF VOCATIONAL TECHNICAL SCHOOL PROGRAMS TO ACCOMMODATE HIGHWAY SAFETY MANPOWER REQUIREMENTS

VOLUME II

DIRECTIONS

This is Volume II of four volumes. Please read each section carefully. After reading the volume please complete and return the enclosed evaluation form. This form will be found on the last two pages of the unit.

Expansion of Vocational-Technical School Programs to Accommodate Highway Safety Manpower Safety Requirements

Volume II

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MOTOR VEHICLE INSPECTION

I. INTRODUCTION

"Motor vehicles used on the nation's streets and highways number more than 100 million today. Included in this number are approximately 325,000 buses and 15 million trucks."[1] By 1975 it is estimated that the number will be 118 million. Private passenger cars make up the bulk of this number. It is estimated that 80-85 percent of all U.S. families now own at least one automobile.

A major national concern is the number of unsafe vehicles currently in operation and the difficulty in introducing and maintaining methods for keeping them safe. The questionable condition of vehicles is as much a national concern as is traffic volume-increase and high speed travel.

> Deterioration of a vehicle with time is inescapable, whether from normal wear or abuse, defective construction, improper maintenance, poor quality of original or repair parts, inadequate skill of mechanics, or other factors. With the deterioration of such components as brakes, the steering system, and tires, the chances of the vehicle becoming involved in a crash increase. The purpose of a safety program for vehicles in use is to counteract and limit this inevitable deterioration.[2]

Most automobiles driven on the nation's highways are at least several years old. Trucks generally are operated for longer periods of time.

Recent research findings show that periodic motor vehicle inspection of private automobiles markedly augments highway

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[1]Richard Bishop and Gordon Sheehe, *The Role of the Community College in Developing Traffic Specialists and Technicians* (Washington, D.C.: American Association of Junior Colleges, 1968).

[2]U.S. Department of Transportation, *Report of the Secretary of Transportation to the Congress of the United States*, Document No. 103 (Washington, D.C.: U.S. Department of Transportation, June, 1968), p. 6.

safety. Top instruction can be accomplished only when competent personnel are employed to perform the inspection, to maintain proper station records, and to maintain proper inspection station performance standards.

Periodic motor vehicle inspection had its beginnings in 1928 and 1929 when Pennsylvania, Maryland, and Delaware enacted laws requiring inspection in officially designated garages or service stations.[3] Today 42 states require periodic inspection of motor vehicles, a sharp increase from the 19 states with periodic motor vehicle inspection programs in 1964.

The passage of the National Highway Safety Act of 1966 gave impetus to bring about more comprehensive motor vehicle inspection programs. This act provided for nationwide highway safety programs in accordance with uniform standards, including a standard for periodic motor vehicle inspection.

Following the passage of the Act, a national standard for periodic motor vehicle inspection was issued in June, 1967.

> . . . to increase through periodic vehicle inspection the likelihood that every vehicle operated on the public highways is properly equipped and is being maintained in reasonably safe working order.[4]

This standard is also directed toward better traffic records.

Some explanation in regard to the term "periodic motor vehicle inspection" may be appropriate at this point. The term refers to motor vehicles required by law to be examined on a regular basis for unsafe operative conditions. The purpose of such examinations is to identify mechanical or equipment defects of failures not in compliance with highway safety criteria. This study will focus on periodic inspection of private automobiles, but inspection of trucks, and buses and school buses will also be explored. Bus fleet systems in some states are permitted their own inspections with or without supervision by state motor vehicle officials. Buses and trucks operating in connection with interstate commerce are closely scrutinized. The American Standards Association has maintained a great deal of control over inspection procedures for vehicles other than cars and trucks, e.g., trailers and semitrailers.

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[3]American Automobile Association, *A Study of Motor Vehicle Inspection* (Washington, D.C.: American Automobile Association, 1967), p. 8.

[4]U.S. Department of Transportation, National Highway Safety Bureau, *Periodic Motor Vehicle Inspection: Highway Safety Program Standard 1* (Washington, D.C.: U.S. Department of Transportation, 1967).

Any motor vehicle inspection must take into account federal legislation concerning exhaust emissions.

The Department of Transportation recommends that all motor vehicle inspection programs be consolidated to facilitate the process, to provide for more comprehensive examination and to simplify the procedure from the standpoint of the consumer.

Motor vehicles which ultimately figure in inspection programs are:

1. Emergency vehicles (police cars, ambulances, fire trucks, etc.)
2. Buses (all passenger vehicles other than a taxicab)
3. Taxicabs
4. Farm tractors
5. Motorcycles
6. Trailers (vehicles resting upon or carried by another vehicle)
7. Trucks.

School bus inspection (a primary concern of all states) will be treated as a separate entity.

This section of the report will analyze existing manpower information, research reports, and other literature having implications for planning and conducting instructional activities for motor vehicle inspection personnel.

II. IDENTIFICATION AND CLASSIFICATION OF PROGRAMS AND OCCUPATIONS

Automotive vehicle inspection is a marked step of progress in the United States but definitions of inspection jobs and the correct classification of these jobs has not been fully clarified. There has not been a synchronization of job classifications on the state and national level. For instance, two major job/occupations/categories exist in motor vehicle inspection: 1) motor vehicle station investigator (covering wide geographical territory by a man-on-the-road inspecting approved inspection stations); and 2) motor vehicle inspector (motor vehicles inspected by a man at a station). Each of these two job/occupations is known by many different titles. The man-on-the-road or motor vehicle investigator is also known in some states as motor vehicle station inspector, inspection administrator, area director (of motor vehicle inspection), district field inspector and safety supervisor. The nonrotating man located at a station is also known by the titles of motor vehicle inspector, motor vehicle inspection trooper, commercial vehicle inspector, motor vehicle examiner, auto mechanic (mechanic inspector).

On a national level and because vehicle inspection is relatively new, the jobs come under still different categories. The U.S. Office of Education categorizes individuals whose work is inspecting vehicles under "Automotive Services." (The category number is 17.03.) In the *Dictionary of Occupational Titles* put out by the U.S. Department of Labor, the same jobs referred to above are listed as automotive tester and then parenthetically motor vehicle inspector, safety inspector, vehicle safety inspector, the number for all of these jobs being 379.384. The *Dictionary of Occupational Titles* lists motor transportation inspector with a different number of 168.168.

There are current efforts underway to correlate the jobs locally with the job descriptions nationally. Such an effort logically results in the states and the federal government relooking at the occupations, what is required in each occupation, and how each occupation might uniformly be termed throughout the nation. Such efforts undoubtedly will make future reporting by local education people to the U.S. Office of Education a more simplified procedure because the job terminology will be clarified.

III. GENERAL PROGRAM BACKGROUND AND CONSIDERATIONS

The federal government and the state governments have expanded efforts to promote motor vehicle inspection and to set primary standards for such activities. Other interested groups, such as the National Safety Council and the American Automobile Association, have devoted a great deal of attention to the subject, particularly, in gaining public support of motor vehicle inspection. Most (84 percent) of the states now have programs for periodic motor vehicle inspection. (The 1966 Highway Safety Act mandated that all states have an inspection program.)

New methods, concepts, and techniques that have application to periodic motor vehicle inspection have been introduced. Therefore, it is becoming increasingly important to have more skilled and knowledgeable personnel to perform the required tasks for implementing comprehensive inspection programs.

A. OCCUPATIONAL SUMMARIES

There are two prominent occupational targets (at less than the B.S. degree level) of the motor vehicle inspection program: 1) motor vehicle station inspector, and 2) motor vehicle inspector. However, other positions may be necessary for implementing effective motor vehicle inspection (program administrators, program managers and record assistants. These positions may become more important particularly in some of the large urban areas as motor vehicle programs are expanded and improved.

1. MOTOR VEHICLE STATION INSPECTOR

The duties of the motor vehicle station inspector include investigating garage establishments for licensing or certification as official inspection stations; approving or rejecting the licensure of inspection stations; periodically interviewing, observing conditions, and examining records to obtain or verify information for ascertaining whether individuals or firms are in compliance with established standards; explaining liabilities and responsibilities and re-advising persons involved with corrective or compliance procedures; revoking licenses when necessary; developing and maintaining a system to keep motor vehicle inspection station managers, owners, and inspectors informed about revisions of inspection standards; and creating a proper attitude among consumers and inspection station personnel.

2. MOTOR VEHICLE INSPECTOR

The duties of the motor vehicle inspector include inspecting and testing systems, sub-systems, and components on automobiles,

buses, trucks, and motorcycles to see that they conform with required safety standards; identifying and recording unsafe vehicular operative conditions and recommending service or repair. The motor vehicle inspector may also service and repair systems, sub-systems, and components as necessary; maintain records of all vehicular inspection procedures and corrective procedures, and provide records summaries at the request of the motor vehicle station inspector.

The motor vehicle inspector utilizes sight, sound and feel to determine the overall operative conditions of motor vehicles, and uses various test equipment and tools to diagnose defects and to make corrective repairs.

The motor vehicle inspector must be knowledgeable of state specifications and of vehicular inspection safety criteria of the National Highway Safety Bureau.

The motor vehicle inspector may assist in planning and developing curriculum materials for preparing new motor vehicle inspection. He may teach new personnel in area vocational education schools, community college vocational-technical departments. He may be responsible for the on-the-job supervision of new personnel.

B. MANPOWER REQUIREMENTS

Figures 1 and 2 demonstrate the manpower requirements necessary to meet the Periodic Motor Inspection Standard. Figure 1 concerns the occupation of "Motor Vehicle Inspector" and Figure 2 shows manpower requirements for the occupation of "Motor Vehicle Station Inspector."

The 1968 "State Estimates" reflect those persons actually employed in the occupations listed. In 1968, 2,234 persons were employed in periodic motor inspection occupations. Booz-Allen and Hamilton estimated that between 10,103 (minimum) and 30,679 (maximum) should have been employed to meet the requirements of this standard. Accordingly, in 1971, between 11,471 (minimum) and 34,837 (maximum) persons should be employed in these occupations. These requirements increase proportionately through the projected requirements for 1977. The 1977 requirements are 14,904 (minimum) and 45,197 (maximum) persons needed to adequately meet the requirements of the Periodic Motor Inspection Standard.

FIGURE 1

PERIODIC MOTOR VEHICLE INSPECTION[5]

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
State Estimates	1,142	1,164	1,170	1,199	1,214	1,232	1,247	1,249	1,252	1,252
Alternative 1 (Maximum)	28,404	29,628	30,914	32,262	33,672	35,156	36,716	38,345	39,863	41,867
Alternative 2 (Minimum)	9,192	9,587	10,001	10,437	10,829	11,347	11,877	12,404	13,228	13,537

FIGURE 2

PERIODIC MOTOR VEHICLE INSPECTION (MOTOR VEHICLE STATION INSPECTOR)[6]

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
State Estimates	1,092	1,360	1,473	1,546	1,643	1,738	1,806	1,874	1,876	1,878
Alternative 1 (Maximum)	2,275	2,377	2,469	2,575	2,687	2,803	2,924	3,061	3,191	3,330
Alternative 2 (Minimum)	911	949	990	1,034	1,086	1,128	1,193	1,231	1,286	1,367

[5]Booz-Allen and Hamilton, Inc., *Safety Specialist Manpower*, Vol. I. (Washington, D.C.: Booz-Allen and Hamilton, Inc., 1968,, p. 31.

[6]*Ibid.*

C. PRESENT NUMBER OF STUDENTS ENROLLED IN PROGRAMS OR COURSES

Although several states conduct special instructional programs and courses for motor vehicle inspection personnel, very little instruction is offered through regular vocational education channels. One exception is the State of Kentucky, which provided vocational facilities and instructors in 1969 to prepare specialists for motor vehicle inspection programs. The training activities were coordinated by the Kentucky State Motor Vehicle Department. Wisconsin has made vocational education resources available in training motor vehicle inspection personnel.

Special seminars and workshops for motor vehicle inspection personnel are periodically conducted by other states. Most of the workshops and seminars are primarily oriented toward informing program managers and/or potential program managers of the requirements of periodic motor vehicle inspection. Such activity is vital since individual inspection station owners and operators must maintain compliance with state specifications even though these specifications are continuously being revised and improved.

Some schools offering occupational instruction in automotive services and automotive technology provide special instruction in the elements of periodic motor vehicle inspection for highway safety. A survey of public educational institutions revealed at least one program providing a significant degree of instruction for potential motor vehicle inspectors. In this program, arrangements are made for the automotive services shops to be licensed as motor vehicle inspection stations, thus providing practical experience in periodic motor vehicle inspection procedure.

Speaking again of terminology, students enrolled in automotive service programs may be labeled potential motor vehicle inspectors since many basic skills inherent in automotive services are within the scope of highway safety.

The number of student enrollments in automotive mechanics and automotive technology may be obtained from yearly summaries of program enrollments prepared by the U.S. Office of Education, Planning and Evaluation Branch.

D. SELECTION, PREPARATION, AND LICENSURE OF PERIODIC MOTOR VEHICLE INSPECTION PERSONNEL

According to the U.S. Department of Transportation, motor vehicle inspectors should be responsible for: 1) used motor vehicles under the provisions of both the National Highway Safety Act of 1966 and the Motor Vehicle Safety Act of 1966; 2) vehicle exhaust control under the provisions of the Air Quality Act of

on who should do "what" tasks. Advisory committees and task forces composed of individuals from the various agencies and institutions should be established to make surveys, draft proposals, and make recommendations which would link instructional activities with national and state safety goals and objectives.

F. STAFFING AND STAFF REQUIREMENTS FOR TRAINING MOTOR VEHICLE INSPECTION PERSONNEL

Instructional resources and potential motor vehicle inspection personnel differ with individual states and by districts within each state. There are several alternatives to staffing instructional programs for training motor vehicle inspection personnel. States may follow one of the following staffing methods, or combine methods.

1. Appoint local college faculty and research personnel with considerable ground work and expertise in motor vehicle inspection and other areas of highway safety to instruct on a part-time basis.

2. Appoint local vocational and technical supervisors and instructors to help plan and conduct programs for motor vehicle inspectors. It would be essential that potential supervisors and instructors be initially involved in orientation sessions, with motor vehicle inspection officials providing for the orientation services. Automobile mechanics instructors, diesel mechanics instructors, and truck driver training instructors may be candidates for roles in training motor vehicle inspectors.

3. Appoint itinerant instructors at the state level to plan, promote, and conduct instructional activities at the local level. Secondary and post-secondary educational institutions should be the base for such activities.

4. Appoint full-time instructors at local educational institutions to plan and conduct learning activities for motor vehicle inspection personnel. This instruction could be provided on a rotation basis with inspection personnel involved in training sessions as necessary.

5. Appoint district highway safety specialists in each state to plan and coordinate motor vehicle inspection training sessions. Such an individual may have other highway safety responsibilities, e.g., police traffic services.

Potential instructional staff members may be recruited from such sources, as state motor vehicle departments, police traffic departments, and local garages with experience in official motor

vehicle inspection. However, it probably will be necessary to provide teacher training since the aforementioned departments may experience staffing shortages as the move to emphasize highway safety continues.

G. FACILITIES, EQUIPMENT AND SUPPLIES

It is probable that facilities and equipment available in secondary and post-secondary educational institutions can be utilized at certain periods for training motor vehicle inspection personnel. Reference can be made again to the automotive services facility which normally contains a shop facility and separate classroom space. Arrangements usually can be made with institutions to use the facilities and equipment, depending upon the time of day or period of year that such facilities and equipment are in use.

Local vehicle inspection stations or garages may be utilized as training centers if adequate space and appropriate equipment exist.

Equipment commonly used for periodic motor vehicle inspection activities includes: 1) brake testing machines, 2) decelerometers, 3) candlepower meters, 4) headlamp machines, 5) mechanical aimers, and 6) front end alignment equipment. Innovative equipment not in common use includes: 1) TV cameras for underbody inspection, 2) mechanical exhaust "sniffing" devices, and 3) automatic sonic tire testing devices.

IV. CURRICULA FOR TRAINING PERIODIC MOTOR VEHICLE INSPECTION PERSONNEL

Most states which have passed legislation concerning periodic motor vehicle inspection have developed instruction manuals for use in planning, managing, and conducting inspection activities. These manuals are the foundations from which the states' motor vehicle inspection programs are developed. These manuals may well serve as the basis for training programs. The subject elements incorporated in the manuals are based upon the provisions of the legislative actions of the particular state.

A. ELEMENTS IN PERIODIC MOTOR VEHICLE INSPECTION PROGRAMS

The Highway Safety Program Standard for periodic motor vehicle inspection states that the inspection of motor vehicles must cover:

> systems, sub-systems, and components having substantial relation to safety vehicle performance . . . The inspection procedures must equal or exceed criteria issued or endorsed by the National Highway Safety Bureau . . . Each inspection station must maintain records in a form specified by the states, which include at least the following uniform data:
>
> 1. Class of vehicles
> 2. Date of inspection
> 3. Make of vehicle
> 4. Model year
> 5. Vehicle identification number
> 6. Defects by category
> 7. Identification of inspector
> 8. Mileage or odometer reading.[8]

The U.S. Department of Transportation has designated priority areas for establishing safety standards for vehicles in use. These include:

1. Brake lines, service brake system, emergency brake system, and parking brake system
2. Steering and suspension system
3. Tires, wheels and rims
4. Lamps, reflective devices, and associated equipment
5. Glazing

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[8] *Ibid.*

6. Windshield wiping, washing, defrosting, and defogging
7. Horns
8. Rearview mirror
9. Body, doors, fenders, molding, and bumpers
10. Fuel supply system
11. Exhaust system
12. Wheel nuts, wheel discs, and hub caps.[9]

Other elements of concern to states and individual inspection stations are delineated in the manuals developed in connection with state motor vehicle programs. Some of the elements that go beyond the priority areas identified by the U.S. Department of Transportation are listed below:

1. Hood and trunks
2. Directional signal devices
3. Smoke delimiting equipment
4. Visual obstruction equipment
5. Flooring (in vehicle driver and passenger compartments)
6. Fire hazards
7. Visual communication equipment (speedometer, temperature, etc.)
8. Marker lights (commercial vehicles)
9. Antique cars
10. Trailer connections
11. Instrument panel lights
12. Transmissions and power trains (including belts and pulleys)
13. Pre-inspection requirements (before sale of new and used cars).

Most of the motor vehicle inspection manuals developed by the states also include elements concerning the establishment, operation, and management of inspection stations. For example, the manual developed by the State of Louisiana, Department of Public Safety, contains the following elements in addition to safety standards for motor vehicles in use:

1. Procedure for appointment as an inspection station
2. Types of authorized inspection stations
3. Duties and responsibilities of authorized mechanic inspectors
4. Approval of mechanic inspectors
5. Minimum requirements for motor vehicle inspection stations

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[9]U.S. Department of Transportation, *Safety for Motor Vehicles in Use* (Washington, D.C.: U.S. Department of Transportation, 1968), p. 30.

6. Operation of inspection stations
   a. Certificate of appointment
   b. Procedure for operation
   c. Inspection of stations
   d. Station records and reports
   e. Fees and remittances
   f. Issuance of stickers
   g. What to do in case of rejected vehicles
7. Change of station location or ownership
8. Official station cancellations.[10]

B. EXEMPLARY CURRICULA EFFORTS

Booz-Allen and Hamilton, Inc. and The Stanford Research Institute both have made initial efforts to determine the scope of motor vehicle inspection, the duties required of the motor vehicle inspector and the station inspector, and special training and/or experiences necessary for entry and advancement in the field. Segments of these efforts are exhibited in the appendix.

Although no materials have been identified that were designed specifically as guides for instructing periodic motor vehicle inspection personnel, numerous states with motor vehicle inspection programs and interested organizations, e.g., Automobile Manufacturers Association, Inc., have developed comprehensive inspection station operation and management procedure manuals. These have been designed primarily for use by station owners, operators, and vehicle inspectors. It is a recommended guidebook for use by station owners, operators, and vehicle inspectors. A recommended guidebook for use in developing curriculum materials would be the official motor vehicle inspection manual of any state and the generalized manuals produced by the trade and technical associations and societies within the state. Several recommended publications and sources are cited in the list of selected references.

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[10] State of Louisiana, Department of Public Safety, *Motor Vehicle Inspection State Instruction Manual* (1968), pp. 1-8.

V. CONCLUSIONS

The following conclusions have been drawn from this unit:

A. There is increased momentum to require periodic inspection for unsafe operative conditions of all motor vehicles currently in use and to demand the correction of these conditions before the vehicles are permitted back on the roadways. This thrust seems to stem from: 1) the passage of the National Highway Safety Act of 1966 and subsequently the issuance of the National Standard for Periodic Motor Vehicle Inspection; and 2) more demonstrative evidence that motor vehicle inspection programs contribute to highway safety.

B. Periodic motor vehicle inspection programs have been only mildly effective in many instances because inspection personnel have not been specifically trained for the positions in which they serve. Apparently most of the in-service instruction has been via occasional written memorandums and letters.

C. Very few training programs are being conducted through public educational institutions for motor vehicle inspection personnel. It is not certain what degree of formal training is being expected or offered by the agencies responsible for administering and supervising state motor vehicles.

D. The scope of essential knowledge and skills encompassed by periodic motor vehicle inspection programs is broad enough to justify formal instructional activities for preparing motor vehicle inspectors and motor vehicle station inspectors.

E. Automotive services programs in secondary and post-secondary educational institutions are potential departure points for providing initial instruction to potential motor vehicle inspectors. These same facilities (and equipment) may be available for offering in-service instruction to motor vehicle inspection personnel, and for preparing out-of-school youth and adults for roles in periodic motor vehicle inspection programs.

F. Motor vehicle inspection personnel must be specifically trained for the jobs that they are doing. The inspection of commercial buses and trucks requires knowledge and skills unique to those required to inspect private passenger cars. Therefore, several types of specialists may be needed to implement periodic motor vehicle programs.

G. Several trade associations and societies as well as many states which have legislation requiring periodic motor vehicle inspection have developed comprehensive inspection station

operation and management procedure manuals. These manuals coupled with a job analysis can be a base for developing curriculum materials.

VI. DISCUSSION-RESEARCH TOPICS

The findings of this report reveal a number of questions. It is the authors' hope that each of the following research questions may be carefully considered as discussion topics by a number of interested persons or groups.

A. To what extent has formal instruction been provided to motor vehicles inspection personnel prior to their assuming their respective positions? To what extent has formal instruction been provided to employed motor vehicle inspection personnel? How effective have instructional activities been in developing knowledge and skills essential to implementing state and national standards for motor vehicle inspection?

B. What specific knowledges and skills are needed by potential instructors to train motor vehicle inspectors and/or motor vehicle station inspectors?

C. What specific strategies can be applied in developing and maintaining interagency cooperation for planning, developing, and evaluating instructional activities?

D. What strategies can be applied in utilizing state motor vehicle inspection program manuals and trade association manuals (along with the process of job analysis) to develop appropriate and meaningful curriculum materials?

E. What are the specific objectives of a program to train motor vehicle inspectors? What are the objectives of a program to train motor vehicle station inspectors?

F. What equipment and supplies if any, would be needed in programs of instruction?

G. What specific student prerequisites are needed to enroll in a program of instruction?

H. What type program(s) would be more feasible for training motor vehicle inspection personnel (part-time, cooperative, full-time, preparatory, etc.)?

I. How much time should be allotted for programs to prepare motor vehicle inspection personnel? How often is refresher training needed? How much time should be allotted to refresher training?

J. What should be the suggested sequence of subject matter introduced to motor vehicle inspection personnel?

K. What methods and strategies might be applied in programs of instruction to assure that national and state safety goals are met?

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APPENDICES

EXHIBIT A

MOTOR VEHICLE STATION INSPECTOR*

Scope

Includes all state employees who perform actual inspection of motor vehicle inspection stations, their supervisors, and the director of the motor vehicle inspection program.

Duties

Investigates private garage applications for licensing as official inspection stations, approves and licenses garages, periodically inspects approved garages to assure compliance with established standards, and provides training to garage mechanics in the techniques and procedures of inspection. Revokes licenses when necessary. Inspectors may also perform actual inspection of school buses. Supervisory levels plan, direct, and manage all aspects of the inspection program.

Entering Education

High school graduate or the equivalent.

Entering Experience

A minimum of five years as a Police Traffic Services Patrolman, a Driver License Examiner, or the equivalent.

Special Training

- A minimum of 80 hours preservice training in techniques, and procedures of station investigations and inspections, records review, and teaching methods.
- A minimum of 24 hours in-service training annually for the purpose of examining new developments and reviewing past developments in the motor vehicle inspection program.

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*Selected from *Safety Specialist Manpower*, Vol. I, Booz-Allen and Hamilton, Inc., 1968, Appendix B (6).

EXHIBIT C

MOTOR VEHICLE STATION INSPECTOR*

Entry Training		Refresher Training		Percent of Total Training Hours by Discipline		
Course Description	No. of Hours	Course Description	No. of Hours	Public or Bus. Admin.	Educa-tion	Engi-neering
A. The Background of the Highway Safety Inspection Program.	10	A. A Review and Examination of New Developments in the Motor Vehicle Inspection Program.	24 YR.	15	25	60
B. The Techniques and Procedures of Station Investigators and Inspections Including Records Review in Connection with the Highway Safety Inspection Program.	50					
C. Teaching Methods as Applied to Highway Safety.	20					

*Selected from *The Feasibility of Establishing Highway Safety Manpower Development and Research Centers at University Level Institutions*, Stanford Research Institute, 1969.

MOTOR VEHICLE REGISTRATION

I. INTRODUCTION

There is an increasing awareness in each state of the need for uniform motor vehicle registration and titling systems that will contribute to highway safety. Current operational procedures in motor vehicle registration need to be improved and adequate record systems developed "so that vehicle ownership can be identified rapidly and efficiently for investigative, law enforcement, and other operational and research purposes."[1]

The National Standard for Motor Vehicle Registration has as its primary purposes:

> To provide a means of identifying the owner and type, weight, size and carrying capacities of every vehicle licensed to operate in the state, and to make such data available for traffic safety studies and research, accident investigation, enforcement, and other operational uses.
>
> To provide a means for aggregating ownership and vehicle information for: a) accident research; b) planning and development of streets, highways and related facilities; and c) other operational uses.[2]

The National Standard for Motor Vehicle Registration is complementary to three other highway safety standards. These are: 1) traffic records, 2) periodic motor vehicle inspection, and 3) driver licensing. All four standards call for an information and data base from which highway safety activities can be implemented. To relate motor vehicle registration and periodic motor vehicle inspection the reader should review the U.S. Department of Transportation's plans for utilizing information obtained through activities in these two areas. The information obtained

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[1] Insurance Institute for Highway Safety, *National Highway Safety Standards* (Washington, D.C.: Insurance Institute for Highway Safety, 1969), p. 32.

[2] U.S. Department of Transportation, National Highway Safety Bureau, *Highway Safety Program Standard 2: Motor Vehicle Registration* (Washington, D.C.: U.S. Department of Transportation, 1967).

from motor vehicle registration and periodic motor vehicle inspection procedures is to be organized and systematized so that it can be fed into the National Driver and Vehicle Information Register, and the National Accident and Injury Information Register. Individual owners or buyers, motor vehicle dealers, manufacturers, and other groups, will have rapid retrieval of information for investing resources economically and safely. National central records would be coupled with a control system in each state. Nationwide effectiveness of such a system will depend in part on each state's ability to implement systems for efficient motor vehicle registration and titling.[3]

Motor vehicle registration records inventory the motor vehicle population and identify vehicles that change hands. Accurate records on motor vehicles enable potential buyers of vehicles to evaluate the history of the vehicle from initial purchase.

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[3]U.S. Department of Transportation, *Safety for Motor Vehicles in Use: Report of the Secretary of Transportation to the Congress of the United States*, U.S. Senate, 90th Congress, 2nd Session (Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, June, 1968), p. 52.

II. GENERAL PROGRAM BACKGROUND AND CONSIDERATIONS

Apparently state motor vehicle registration and titling procedures have had only a mild relationsnip with the total highway safety programs. Law enforcement agencies have relied upon the system for law enforcement purposes. License tags, identifiable by state and displaying letters and numerals, are individually recorded. Complete title information is available. Thus, vehicle identification across the United States is now a relatively accurate process. Most registration and titling activities are located in county sheriff's offices, county clerks' offices, etc. Workers in these offices so far have not encountered a need for specialized training.

However, the National Highway Safety Act of 1966 and other state and national legislation made elaborate and more effective recording systems mandatory. Too, motor vehicle registration and titling tasks are becoming increasingly complex. More automobiles are being registered at a faster pace. More relevant information concerning motor vehicles and the owner of the motor vehicles has been necessitated.

It is presumed that in the near future there will be an evident need for many more key individuals involved in motor vehicle registration and titling. Such training will be essential to individuals at administrative levels, as well as to those coordinating and diffusing motor vehicle registration and titling systems with local and state traffic law enforcement agencies, motor vehicle inspection departments, driver licensing departments, traffic engineering departments, etc. Accurate, current records can be effectively utilized by such departments to plan comprehensive highway safety programs.

The degree of responsibility in safety aspects of motor vehicle registration that can be assumed by non-degree personnel is, as yet, undefined. It appears that no significant research prior to this report has touched on needed education for motor vehicle registration personnel. No information and data base for planning programs of instruction are known to exist. Manpower forecasts and occupational descriptions have not been prescribed.

III. PROGRAM CURRICULA

Training programs in motor vehicle inspection and traffic records somewhat correlate to training in motor vehicle registration. There is certain basic common information concerning motor vehicles and motor vehicle owners. Data needed for the motor vehicle registration and titling process are:

A. Make

B. Model year

C. Identification number

D. Type of body

E. Name of current owner

F. Current address of owner.

The development of a number of curriculum materials for either of these areas would be of value to both. It seems logical that those training in traffic records would make use of resources provided for training people in registration, titling and inspection, and that common instructional activities might be permanently negotiated for all.

Similarly, factors in accident investigation may correlate to procedures in motor vehicle registration (police personnel in accident investigation are required to prepare detailed descriptions of automobiles) and rapid retrieval of data that can be developed for one group, might be shared by all.

IV. CONCLUSIONS

The following conclusions have been drawn from this unit:

1. Apparently little research has been conducted for training motor vehicle registration personnel. No curriculum materials are available.

2. There is overlapping in the required information base for: 1) periodic motor vehicle inspection, 2) traffic records, and 3) motor vehicle registration. There is reason to believe that in the future the information and data base and the recording and retrieval systems, connected with these three areas, may be combined into a central system to make more effective utilization of resources. Future occupational training and curriculum materials developed for one area may be used by all three.

3. How highway safety studies fit into expanded motor vehicle registration procedures is not always clear. The authors feel, however, that the registration system should be analyzed for job requirements, and the job performance requirements should be clearly identified. An educational institution must know what to teach before it can realistically determine how to teach.

V. DISCUSSION-RESEARCH TOPICS

The findings of this report reveal a number of questions. It is the authors' hope that each of the following questions may be carefully considered as discussion-research topics by a number of interested persons or groups.

1. Is there a critical manpower shortage in the motor vehicle registration industry? If so, in which specific occupation(s)?

2. What specialized highway safety instruction (subject components) should be provided for those involved in motor vehicle registration?

3. What specific relationships does motor vehicle registration have to national and state safety goals and objectives? What plans are being made by the National Highway Safety Bureau to develop a stronger link between motor vehicle registration, police traffic services, motor vehicle inspection, and traffic records?

4. What are the occupational targets for training programs in motor vehicle registration?

5. What type instructional program(s) would be most meaningful in training motor vehicle registration personnel? How much time should be allotted for training activities?

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MOTORCYCLE SAFETY

I. INTRODUCTION

The State of Vermont has developed a manual for use by motorcycle inspection station operators which defines "motorcycle" as follows:

> Any motor driven vehicle having a seat or saddle for the use of the rider and designed to travel on not more than three wheels in contact with the ground, but excluding golf carts, track driven vehicles, tractors and on which the operator and passenger ride within an enclosed cab.[1]

The number and variety of motorcycle accidents are on the increase. Reports by news media throughout the United States involve motorcycles crushed between larger vehicles traveling in the same directions; intersection-crashes when the pace and the rush of traffic obliterates vision of motorcyclists; rear-end collisions with other vehicles and single accidents when motorcycles jam against roadway guardrails, flip into gutters, or slide into poles. Many other situations could be cited.

> In 1965-66 the percentage increase for all motor vehicle accidents was 4.7, while for motorcycles it was 48.5. In this same period, deaths for all motor vehicle occupants increased 8.6 percent. The National Safety Council reported that 2,160 motorcyclists were killed in 1966. In that year motorcyclists comprised only two percent of a total number of vehicles in all accidents.[2]

> Motorcycle registrations have jumped from 574,080 to 1,914,700 in 1966. By 1970, the annual increase is expected to reach one million per year.[3]

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[1] Vermont Department of Motor Vehicles, *Periodic Motorcycle Inspection Manual* (Montpelier, Vermont: Department of Motor Vehicles, Inspection Division, 1969), p. 1.

[2] Dunlap and Associates, Inc., *Driver Education and Training* (Darien, Connecticut: Dunlap and Associates, Inc., 1968), Part III, p. 1.

[3] Insurance Institute for Highway Safety, *National Highway Safety Standards* (Washington, D.C.: Insurance Institute for Highway Safety, 1969), p. 5.

There is a nationwide concern for the future of motorcyclists. The concern is evidenced in questions from the U.S. Department of Transportation, state education divisions, sports clubs, school districts, traffic departments and groups providing driver education to novice motorcycle operators. A Minnesota study of 123 hospital patients involved in motorcycle crashes showed that 20 percent were riding the motorcycles for the first or second time and 70 percent of the injured had either lended or borrowed the motorcycles.[4]

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[4]Dunlap and Associates, Inc., *Driver Education and Training* (Darien, Connecticut: Dunlap and Associates, Inc., May, 1968).

II. GENERAL PROGRAM AND BACKGROUND CONSIDERATIONS

Very few people are employed in motorcycle safety occupations on a full-time basis. Motorcycle safety often is a part of motor vehicle inspection and driver licensing programs.

Dunlap and Associates, Inc. (1968), reports that state governments working in some motorcycle safety areas have programmed five areas:

A. Development of professional motorcycle operator licensing
B. Establishment of motorcycle protective equipment regulations
C. Establishment of special rules of the road
D. Development of highway signs for motorcyclists
E. Study of motorcycle accidents to identify causes.[5]

Motorcycle safety is stressed in other ways. Most states require periodical inspection of motorcycles for proper equipment. Operators are required to pass a written examination and a driving test before being licensed. Occasionally, students are introduced to motorcycle driver education in regular driver education programs in high school. Motorcycle dealers are particularly informed about proper operation and maintenance of the cycles. Police agencies providing instruction for motorcycle enforcement activities are made cognizant of the accident rate for motorcyclists and the need for greater safety.

A. OCCUPATIONAL SUMMARIES

Two of the most prominent occupational education targets in the field of motorcycle safety are the motor vehicle inspector and the driver license examiner. In most cases such personnel do not dedicate full-time to motorcycle safety. Each is involved with other activities, including the inspection and licensing of cars, trucks, and other motor vehicles.

B. MANPOWER REQUIREMENTS

Manpower requirements for two occupations relating to motorcycle safety--motor vehicle inspector and driver license inspector--were estimated by Booz-Allen and Hamilton (from 1968-1977) and are shown in Figures 1 and 2. When and if motorcycle instruction is introduced into schools on a massive scale, knowledgeable personnel will also be needed to teach.

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[5] Ibid., Part III, p. 2.

FIGURE 1

MOTORCYCLE SAFETY[6]

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Estimates from each state	0	0	0	0	0	0	0	0	0	0
Alternative 1 (Maximum)	766	1,029	1,394	1,881	2,520	2,637	2,756	2,860	2,986	3,122
Alternative 2 (Minimum)	292	377	526	685	917	955	1,000	1,041	1,091	1,140

FIGURE 2

MOTORCYCLE SAFETY[7]

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
State Estimate	30	30	30	30	30	30	30	30	30	30
Alternative 1 (Maximum)	610	815	1,093	1,469	1,973	2,061	2,215	2,261	2,360	2,464
Alternative 2 (Minimum)	127	170	233	300	411	426	445	467	490	510

[6]Booz-Allen and Hamilton, Inc., *Safety Specialist Manpower*, Vol. I (Washington, D.C.: Booz-Allen and Hamilton, Inc., 1968), Appendix E.

[7]*Ibid.*

In 1968 only 30 persons were employed as driver license examiners (in charge of motorcycles). Booz-Allen and Hamilton estimated that in that year (1968) between 419 (minimum) and 1,376 (maximum) persons were required to meet the standard originally written by the U.S. Department of Transportation, Bureau of Highway Safety. (This standard has since been passed to the states to implement.) In 1971, between 985 (minimum) and 3,350 (maximum) persons will be required. These manpower projections increase proportionately through 1977 when Booz-Allen and Hamilton estimate between 1,650 and 5,586 persons will be required across the nation if the original standard is to be met.

C. IMPLICATIONS FOR TRAINING INSPECTION PERSONNEL

Development of motorcycle safety programs is under way in many states. In Vermont, every motorcycle registered in the state must be inspected by a certified inspection mechanic. Each inspection station, designated by the commissioner of motor vehicles, must be staffed by at least one motorcycle inspection mechanic who is certified by the Department of Motor Vehicles as meeting the following requirements:

> A person 18 years of age or older holding a valid operator's license with experience in making adjustments and repairs to motorcycles and a thorough working knowledge of the rules and regulations set forth in the Official Motorcycle Inspection Manual . . . Moreover, certified motorcycle inspection mechanics are subject to reexamination at any time . . . to determine that they have full knowledge of current Official Motorcycle Inspection Rules and Regulations.[5]

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[5]Vermont Department of Motor Vehicles, *Periodic Motorcycle Inspection Manual* (Montpelier, Vermont: Department of Motor Vehicles, Inspection Division, 1969), p. 3-4.

III. CURRICULA FOR TRAINING PERIODIC MOTOR VEHICLE PERSONNEL AND DRIVING LICENSING PERSONNEL FOR ROLES IN MOTORCYCLE SAFETY

Accident dangers are potentially greater for motorcycles than other types of vehicles. Operating a motorcycle and operating an automobile call for very different knowledges and skills. Also, the procedures for inspecting motorcycles and the procedures for inspecting automobiles are quite different. Therefore, it is necessary that persons responsible for planning and implementing training programs or developing curriculum materials in motor vehicle inspection and driver licensing be cognizant of the elements encompassed in motorcycle safety.

Numerous groups have been actively engaged in administering and implementing laws and regulations that deal with motorcycle safety, or in developing public support of laws and regulations that deal with motorcycle safety. These groups include:

A. Metropolitan Life Insurance Company

B. National Safety Council

C. Traffic Institute, Northwestern University

D. American Association of Motor Vehicle Administrators

E. American College of Surgeons

F. American Automobile Association.

The Metropolitan Life Insurance Company has recommended several ways to stay alive on a motorcycle. These points may have implications for curriculum planning:

A. Potential motorcycle operators should train before driving. Students should learn how to start the vehicle, shift the gears, balance while driving, brake the vehicle, and other operations unique for motorcycles.

B. Motorcycle operators and passengers should acquire a helmet with goggles or a face shield.

C. Drive in the left half of the lane. Then cars in behind must change lanes to pass.

D. Before making a u-turn, come to a full stop, and look in all directions to make sure no one is coming.

E. Be extra careful when passing to be sure that there is a clear road ahead, and plenty of margin between the motorcycle and the car that is passed.

F. Wear heavy footgear and durable types of clothing to protect against cuts and scrapes.

G. Allow enough space to brake safely in an emergency. It takes more time for a car to stop in an emergency.

H. Brake the rear first. Then gently brake the front. Brake smoothly on slippery surfaces.

I. Gain a knowledge of the different types of surfaces to avoid skids.

J. Be fully aware of the size of the motorcycle in relation to other vehicles. Motorcycles cannot always be seen by car and truck drivers, especially in rear view mirrors.[9]

The Traffic Institute of Northwestern University has conducted numerous research and development activities in highway safety. One project concerned the development of motorcycle training materials. One publication, *Instructor's Manual for Training Motorcycle Riders*, is designed primarily for use in training motorcycle patrol personnel in police departments. (Most of the subject components could be used effectively to train other motorcycle operators.) Two accompanying publications, *Motorcycle Operation: A Manual for Riders* and *Motorcycle Operators Evaluation*, are available for training activities. The latter is an instrument to use in measuring motorcycle operator performance. Abbreviated outlines of subject matter contents included in the instructor's manual and the evaluation instrument are exhibited in the appendix.

Most of the states requiring periodic inspection of motor vehicles have developed instruction manuals for the inspection of motorcycles. The specifications presented in one of the manuals are presented in Exhibit C of the appendix.

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[9] Metropolitan Life Insurance Company, *10 Ways to Stay Alive on a Motorcycle* (New York, New York: Metropolitan Life Insurance Company), n.d.

IV. CONCLUSIONS

The following conclusions can be drawn from this unit:

A. Most of the instructional activities in motorcycle safety are necessarily non-occupational in nature. Motorcycle patrol personnel employed by police departments must undergo a period of training in motorcycle operation and maintenance upon initial employment. Indications are that future motor vehicle inspection and driver licensing training will also include motorcycle safety and that many states are incorporating motorcycle safety into current programs.

B. Most states have not estimated manpower needs in motorcycle safety.

C. Apparently few beginning motorcycle riders receive in-depth instruction on motorcycle safety. According to one study, a large percentage of accidents and injuries occur among first and second-time drivers. A few public secondary schools are providing instruction in motorcycle safety through the regular driver education programs. But, it does not appear that motorcycle driving practice activities are part of this instruction in most instances.

D. If a massive program for motorcycle education and training were to be initiated, there would be an immediate need for trained instructors, aides, and instructional materials. Indications are that regular driver education instructors will conduct limited motorcycle safety instructional activities in the future.

V. DISCUSSION-RESEARCH TOPICS

The findings of this report raise a number of questions. It is the authors' hope that each of the following may be carefully considered as discussion-research topics by interested persons or groups.

A. Can non-occupational motorcycle safety education be provided through regular vocational and technical education channels? If so, could federal funds be used? How would the funds be channeled to local programs of instruction?

B. Should motorcycle inspection and motorcycle driver licensing procedures be incorporated into the inspection and licensing activities for other type motor vehicles? If so, what specific motorcycle safety activities are involved? How much time would be involved in motorcycle procedure? Should motorcycle inspection and driver licensing procedures be conducted separately by individuals specially trained in motorcycle safety?

C. Is special motorcycle safety instruction provided for motorcycle dealers? If not, how could such instruction be arranged?

D. If a massive program for motorcycle safety is initiated by the states, should instruction be provided as a course apart from automobile driver education in the secondary schools? If not, how can such instruction be facilitated in the regular driver education course? What subject elements will need to be provided in the training of driver education instructors and instructors' aides for roles in motorcycle safety?

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APPENDICES

EXHIBIT A

INSTRUCTOR'S OUTLINE FOR TRAINING MOTORCYCLE RIDERS*

I. Selecting Motorcycle Riders
   A. Routine standards
      1. Age
      2. Height
      3. Weight
      4. Previous experience
      5. Education
      6. Intelligence
      7. Reviewing specific data on the candidate
         a. Biographical data
         b. Psychological data
      8. Medical data
         a. Acuity vision
         b. Peripheral vision
         c. Night vision
         d. Color blindness
         e. Nose and throat diseases
         f. Reflexes
         g. Coordination
         h. Asthma, related diseases
         i. Back injuries, diseases
      9. Application forms
      10. Interviewing the applicant

II. The Instructor's Role
   A. Knowledge of the subject
   B. Ability to communicate
   C. Instructor characteristics

III. The Student
   A. Student characteristics
   B. Student motivation
   C. Determining trainees' abilities
   D. Adjusting training to abilities

IV. Instructional Methods
   A. Principles of teaching psychomotor skills
   B. Evaluation and retraining
   C. Lecture
   D. Demonstration

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*Selected from *Instructor's Outline for Training Motorcycle Riders*, The Traffic Institute, Northwestern University, 1968, pp. I-35.

E. Visual aids
F. Student participation

V. Preparation for Motorcycle Instruction
A. Student selection
B. Student records
C. Subject preparation
D. Student Equipment
1. Safety helmet
2. Coveralls
3. Raincoat
4. Heavy, high shoes or boots
5. Gloves
6. Goggles
7. Sunglasses
E. Training settings
1. Classroom
2. Off-street practice area
3. On-street practice area
F. Instructional equipment
1. Motorcycle for each trainee
2. Special stands that will permit operation with free rear wheels
3. Traffic cones
4. Stancheons
5. Tape for laying out exercise areas
6. Barricades for blocking off streets
7. First-aid kit
8. Fire extinguisher
9. Small maintenance equipment and tools
10. Police whistle for giving signals and getting attention
11. A small truck or large station wagon for carrying equipment to training area
12. Stripped-down motorcycle for demonstration

VI. General Conduct of Training
A. Planning for training activities
1. Small groups
2. Large groups
3. Novices
4. Experienced drivers
B. Classroom and outside instruction
C. Instructor-student relationship
D. Student regulations for motorcycle riding

VII. Subject Matter Details
A. Motorcycle operating mechanism
1. Choke
2. Spark control
3. Throttle

4. Clutch
5. Gear shift
6. Starter crank
7. Ignition switch
8. Rear-wheel brake
9. Front-wheel brake
10. Directional signal switch
11. Lower headlight beam switch
12. Redlight switch
13. Horn button
14. Siren and pedal
15. Oil tank
16. Oil pressure signal light
17. Generator signal light
18. Battery
19. Fuel tanks
20. Fuel shut-off and reserve supply valve

B. Basic driving operations
1. Starting cold engine
2. Starting warm engine
3. Starting flooded engine
4. Proper riding position
5. Raising motorcycle from horizontal position
6. Stopping the motorcycle
7. Putting the motorcycle in motion
8. Slipping the clutch
9. Rapid shifting

C. Basic riding practices
1. Circles
2. Rapid acceleration
3. Starting in high gear
4. Sharp turns at moderate speeds
5. Turning at high speeds
6. Front-brake stopping
7. Locked rear-wheel slide for emergency stop
8. Fast stop
9. Slippery surfaces
10. Bumps and obstacles
11. Shallow ditches
12. Hills
13. Turns on gravel and sandy surfaces
14. Formation riding
15. Parking in groups
16. Individual parking
17. U-turn on slope
18. Practice exercises
    a. Figure eight
    b. Double figure eight
    c. Spiral movement
    d. Serpentine weave
    e. Cone weaving (straight line and intricate)

f. Diminishing clearance

19. Field trips

EXHIBIT B

MOTORCYCLE OPERATOR'S EVALUATION*

The evaluation process provides for rating the student according to the following scale: competent; satisfactory; needs practice; and needs teaching. The areas in which the motorcycle operators may be evaluated are listed below:

1. Controls (location and purpose)
2. Lifting motorcycle from ground
3. Use of jiffy stand and pushing motorcycle
4. Starting cold engine
5. Preparation of vehicle for riding
6. Shifting gears
7. Rider position
8. Driving (30 mph maximum)
9. Normal stop (from 30 mph)
10. Starting warm engine
11. Fast acceleration (to 40 mph)
12. Fast stop (from 35 mph)
13. Front-wheel braking
14. Locked rear-wheel slide (from 20 mph)
15. Start flooded engine
16. Start in second gear
17. Start in third gear
18. Start in fourth gear

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*Selected from a motorcycle evaluation instrument, The Traffic Institute, Northwestern University, 1964.

19. Down shift of gears (at 35 mph)
20. Right and left turns (at 20 mph)
21. Sharp turns (at 20 mph)
22. High speed turns
23. Diminishing clearance
24. Cone weave
25. Circles (at 5 mph)
26. Circles (at 10 mph)
27. Circles (at 25 mph)
28. Figure eight
29. Decreasing and increasing spiral
30. Bumps and obstacles
31. Gravel and slippery surfaces
32. Shallow ditches
33. Hills (incline)
34. Hills (decline)
35. Stopping on incline
36. Stopping on decline
37. Riding in pairs and squads
38. Riding in V formation
39. Parking at angle
40. Pull out into traffic from parked cars
41. Traffic weave (vehicle stationary)

EXHIBIT C

SPECIFICATIONS FOR INSPECTING
MOTORCYCLES, MOTORBIKES AND MOTORSCOOTERS*

1. License plate number
2. Motor, serial, or I.D. number
3. Vehicle registration certificate
4. Driver's license and number
5. Steering
6. Alignment
7. Suspension
8. Tires
9. Wheels and rims
10. Muffler and exhaust system
11. Fuel system
12. Brakes
13. Headlight (one)
    a. Battery system
        1) Candlepower (minimum of 3500 required)
        2) Setting of headlamp
    b. Magneto system
        1) Candlepower (minimum of 2500 required)
        2) Setting of headlamp
14. Tail light (one)

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*Selected from *Motor Vehicle Inspection Station Instruction Manual*, Louisiana Department of Public Safety, 1968, p. 21.

15. Stop light
16. Fog light (if equipped)
17. License plate light
18. Turn signals
19. Parking lights
20. Beam and indicator
21. Instrument panel light (speedometer light maximum requirement)
22. Wiring and switches
23. Horn
24. Dimmer switch
25. Bumpers, fenders
26. Red rear reflector
27. Speedometer and mileage check
28. Transmission: check rear chain and rear sprocket for wear

DRIVER EDUCATION

I. INTRODUCTION

Today the number of licensed drivers in the United States has passed the 100 million mark. Motor vehicles play a large part in each person's daily schedule of activities. The driver controls and the driver is consequently the major factor in traffic safety.

> Without question the human element is the single most important factor in the cause of traffic accidents . . . Estimates from several studies indicate that the human element is responsible for 80 to 85 percent of all traffic accidents.[1]

Most authorities believe driver education and training contribute to traffic safety. The Highway Safety Act of 1966 provides that:

> . . . the option for both students and adults to obtain driver training through private means should be available, provided the quality of the training is required to be maintained at a prescribed level.[2]

> There is a national need for the improvement of public and private driver education courses and for making them more widely available. Higher standards of classrooms and behind-the-wheel instruction are of central importance, together with the resources required to implement such standards. Also needed is the development of programs for dealing with the remedial training of problem drivers.[3]

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[1] James E. Aaron and Marland K. Strasser, *Driver and Traffic Safety Education: Content, Methods and Organization* (New York: The MacMillan Company, 1966), p. 12.

[2] U.S. Congress, *Highway Safety Act of 1966*, Public Law 89-564, 89th Congress (Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1966).

[3] Insurance Institute for Highway Safety, *National Highway Safety Standards* (Washington, D.C.: Insurance Institute for Highway Safety, 1968), p. 7.

Driver education programs in the secondary schools grow in number as the nation grows in population, wealth, and subsequently in the increase in automobile ownership and use. Since 1933 driver education in the public schools has increased from one program and 18 students to "13,969 public high schools enrolling 1,985,404 students (school year 1967-68) representing 81 percent of the schools and 65 percent of the public school students eligible for such instruction."[4]

This growth has been particularly marked since the end of World War II. Many outstanding individuals in the field of education have made valuable inputs into driver education, and are largely responsible for the quality of instruction offered today. However, these individuals are quick to point out that further reforms may have to be made if driver education is to be significant in keeping highways and streets safe for operators, motor vehicle occupants, and pedestrians.

Commercial driver education and training schools have long been a primary source for gaining proficiency level knowledge and skills. There are approximately 2,200 commercial schools in operation in the United States not including truck and bus driver training schools. Approximately 12,000 instructors are employed by all but five states to monitor 11,300 training cars and teach as many as 1.75 million people per year. Ironically, these same schools very often lack organization and resources and have largely failed in providing an effective voice in the field of driver education.[5]

This report will be primarily concerned with the state of the art of occupational education in the following fields of driver education:

A. Training aides for secondary driver education programs (instructor-aide training).

B. Instructors and instructor-aide training for adult-supplemental driver education.

The basis for this report is a study of the Highway Safety Act of 1966, National Highway Safety Standard for Driver Education, manpower research reports, and other pertinent literature.

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[4]Charles H. Hartman, *Driver Education in the Schools* (Washington, D.C.: Automotive Safety Foundation, 1969), p. 3.

[5]Dunlap and Associates, Inc., *Driver Education and Training* (Darien, Connecticut: Dunlap and Associates, 1968).

Several materials used in conjunction with instructional activities also will be included. Manpower data and occupational information in the report as well as related material should provide a general overview of the new emphasis in driver education in relation to highway safety and should also provide a foundation for planning and implementing instructional activities in the two targeted areas.

Truck and bus driver training will not be explored in this report since the laws, codes, and regulations which govern programs of instruction and driver actions are under separate federal control and not under the National Highway Safety Bureau.

There are many unique factors to be considered in both the Highway Safety Act of 1966 and the National Traffic and Motor Vehicle Act of 1966. For one thing, the motor vehicle inspection factors differ markedly from cars to trucks and buses. Differences also arise in interstate commerce regulations and must be separately considered in the implementation of truck driver training programs.

II. IDENTIFICATION AND CLASSIFICATION OF PROGRAMS AND OCCUPATIONS

There are fewer job titles in the driver education aspects of highway safety than other highway safety areas, e.g., police traffic services, highway design, construction, and maintenance. Consequently, fewer targets exist for occupational training.

The *Dictionary of Occupational Titles* includes occupational and educational information for secondary and post-secondary teachers, but gives no specifications for driver education instructors of instructor-aides.

The *Vocational Education Occupations* code manual, developed by the U.S. Office of Education for establishing vocational and technical programs and reporting program data, fails to incorporate titles and program information for driver education instructors and instructor-aides. This indicates the newness of occupational education in highway safety, and suggests that inputs must be forthcoming which will permit classifying vocational programs for driver education instructors and instructor-aides. It further suggests that the new trend can and may in the near future see programs regularly established under the auspices of vocational and technical education state divisions.

III. GENERAL SUBJECT AND BACKGROUND CONSIDERATIONS

Critics of driver education assess programs of instruction as poor countermeasures for the traffic accident problem. Such criticism may arise from the fact that qualified instructors have not been readily available to schools attempting a well rounded driver education program for youth and/or adults.

Virtually all states have made progress. Most states require limited driver/traffic subject requirements as part of secondary school certification for driver education teachers but surveys have revealed that more extensive course requirements are vitally needed. Moreover, states which house commercial driver schools have been noticeably slower in updating and improving programs of driver instruction.

Some change came with the adoption of the National Highway Safety Act and the National Standard for Driver Education which includes instruction qualifications.

In a significant study by Dunlap and Associates, Inc. (1968) conclusions were drawn concerning the state of commercial driver education schools:

1. There is a general lack of information on the effectiveness of the commercial school.

2. Friction between secondary school driver education and the commercial school industry hampers the total driver education movement.

3. Commercial schools lack organization, communication, and cooperation.

4. Commercial schools historically lacked a voice in driver education matters.

5. Wide variation exists in both type and quality of state programs for commercial driver education schools.[6]

Many authorities in the field of traffic safety agree that driver and traffic safety education should be offered to every secondary student. It has even been suggested that driver and traffic safety be incorporated into the total school curriculum from elementary through high school, inasmuch as such subject matter focuses on important aspects of life and in adjustments necessary for maintaining and extending life.

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[6] *Ibid.*

> The importance of playing an effective citizenship role is an admitted foundation for many courses.[7]

Who should be responsible for providing driver education to high school youth? Some suggest that commercial driver schools should be delegated this responsibility since many aspects of driver education are nonacademic. However, most people seem to favor the high school as the geographical location for providing primary elements of driver education--the reason being that the majority of new drivers are readily available for instruction. Concomitantly, properly administered commercial schools should be allowed to provide services to the general public, particularly to adults.

There are diverse views concerning educational level of personnel teaching driver education, e.g., a two-year associate degree, or a B.S. degree. One of the purposes of this study is to determine how specialists trained at less than the B.S. degree level might play an important role in the total driver education program.

A. OCCUPATIONAL SUMMARIES

The two targeted occupations, driver education and training instructor and instructor-aide, are detailed below.

1. DRIVER EDUCATION INSTRUCTOR

The Highway Safety Act of 1966 made driver education widely available to needy adults who had become suddenly deficient in safe driving skills as a result of new traffic control devices, recent codes and laws, etc. Driver education in recent years has become vital for the aged who cannot maintain a safe driving status for various reasons, and for the handicapped who need special training in order to drive. In addition, it has become obvious that there are numerous individuals who are chronic traffic violators, and are in dire need of remedial and correctional driver education for the safety of themselves and others.

It may be safely presumed that there will be expansion of commercial school services and improvements in their programs of instruction. It follows that there will be a continuing and expanded need for qualified instructors. Perhaps the instructors can appropriately be assisted by what are termed "instructor-aides."

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[7] Charles H. Hartman, *Driver Education in the Schools* (Washington, D.C.: Automotive Safety Foundation, 1969), p. 7.

Future knowledge and skills required of instructors will be largely determined by services. To some extent these may be determined by governmental agencies responsible for regulating and licensing these schools. It is evident that many of the facets of driver education programs in the secondary schools have direct application to commercial schools. The maturity level of students in commercial schools may differ, but the driving skills to be taught are the same for each group.

2. DRIVER EDUCATION TEACHER'S AIDE

Driver education and training courses are well established in many high schools across the nation, a valuable contribution to highway and traffic safety. Virtually all states currently require that potential instructors in driver education and training complete a prescribed number of driver education courses in partial fulfillment of the requirements for the B.S. degree.

There has recently been renewed emphasis to permit non-degree personnel to assist in driver education programs at the secondary school level. Several instructor-teacher-aide training programs exist, or are in various planning stages, in several community-junior colleges. The teacher-aide position would provide special assistance to secondary school driver education instructors and/or program coordinators at the local level. The instructor-aide might be considered analogous to the position of a technician assigned to a professional engineer. Requirements would be completion of a two-year driver education program, most likely at a community-junior college and mastery of sufficient knowledge and skills to enable him to contribute to the success of the program of instruction. It is presumed that instructor-aides will be indispensable if the mass of in-school youth are to receive in-class and in-car instruction prior to being licensed to drive on the streets and highways.

The duties of the aide would include, but not be limited to, assisting in: 1) collecting local accident data for presentation by the instructor; 2) gathering highway and traffic safety information from various resource materials; 3) preparing audiovisual aides for classroom instruction; 4) maintaining vehicles and simulation equipment used in skill building exercises; 5) administering tests and evaluation procedures in the classroom and in the car; 6) planning, conducting and evaluating special programs; 7) preparing for and in performing highway safety demonstrations; 8) planning for guest lecturers from the community; 9) maintaining records of students enrolled in driver education programs, and utilizing these records to evaluate effectiveness.

Future instructor-aides may be given preparation to instruct on a multi-car driving range, in a simulator, and in a limited capacity in the classroom.

B. MANPOWER PRESENTLY EMPLOYED AND PROJECTIONS OF MANPOWER NEEDS

Approximately 12,000 instructors are employed by commercial driver education and training schools across the nation.[8] This figure does not include instructors of truck or bus driver training.

No student enrollment figures are available from programs for instructor's aides, except in the case of one college reporting that several students who are preparing for positions as driver education instructor's aides are enrolled in the regular (degree type) driver education program curriculum. Also, several students may be enrolled in the experimental programs training teaching assistants at Texas A&M University.

C. PRESENT NUMBER OF STUDENTS ENROLLED IN PROGRAMS AND COURSES

In nearly all states instructors must be certified to teach driver education in commercial driving schools. Instructors generally are required a prescribed set of courses including several driver education courses, in order to be certified through a B.S. degree to teach driver education in the public secondary schools. The requirements vary for obtaining the certificate to teach in commercial driver education schools. Historically, commercial driver education schools have relaxed strict educational requirements in favor of good driving records and good health records. In these schools, performance has been the determining factor in obtaining a teaching certificate.

A survey of public educational institutions and a review of driver education and training materials produced no evidence that a significant number of people are enrolled to teach driver education. Numerous colleges and universities have B.S. degree programs, and in some cases post-graduate programs in driver education. Many of these schools also offer special courses for upgrading driver education teachers and for preparing graduates in related fields (e.g. secondary school education) for certification as instructors in driver education at the secondary school level.

As a result of the survey three driver education programs are known to exist for training teacher aides. One of these is a three-year program for assistants to driver education instructors in public schools. The survey also revealed that commercial driver instructors very often upgrade their training by taking courses offered to four-year driver education students. A few commercial

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[8]Dunlap and Associates, Inc., *Driver Education and Training* (Darien, Connecticut: Dunlap and Associates, 1968).

driver schools have taken steps to establish their own instructor training institutes.

Program enrollments are not identifiable in the fiscal year 1969 summary prepared by the Division of Vocational and Technical Education, U.S. Office of Education, since programs for driver education instructors and instructor's aides have not been officially classified.

The Texas Education Agency recently implemented a program to train driver education teaching assistants. During 1968 and 1969, 113 teaching assistants were trained. The number currently enrolled is not available.

D. STUDENT RECRUITMENT

Potential driver education instructors and instructor-aides come from numerous walks of life and enter the field on a part-time or full-time basis, e.g., secondary school teachers in various fields of work, retired traffic policemen, retired military men and high school graduates. Before actually becoming involved in driver education instructional activities, they must become well-grounded in both the in-car phase of instruction and the classroom phase of instruction. Specific subject elements will be considered later in this report.

E. SELECTION, PREPARATION, AND LICENSURE OF DRIVER EDUCATION INSTRUCTORS AND INSTRUCTOR'S AIDES

Prerequisites for students entering programs of instruction in preparation for positions as driver education instructors in commercial schools, and as driver education instructor-aides in public schools, have not been specifically identified during the course of this paper.

It is the feeling of the authors that prerequisites should be viewed from a practical standpoint. Instructional personnel and their assistants should be committed to highway safety, and have a strong desire to render service. They should possess aptitudes and interest for successful completion of preparatory training. Other prerequisites will probably be largely determined by the nature of the activities to be performed and the type of student to be taught. For example, an instructor may have sole responsibility for providing refresher classroom instruction for traffic court referrals. On the other hand, instructor-aides may not be directly involved with any classroom instruction, and only indirectly through technical assistance rendered to the driver education instructors. Programs of instruction should be tailored to meet the needs of enrollees. The instructor and his aide

together must have the capacity and skills to provide the total teaching service.

Potential driver education personnel must have valid driver's licenses and good driving records. It is the feeling of the authors that this should be a prerequisite for enrolling in a program in preparation as instructors or instructor-aides.

This report does not suggest that driver education instructors do not need degrees. Evidence does point to the fact that instructors must be better prepared than in the past.

> A critical need in driver education today is for a strengthening of the teacher selection-preparation-certification process. That so much is expected from teachers given so little opportunity to suitably prepare for their work seems a poor reflection on the educational community.[9]

Perhaps post-secondary educational institutions can do more in the future to provide a variety of programs and courses in driver education. These programs should allow options, e.g., certification as commercial driver instructors, certification as instructor-aides, or the furtherance of post-secondary study. It seems realistic to suggest that programs of instruction for driver education instructors and instructor-aides should be organized in such a way that interested students have options upon completion of programs or courses. Certain students completing a two-year curriculum may have developed a sincere desire to continue their education in driver education at a four-year university. Another student in the same program may wish to transfer completed credits to a school which offers a program in highway engineering. Exposure to the field of driver education and traffic safety, either through educational experience or through on-the-job experience, may motivate students to seek job opportunities which are compatible to their interests and needs. It seems practical to suggest that driver education programs and courses should have strong relationships with police traffic services programs, traffic and highway engineering programs and transportation programs. More in-depth study is needed to determine what curricula elements are needed in these programs and how the relationship between the multiple highway safety areas could be tightened.

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[9] Charles H. Hartman, *Driver Education in the Schools* (Washington, D.C.: Automotive Safety Foundation, 1969), p. 16.

F. RELATION OF PROGRAMS TO NATIONAL AND STATE SAFETY GOALS AND OBJECTIVES

Since substantive program elements for the targeted occupations are not available, only general comments can be made concerning the relationship of programs to national and state safety goals.

In order for driver education and training programs to tie into national and state highway safety programs, specialists from state departments of education, and from state and local governmental agencies should work together. Driver education programs should conform to the National Highway Safety Standard for Driver Education. Such a move could be accomplished through advisory committees comprised of individuals from various agencies who have strong interests in driver education. The advisory committee could be responsible for recommendations in one of the following areas: 1) expanding the improving driver education programs; 2) establishing refresher training programs for traffic court referrals; 3) training qualified school instructors and instructor-aides and their certification; 4) regulating and licensing commercial schools; 5) planning and establishing adult driver training programs; 6) equipment, supplies and resources for driver education programs; and 7) research applications in driver education programs.

Chairmen should be able to work with representatives of many highway safety areas. The driver education programs should reflect goals and objectives of the national and state highway safety programs.

G. STUDENT OPTIONS UPON COMPLETING INDIVIDUAL PROGRAMS AND COURSES

The new thrust in highway and traffic safety since the passage of the National Highway Safety Act of 1966 has created numerous job opportunities at various skill and responsibility leve s. Many of these jobs are either in driver education or in closely related areas. Some of the positions are in a career ladder hierarchy order and advancement is through experience and/or additional training. For example, more program specialists and researchers in driver education are urgently needed.

IV. PROGRAM CURRICULA FOR DRIVER EDUCATION INSTRUCTORS AND INSTRUCTOR'S AIDES

Program curricula for preparing instructors and instructor-aides should be based upon desired achievement at the driver education level, in consideration of learning and behavioral changes of students aspiring to acquire knowledge and skills of driver and traffic safety. Program curricula should reflect highway safety areas of recognized need.

A. BACKGROUND INFORMATION

A limited number of materials have been located for training non-degree driver education instructors and instructor-aides. On the other hand curricula information which has direct bearing upon secondary driver education programs of instruction for youth has been found and will be presented in this report. Subject elements extracted from several sources will be exhibited.

As many as 44 states publish and distribute driver education curriculum guides and other curriculum materials to be used in conjunction with teaching in secondary school programs. Approximately 19 states require schools closely adhere to subject matter content provided in these materials. Some states also designate textbooks to be used in programs of instruction.[10] Driver education materials are available from state departments of education, driver's clubs, insurance companies, state bureaus of highway safety, etc.

The American Automobile Association with strong interests in driver education has produced numerous resource teaching materials. The Automotive Safety Foundation has long engaged in upgrading driver education, and has recently developed new curriculum materials for teaching youth.

Commercial publishing houses have published curriculum textbooks and audiovisual materials. There is, however, noticeable lack in materials for training non-degree instructors and aides.

B. CURRICULA ELEMENTS IN DRIVER EDUCATION PROGRAMS

Virtually no curriculum materials for training non-degree driver education instructors and instructor-aides were uncovered during the course of the project. Only those materials used in the actual training of drivers exist. Some of these have long

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[10] Dunlap and Associates, Inc., *Driver Education and Training* (Darien, Connecticut: Dunlap and Associates, 1968).

been incorporated in worthy driver education programs, and should continue to be emphasized. Another purpose of this report is to cite the more common elements in non-occupational driver education programs. The amount of emphasis that should be given to these elements in training driver education instructors and instructor-aides must be left to those planning, supervising, administering, and implementing programs.

McCune (1969) suggests that the following knowledges and skills are necessary to learn to drive and pass a license exam:

1. Knowledge of traffic laws.
2. Ability to recognize traffic signs and symbols.
3. Ability to read questions on a driver's exam (required in most states).
4. Ability to respond to verbal or written questions.
5. Ability to drive a car.
6. Ability to apply traffic laws.[11]

In a national study of driver education in the secondary schools by Dunlap and Associates (1968), the following blocks of instruction were found to be common:

1. The Driver: attitudes, emotions, physical fitness, and alcohol.
2. Law affecting the operation of a motor vehicle: natural and man-made laws.
3. Construction, operation, and maintenance of a car.
4. Problems involved in driving: types of driving and driving conditions.
5. Testing and evaluation.[12]

The University of the State of New York (The New York State Education Department) has recently revised and published a driver education curriculum guide, *Driver and Traffic Safety Education: A Course Guide*, which includes the following elements:

1. Introduction to driver and safety education.
2. Orientation to the automobile.
3. Automobile operational skills.
4. The driver as a mechanism
5. Laws, regulations, ordinances and their environment.
6. Physical factors that control driving.
7. Perceptual skills and traffic strategy in the country.

[11] Judson W. McCune, *Including Driver Education in the Special Class Curriculum* (1969), p. 106.

[12] Dunlap and Associates, Inc., *Driver Education and Training* (Darien, Connecticut: Dunlap and Associates, 1968).

8. Perceptual skills and traffic strategy in the city.
9. Perceptual skills and traffic strategy on limited-access highways.
10. Social problems and driving.
11. Consumer education.
12. Traffic engineering.
13. Laboratory instruction.
14. Emergency driving procedures.[13]

Materials to aid in the multiple-car simulator method are included in this guide.

Broadly based instructors' guides developed by the various states include information necessary for planning, supervising, and managing programs of instruction as well as financing of programs, state driver education standards, information on how to organize instructional activities, teacher qualifications, forms for recordkeeping, information concerning evaluating programs of instruction, and information on facilities and equipment. Some guides include the placement of driver education in the school curriculum, time allotments, scheduling of students and public relations for driver education programs.

Methods listed for teaching driver education include, but are not limited to, the following:

1. The simulation method. This method utilizes mock units having features and characteristics similar to mobil compartments. They are manned by student learners. Audiovisual equipment is used to duplicate the driving environment.

2. The multiple-car method. Several automobiles are used simultaneously on a special off-street facility to provide student learners with actual driving experience. The instructor normally controls and supervises the practices and communicates with the practicing students by radio.

3. Television.

4. Team Teaching.

5. Programmed learning materials.

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[13]The University of the State of New York, The State Education Department, Bureau of Secondary Curriculum Development, *Driver and Traffic Safety Education: A Course Guide* (Albany, New York: University of the State of New York, 1969), p. 7.

6. Field trips.

7. Working models in the classroom.

8. Film strips.

9. Driver testing devices.

10. Dual control cars.

Resources used to present information to the student include driver license handbooks, codes and laws, textbooks, newspapers, magazines, and automobile maintenance manuals.

C. EXEMPLARY PROGRAMS AND CURRICULA MATERIALS

A driver improvement instruction outline is shown in Exhibit A in the Appendix. This material has been extracted from a guide published by the Wisconsin Bureau of Highway Safety Promotion, Wisconsin Division of Motor Vehicles. It was published as the official manual for the Traffic Safety Schools which provides refresher training for traffic court referrals. Judges, prosecutors, educators, and legislators made inputs into the manual.

Background information given in the guide is worthy of note. The primary purpose of the Wisconsin Traffic Safety School is to provide means for chronic traffic violators to better understand traffic responsibilities for the safety of themselves and others. The schools must be operated in full cooperation of the traffic courts. The traffic judge plays an important role in determining who can benefit from the school. Attendance may be compulsory. Wisconsin's schools of vocational, technical, and adult education are recognized as the "logical and better equipped local agency for establishing a traffic safety school."[14]

The Texas Education Agency is in the process of testing the hypothesis that non-degree personnel properly selected, trained and supervised, can be of valuable assistance in driver education programs. A training program was conducted at Texas A&M University and 113 teaching assistants were trained. Regular certified teachers (degree personnel) were prepared to be program managers and supervisors for the programs in which teaching assistants are utilized. The course of study for training assistants lasted five

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[14]Wisconsin Bureau of Highway Safety, *Wisconsin Traffic Safety School* (Wisconsin: Bureau of Highway Safety, 1970), p. 5.

weeks; the course of study for supervisors, three weeks. Each group met for eight hours a day, five days a week.[15]

The course for teaching assistants in the Texas experiment included basic driver education, methods of multi-car range instruction, simulator instruction and in-car instruction, an introduction to teaching principles, and 25 hours of practice teaching and observation. Detailed subject matter content was not available for inclusion in this report.

A 100-hour course guide for training commercial driver school instructors has been developed by the Wisconsin Board of Vocational, Technical and Adult Education. This course guide, now in preliminary draft form, stemmed from recent Wisconsin legislative action, making it mandatory that commercial driver school instructors must satisfactorily complete a 100-hour course in driver and traffic safety education in order to qualify for an instructor's license to teach students under 18 years of age. The development of this course guide was facilitated by federal funding through the National Highway Safety Bureau. The course is intended to develop proficiencies in:

1. Evaluating and improving the individual's driving knowledge and skills.
2. Planning lessons for classroom and in-car instruction.
3. Utilizing basic evaluation techniques in classroom and in-car settings.
4. Interpreting forms and regulations related to commercial driver school operations.
5. Understanding and interpreting motor vehicle traffic laws.
6. Utilizing selected classroom instructional procedures and methods.
7. Utilizing selected in-car instructional procedures and methods.
8. Assessing individual personality characteristics associated with effective instruction of the adolescent.
9. Knowing the role and the resources of related traffic agencies.
10. Utilizing curriculum materials developed for commercial driving schools.
11. Selecting and utilizing appropriate instructional aids.

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[15] Kenneth F. Licht, "How Good Are Driver Education Teaching Assistants: An Evaluation of the Texas Experiment," *Traffic Safety*, Vol. 70, No. 7 (June, 1970), pp. 9-11.

12. Knowing specific job requirements and individual responsibilities related to commercial driver school operations.[16]

The course guide is comprised of the following subject matter elements sequenced according to the order shown (time allotments also given):

BLOCKS OF INSTRUCTION	TIME ALLOTMENTS (Hours)
1. Classroom procedures and methodology	14
2. Commercial driver school curriculum	33
3. Evaluation and upgrading of driver performance	12
4. Evaluation of students	7
5. Lesson planning for classroom and vehicle	7
6. In-car procedures and methodology	12
7. Instructor qualities	1
8. Motor vehicle division regulations and forms	4
9. Motor vehicle traffic laws	4
10. Instructional aids	3
11. Resource agencies	1
12. Job requirements and responsibilities[17]	2

Other driver education course outlines are exhibited in the Appendix. These materials have been selected from sets of required courses prepared for students aspiring to be certified as driver education teachers (degree personnel). The materials include aspects of general safety education. Most of the suggested subject content also may be used in preparing driver education instructors and instructor-aides.

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[16]Wisconsin Board of Vocational, Technical and Adult Education, *Commercial Driver School Instructors: Course Guide* (Madison, Wisconsin: Board of Vocational, Technical and Adult Education, 1969), pp. 2-3.

[17]*Ibid.*, p. 4.

V. CONCLUSIONS

A. There appears to be a national need for improving driver education and training programs in public, private and commercial schools. There also appears to be a national need to make driver education more widely available to groups such as high school youth who vitally need basic knowledge and skills for responsible driving.

B. Should all public and private school systems in the nation attempt to provide comprehensive driver education programs, to expand and to improve programs already in existence, many more instructional personnel would be needed.

C. Apparently commercial schools have relied heavily upon non-degree personnel to provide instruction in driver education. What common background training and skills are required of instructors of commercial schools is not known. Nor is there record of how effective non-degree personnel have been in these programs of instruction.

D. Non-degree personnel generally have not been widely accepted as driver education instructors in public schools.

E. There has recently been new emphasis to permit non-degree personnel to assist in driver education programs at the secondary school level. No national decision has been reached on the educational background and training needed by such personnel.

F. There appear to be very few programs to prepare non-degree personnel for roles as driver education instructors or instructor-aides.

G. Should more states deem it necessary to provide non-degree training for driver education personnel, it appears that a careful student selection process should be implemented.

H. The training of instructors in driver education should relate to programs and courses for other traffic services (police traffic and highway engineering programs) in order to permit career alternatives in the broad area of highway safety.

I. Advisory committees comprised of individuals from various highway safety disciplines could play an important part in bringing driver education programs closer in uniformity to the National Highway Safety Standard for Driver Education.

J. Upon the basis of this survey and review of literature in driver education, few materials exist for training non-degree driver education instructors and instructor-aides. Few formal training programs are currently being conducted by post-secondary educational institutions.

K. Numerous curriculum guides and other instructional materials on driver education that exist are distributed to encourage secondary driver education in the public schools. These could provide a sound base for planning subject matter content for occupational programs for non-degree driver education instructors and instructor-aides. Several commercial publishing houses and professional organizations produce driver education resource materials that may be useful in planning subject matter content.

VI. DISCUSSION-RESEARCH QUESTIONS

A. In order to provide appropriate and meaningful support to driver education instructors what skills should be mastered by instructor-aides? How can these knowledges and skills best be identified?

B. How can a more meaningful relationship be established between driver education programs in public and in commercial schools? What benefits can accrue in close ties between public and commercial school instructional personnel?

C. What barriers exist in public acceptance and support for utilizing non-degree personnel as instructor's aides for driver education programs in secondary public schools? What strategies can be applied in removing or minimizing these barriers?

D. What problems are foreseen in planning and implementing programs in post-secondary institutions to prepare non-degree personnel for roles as instructors and instructor-aides?

E. How much time would be needed to prepare non-degree personnel for roles as instructors and instructor-aides? How can specific time allotments be determined for each subject area in driver education?

F. What criteria should be used in selecting students for non-degree driver education instructor and instructor-aide training?

G. What steps should be taken to develop and maintain a close relationship between occupational programs and courses in police traffic services, traffic and highway engineering programs, etc.?

H. What strategies can be applied to develop and maintain an identity with the state and national programs of highway safety, particularly the national standard for driver education? How could chief advisory groups to governors' offices and highway safety coordinators be involved in preparing recommendations for driver education?

I. How might existing curriculum guides and other instructional materials prepared for teaching youth to drive be utilized in planning and developing subject matter content for preparing non-degree personnel for roles as driver education instructors and instructor-aides?

J. Is it feasible to utilize driver education instructors in performing task analysis in connection with curriculum development for training driver education instructors and instructor-aides?

K. Should any portion of a driver's instruction be taught by non-baccalaureate degree personnel? If so, what portion?

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Sportsmanlike Driving. The South Carolina Educational Television Center. The University of Nebraska, Great Plains Instructional Television Library, Lincoln, Nebraska.

APPENDICES

EXHIBIT B

GENERAL SAFETY EDUCATION*

HOURS

Three hours a week - three credits

SUGGESTED TEXTS

Stack and Elkow. *Education for Safe Living.* 4th ed. Prentice-Hall, Inc., New York, New York.

An extensive bibliography of reference material is used.

GENERAL DESCRIPTION

A general safety course of value to all students interested in conservation of human resources. A required course for students who desire certification in the field, "Education for Safe Living" (Highway safety and general safety education). This course covers the problem of saf living in many situations. Emphasis is directed toward making the student understand his responsibility as a citizen and as a teacher in helping to reduce the number of people killed and injured due to accidents.

OBJECTIVES

1. To develop an increased appreciation of the scope of safety education and its contribution to the general objectives of education.

2. To help students acquire knowledge which will be helpful to them in achieving specific objectives in teaching safety education.

3. To acquaint students with sources where they can secure help and information on specific phases of safety education.

4. To aid students in organizing a definite plan of action on some phase of safety education in which they are interested.

5. To increase ability to assume leadership in matters pertaining to safety education.

*Selected from "Driver Education Curriculum," (for preparing instructors and instructor-aides), Millersville State College, Millersville, Pennsylvania, 1970.

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COURSE OUTLINE

I. Content
   A. Safety, a major problem of modern life
      1. The safety problem
      2. Increased hazards of living in the twentieth century
      3. Failure of man to adjust to changing environment
      4. Origin and development of the "Safety Movement"
      5. Present status of safety education
   B. Philosophy and purposes of safety education
      1. Definitions of safety education
      2. The safety concept
      3. Purposes of safety education
      4. Objectives of safety education for elementary and secondary schools
   C. Basic psychological principles in elimination of accidents
      1. Causes of accidents
      2. Applications of the laws of learning
      3. The problem of attitudes
   D. Basic facts relating to accidents and hazards in the following areas
      1. School safety and school bus transportation
      2. Home and farm safety
      3. Fire prevention and fire protection
      4. Safety in physical education and recreation
      5. Safety in industrial arts and vocational education
      6. Street, highway, and bicycle safety
   E. Evaluation of methods of teaching safety in elementary and secondary schools
      1. Factors determining choice of methods
      2. Most effective methods
      3. Audiovisual aids
   F. First aid
      1. Programs
      2. Instructional procedures
   G. Civil defense and disaster relief
      1. Natural disasters (wind, storm, fire and flood)
      2. Man-made disasters (war and nuclear attack)
   H. Resources in safety education
      1. Authorities
      2. Books, pamphlets, periodicals
      3. Organizations
   I. Measuring the results of safety
      1. Purpose, principles, and means of evaluation

II. Evaluation
   A. Analysis of student activities
   B. Tests

III. Methods of Instruction
   A. Group discussions
   B. Individual and group reports
   C. Surveys
   D. Accident reporting
   E. Demonstrations
   F. Visual aids
   G. Field trips
   H. Talks by specialists
   I. Tests

EXHIBIT C

HIGHWAY SAFETY AND DRIVER EDUCATION*

HOURS

Three hours a week - three credits

SUGGESTED TEXTS

Aaron, James E., and Strasser, Marland K. *Driver and Traffic Safety Education*. MacMillan Company, New York, 1966.

A very extensive bibliography of reference books, periodicals, and miscellaneous publications is used.

The students are thoroughly familiarized with high school texts which are widely used as basic texts in high school courses.

GENERAL DESCRIPTION

A required course for students desiring certification in the field of "Education for Safe Living" (Highway safety and general safety education). The course is designed to prepare teachers for the task of instructing driver education and safety education in elementary and secondary schools. Students taking this course should have several years experience in driving more than one kind of automobile, in cities and on highways, during all seasons, and with a good record.

OBJECTIVES

1. To develop in the student a proper appreciation of the needs and values of the driver education program, so that motor vehicle accidents will be reduced.

2. To train the student in content and method, so he will be well qualified to set up and teach classroom work and behind the wheel instructions.

3. To enable each student to improve his own habits and skills of driving in order that he will be able to demonstrate effectively.

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*Selected from "Driver Education Curriculum," (for preparing instructors and instructor-aides), Millersville State College, Millersville, Pennsylvania, 1970.

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COURSE OUTLINE

I. Content
   A. Today's problems of traffic safety
      1. General reasons for the traffic problems
      2. Factual analysis of accident causes
   B. Scope of traffic safety program
      1. Needs of the young driver
      2. Why teach driving instruction in public schools?
      3. Historical background of traffic safety
   C. Teacher qualifications
      1. Personal make-up
      2. Special preparation
   D. Teaching techniques in dr.ver education
   E. Materials and equipment available for teachers
   F. Tests for use in driver education
   G. Solving administrative problems
      1. Fitting course into high school curriculum
      2. Selecting students for the driving course
      3. Providing equipment, including dual control car, for practice driving and other activities
      4. School liability and insurance
      5. Cost studies
      6. New trends--large group instruction and simulation
   H. Developing a course of study and familiarizing student with Pennsylvania Department of Public Instruction guide Bulletin 395 (revised)
   I. Practice teaching (Lab)
      1. Classroom teaching lessons
      2. Approximately 10 hours of instruction by student to a beginning driver
   J. Records and reports
      1. General purposes
      2. Records found useful and necessary in high school driving courses
   K. Public relations
      1. Need
      2. Steps for schools to take to win and keep support
      3. Groups that can give special aid
      4. State and national professional organizations (P.A.S.E.) (A.D.S.E.A.)

II. Appraisal Methods
   A. Tests
      1. Written--knowledge and attitude
      2. Skill
      3. Road test in traffic
      4. Psychophysical tests
   B. Success as a student teacher
   C. Driving records
   D. Analysis of a student's activities

III. Methods
   A. Lectures
   B. Group discussion of reports and investigations
   C. Tests
   D. Visual aids
   E. Talks by experts and specialists

EXHIBIT D

ORGANIZATION AND ADMINISTRATION OF SAFETY EDUCATION*

UNIT 1

I. Duties and Responsibilities of School Administrator

II. Principles of Organization and Administration

III. Organizing for Safety Education
- A. Depending on size of system
- B. Cooperation with civic or community organizations
- C. Duties of all school personnel (safety director, department heads, classroom teachers, and custodians)
- D. Organization chart

IV. Problems in the Organization and Administration of the Safety Program
- A. Securing faculty cooperation
- B. Scope and organization of the safety program
- C. The program by grade level
  1. Elementary
  2. High school
  3. Adult level

V. Organization for Instruction
- A. Integration and correlation
- B. Safety course in curriculum

VI. Providing Pupil Participation

VII. Establishing Community Relationships

VIII. Evaluating the Safety Program

IX. The In-service Training of Teachers Through Supervision
- A. The Institute
- B. Teachers' meetings
- C. Demonstration teaching
- D. Education clinics
- E. Professional study
- F. Reference library
- G. Professional relations
- H. Teacher self-improvement

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*Selected from "Driver Education Curriculum," (for preparing instructors and instructor-aides), Millersville State College, Millersville, Pennsylvania, 1970.

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UNIT 2

I. Program Planning and Curriculum
   A. Need for program planning
   B. Essential terms
      1. Course of study
      2. Curriculum
      3. Safety education
      4. School safety education
      5. Public safety education
      6. Safety instruction
      7. Safety service
      8. Safe school living
   C. Administrative attitude
   D. Intangible and tangible results
   E. Extensiveness and intensiveness
      1. Wide in scope and dynamically stressed
   F. Basic approaches
      1. Timeliness in presenting subject matter
      2. Seasonal emphasis
      3. Psychological principles of learning
      4. Flexibility
      5. Grade level
      6. Logical versus psychological organization
      7. Methodology
      8. Organization for instruction
   G. Launching the program
   H. Producing and administering the course of study
      1. General considerations
      2. Production of the course of study
   I. The instructional unit
   J. Summary

EXHIBIT E

PSYCHOLOGY IN ACCIDENT PREVENTION AND SAFETY EDUCATION*

HOURS

Three hours a week - three credits

SUGGESTED TEXT

Lykes, N. *A Psychological Approach to Accidents.* Vantage Books, Inc., New York, 1954.

GENERAL DESCRIPTION

A required course for students desiring certification in the field of safety education. The purpose of this course is to establish the relationship between the study of psychology and the study of accident prevention.

OBJECTIVES

1. To formulate a basic understanding of human behavior.
2. To relate this understanding to the psychological causes of accidents.
3. To help students develop safety consciousness and attitudes conducive to safe living.
4. To better prepare prospective teachers to deal with psychological considerations in accident prevention.

COURSE OUTLINE

I. Content
   A. Basic psychological principles in accident prevention
      1. The accident problem
         a. Industrial accidents and related problems, safety programs
         b. Motor vehicle accidents and safety programs
         c. Home and farm accidents

*Selected from "Driver Education Curriculum," (for preparing instructors and instructor-aides), Millersville State College, Millersville, Pennsylvania, 1970.

d. School accidents and safety programs in the school
e. Emotional disturbances and accident susceptibility

II. Class Requirements
A. Read the required text
B. Read the assigned chapters and outline these chapters in order to be able to discuss the contents of the chapters
C. Prepare a report on outside research dealing with psychology in accident prevention

III. Procedures
A. Classroom discussions
B. Lectures and demonstrations
C. Individual and group problem solving
D. Guest speakers and visual aids
E. Term papers and research
F. Psychophysical testing
G. Field trips and surveys

IV. Evaluation
A. Oral discussion
B. Analysis of student activities
C. Written knowledge and attitudes

DRIVER LICENSING

I. INTRODUCTION

> Much better techniques of driver licensing are possible with present knowledge, but are not in use in many states because of cost and for other reasons. In addition, many states do not have systematic procedures for relating the performance of the motorist (e.g., his record of accidents and moving violations) to licensing.
>
> Apart from linking driver performance to licensing, licensing agencies also have the difficult problem of medical criteria for licensing. Physicians have the related problem of deciding when to recommend that a patient no longer drive.
>
> The objective of driver licensing and performance activities will be to stimulate improved driver licensing with proper safeguards against licensing potentially dangerous drivers on the one hand, and needlessly removing the opportunity of the citizen to drive on the other.[1]

The National Highway Safety Act of 1966 recognizes the importance of driver licensing and requires that a standard for appropriate driver licensing procedures be developed. As a result, Highway Safety Program Standard No. 5--Driver Licensing, was issued by the National Highway Safety Bureau on June 27, 1967.

Succinctly stated, the purpose of the National Standard for Driver Licensing was to improve the quality of driving by implementing more effective and uniform licensing procedures, and thereby reduce the number of accidents while also increasing the efficiency of traffic flow.[2] The Standard assures everyone has the right to drive if physically and mentally qualified.

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[1] Insurance Institute for Highway Safety, *National Highway Safety Standards* (Washington, D.C.: Insurance Institute for Traffic Safety, 1969), 9 pp.

[2] U. S. Department of Transportation. National Highway Safety Bureau, *Highway Safety Program Standard 5: Driver Licensing* (Washington, D.C.: U. S. Department of Transportation, National Highway Safety Bureau, June, 1967).

In order for states to comply with this standard the following conditions must be met:

A. Develop a state-wide licensing program to insure that only persons physically and mentally qualified may drive and to prevent the needless denial of the right to drive.

B. Establish policies for reexamination at least once every four years for visual acuity and knowledge of the rules of the road.

C. Create a medical advisory board to advise the licensing agency on physical and vision standards.

D. Develop a system for maintaining continuing records of driver histories, and means for quick retrieval of these data.

It is recognized that driver licensing activities will not achieve the desired results without sufficient, capable manpower. The focus of this report will be on occupational preparation of "contact" driver licensing personnel--driver examiners, and hearing officers (persons responsible for hearing protests or appeals of decisions made by police or examiners.

II. GENERAL PROGRAM BACKGROUND AND CONSIDERATIONS

The "tell, show, do, and check" method is well recognized as a conventional teaching technique. Someone "tells" by informally lecturing. The "show" method is employed when a demonstration can more vividly present a principle on the steps of driving. Audio-visual aids, or the "real thing," may be involved to "show." The major investment of time is likely on the "do," where the student is engaged in actual practice. A "check" of the students performance allows for an evaluation of the students command of the knowledge and skills of driving. Deficiencies are identified and the student is retaught, utilizing the same techniques.

Duties of driver license personnel encompass the latter two techniques--"do" and "check." Ideally, the "tell" and "show" techniques are accomplished prior to applying for a license, e.g., through a driver education course. Someone needs to be in a position to know the skill, knowledge, and attitude of each person applying for a driver's license. Driver license examiners and the driver license hearing officers have been singled out for being directly responsible for determining if applicants are qualified to drive.

Although driver licensing is generally accepted as a state function, it has been suggested that driver education teachers give license examinations to students who have completed driver education courses. The teacher is in a position to observe student driver behavior. It would no doubt be highly desirable for the state driver licensing divisions, driver education departments at the state and local levels, and other agencies and institutions which have records of driver performance and physical and mental conditions of drivers and potential drivers to share information essential to driver and traffic safety.

A. OCCUPATIONAL SUMMARIES

The targeted occupations are driver license examiner and the driver license hearing officer. The duties and responsibilities encompassed in each of these occupations are briefly characterized in the next two paragraphs.

1. DRIVER LICENSE EXAMINER

The driver license examiner examines applicants to determine if they are qualified to drive. Through written and oral examinations the examiner evaluates the applicant's ability to distinguish different shapes and types of traffic control devices and the meaning of shapes, colors, etc., in relation to highway safety; determines the applicant's degree of familiarization

with natural laws (forces of nature) and man-made laws, regulations, and ordinances which govern the safe operation of motor vehicles; and assesses the applicant's understanding of duties of motor vehicle operators during emergency situations.

The driver license examiner is responsible for informing candidates of deficiencies and arranging for remedial instruction. The driver license examiner may evaluate the applicant's medical record and attest to physical impairments.

The driver license examiner tests driving skills of applicants by asking the applicant to drive. Driving activities enable the examiner to observe and evaluate the candidate's attention, emotional maturity, self-control, and psycho-motor reactions to natural laws, man-made traffic laws, regulations, and ordinances.

The driver license examiner may also inspect brakes, stop lights, signal lights, horns, tires prior to the driving skill examination; collect fees and issue instruction permits; issue licenses; supervise and instruct other driver license examiners; lecture before school and community groups concerning driver improvement programs; and compile information for improving highway regulations.

2. DRIVER LICENSE HEARING OFFICER

> Driver license hearing officers review records of repeated violators of safe driving practices to determine appropriate state action; examine the facts about and causes of motor vehicle accidents which involve considerable damage, loss of life, or violation of motor vehicle laws; and conduct hearings on request for reinstatement of revoked or suspended driver licenses. Supervisory officers make revocation, suspension, and reinstatement decisions.[3]

Driver license hearing officers may also lecture to school and community groups concerning driver improvement programs and make special investigations to gather information on which to improve highway safety laws, regulations, and ordinances.

B. MANPOWER REQUIREMENTS

Booz, Allen, and Hamilton have estimated the maximum and minimum number of Driver License Examiners and Driver License Hearing Officers needed nationwide from 1968 to 1977. These are shown in figures 1 and 2.

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[3]Booz, Allen, and Hamilton, Inc., *Safety Specialist Manpower* Vol. I, (Washington, D. C.: Booz, Allen, and Hamilton, Inc., 1968), Appendix B.

FIGURE I

DRIVER LICENSING (DRIVER LICENSE EXAMINER)[4]

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Estimates of the States	4,780	5,690	6,205	6,411	6,590	6,748	6,892	6,999	7,045	7,061
Alternative 1	12,787	13,370	13,946	14,459	15,094	15,755	16,448	17,180	17,942	18,755
Alternative 2	2,703	2,832	2,977	3,132	3,305	3,455	3,608	3,762	3,931	4,104

FIGURE II

DRIVER LICENSING (DRIVER LICENSE HEARING OFFICER)[5]

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Estimates of the States	311	327	352	365	377	387	398	409	409	409
Alternative 1	1,070	1,116	1,165	1,214	1,269	1,327	1,387	1,444	1,511	1,575
Alternative 2	348	350	375	396	409	430	447	474	496	508

[4] *Ibid*, Appendix E.

[5] *Ibid*.

While 5,091 were employed in these two occupations at the state level in 1968, Booz, Allen, and Hamilton estimated that 13,85[illegible] persons were needed to maximally enforce standards. In 1971, between 3,528 (minimum) and 15,673 (maximum) persons will be needed if the standard is to be met. The states estimate that 6,776 persons will be required in 1971.

C. OTHER RELATED PROGRAM INFORMATION

1. PREREQUISITES FOR MOTOR VEHICLE LICENSING EXAMINER

One state requires the following physical and mental requirements upon appointment by the driver licensing division:

1. Candidates must be graduates of a senior high school or possess a high school equivalency diploma.

2. Candidates must be at least 21 years of age and must not have passed their 40th birthday.

3. Candidates must have satisfactory hearing (the ability to hear and identify words spoken or whispered nearly without the use of a hearing aide); satisfactory eye sight (vision must be at least 20/40 in each eye, corrective lenses or glasses permitted); satisfactory color vision (ability to distinguish individual basic colors against a favorable background).

4. Candidates must be free from any physical or mental defect, deformity or condition that would impair ability to perform satisfactorily the duties of the position.

5. After appointment, candidates may be required to undergo periodic medical examinations.

6. Candidates must be licensed to drive and have been continuously licensed to drive automobiles in the state, without any revocation of license, for a three-year period.

7. Candidates must be of good character and be subject to a thorough investigation prior to appointment.[6]

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[6]The Arco Editorial Board, *Motor Vehicle License Examiner: Study Guide for Scoring High* (New York, New York: Arco Publishing Company, Inc., 1967), pp. 9-10.

It is necessary that driver licensing personnel be reliable, and possess the ability to meet and deal effectively with the public and maintain the confidence of the public. They must maintain good driving records.

Driver license hearing officers work closely to several "publics," including traffic courts, school systems, news media, police agencies, and driver license applicants. Driver license hearing officers must be qualified to interpret certain laws and provide broad-based expertise in response to the needs of these publics.

2. RELATION OF DRIVER LICENSING ACTIVITIES TO NATIONAL AND STATE SAFETY GOALS AND OBJECTIVES

> In all states a driving test is required...These tests cover only the basic minimum knowledge involved in operating a motor vehicle and in no sense attempt to measure abilities to cope with emergency situations. All states require a test of vision and of knowledge of the laws...A few states require physical or medical examinations for first licensing, but there is no adequate evidence that these programs influence accident rates...To some extent, driver education courses provide more stringent tests of skill than license examinations.[7]

This information was obtained prior to the new highway safety emphasis that have occured since the issuance of the National Standard for Driver Licensing. The Standard provides the thrust for states to begin to develop more adequate driver licensing programs, to tie these programs to a multiple number of local, state, and national governmental agencies concerned with highway and traffic safety, and to request that private organizations provide inputs to such programs aimed at increasing the safety of the driving public. Physicians may be required to report patients suffering from chronic conditions. Courts may be required to report people convicted for illegal use of dangerous drugs.

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[7]Arthur D. Little, Inc., *The State of the Art of Traffic Safety* (New York, New York: Praeger Publishers, 1970), p. 265.

III. PROGRAM CURRICULA FOR TRAINING DRIVER LICENSE EXAMINERS AND DRIVER LICENSE HEARING OFFICERS

All states require tests for a drivers license. Some states now require that drivers be reexamined periodically. Driver license examiners are usually given responsibilities for administering and scoring oral, written, and driver performance tests, and rejecting the applicant if necessary. Increased driving restrictions will no doubt prompt an upswing in persons contesting or appealing decisions made by the driver license examiners and police traffic patrolmen.

What does the driver license examiner and the driver license hearing officer need to know and be able to do? This section refers to materials to be used in training driver license examiners and driver license hearing officers.

Curriculum materials used in training driver education instructors, materials used in secondary school driver education courses, and police training courses encompassing driver licensing may be used for training driver licensing personnel.

Booz, Allen, and Hamilton, Inc., and The Stanford Research Institute tried to determine the duties of driver license examiners and hearing officers and necessary training and experience for both fields. Segments of these works are in the Appendix.

Subjects which may be considered for inclusion in curriculum materials are listed in the Appendix in Exhibit E. (The list is not in a sequential order.) They relate to entry-level knowledges and skills required of driver license examiners. However, driver license hearing officers will need upgrading knowledges and skills in many of these areas as new developments occur.

IV. CONCLUSIONS

The following conclusions have been drawn from this unit:

A. The National Standard for Driver Licensing was intended to provide groundwork for more effective and meaningful driver licensing activities in the states. This means that prior to licensing, drivers are to be tested on their driving performance and their knowledge of laws, rules, and ordinances essential to safety. License agencies are to become more involved in testing and evaluating activities to help insure that motor vehicle operators meet physical and mental standards.

B. Mass numbers of drivers will need to be reexamined at regular intervals (not to exceed four years) if the 50 states comply with the National Standard for Driver Licensing. These will be in addition to the increasing numbers of persons applying for drivers' licenses for the first time.

C. Additional qualified personnel will be needed by driver license agencies to accommodate the increasing number of applicants, and to implement the provisions of the National Standard for Driver Licensing. The manpower needs are greatest for driver license examiners.

D. The duties and responsibilities of driver licensing personnel must be more clearly identified before detailed curriculum materials can be developed. Driver licensing procedures vary from state to state. However, a "core" of knowledges and skills can be identified which apply naturally in training driver licensing personnel. Curriculum should be based upon the National Standard for Driver Licensing and the States' unique licensing regulations. Procedures peculiar to individual states can be identified by an analysis of the tasks to be performed by driver license personnel.

E. Driver licensing personnel must be particularly cautious to discern attitudes and behaviors of driver license applicants.

V. DISCUSSION-RESEARCH TOPICS

The findings of this report raise a number of questions. It is the authors' hope that each of the following may be carefully considered as discussion-research topics by a number of interested persons or groups.

A. Do local police departments become actively involved in driver licensing programs? If so, what role do they generally play in driver licensing?

B. What common duties and responsibilities are inherent in driver licensing, driver training, driver education (teacher education), and police traffic services? Would it be feasible to mesh these commonalities and provide contemparaneous instructional activities for driver license examiners, driver license hearing officers, driver education instructors, and police traffic patrolmen?

C. What are the peculiarities of driver licensing procedures in the states? Should these be incorporated into curriculum materials which may be distributed on a regional or national scale?

D. Is in-service training or preparatory training more needed to enforce the National Standard for Driver Licensing?

E. Is it reasonable to assume that inexperienced persons can be prepared for roles as driver license hearing officers through regular programs of instruction? If not, what special instruction and/or experience is necessary to enter these jobs?

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CODES AND LAWS

I. INTRODUCTION

Highway accidents often occur because drivers or pedestrians lack a full understanding of traffic laws and codes relating to highway safety. Motor vehicle codes and laws are not uniform within state boundaries or throughout the nation. The situation results in motorists being confused with conflicting traffic laws and traffic control systems, and often prompts operators to ignore the traffic laws. The lack of uniformity in codes and laws within the states has made the law enforcement task more complex and less effective. Also, driver education and training instructors have been hindered in providing well rounded instruction on state laws and regulations governing motor vehicles.

The Highway Safety Program Standard for Codes and Laws enables the states to formulate plans to achieve uniform rules of the road in all jurisdictions. Jurisdictions are required to adopt motor vehicle codes and laws and ordinances which are consistent with those of neighboring states. The Standard also indicates that each state will "undertake and maintain continuing comparisons of all State and local laws, statutes and ordinances with the comparable provisions of the Rules of the Road Section of the Uniform Vehicle Code."[1]

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[1]U. S. Department of Transportation. National Highway Safety Bureau, *Highway Safety Program Standard 6: Codes and Laws*, (Washington, D.C.: U. S. Department of Transportation, National Highway Safety Bureau, June, 1967).

II. RELATION OF STANDARD FOR CODES AND LAWS TO OTHER NATIONAL HIGHWAY SAFETY STANDARDS

The Standard for Codes and Laws has strong relationships with other Highway Safety Standards, e.g., Driver Education, Driver Licensing, Traffic Courts, Traffic Control Devices, and Police Traffic Services. Personnel employed in these highway safety areas must be knowledgeable of traffic laws and regulations and must keep themselves informed of all changes as they occur. This implies that preparatory in-service training related to codes and laws is important for personnel employed in each of the areas if the provisions of the standards are to be enforced.

Several non-government groups have developed materials related to national uniformity in traffic codes and laws. The Uniform Vehicle Code, which was revised in 1966, was developed by the National Committee on Uniform Traffic Laws and Ordinances as a guide or pattern for state and local action. The Uniform Vehicle Code deals with such subjects as rules of the road, driver licensing, accident reporting, vehicle registration and titling, periodic motor vehicle inspection, and the powers of state and local authorities involved in highway safety.

The Highway Users Federation for Safety and Mobility, in cooperation with the American Association of Motor Vehicle Administrators, is active in research and development activities related to uniform vehicle codes. One major activity focuses on publishing workbooks for states to use in comparing their motor vehicle laws with the Uniform Vehicle Code.[2]

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[2]Highway Users Federation for Safety and Mobility, *50 States United* (Washington, D.C : Highway Users Federation for Safety and Mobility, 1970), p. 6.

III. IMPLICATIONS OF THE STANDARD FOR CODES AND LAWS TO OCCUPATIONAL EDUCATION

Research conducted by Booz, Allen, and Hamilton, Inc. (1968), The Stanford Research Institute (1969), and the National Association of Counties (1970), has not identified, nor has reflected an anticipation of, non-B.S. degree personnel doing significant highway safety work in the area of codes and laws. One occupation, codes and laws program specialist, has been identified as a new and emerging occupation. However, this position entails considerable training and experience in law, including a law degree from an accredited law school.

The resource materials compiled during the course of this project do not contain elements that provide a significant degree of insight into highway safety training relative to codes and laws. However, upon the basis of a review of the literature that impacts upon other highway safety standards, it is assumed that a significant part of occupational instruction in several areas of highway safety would cover traffic codes and laws. Perhaps this is the most significant aspect of the Standard for Codes and Laws in regard to occupational education.

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TRAFFIC COURTS

I. INTRODUCTION

The traffic court is the only court a great number of people "see" during their entire lives. Traditionally, traffic courts have been responsible for disposing of overwhelming numbers of fines and sentences and have revoked or suspended numerous driving privileges. A great number of these cases have involved teenage drivers. Although a comparatively small number of the American people ever find themselves defendants in criminal court action, it is estimated that 90 percent of the cases are the result of traffic violations.

> Every year approximately 30 million traffic citations for the violation of traffic laws are issued to residents of the United States. These citations cover everything from manslaughter to those involving the unlawful parking of a motor vehicle. While most of these cases are annually handled through violations bureaus where the offender need only pay a fine according to a prepublished fee schedule, either in person or by mail, approximately 5 million cases are heard in court.[1]

A great deal of effort has been directed to improving the quality and performance of police and traffic courts. Among these are more efficient administration, appointment of full-time judges, removal of traffic courts from politics, and the introduction of appropriate referral procedures to enable the offender to understand himself as a driver and to change faulty habits and attitudes.

The National Highway Safety Act of 1966 recognizes the importance of traffic courts in reducing highway accidents. It made provisions for a standard to be developed that would require states to reappraise and review their traffic court systems and to develop and implement plans to assure that all traffic courts compliment highway safety. As a result, Highway Safety Program Standard No. 7, Traffic Courts, was promulgated on June 27, 1967. The Standard

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[1] Arthur D. Little, Inc., *The State of the Art of Traffic Safety* (New York, New York: Praeger Publishers, 1970), p. 25.

requires each state to initiate and maintain a program which requires courts to notify the state traffic records system of all convictions concerning moving traffic violations. The Standard recommends that: 1) uniform accounting systems and uniform court procedures be established; 2) individuals charged with moving hazardous traffic violations be required to appear in court; and 3) court services be reasonably available to alleged traffic offenders.

II. RELATIONSHIP OF TRAFFIC COURTS TO OTHER HIGHWAY SAFETY ACTIVITIES

A congenial working relationship between traffic law enforcement personnel and the traffic courts enhances traffic safety. It is important that police traffic service personnel be able to interpret the laws and produce in the courts proper and sufficient evidence. The traffic courts, in turn, are responsible for efficiently and impartially dealing with cases brought before them. This is necessary if traffic law enforcement is to be effective.

Traffic courts are also responsible for establishing a close working relationship with driver education personnel, including cooperating fully with, and participating in, secondary education and adult driver improvement efforts.

> Traditionally, courts have meted out fines and sentences and revoked or suspended driving privileges. However, this has not proved adequate in changing driver behavior. Violators often pay their fines, live out their suspensions, and resume driving with the same bad attitudes which characterized them before their court appearance. The traffic court judge plays a key role in determining which of the violators appearing before him can logically benefit from a driver improvement school.[2]

Traffic court personnel must ultimately be concerned with other areas of highway safety, including motorcycle safety, driver licensing, codes and laws, alcohol in relation to highway safety, traffic records, and pedestrian safety.

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[2]Wisconsin Division of Motor Vehicles, Bureau of Highway Safety Promotion, *Traffic Safety School* (Madison, Wisconsin: Wisconsin Division of Motor Vehicles, Bureau of Highway Safety Promotion, 1970), pp. 4-5.

III. IMPLICATIONS OF THE NATIONAL STANDARD FOR TRAFFIC COURTS TO OCCUPATIONAL EDUCATION

The National Association of Counties Research Foundation recently conducted a survey of local governments in the United States in an effort to determine the number of safety manpower employed by counties, municipalities, townships and school districts. A segment of this survey was concerned with traffic courts. The following general statements perhaps best characterize the manpower situation in this area of highway safety.

> Generalized statements concerning the traffic court system in the surveyed jurisdictions are difficult to make. On the whole, the system is confusing because of the variations in court organization from state to state. Courts having jurisdiction in traffic cases include district, circuit, county, magistrate, municipal, police and justices of the peace. In several instances, these courts had overlapping responsibilities and presented a bewildering situation.
>
> Full-time staffing of traffic courts at the county level was the exception rather than the rule. For the most part, county courts handled a variety of types of cases including traffic violations. As a consequence, the full-time court personnel estimated 50 percent of their time was devoted to traffic areas. In the smaller counties, court organization consisted typically of a judge, prosecutor and clerk of court. As the population of counties increased, court organization became more sophisticated and the following personnel were added: an assistant clerk of the court to handle the increased administrative work load; a court reporter to take and transcribe proceedings; a baliff to maintain courtroom order; and dependent upon state law, a public defender to represent those unable to afford private counsel. Assisting these court officials are secretarial and clerical staff who make transcripts, receive fines and help with routine office duties. Although they are full-time employees, only a percentage of their time is related to traffic violations. In addition to these court personnel, one county reported having a full-time public information specialist to help in achieving the goals of the traffic court standard. It was his function to coordinate the educational traffic safety actiities within the jurisdiction and to publicize local traffic laws.

> Nearly one half of the municipal governments included in the survey did not operate a traffic court system. Instead, they depended upon county, district or state courts to handle traffic violations. Full-time traffic court employees were found only in the more populous municipalities. In the other municipalities, a judge, prosecutor and clerk of court served a portion of their time as traffic court officials. Additional employees similar to those found in the county court systems were also present in larger municipalities under various titles including: police court judge; city solicitor; patrolman; and deputy clerk. Their duties and functions are basically the same as county court employees with analogous positions. Clerical and secretarial employees assist these municipal court officials on a part-time or full-time basis as needed.[3]

Police traffic personnel who make arrests for traffic violations and investigate accidents often are required to make court appearances and give testimony in connection with traffic cases. Occupational training provided for police traffic services personnel must be inclusive of knowledges and skills related to court appearance and testimony. Some of the subject areas to be considered are listed below.

A. The court system
B. The officer as a witness
C. Trial terms
D. Preparing for testimonials
E. Giving testimonials
F. 1. Taking the oath
   2. Describing the accident scene or traffic situation
   3. Answering questions
   4. Avoiding personal feelings
G. Leaving the witness stand

The other occupations (less than B.S. degree) represented in traffic courts do not appear to entail a need for a significant degree of highway safety training. However, as the Standard for Traffic Courts is effectively adopted by the states and communities, a greater need may develop for traffic court personnel to be provided with a significant amount of highway safety instruction.

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[3]National Association of Counties Research Foundation, *Safety Manpower Survey of Local Governments in the United States* (Washington, D.C.: National Association of Counties Research Foundation, no date), pp. 20-21.

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	COMMENTS:				

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4.	Driver Education	1	2	3	4
	COMMENTS:				
5.	Driver Licensing	1	2	3	4
	COMMENTS:				
6.	Codes and Laws	1	2	3	4
	COMMENTS:				
7.	Traffic Courts	1	2	3	4
	COMMENTS:				