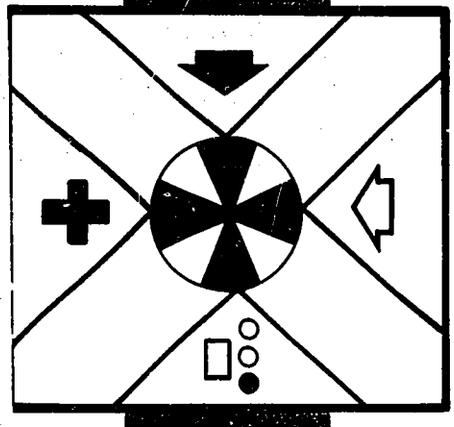
DOCUMENT RESUME

ED 069 848 VT 016 942

AUTHOR	Daugherty, Ronald D.; And Others
TITLE	Accident Investigation Technician Instructor Training Institute. Final Report.
INSTITUTION	Ohio State Univ., Columbus. Center for Vocational and Technical Education.
SPONS AGENCY	Department of Transportation, Washington, D.C. National Highway Safety Bureau.
PUB DATE	Oct 72
NOTE	167p.
EDRS PRICE	MF-$0.65 HC-$6.58
DESCRIPTORS	Course Content; *Curriculum Development; Curriculum Guides; *Inservice Teacher Education; Investigations; Lesson Plans; Post Secondary Education; Subprofessionals; *Teacher Workshops; *Technical Occupations; *Traffic Accidents

ABSTRACT

To assist States in implementing Highway Safety Program Standard 18, "Accident Investigation and Reporting", the National Highway Traffic Safety Administration funded an instructor training program for a new occupational field in highway safety, accident investigation technician. The Center for Vocational and Technical Education executed this program by developing a curriculum model and by conducting five regional training workshops. The workshops had two purposes, the primary one to evolve a basic curriculum package from the model and the secondary to train instructors and improve teaching skills. The curriculum package consisted of a course guide, the instructor's lesson plan guide, and a student study guide. The workshops provided 30 hours of teacher training for the 64 participants from 35 States, a nationwide sampling selected for their knowledge of accident investigation and major teaching or coordinating responsibilities. The curriculum package developed at the workshops is not a final product; field testing and evaluation will be performed before acceptance and publication. The report includes pre-workshop information, workshop programs, and participant evaluation forms. (CD)



Accident Investigation Technician INSTRUCTOR TRAINING INSTITUTE

Final Report

Prepared for:

U.S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

WASHINGTON, D.C. 20590

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

THE OHIO STATE UNIVERSITY
1900 Kenny Rd., Columbus, Ohio, 43210

MISSION OF THE CENTER

The Center for Vocational and Technical Education, an independent unit on The Ohio State University campus, operates under a grant from the National Center for Educational Research and Development, U.S. Office of Education. It serves a catalytic role in establishing consortia to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach and interinstitutional in its program.

The Center's mission is to strengthen the capacity of state educational systems to provide effective occupational education programs consistent with individual needs and manpower requirements by:

- Conducting research and development to fill voids in existing knowledge and to develop methods for applying knowledge.
- Programmatic focus on state leadership development, vocational teacher education, curriculum, vocational choice and adjustment.
- Stimulating and strengthening the capacity of other agencies and institutions to create durable solutions to significant problems.
- Providing a national information storage, retrieval and dissemination system for vocational and technical education through the affiliated ERIC Clearinghouse.

ACCIDENT INVESTIGATION TECHNICIAN

INSTRUCTOR TRAINING INSTITUTE

RONALD D. DAUGHERTY
ANNE C. HAYES
SANDRA R. ORLETSKY

The Center for Vocational and Technical Education
The Ohio State University
Columbus, Ohio 43210

October 1972

Final Report
Contract DOT-H.S.-115-1-169

Contracting undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of views or opinions do not, therefore, necessarily represent those of the National Highway Safety Administration.

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
WASHINGTON, D. C. 20590

PREFACE

The U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA), supported an instructor training program for the newly developed accident investigation technician field. The Instructor's Lesson Plan Guide, Student Study Guide, and Course Guide were developed to provide a standardized approach for training individuals concerned with accident investigation and with the implementation of Highway Safety Program Standard 18, "Accident Investigation and Reporting."

To assist states in making the accident investigation program operational, the National Highway Traffic Safety Administration considered it important to develop an initial cadre of trained state and local instructors throughout the nation to be familiar with the curriculum materials. NHTSA, therefore, supported the conduct of five regional accident investigation technician instructor training workshops in the spring of 1972. The workshops were conducted by The Center for Vocational and Technical Education, The Ohio State University, Columbus, Ohio.

The project was directed by Ronald Daugherty, assistant director of Field Services and Special Projects at The Center. Project associates were Anne C. Hayes and Sandra R. Orletsky, graduate research associates, and Kenneth Spooner served as evaluation consultant to analyze the evaluation of the project. Cheryl Meredith edited the final report. Aaron Adams of NHTSA served as contract technical manager. Educators who served as consultants for the regional workshops were: Bernard T. Fagan, associate professor of trade and industrial education, University of Kentucky (Atlanta and Manchester workshops); Carroll Hyder, assistant professor, Department of Industrial Education, East Tennessee State University (Chicago workshop); and Ivan Valentine, professor of vocational research, Colorado State University (Denver and San Francisco workshops).

The names of state and local instructors who contributed the original draft of the lesson plans for the curriculum guide appear at the beginning of this report. Also contributing to the total curriculum package were Richard Fredericks and John Keryeski from NHTSA and Sgt. D. G. Slemmer of the Ohio State Highway Patrol Academy.

The NHTSA regional representatives were invited to attend the training workshops for the purpose of presenting certificates of

completion to the workshop participants and answering questions relating to the function of NHTSA. We acknowledge with special thanks the following NHTSA regional representatives: Winsor Coleman, Region I; Larry Thompson, Region III; Robert O'Connell, Region VIII; and W. Eugene Beck, Region IX.

TABLE OF CONTENTS

	Page
PREFACE	iii
PARTICIPANT ROSTERS	xi
INTRODUCTION	3
STATEMENT OF THE PROBLEM	7
ASSUMPTIONS UNDERLYING THE STUDY	9
LIMITATIONS OF THE STUDY	11
REVIEW OF LITERATURE	13
Highway Safety Literature	13
Accident Investigation Literature	14
Manpower Literature	16
Curriculum Development Literature	17
METHODOLOGY AND PROCEDURES	19
Task I. Curriculum Materials Development	19
Development of a Model	19
Special Curriculum Development and Workshop Planning Session	19
Identification and Selection of Workshop Locations and Personnel	24
Selection of Workshop Sites and Dates	25
Participating States	26
Enrollment of Participants	27
Task II. Improvement of Teaching Skills of Participants	29
Teacher Educator Consultant's Selection	30
Teacher Educator Consultant's Workshop Planning Meeting	31
Results of Planning Meeting	31
Evaluation Plans for Formative (Process) Evaluation	33
Instructional Objectives for Workshop Participants	35
Task III. Follow-up Workshop	37
Selection of Workshop Participants	37

Page

Workshop Sites and Dates 38
Pre-Workshop Activities 38
Workshop Outline and Schedule 38
Workshop Procedures 38
Summary Comments 43

FINDINGS 45

Curriculum Materials Development 45
Workshop Conduct and Procedures 45
Findings 46
Teaching Skills Improvement 47
Workshop Participants 47
Role in Accident Investigation Training 47
Organizations Represented 48
Accident Investigation Experience 48
Teaching Experience 51
Teacher Educator Consultants Presentations 51
Improvement of Teaching Skills 55
Summary 55
Evaluation of the Workshops 55
Daily Evaluation Meetings 56
Atlanta 56
Denver 56
San Francisco 57
Chicago 57
Manchester 57
Planning Activities 59
General Reactions 59
Instructional Objectives 59
Implementation of Curriculum Materials 61
Results of the Follow-up Workshop 63

SUMMARY AND CONCLUSIONS 67

RECOMMENDATIONS 71

APPENDICES 73

A. Pre-Workshop Information
B. Guidelines for the Development of Behavioral Objectives
C. Letter Requesting Nominations of Participants
D. Letter Requesting Confirmation of Workshop Attendance
E. Evaluation Forms Completed by Participants
F. Follow-up Workshop Information
G. Workshop Schedules

REFERENCE LIST

LIST OF FIGURES

		Page
Figure 1	Matrix for Accident Investigation Technician Curriculum	20
Figure 2	Course Content Outline for Accident Investigation Technician Curriculum	22
Figure 3	Instructor's Lesson Plan	24
Figure 4	Revised Instructor's Lesson Plan	24
Figure 5	Regional Workshops for Training State and Local Instructors in the Use of Accident Investigation Technician Curriculum Package	28
Figure 6	Proposed Agenda for Accident Investigation Workshops	32
Figure 7	Revised Course Content Outline for Accident Investigation Technician Curriculum	40
Figure 8	Agenda for Accident Investigation Workshop--Atlanta	54
Figure 9	Agenda for Accident Investigation Workshop--Denver	155
Figure 10	Agenda for Accident Investigation Workshop--San Francisco	156
Figure 11	Agenda for Accident Investigation Workshop--Chicago	157
Figure 12	Agenda for Accident Investigation Workshop--Manchester	158
Figure 13	Final Course Content Outline for Accident Investigation Technician Curriculum	64

LIST OF TABLES

		Page
Table 1	Institutional Profile, Types of Training Institutions by Group	49
Table 2	Institutional Profile, Number and Types of Accident Investigation Programs by Group . . .	50
Table 3	Participants Profile, Average Years of Accident Investigation Experience by Group . . .	52
Table 4	Participants Profile, Number of Years of Teaching Experience by Group	53
Table 5	Average Participant Evaluation of Planning Activities by Workshop	59
Table 6	Reactions of Participants to Instructional Quality and Overall Workshop Worth	60
Table 7	Mean Score of Participants' Rating of Their Confidence in Achieving the Five Conference Objectives	62

PARTICIPANTS AT ATLANTA WORKSHOP
MARCH 20-24, 1972

James H. Amick, Sergeant
Criminal Justice Academy
South Carolina Highway Patrol
4242 Broad River Road
Columbia, South Carolina

Charles E. Blackstock,
Superintendent
Vehicle Operations
Knoxville Post Office
Knoxville, Tennessee 37901
(615) 637-9300, ext. 4545

William M. Brewer, Colonel
and Director
Department of Law Enforcement
Mississippi Gulf Coast Junior
College
Jefferson Davis Campus
Gulfport, Mississippi 39501
(601) 896-3355

Harry L. Myersohn, Captain
Training Bureau
Dade County Public Safety De-
partment
1320 Northwest 14th Street
Miami, Florida 33125
(305) 377-7808

Ralph O'Brian, Materials
Specialist
Industrial and Technical Educa-
tion
Instructional Materials Labo-
ratory
University of Kentucky
Lexington, Kentucky 30506
(606) 257-4730

R. L. Prince, Resident Instruc-
tor
Highway Patrol Academy
Ridgeway and Eisenhower Drive
Tallahassee, Florida 32304
(904) 576-1244

James Rose, Coordinator
Adult Education Programs
Athens Area Vocational-
Technical School
U. S. 29
Athens, Georgia
(404) 549-2360

Wayne Seal, Sergeant and
Training Instructor II
Arkansas Law Enforcement
Academy
Post Office Box 3106
East Camden, Arkansas 71701
(501) 574-1810

Ralph Strother, Captain and
Coordinator
Traffic Safety Programs
Department of Community Col-
leges
Law Enforcement Training
Room 173
Education Building
Raleigh, North Carolina 27610
(919) 829-7681

Christopher Vail, Instructor
Department of Criminal Justice
Clayton Junior College
Morrow, Georgia 30260
(404) 363-3800

Erich Wachsmuth, Training
Coordinator
Pinellas Police Academy
Technical Education Center
6100-154th Avenue, North
Clearwater, Florida 33516
(813) 531-3531

Richard Wright, Director
Law Enforcement Education
Lively Area Vocational-
Technical Center
500 North Appleyard Drive
Tallahassee, Florida 32304
(904) 576-3181

Ben Yarbrough, Director
Central Savannah River Area
Law Enforcement Training Center
1688 Broad Street
Augusta, Georgia 30904
(404) 738-5488

PARTICIPANTS AT DENVER WORKSHOP
APRIL 3-7, 1972

Robert G. Bond, General Foreman
Vehicle Operations
United States Postal Service
Main Post Office Garage
Terminal Annex
Seattle, Washington 98134
(205) 442-2460

Herman B. Davis, Instructor
Department of Criminal Justice
500 Longview Rd.
Longview Community College
Lees Summit, Missouri 64063
SO3-7777, ext. 76

Hobart L. Erickson, Instructor
Coordinator Police Science
El Centro College
Main and Lamar
Dallas, Texas 75202
(214) 746-2360

Lee Hughs, Coordinator-Instructor
Department of Criminal Justice
Western Wyoming College
2500 College Drive
Rock Springs, Wyoming 82901
(307) 382-2121, ext. 51
or 362-2900

Newell G. Knight, Training Officer
Utah Highway Patrol
309 State Office Building
Salt Lake City, Utah 84114
(801) 328-5621

Robert J. Kilpatrick, Assistant Professor
Florissant Valley Community College
3400 Pershall Road
Ferguson, Missouri 63135
JA4-2020

Arnold L. Miller, Chairman-Instructor
Department of Law Enforcement and Administration
Arapahoe Community College
5900 So. Santa Fe Drive
Littleton, Colorado 80210
(303) 761-2289

H. Wayne Overson, Instructor
Police Science
Weber State College
3750 Harrison Blvd.
Ogden, Utah 84403
(801) 399-5941

Gordon R. Tassi, Instructor of Police Science
Cowley County Community College
Arkansas City, Kansas 67005
(316) 442-0340

Albert VanderLinde, Director
Mitchell Area Vocational-Technical School
Mitchell, South Dakota 57301
(605) 996-6671, ext. 24

John E. Williams, Instructor
Colorado Law Enforcement Training Academy
15000 Golden Road
Golden, Colorado 80401
(303) 279-2511, ext. 237

PARTICIPANTS AT SAN FRANCISCO WORKSHOP
APRIL 17-21, 1972

Herbert Allen
Peace Officer Instruction
Lewis-Clark State College
Lewison, Idaho 83501
(208) 746-2341, ext. 326

David L. Cox
Hawaii Community College
1175 Manano Street
Hilo, Hawaii 96720
Home: 935-2581
Office: 935: 935-0091

Peter Gardner, Instructor
City College of San Francisco
683 Miramar Avenue
San Francisco, California
94112
(415) 585-5055

Richard Helgeson, Attorney
Law Enforcement and Business
Law Instructor
Clackamas Community College
19600 South Molalla Avenue
Oregon City, Oregon 97045
(503) 656-2631

Wallace Hughling, Chairman
Law Enforcement Department
Phoenix Community College
1202 West Thomas Road
Phoenix, Arizona 85013
(602) 264-2495, ext. 357

Robert R. Hunter
Clark College
1800 E. McLoughlin Blvd.
Vancouver, Washington 98663
(206) 694-6521

Karl Hutchinson, Coordinator
Law Enforcement
Ft. Steilacoom Community Col-
lege
P. O. Box 3186
Tacoma, Washington 98499
(206) 588-3623
or 582-5648

John Knight, Sergeant
California Highway Patrol
Academy
3100 Meadow View Road
Sacramento, California 95832
(916) 422-5770

John Kocher, Instructor
Law Enforcement
Lane Community College
4000 East 30th Avenue
Eugene, Oregon 97405
(503) 747-4501

Jerry W. Lockwood, Officer
California Highway Patrol
8341 Indiana Avenue
Riverside, California 92504

Floyd Nelson
Vehicle Operations
550 Beale Street
San Francisco, California
94105
(415) 556-6499

James Pollard, Instructor
Spokane Community College
3403 E. Mission Avenue
Spokane, Washington 99205
(509) 456-2902

Harold Thogerson, Instructor
Law Enforcement
Portland Community College
12000 S. W. 49th Avenue
Portland, Oregon 97219
(503) 244-6111

PARTICIPANTS AT CHICAGO WORKSHOP
APRIL 24-28, 1972

William F. Blumer, Instructor
Police Science
Fox Valley Technical Institute
1025 North Bluemound Drive
Appleton, Wisconsin 54911
(414) 739-8831

John L. Boots
Preparatory Career Education
Police Science Program
Hawkeye Institute of Technology
Waterloo, Iowa 50704
(319) 234-5951

John Bullaro
Elmhurst Police Department
409 Canterberry Lane
Oak Brook, Illinois 60521
(312) 323-4738

Glenn E. Clark, Instructor
Law Enforcement
Columbus Technical Institute
550 East Spring Street
Columbus, Ohio 43215
(614) 221-6743, ext. 75
Home: 231-8764

Robert Johnson, Instructor
Law Enforcement Program
Black Hawk College
6600 34th Avenue
Moline, Illinois 61265
(309) 755-1311, ext. 210

Clarence F. Knight, Chairman
Law Enforcement Education
St. Clair County Community College
323 Erie Street
Port Huron, Michigan 48060
(313) 984-3881, ext. 274

Kenneth L. J. McCormick, Instructor
Law Enforcement
Alpena Community College
666 Johnson Street
Alpena, Michigan 49707
(517) 354-3511

John Megerson, Chairman
Law Enforcement Program
Des Moines Area Community College
2006 Ankeny Boulevard
Ankeny, Iowa 50021
(515) 964-0651

Paul H. Moore, Coordinator
Criminal Justice Program
William Rainey Harper College
Algonquin and Roselle Roads
Palatine, Illinois 60067
(312) 359-4200, ext. 463

Harold D. Padley, Jr.
U. S. Post Office
435 South St. Clair Street
Toledo, Ohio 43601
(419) 259-6457

Robert Teets, Instructor
Police Science
District One Technical Institute
620 West Clairemont Avenue
Eau Claire, Wisconsin 54701
(715) 834-3171

Jim Todd, Executive Officer
Lakeland Community College
Mentor, Ohio 44060
(216) 951-1000, ext. 243

Keith Weaver
Preparatory Career Education
Police Science Program
Western Iowa Tech
3075 Floyd Boulevard
Sioux City, Iowa 51105

Robert R. Westby, Vocational
Education Consultant
Law Enforcement
Wisconsin Board of Vocational,
Technical and Adult Education
137 East Wilson Street
Madison, Wisconsin 53705
(608) 266-7993

PARTICIPANTS AT MANCHESTER WORKSHOP
MAY 1-5, 1972

J. Thomas Accuosti
Hudson Valley Community College
80 Vandenburgh Avenue
Troy, New York 12180

Harry Babb, Captain
Suffolk County Police Department
c/o State University of New York
Agricultural and Technical College
Farmingdale, New York
(516) 888-5543

Eugene L. Bell, Superintendent
Vehicle Operations
Harrisburg Post Office
Harrisburg, Pennsylvania 17105
(717) 782-4436

Thomas Connors, Assistant Director
Division of Social Science and Public Services
60 Bidwell Street
Manchester, Connecticut
(203) 646-4900

John Doyle, Instructor
Police Science
Mattatuck Community College
236 Grand Street
Waterbury, Connecticut 06702
(203) 757-9661

Marvin Ericson, Instructor
Police Science
(former Chief of Westchester County Parkway Police)
Westchester Community College
75 Grasslands Road
Valhalla, New York 10595
(914) 946-1616

Wolcott S. Gaines, Instructor
Law Enforcement Technology
Southern Main Vocational-Technical Institute
South Portland, Maine 04106
(207) 799-7303

John P. (Jack) Hill, Colonel and Division Chairman
Public Services Technologies
Thomas Nelson Community College
Riverdale Station, Drawer K
Hampton, Virginia 23366
(703) 826-4800

Edward Lennox, First Sergeant
Maryland State Police Headquarters
Pikesville, Maryland 21208
(301) 486-3101

Gerald Marshall, Corporal
Vermont State Police
St. Albans, Vermont 05478
(802) 483-6228

John McAllister
Northwestern Connecticut Community College
Park Place East
Winsted, Connecticut 06098
(203) 379-8543

Marvin Mills, Professor
Traffic Law Enforcement
Marshall University
Safety Education
Department of Safety Education
Huntington, West Virginia 25701

Irvin B. Smith, Lieutenant
State Police Headquarters
North DuPont Highway
Dover, Delaware 19901
(302) 678-4471

PARTICIPANTS AT FOLLOW-UP WORKSHOP
JULY 17-19, 1972

Glen E. Clark, Instructor
Law Enforcement
Columbus Technical Institute
Columbus, Ohio

Karl Hutchinson, Coordinator
Law Enforcement
Ft. Steilacoom Community College
Tacoma, Washington

Wayne Seal, Sergeant and
Training Instructor
Arkansas Law Enforcement
Academy
East Camden, Arkansas

Irvin B. Smith, Lieutenant
State Police Headquarters
Dover, Delaware

John Keryeski
NHTSA
U. S. Department of Trans-
portation
Washington, D. C.

John Knight, Sergeant
California Highway Patrol
Academy
Sacramento, California

H. Wayne Overson, Instructor
Police Science
Weber State College
Ogden, Utah

Aaron Adams
Manpower Development Office
NHTSA
U. S. Department of Trans-
portation
Washington, D. C.

Richard Fredericks
NHTSA
U. S. Department of Transpor-
tation
Washington, D. C.

ACCIDENT INVESTIGATION TECHNICIAN

INSTRUCTOR TRAINING INSTITUTE

INTRODUCTION

The U.S. Department of Transportation funded four projects for teacher training institutes in the area of highway safety during fiscal year 1972. Contracts were issued by NHTSA for preparing teachers to train technicians in the following areas:

1) Emergency medical technician--ambulance

2) Breath examiner specialist

3) Driver license examiner

4) Accident investigation technician

Three of the contracts were to train instructors to utilize existing NHTSA curriculum materials for the first three types of technicians listed above. The accident investigation institute contract, awarded to The Center for Vocational and Technical Education at The Ohio State University, differed in scope and objectives. The objectives for the accident investigation technician project were:

1) To identify existing resources for developing a curriculum package to train accident investigation technicians

2) To identify and involve 75 professional instructors from public education institutions and state agencies who had a commitment to develop and implement a curriculum package for training accident investigation technicians

3) To hold five regional conferences for the purpose of developing materials for the curriculum package in accident investigation and to train 75 instructors in the utilization of this curriculum package

4) To develop a curriculum package, consisting of a course guide, instructor's lesson plans, and a student activities guide, for NHTSA to assist agencies in designing and implementing accident investigation training programs.

The need for accident investigation technician training has evolved as a result of a number of different rulings and events in the short history of the federal government's highway safety efforts. The Highway Safety Act of 1966 was a milestone in national highway safety efforts and brought about the original highway

safety program standards. Highway safety program standard 9 was issued on June 27, 1967, and deals with the identification and surveillance of accident locations. At that same time, highway safety program standard 10 was also established and called for an improved system of collecting, analyzing, and issuing information regarding all phases of highway safety. In May 1972 NHTSA issued standard 18 to emphasize the level of sophistication necessary to investigate accidents in such a way as to provide information that could lead to safer highways. In June 1972 NHTSA inaugurated a sophisticated computerized program to serve as a research-oriented effort in the analysis of auto fatalities statistics. The fatality analysis file emphasized increasing information gathering activities in accident investigations. In August 1972 NHTSA issued proposed rule making which served as a revision of the original program standards in highway safety. Article 246.7 of this proposed rule making deals with accident investigation and emphasizes the importance of increased accuracy and availability of accident data.

Several manpower studies have been conducted in the area of highway safety to identify and project manpower needs for the future. A variety of estimates are given for the number of accident investigation technicians employed by the public sector needed within the next five-year period, and the figures range somewhere between 8,000 and 12,000 persons. No projected manpower requirements for accident investigation technicians were identified by the project staff.

At the present time, very few programs offer the occupational training needed to prepare accident investigation technicians. Although there are in-service programs for training law enforcement personnel in the area of accident investigation, a recent survey of vocational and technical public education programs revealed no formal efforts for preparing individuals in the occupational category of accident investigation technician. If existing and emerging manpower needs are to be met in this occupational category, competent teachers must be developed and occupational preparation programs must be implemented within a very short time. Training of this magnitude can be accomplished only through the combined efforts and resources of federal, state, and local agencies and institutions.

NHTSA contracted with The Center for Vocational and Technical Education to undertake the development of a basic curriculum package. The curriculum package is to consist of a detailed Instructor's Lesson Plan Guide designed for the instructor to use in the day-to-day conduct of the course, a Course Guide designed to assist administrators and coordinators in planning the course, and a Student Study Guide designed as a student reference. The initial efforts for the three documents appear in the separate attached appendices.

The curriculum material content has been adapted from the Cornell Aeronautical Laboratory's *Accident Investigation Training for Multi-Disciplinary Investigations* to provide more emphasis to the pre-crash, crash, and post-crash aspects of accident investigation and to facilitate teaching the content at the technician training level. Because of the needed adjustment of the material, the development of the curriculum package was incorporated into the original purpose of the project, thereby becoming a second phase of the training program.

Battelle Memorial Institute in Columbus, Ohio, provided a task analysis of job functions for an accident investigation technician. It was from Battelle's task analysis and the Cornell Aeronautical Laboratory's accident investigation materials that the project staff developed a curriculum model for an accident investigation technician.

After developing a course outline and pre-workshop information based on the accident investigator's model, the project staff conducted a series of five regional workshops to develop the accident investigation technician curriculum and improve the teaching techniques of the participants.

The significant contribution of the regional workshops was the 30 hours of training they provided participants. The key emphasis in this training was on the teacher training-curriculum development aspect. This emphasis consisted of instruction by the teacher educator consultant on these topics: teaching and learning principles, the four-step lesson plan, the analysis process, behavioral objectives, and how to give a demonstration.

Based upon the change in the original purpose of the project, it was determined that workshop participants would have to be selected for their expertise in the area of accident investigation as well as their having a major teaching responsibility in a police science program at the community-junior college, area vocational school, or a highway patrol academy. Assuming that many of the participants attending the course might have responsibilities for programs already in existance, it was determined that a commitment to initiate a course within 90 days after the workshop should not be required. In addition, it was determined that the nature of follow-up as originally conceived (e.g., on-site assistance with the first solo course) would be inappropriate or not required in most cases.

In developing a curriculum to train accident investigation technicians, the project staff had to take into consideration the role of the policeman, the individual who, historically, has conducted the routine investigations of accidents. The policeman's concern centers around law enforcement and the identification of blame for an accident, whereas the accident investigation technician

will lend a new emphasis in the area of providing data on highway accidents. It is with this new, additional data that researchers and highway safety program administrators may find some solutions to the prevention of accidents. The need for data will require more sophisticated and in-depth efforts beyond what a policeman has been either qualified to do or granted the time to do properly.

It was not the purpose of this project to identify who the accident investigation technician is or who is responsible for specific functions or tasks. The purpose was to identify job functions of an accident investigation technician, regardless of the agency that employs him. The purpose was to develop a curriculum to train that technician and to improve the teaching techniques of those who were developing the curriculum.

STATEMENT OF THE PROBLEM

The project staff was to develop a curriculum to train entry-level accident investigation technicians, employees for which NHTSA has predicted a great need in the future. The project staff decided on the development of a curriculum package that would include three documents: (1) a Course Guide intended to help planners and administrators decide whether or not to adopt the accident investigation technician curriculum and to provide a detailed outline of the course content to be covered, prerequisites for learning the content, suggestions for equipment, reference materials, guidelines for conducting the course, and the manpower needs and general setting for a training program; (2) the Instructor's Lesson Plan Guide, with objectives written in behavioral terms to place emphasis on student activity and involvement, to be utilized by the instructor in conducting the course; and (3) the Student Study Guide designed for the student to supplement lesson units as presented by the instructor.

Reflecting the current manpower supply and job market in the area of accident investigations, a review of the literature revealed that almost all existing publications in the area of accident investigation are oriented toward law enforcement and court convictions. There were no published curriculum materials available at the post-secondary technical level that complied with the guidelines of NHTSA. Therefore, the project staff developed before the workshops a course outline for training accident investigation technician.

A secondary purpose was established to improve the teaching techniques of workshop participants once the staff decided to utilize a series of five regional workshops at which participants could combine technical information with the course outline.

One of the problems encountered in conducting this study revolved around the changing "state of the art" of accident investigation. New standards and guidelines are continually being developed through the efforts of NHTSA. NHTSA determined the need for entry-level accident investigation technicians from the existing standards within the U.S. Department of Transportation. Therefore, a contract was let to develop a curriculum package for training accident investigation technicians.

ASSUMPTIONS UNDERLYING THE STUDY

The staff made the following assumptions in conducting this project:

1) It was assumed that the project staff could help technicians develop a curriculum in a related area of their own expertise.

2) It was assumed that a viable job market will exist for the future employment of an accident investigation technician.

3) It was assumed that the project staff and teacher educator consultants could improve the teaching skills of the participants through the program and information provided during the workshops.

4) It was assumed that a curriculum for training accident investigation technicians could be designed on a behavioral basis.

5) It was assumed that the selection process identified the most knowledgeable accident investigation instructors in the United States who were both interested in implementing a new curriculum in the near future and who were available to participate in the workshops.

6) It was assumed that the existing literature provided validated analysis and materials necessary to achieve the project objective of curriculum development.

7) It was assumed that a curriculum package could be developed with a competency base that would be flexible and adaptable to the changing "state of the art" of accident investigation.

LIMITATIONS OF THE STUDY

The limitations of the study are defined as follows.

1) The project staff was not designing a curriculum for training technicians who would qualify as "expert witnesses" oriented to giving court testimony.

2) The project staff was not attempting to train workshop participants in accident investigation skills.

3) The project staff had to work with participants who were nominated through the process agreed upon by the contractor and NHTSA.

4) The project staff was developing a curriculum to prepare technicians for the public sector of employment.

5) The project staff was to develop a curriculum package that would not be able to be field tested within the parameters or scope of this project as funded.

6) The project staff designed the curriculum package only as a guideline for instructors and did not intend it to be used without other references, experienced personnel, and appropriate visual aids.

REVIEW OF LITERATURE

The project staff determined that a review of literature for this study should encompass four major areas identified by the staff as a result of previous studies completed in the area of highway safety. A review was conducted of: (1) highway safety literature, (2) accident investigation literature, (3) manpower literature, and (4) curriculum development literature. An extensive number of publications were reviewed by the project staff in the planning and conduct of the project. All of these materials were examined to reflect the current state of accident investigation and to assist in the development of a curriculum that would provide the appropriate training for an entry-level accident investigation technician. The review of literature section of this report reflects selected summaries of the major publications which contributed to the conduct of this project in the four areas mentioned.

Highway Safety Literature

The rapidly growing body of literature in the field of highway safety reflects the concerted efforts of federal agencies, including the U.S. Department of Transportation, to expand research studies and provide information for the general public regarding highway safety measures. In 1966 the federal government began major legislative efforts to deal with the problems of highway safety by enacting public laws 89-563 and 89-564, aimed at the reduction of traffic accidents, deaths, and injuries and the establishment in each state of a highway safety program to accomplish this reduction by adhering to the 16 federally issued standards.

NHTSA issued four contracts in 1972 to prepare teachers in the areas of emergency medical technician, breath examiner specialists, driver license examiners, and accident investigation technician. The project staff reviewed materials from the institutes funded by the three other contracts, searching for areas which could be combined with the accident investigation technician curriculum development study.

The *Traffic Digest and Review*, published by the Traffic Institute at Northwestern University, provided current information on traffic and highway safety. Another valuable source of data on the current status of highway safety was the biweekly NHTSA

publications *Highway Safety Literature*. These documents were helpful in keeping the project staff aware of the most recent research acquisitions of NHTSA in several areas vital to this project. Specifically helpful were the sections on accident investigation, highway safety, human factors, and vehicle safety. The National Safety Council's monthly publication *Traffic Safety* was reviewed to provide further information in the general area of highway safety.

A weekly review of NHTSA publications *The News* and the *Weekly* helped to advise the project staff on the changing status of the various federal standards relating to highway safety and accident investigation. Standard 18, issued in May 1972, dealt specifically with accident investigation. However, by August 1972, several changes were about to take place involving standard 18, according to the *Federal Register* (vol. 37, no. 150). This reorganization appeared to reflect the move to place accident investigation within the area of police traffic services, standard 6, and would have a major effect on the relevancy of the curriculum developed for this project because the police role of law enforcement and court testimony had been purposely deleted from this project.

Accident Investigation Literature

In reviewing literature on accident investigation, the project staff found a plethora of information that dealt with how a policeman investigates an accident and how special highly trained multidisciplinary teams of accident investigators conduct their activities. However, no available literature reflected how a nonpoliceman or an entry-level technician would investigate an accident. Therefore, NHTSA contracted with Battelle Memorial Institute in Columbus, Ohio, to perform a task analysis of those activities essential to investigating an accident. Staff members from Battelle studied the activities of local policemen and gained a wealth of information from which evolved a specific task analysis. It was this task analysis which was instrumental in the development of one part of the model upon which the curriculum is based.

The second major publication instrumental in providing information for the curriculum model for the accident investigation technician was Cornell Aeronautical Laboratory's *Program of Instruction for Highway Collision Investigation Training Program* and *Accident Investigation Training for Multi-Disciplinary Investigations*. NHTSA purchased the Cornell studies, developed under contract for use by the project staff in curriculum material development. The Cornell materials were adapted by the project staff to place more emphasis on the pre-crash, crash, and post-crash aspects of accident investigation. Further adaptations by the project staff facilitated the teaching of the curriculum content at the technician-training level. Because of the needed adjustment

of the Cornell materials, the development of the curriculum package was incorporated into the original purpose of the project, becoming a second phase of the training program.

The accident investigation technician curriculum evolved from the information synthesized from the Battelle Memorial Institute task analysis and the Cornell Aeronautical Laboratory multidisciplinary accident investigation materials.

Additional sources of information related to the multidisciplinary aspect of accident investigation were reviewed by the project staff. Of particular assistance in acquiring detailed information on investigative procedures and case studies were NHTSA's *Multi-Disciplinary Accident Investigation Summaries* from 1968-1971. Further case studies of accidents were examined by the project staff to acquire additional background data regarding the functions performed by accident investigators. Of particular assistance were the U.S. Department of Transportation's *A Study of Severe Vehicular Accidents*, edited by Paul H. Wright, and General Motors Corporation's *Collision Performance and Injury Report*.

The National Safety Council's *Manual on Classification of Motor Vehicle Traffic Accidents* also provided valuable information for the development of information utilized in preparing the accident investigation technician curriculum materials.

In 1969 the U.S. Department of Transportation contracted with The Travelers Research Corporation of Hartford, Connecticut, to study a state accident investigation program. The Staff reviewed the final report of this study, *A State Accident Investigation Program*, issued in three volumes. The majority of the information contained in the final report reflected a law enforcement orientation and was, therefore, of limited use to the preparation of curriculum materials for this project.

A series of *Research Reports* published in 1960-63 by The Traffic Institute at Northwestern University, under contract with the U.S. Bureau of Public Roads, was reviewed by the project staff to provide background information in the area of determining causes of traffic accidents.

Two text books provided basic information essential for developing a curriculum to train accident investigation technicians. The project staff utilized the information in J. Stannard Baker's *Traffic Accident Investigator's Manual for Police* and James Collins' And Joe Morris' *Highway Collision Analysis*. Baker's text was designed for use by law enforcement personnel and much of the information contained therein was not useful to the project staff for purposes of curriculum development in training entry-level non-law enforcement personnel. The text by Collins and Morris

provided a different approach to accident investigation by including valuable information on the motor vehicle and how it functions. Baker's manual provided little or no information on the vehicle but concentrated on the accident investigator's tasks. Both texts provided a sophisticated level of mathematical computation in technical areas of measurement that were not necessary for training entry-level non-law enforcement personnel.

Another text provided valuable information for the project staff in the areas of investigative techniques with special reference to obtaining information through interviews. That was Charles E. O'Hara's *Fundamentals of Criminal Investigation.* This was written as a manual to use in training F.B.I. agents and other law enforcement personnel.

Instrumental in providing technical data for curriculum development were two manuals regarding accident investigation procedures utilized in training law enforcement officers by the Ohio State Highway Patrol and instructing law enforcement officers at the community college level in North Carolina.

Manpower Literature

One of the major references examined by the project staff relating to manpower needs in the area of highway safety was Daugherty, Brooks, and Hyder's *Highway Safety Occupational Program Development Guide* which projected an estimated manpower need in the area of accident investigation technician at 6,000 on the state level in 1977 and 12,000 at the local level in 1978. In accord with this, the study by Booz, Allen, and Hamilton, *Safety Specialist Manpower*, was reviewed for projected manpower requirements and needs. Other resources consulted by the project staff were the National Safety Council's *Highway Safety Manpower and Training* which offers recommendations on a wide range of manpower needs within the general area of highway safety. There was very little reference to the specific manpower needs for accident investigator technicians in this publication.

In 1971 R. W. Bishop and associates published *Manpower Development in Highway Safety* which discussed the general needs, issues and alternative plans of action as it related to the manpower problem.

Specific manpower needs for accident investigators were specified at a technical level in a 1969 Stanford Research Institute study entitled *The Feasibility of Establishing Highway Safety Manpower Development and Research Centers at University-Level Institutions.* This study specified the educational requirements for accident investigator technicians as being either a junior college associate degree or a non-degree short course given in

vocational or technical schools, high school vocational programs, or on-the-job apprentice programs.

Curriculum Development Literature

The project staff decided to limit the literature search in the area of curriculum development to two general areas: developing a format for writing lesson plans and writing effective behavioral objectives for lesson plans.

Robert Mager's *Preparing Instructional Objectives* was selected as the major guide for writing behavioral objectives that involved the student learner in some form of activity. Other references consulted by the project staff were Norman E. Grunlund's *Stating Behavioral Objectives for Classroom Instruction* and David E. Hernandez's *Writing Behavioral Objectives*. The project staff also utilized *A Systematic Approach to Developing A Handbook Designed to Increase the Communication of Laymen and Educators* by Robert Armstrong and associates and *Behavioral Objectives and Instruction* by Robert Kibler, Larry Barnes, and David Miles. An extensive set of instructions and information was developed by the project staff to assist workshop participants in preparing lesson units on specifically assigned topics in accident investigation, including writing all lesson objectives in behavioral terms.

The major resources reviewed in determining the lesson plan format thought to be most effective for this project were *The Preparation of Occupational Instructors* by the U.S. Department of Health, Education and Welfare and the Ohio State Department of Education's *Trade and Industrial Education Service Instructor Training Manual*. Both of these references provided the project staff with a uniform acceptable format for the instructor's lesson plan involving the four-step method of preparation of the learner, presentation of information, application, and evaluation.

METHODOLOGY AND PROCEDURES

The project staff designed the study to include three major task areas that reflected the stated purposes of the project. The purposes were aimed at developing curriculum materials for training entry-level accident investigator technicians and improving teaching techniques of workshop participants.

Task I. Curriculum Materials Development

Task I was to design and develop a model and a curriculum package to train entry-level accident investigator technicians. The major references utilized in the curriculum development were the Battelle task analysis and the Cornell Aeronautical Laboratory materials for training accident investigators. The *Multi-Disciplinary Accident Investigation Summary Reports* of the NHTSA were utilized to provide further technical materials for curriculum development. Additional references have been cited in the section on review of the literature.

Development of a Model

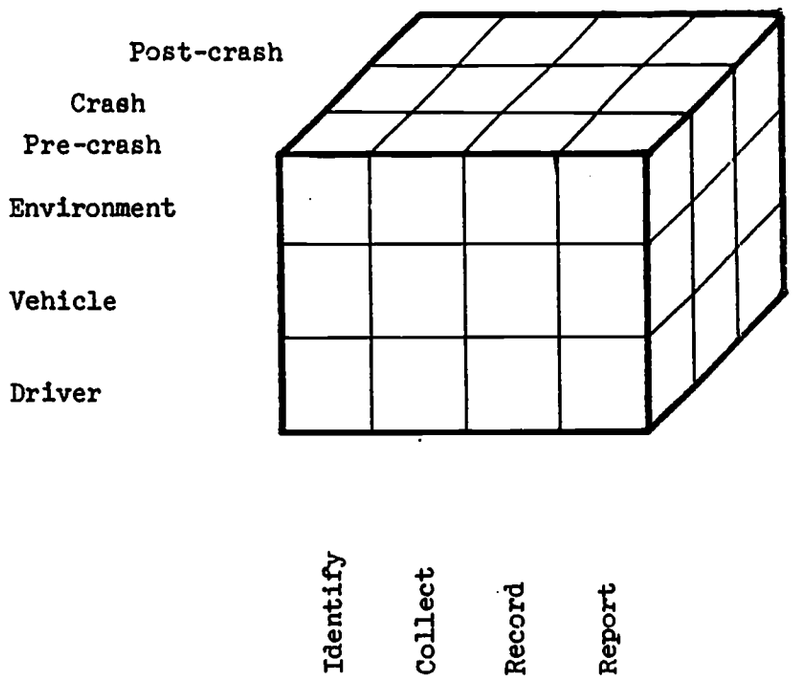
The four basic task functions on an entry-level accident investigator technician evolved as a synthesis of the data gathered from the reference sources previously cited. These functions were identified as the skills involved in identifying, collecting, recording, and reporting. As identified from the traffic accident investigation literature, there are three phases of an accident, labeled pre-crash, crash, and post-crash. Within a traffic accident itself there are three components, identified by previous research materials as the environment, the vehicle, and the driver. In synthesizing this information, the project staff developed a model that, contained these three basic matrices. The model is presented in Figure 1.

Special Curriculum Development and Workshop Planning Session

Two special consultants assisted the project staff in determining the technical subject matter to be included in the curriculum package and in developing guidelines for adapting the curriculum content to the four-step lesson plan presented in *The Preparation of Occupational Instructors*. The consultants were Dr. B. T.

Figure 1

MATRIX FOR ACCIDENT INVESTIGATOR TECHNICIAN CURRICULUM



Fagan, associate professor, Department of Vocational Education, University of Kentucky, and Sgt. D. G. Slemmer, instructor, The Ohio State Highway Patrol Academy. The workshop planning session was conducted at The Center for Vocational and Technical Education on February 1-2, 1972.

The primary responsibilities of the two consultants were:

- To develop a subject matter outline of essential skills related to traffic accident investigation
- To identify the subject matter in relation to possible individual lesson plan topics
- Adapting identified subject matter material to fit the four-step lesson plan
- To write the precise instructions for workshop participants to follow in writing the lesson plans
- To develop two sample lesson plans to be included in the participant's package

The results of the two-day planning session were included in the workshop participant's package information. It consists of the Course Content Outline for Traffic Accident Investigation, Lesson Planning for Teachers of Accident Investigators, Instructor's Lesson Plan (format), Sample Instructor's Lesson Plan (skill), and Sample Instructor's Lesson Plan (information). Further discussion of the results of this curriculum development task will be found in the section of this report called Findings and in Appendix A.

The course content outline developed by the project staff to use in conducting the five regional workshops is presented in Figure 2. A complete description of the objectives for each lesson topic can be found in the Course Content Outline for Accident Investigation Technician Curriculum and in Appendix A.

As previously described, the project staff developed a course outline that was limited to a specific number of investigative units (see Figure 2). The traditional four-step format of lesson plan writing was modified and adapted by the project staff in response to the curriculum development needs identified as the workshops were conducted. Specifically, the four-step lesson plan method was modified to a three-step method by incorporating the evaluation step into the application step. The original format for lesson plan writing appears in Figure 3 and the revised format appears in Figure 4.

The project staff developed Guidelines for the Development of Behavioral Objectives as a part of the pre-workshop curriculum materials package. The complete text of this guide appears in Appendix B.

Identification and Selection of Workshop Locations and Personnel

The project staff decided to utilize five regional workshops to develop the lesson units for the preestablished course outline.

The first step was to determine the workshop sites and dates. The second step was to select and enroll the most competent accident investigation practitioners who could meet the selection criteria established by the project staff. There were multifaceted activities involved in planning the workshops with reference to the identification and selection of site locations and participants. A description of the procedures for this phase of the study follows.

Figure 2

Course Content Outline for Accident Investigation Technician Curriculum

I. Course Background
   A. Highway Transportation System
   B. Definitions and Classifications
   C. Purposes, Responsibilities and Objectives of the Accident Investigator
   D. Planning the Investigation
   E. Protecting the Scene
   F. Accident Scene Photography
   G. Locating and Interviewing Witnesses

II. Driver
   A. Examination for Pre-crash Contributory Conditions
      1. Natural Abilities
      2. Learned Capabilities
      3. Personality and Attitude
      4. Distractions
      5. Physical Condition at Accident Time
         a. Alcoholic Influence
         b. Drug Influence
         c. Emotion, Fatigue, and Physical Illness
   B. Pre-crash Actions and Reactions
   C. Locating and Identifying the Drivers
   D. Techniques in Interviewing Drivers
   E. Non-motor Vehicle Units Involved

III. Vehicle
   A. Examination for Pre-crash Damage and Defects not Contributory
   B. Examination for Preceeding and Contributory Disrepair
   C. Examination for Crash Damage
      1. Differentiating Between Contact and Induced Damage
      2. Evaluation of Position and Angle of Infliction
      3. Segregating Damage from Multiple Impacts
      4. Matching Vehicle Parts with Crash Marks on the Roadway and Environment
      5. Examination of the Vehicle for Source of Injury
   D. Techniques of Vehicle Examination
   E. Methods of Gathering and Recording Vehicle Data

IV. Environment
   A. Recognizing, Determining and Recording Physical Environment Attributes
   B. Determining Modifiers of the Environmental Attributes at the Accident Time
   C. Evaluation of Debris

Figure 2 (continued)

D. Utilization of Pre-crash Marks on the Road, Shoulder and Environment
E. Determining Area of Impact from Marks on the Roadway
F. Post-Crash Data to Final Position
G. Methods of Recording Environmental Data
   1. Relocation Measurements
   2. Field Sketching Physical Evidence
   3. Scale Reconstruction Diagramming
   4. Collecting and Preserving Physical Evidence
   5. Photography
H. Speed Estimates
   1. Techniques in Making Test Skids
   2. Skidmarks
   3. Critical Speed Scuff

V. Related Essentials
   A. Reconstruction Principals and Causation Analysis
   B. Formulating Opinions and Conclusions
   C. Use and Preparation of Accident Report Forms
   D. Expert Assistance Available
   E. Potential Employers of Accident Investigators

VI. Evaluation Exercise
   A. Simulated Traffic Crash Investigation

Figure 3

Instructor's Lesson Plan

Unit_____

Lesson_____

TOPIC:

OBJECTIVE(S):

TOOLS AND EQUIPMENT:

MATERIALS:

TEACHING AIDS:

REFERENCES:

I. PREPARATION (of the learner):

II. PRESENTATION (of the skills) METHOD:
Operation or Steps — Key Points (things to remember to do or say)

III. APPLICATION (practice by learner under close supervision):

IV. TEST (performance of skill to acceptable standards)

SUGGESTED READING FOR STUDENT:

- -

Figure 4

Revised Instructor's Lesson Plan

UNIT:

LESSON PLAN TOPIC:

OBJECTIVES:

PREPARATION OF THE LEARNER:

PRESENTATION:

APPLICATION:

SUGGESTED REFERENCES:

Selection of Workshop Sites and Dates

The workshop sites were determined early in the project to facilitate the enrollment of participants. The selection of the site within each designated region was based upon the following criteria:

- Workshops should be held in all parts of the United States to accommodate all participants.
- Workshops should be located near a major transportation center to minimize participant travel time.
- Adequate classroom and lodging facilities should be available.
- It was determined that a community-junior college should serve as the workshop site because such a setting would be viable in implementing the accident investigation technician curriculum.
- Workshops should be selected according to the centrality of location.

The actual institutions at which the workshops were conducted were selected on the following criteria:

- A community-junior college location that is public, accredited, co-educational, and offers both transfer and occupational programs
- Adequate accommodations available at reasonable expense in relation to concentration of largest number of participants to equalize transportation costs
- Availability of resources for "hands on" experience of teachers
- Willingness of institutions to provide facilities and equipment

In selecting the dates for the workshops, it was determined that there should be one week between the first, second, and third workshops to provide time to make any changes that might be necessary as a result of information gained during the actual conduct of the workshop. The remaining workshops were to be held in sequence.

The sites, dates, and host institutions for each of the workshops were:

- March 20-24, 1972: Atlanta, Georgia
  Host: The Atlanta Area Technical School

- April 3-7, 1972: Denver, Colorado
  Host: West Campus, Denver Community Colleges

- April 17-21, 1972: San Francisco, California
  Host: City College of San Francisco, California

- April 24-28, 1972: Palatine, Illinois
  Host: William Rainey Harper College

- May 1-5, 1972: Manchester, Connecticut
  Host: Manchester Community College

The Atlanta Area Technical School was selected as a host institution because there was not a community-junior college in the Atlanta area that met the determined criteria.

Participating States

The selection of participating states was based upon the agreement with NHTSA to invite participants from each of the 50 states to attend the workshop. Procedures resulted in contact being made with the designated persons within each state to submit nominations of participants for each workshop. (These procedures are explained in the section entitled Enrollment of Participants.) The final enrollment of participants resulted in representation from 35 different states in the workshop.

Several reasons were cited for not having representation from each state as follows:

1) The state directors were not knowledgeable of potential candidates within the police science program to submit as nominees.

2) There was no release time available from their jobs due to conflicting schedules for participants to attend the workshop.

3) There was a general disinterest on the part of a few states in the purpose of the workshop, and they could see no future implications for their state's program.

4) None of the people contacted for nominations from a given state knew of any accident investigation technician training going on or planned within their respective state.

For the regional workshops, the participating states were grouped to form a region based on the geographic location, the distribution of the population, and the location in relation to potential workshop sites. A map identifying the states by regions and the participants by profession appears in Figure 5. It should be noted that the regions identified for the workshops did not correspond with the NHTSA Regions utilized in program administration.

Enrollment of Participants

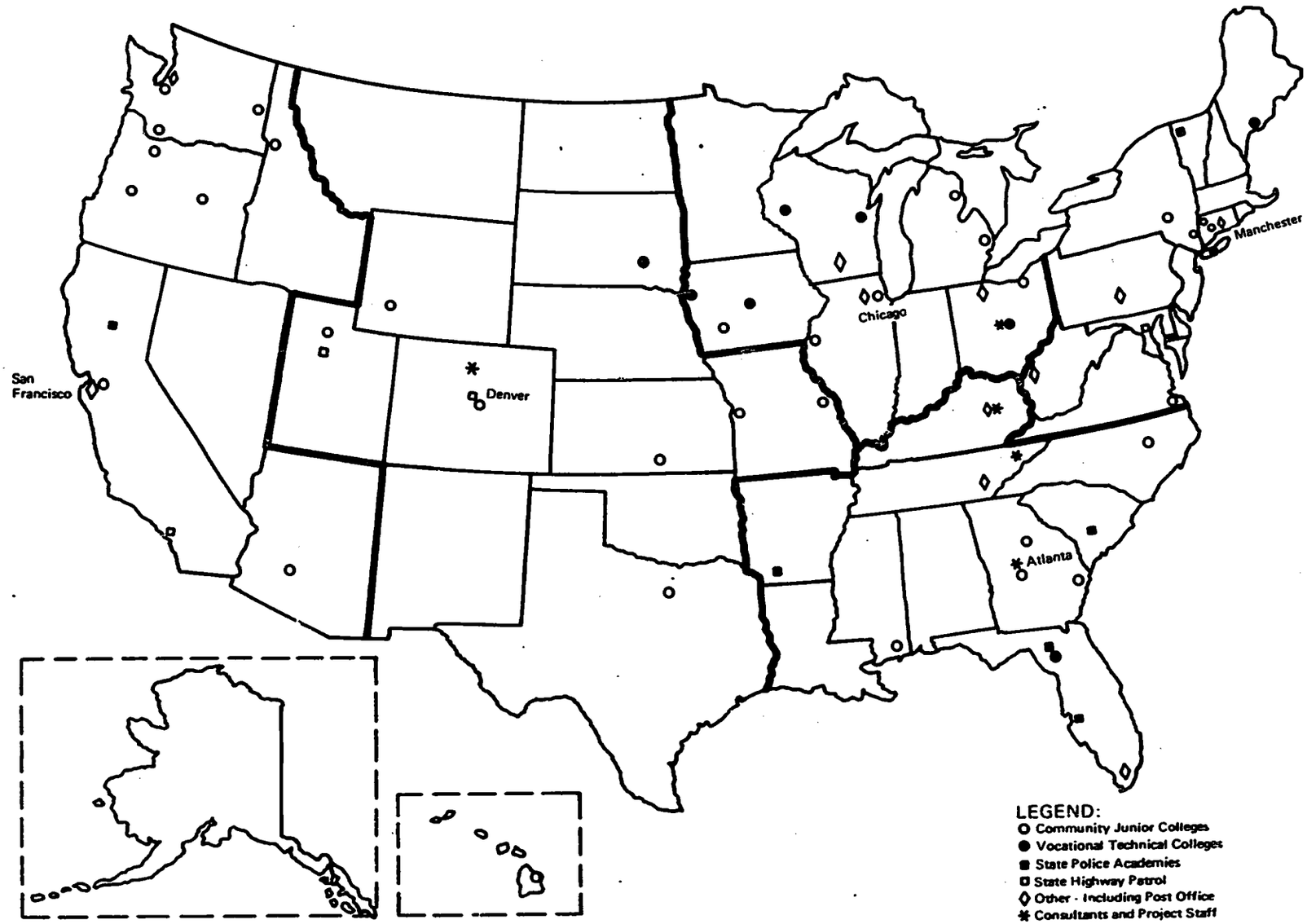
Workshop participants were solicited according to the procedure agreed upon by the project director and the contract technical manager. This procedure follows:

A. A letter soliciting workshop participant nominations was mailed to each state director of vocational-technical education, each state director of community-junior college programs, and three directors of curriculum laboratories for vocational and technical education. The letter requested the names, titles, and institution addresses of one to three persons to be considered in the selection of participants. It was requested that these persons suggested be instructors and have experience in the investigation of vehicle accidents. It was also requested that the nominee from the curriculum laboratory have a knowledge of the U.S. Office of Education publication, *The Preparation of Occupational Instructors* (Appendix C). In addition to the above correspondence, a request was made for the state directors of law enforcement training programs in most states where one could be identified to submit a nomination from each state.

   In response to a request by the contract technical manager five representatives of the U.S. Postal Service were invited to attend the workshops. The representatives were designated by William D. Thomas, Vehicle Systems Branch, Fleet Management Division, Washington, D. C. Contact was also made with each institution hosting the workshop and with three institutions involved in the Traffic Engineering Technician Pilot programs (a project contracted by NHTSA through the American Association of Junior Colleges) to designate an instructor in their programs to attend the workshop. These three programs will institute curricula incorporating accident investigation technician training units in the near future.

B. Based upon the predetermined quota of 75 workshop participants, the identification and selection procedure consisted of contacting one person from each state (excluding Alaska) and selecting additional persons from the more highly populated states to complete the total of 75 participants.

Figure 5
Regional Workshops for Training State and Local Instructors
In Use of Accident Investigation Technician Curriculum Package



C. A letter from The Center for Vocational and Technical Education was mailed to each participant upon receipt of confirmed enrollment for a given workshop. This letter explained the workshop coverage, lodging, travel, and reimbursement procedures (Appendix D).

D. In addition to the correspondence, a package of pre-workshop material was mailed to each selected participant. The package included a cover letter explaining the enclosed information regarding responsibilities prior to attending the workshop. A copy of these materials are included in Appendix A.

E. Although the initial response to the workshop resulted in obtaining the 75 confirmed participants, some individuals who intended to attend withdrew their names; some of these supplied alternate names and some did not. There were several reasons for the problems regarding enrollment of the actual participants. One participant who indicated he would attend simply failed to show up and other cancelled at the last minute due to unforeseen circumstances.

In some cases, there was confusion regarding the purposes of the workshop. Although the materials sent for the participation indicated that the emphasis was upon teacher training and curriculum development, apparently this fact was not clearly understood. This resulted in a few cancellations when participants received the package of pre-workshop materials. Even after receiving the materials, some participants arrived at the workshop with misconceptions about the purposes.

Some states were contacted by telephone when nominations were not received. Reasons given for not submitting nominations were a lack of knowledge of potential candidates and a disinterest in the project.

The total enrollment was 64 participants representing 35 out of the 50 states. The quota of 75 participants and the site quota was not met at any of the workshops because no provisions for substitutions could be carried out due to inadequate lead and release time. (A roster of participants listed by workshop appears in the beginning of the report.)

Task II. Improvement of Teaching Skills of Participants

The project staff determined that several procedures were necessary to accomplish the secondary overall purpose of the project, to improve the teaching skills of the workshop participants. The first step was to identify the teacher educator consultants who would be instrumental in planning and conducting the workshops. The selection of Bernard T. Fagan and D. G. Slemmer

to assist in the development of the curriculum materials has been discussed in a previous section. The following section describes the process for selecting the teacher educator consultants.

Teacher Educator Consultant's Selection

As determined by NHTSA and the project staff, three competent teacher educators were selected to serve as consultants to each of the five regional workshops. The criteria used by the project staff in selecting the teacher educator consultant were based on information from the following:

1) The Center for Vocational and Technical Education's data bank on consultants

2) Recommendations received from professional colleagues at the university level

3) Previous experience with potential candidates as consultants

4) The involvement potential consultants had with the area of highway safety and accident investigation

The major responsibilities of the consultants were to:

- Help develop a training plan and materials to prepare the instructors to teach courses in accident investigation
- Conduct the five-day workshop with emphasis on the course and on the purpose of teaching teachers, indicating lecture and demonstration methods for instructing teachers
- Evaluate instructor-candidate's lesson plan, demonstration performances, and projected plans for conducting training courses
- Prepare a final report of all activities and follow-up carried out in connection with the workshop
- Serve as a consultant for the designated workshop(s).

Using the criteria listed above, the project staff identified three teacher educators to serve as consultants to the designated workshops.

They were as follows:

- Atlanta, Georgia and Manchester, Connecticut: B. T. Fagan, associate professor, Department of Vocational Education,

College of Education, University of Kentucky. Fagan was involved in the project "Expansion of Vocational-Technical School Programs to Accommodate Highway Safety Manpower Requirements" conducted by The Center for Vocational and Technical Education for NHTSA, 1970-71.

- Chicago, Illinois: Carroll Hyder, assistant professor, Industrial Education Department, East Tennessee State University, Hyder was a member of the staff conducting the project "Expansion of Vocational-Technical School Programs to Accommodate Highway Safety Manpower Requirements" conducted by The Center for Vocational and Technical Education for NHTSA, 1970-71.

- Denver, Colorado and San Francisco, California: Ivan Valentine, professor of vocational research, Department of Vocational Education, Colorado State University.

Upon identification and confirmation of the teacher educator consultants, a memorandum was sent to each explaining the responsibilities, designating workshop(s) assignment, travel reimbursement, and honorarium (Appendix F).

Teacher Educator Consultant's Workshop Planning Meeting

To further implement the workshop planning phase, the project staff conducted the consultant's workshop at The Center for Vocational and Technical Educational on March 13-14, 1972. The purposes of the workshop were to:

- Finalize plans for the five regional accident investigation workshops
- Determine the format for the daily activities of the five workshops
- Explain the consultant's role in relation to the workshop conductivity
- Decide the topics to be presented relating to the teaching-learning process

Results of Planning Meeting

A meeting of the project staff, teacher educator, and staff evaluator was held to formulate plans to implement structure for the first workshop. Discussed at the meeting were the purposes, format, and evaluation of the workshop (see Figure 6 for proposed daily format for workshops). The project director, his staff, and

Figure 6
Proposed Agenda for Accident Investigation Workshops

	Monday	Tuesday	Wednesday	Thursday	Friday
8:30-10:00	Introduction Overview The Purposes Schedule - Handout	Demonstration Visual Aid	Presentation Work on Material	15-Minute Daily Plans Demonstration	Plans
10:00-10:15	Break	Break	Break	Break	Break
10:15-11:45	Principles of Teaching and Learning Principles of Learning 4-Step Methods	Formal Change Work on Material	Presentation Work on Material	15-Minute Daily Plans Demonstration	
11:45-1:15	Break	Break	Break	Break	Break
1:15-2:45	Analysis Process; 50 Units of Instruction Orientation to Curriculum Development	Presentation	Presentation Work on Material	15-Minute Daily Plans Demonstration	Plan of Action
2:45-3:00	Break	Break	Break	Break	Break
3:00-4:30	Work on Materials	Limitations	Presentations Work on Material	15-Minute Daily Plans Demonstration	Evaluation
5:00	Plan for Tomorrow				

The Center staff evaluator planned to meet after each workshop to review problems encountered in the workshop, to view the proposed format for the workshop process in light of the actual process, to identify the questions which needed answers before decisions to change or not to change the process could be made, and, finally, to identify the information needed for making those decisions.

Evaluation Plans for Formative (Process) Evaluation

The project staff developed an evaluation plan that was intended to be flexible and meet the changing needs of a changing process. The planning of the first workshop was done in some detail; subsequent plans for successive workshops were formalized, based on information collected at the preceeding workshops.

Two basic strategies were used to collect information within the evaluation procedures described above:

1) Evening evaluation sessions were used to monitor participant reaction.

2) Data collection instruments were employed to query the participants at key points throughout the workshop.

The instruments and form given in List 1 were developed to meet the following nine needs expressed by the project director.

1) Teacher educator consultant will present an approximately 90-minute lecture-demonstration/discussion on each of the five mornings about teaching techniques, principals of learning, etc. Feedback is needed regarding their effectiveness.

2) Every afternoon, the participants will present a 20-minute teaching demonstration based upon their assigned lesson topic. We need to know how beneficial this is to the group and the individual and to take suggestions for improvement, etc.

3) We need to know the value of the consultant's assistance in regard to finalizing the lesson plan, preparing, presenting, and evaluating the demonstration, etc.

4) We need to know if the package of information sent out prior to the workshop was beneficial and inclusive and whether the participants have recommendations regarding it. This package contained all the essential information for developing the lesson plan.

5) We need to know the overall effectiveness of the workshops in terms of how well they prepared the participants to be more effective in their jobs upon returning home.

6) We need some ideas to the effectiveness of using the daily blocking plan.

Example:

Mon.	Tues.	Wed.	Thurs.	Fri.
Teacher Educator			Presentations	
Work Sessions				
Demonstrations				

7) We need feedback for adequacy and suggestions regarding facilities, lodging, audiovisual equipment, meal arrangements, transportation, length of workshops.

8) Space could be provided for suggestions for future workshops, comments, etc.

9) We might get some feedback on how participants regard the use of this method of preparing curriculum materials.

To collect this information, eight instruments were proposed. List 1 gives a brief description of each (Instruments are in Appendix E).

LIST 1

Instruments and Forms*

1. Participant Feedback Questionnaire. Used to collect feedback from the participants at the end of the workshop; one per participant; should be returned to The Center's evaluation staff.

2. Observation Profile for Information Plans. Used by participants to critique their peers' information plan presentation; one instrument per observer; the workshop director and Center administrator may want to review these instruments before giving them to the appropriate presenter.

3. Observation Profile for Skill Plans. Used by participants for their peers' skill plan presentation; one instrument per observor; the workshop director and Center administrator may want to review these instruments before giving them to the appropriate presenter.

4. Lesson Plan Critique. Used by those asked to edit lesson plans for technical content; one form for each lesson plan edited; should be retained by The Center's administrator.

5. Participant's First Day Evaluation Form. Given to participants at the end of the first day to be used in the daily evaluation meetings; one per participant; should be returned to The Center's evaluation staff.

6. Participant's Daily Evaluation Form. Used by the workshop director to assess any daily activity; use and disposition of this form is at the discretion of the workshop director and Center administrator.

7. Daily Evaluation Meeting Form. (Taped Session) Used by the workshop administrator to record the daily evaluation meeting (Day 1 through Day 4) -- one person should highlight the meeting; Center's evaluation would like highlights of the meetings, but all comments are welcome. The major part of this meeting should be recorded; could be used as an open agenda, giving each member of the meeting a copy.

8. Workshop Summary Forms. (Taped Session) Used by The Center's administrator on the last day to help evaluate and summarize the workshop; the major part of this review can be done on tape.

Instructional Objectives for Workshop Participants

In planning for the workshops the teacher educator and the project staff determined that the following areas should be covered.

1. Principles of learning and the differences between teaching and learning:

   The purpose was to review the major ways in which adults learn and to stress the differences between how someone learns and how to effectively teach someone so as to facilitate learning.

---

*Forms are in Appendix E.

2. Writing behavioral objectives:

The purpose was to stress the importance of behavioral objectives in the teaching-learning process and to teach the participants how to write in behavioral terms effective objectives for the assigned lesson units. (Refer to Appendix B, Guidelines for The Development of Behavioral Objectives.)

3. The four-step method:

The purpose was to review the four-step method prescribed in writing lesson plans. The steps are: (1) preparation; (2) presentation; (3) application; and (4) evaluation. *The Preparation of Occupational Instructors* was utilized as a major resource for this presentation.

4. Importance of analysis process:

The purpose was to stress the need for evaluation and the maintenance of flexibility in the schedule so that the overall purposes could be accomplished. Participant feedback and participation in the daily group evaluation sessions were emphasized. In addition, each workshop was designed to allow participants to demonstrate teaching techniques and individual lesson units through a 20-minute demonstration. Time was alloted for individuals to work on the development and refinement of curriculum materials.

Each workshop was designed to have five instructional objectives:

1. To identify factors peculiar to instruction of adults in relation to how they learn, how they differ, and how to arouse and maintain their interest in classroom discussion and participation

2. To demonstrate a variety of methods and techniques which will enhance trainee learning in the conduct of local training programs

3. To apply the basic four-step lesson plan as set up in *The Preparation of Occupational Instructors*.

4. To write project plans for local training programs

5. To evaluate the trainees and the training programs as you conduct local training activities

An assessment of how well each of these objectives were met will be discussed in the section entitled Findings.

In addition to the usual introductory and closing sessions, it was felt that there was a need to acquaint the participants with the current status of manpower development in the area of highway safety. Therefore, the project staff presented a thirty-minute program on the "Expansion of Vocational-Technical School Programs to Accommodate Highway Safety Manpower Requirements." The presentation consisted of a talk with a tape and slide series expanding on the highway safety project.

Task III. Follow-up Workshop

For the purpose of refining and technically editing the instructor's lesson plans developed at the regional workshops, the project staff planned a follow-up workshop. Their plans included the selection of participants, determination of site, dates, schedule, and procedure. Each activity, though occurring concurrently, is discussed separately below.

Selection of Workshop Participants

The project staff identified and selected six persons for the purpose of checking the accuracy of the technical content of the instructor's lesson plans. The selection of the participants was based upon the following criteria:

- Satisfactory completion of the workshop each had attended
- Expertise and experience in the field of accident investigation
- Representation from law enforcement academies, community-junior college law enforcement programs, and vocational-technical school police science programs
- Experience as an instructor in the field of accident investigation
- Representation from each of the five regional workshops
- Availability to attend the workshop

In addition to the six persons, NHTSA had three representatives in attendance at the workshop. (A roster of the follow-up workshop participants appears at the beginning of this report.)

Workshop Sites and Dates

For the purpose of conducting the follow-up activities and to conserve on cost, it was decided to conduct the follow-up workshops at The Center for Vocational and Technical Education, Columbus, Ohio. The dates July 17-19, 1972, were selected so that the consultants could be available and to allow time for rewriting the instructor's lesson plans to conform to a standard format suitable for editing purposes.

The results of the selection of the site and dates indicate that the facilities were quite appropriate and the dates were convenient to all persons involved.

Pre-Workshop Activities

Prior to the follow-up workshop, the project staff edited and revised all of the draft lesson plans into a consistent format as found in the Instructor's Lesson Plan Guide. This process was necessary so that final technical validation could be done by the workshop participants. The editing process was necessary to eliminate some of the duplication of lesson plan materials which had resulted from the original assignments made by the project staff. The duplication of some topics resulted from the fact that some topics were so extensive in nature that more effective lesson units could be developed if two individuals were assigned to one topic.

Workshop Outline and Schedule

To facilitate the use of the participant's expertise and time during the follow-up workshop a schedule of activities was developed. The schedule consisted of an orientation explaining the accomplishments desired during the three-day session; an explanation of an example of the workshop procedure; provisions for individual and group work session; and a daily review of accomplishments. The agenda for the workshop is attached in Appendix F.

Workshop Procedures

In this section are discussed the plans and procedures used in relation to the follow-up workshops. To expedite plans and activities for the three-day session, the following information was sent to the six participants:

. The initial contact by telephone to each participant was followed by correspondence explaining the location, travel

procedures, lodging, reimbursement procedures, and honorarium. Also enclosed was a draft of the revised course outline resulting out of the five regional workshops with instructions to critique and return to the project staff prior to the follow-up workshop. (Letter is attached in Appendix F.)

- A cover letter was sent describing the activities to be accomplished prior to arrival in Columbus, Ohio. This letter consisted of instructions for critiquing the enclosed lesson plans, for writing paragraphs to describe and summarize each lesson plan, for preparing a list of trainee activity skills for the enclosed lesson topics, and for preparing suggestions for the study guide. (Letter is attached in Appendix F.)

- A copy of the revised course outline was enclosed. These revisions were based upon input from the six participants resulting from the initial contact in regard to attendance at the follow-up workshop. (Figure 7)

- A set of revised lesson plans was assigned to each participant and was enclosed to be reviewed prior to the workshop.

- A lesson plan critique form was enclosed to provide guidelines for analyzing each lesson plan in terms of technical content. (Appendix F)

To facilitate the planned activities, each lesson plan was enclosed in a manila folder along with a course Outline Description form, a Job Activity form, and a Lesson Plan Critique form. The participants were responsible for completion of each form in addition to critiquing the lesson plan. A copy of all these materials used in the follow-up workshop are found in Appendix F. Results of the follow-up workshop will be discussed in the section entitled Findings.

As a result of the follow-up workshop, several problems evolved in relation to the course outline and the Instructor's Lesson Plan Guide. It was the consensus of the NHTSA representatives, the project staff, and the participants that further revision of the technical content would be essential to produce a completed curriculum package.

Figure 7

Revised Course Content Outline for
Accident Investigation Technician Curriculum

I. Introduction
   A. Highway transportation system
   B. Purposes, responsibilities, and objectives of the accident investigator
   C. Reconstruction principles and causation analysis
      1. Determine the facts
      2. The involved parties
      3. The vehicle
      4. The environment
   D. Definitions and classifications
   E. Plan the investigation

II. Identify
   A. The driver
      1. Locate and identify the driver
      2. Examination for pre-crash contributing conditions
         a. Physical condition
            (1) Sobriety (alcohol/drugs)
            (2) Emotions, fatigue, physical illness
         b. Distractions
            (1) Passengers
            (2) Outside influences
         c. Personality and attitude
      3. Actions--reactions of the driver
         a. Natural abilities
         b. Learned capabilities
      4. Locate and identify persons involved other than the driver
   B. The vehicles
      1. Examine for pre-crash damage and defects not contributory
      2. Examine for crash damage
         a. Differentiate between contact and induced damage
         b. Segregate damage from multiple impacts
         c. Evaluate position and angle of infliction
         d. Match vehicle parts with crash marks on the roadway and environment
         e. Examine the vehicle for source of injury
   C. The environment
      1. Recognize and determine environmental factors
      2. Determine modifers of the environmental attributes at the accident time
         a. Condition of road surface
         b. Glare

Figure 7 (continued)

c. View obstructions
d. Weather
3. Evaluate debris
4. Utilize pre-crash marks on the road, shoulder, and environment
5. Determine initial contact from marks on the roadway

III. Collect
A. Pre-crash actions and reactions
1. Driver actions
2. Reconstruct chain of events
B. Interview
1. Techniques in interviewing drivers
2. Techniques in interviewing witnesses
C. Photography
1. Mechanics of photography (procedures)
2. Techniques of photography
a. Involved parties
b. Vehicle
c. Environment
D. Relocation measurements
1. Methods of measuring
2. Reference points
3. What to measure
E. Speed estimates
1. Mathematical formulas
2. Test skids
3. Skidmarks
4. Speed scuff
F. Sketching
1. Determine what to include
2. Free-hand sketch
G. Collecting and preservation of physical evidence
1. Identify
2. Collect
3. Preserve
4. Transport
5. Store
H. Expert assistance available
1. Identify
2. Utilize

IV. Record
A. Methods of recording data
1. Photography
2. Field sketches
3. Interviews
B. Prepare accident report forms

Figure 7 (continued)

V. Report
   A. Formulate opinions and conclusions
      1. Opinion forming process
      2. Recording opinions and conclusions
      3. Differentiates among facts, opinions, and conclusions
   B. Scale reconstruction diagram
      1. Scale map
      2. Reconstruction diagram
   C. Simulated (mock) traffic crash site investigation

Summary Comments

The general refinement and technical editing of the Instructor's Lesson Plans were carried out in a follow-up workshop by three NHTSA representatives and six persons who represented each of the regional workshops and possessed expertise in the field of accident investigation. The course outline and the lesson plans were considerably strengthened as a result of the follow-up workshop. Based upon the recommendations of the group, further refinement of the curriculum package is planned.

FINDINGS

The section on Findings will be presented under the following two general headings which correspond to the overall purposes of the project: curriculum materials development, and improvement of teaching skills of participants. Information regarding the conduct and procedures of each workshop will be included under Curriculum Materials Development.

Curriculum Materials Development

Workshop Conduct and Procedures

The five regional workshops proceeded as planned. The number of participants attending each was as follows:

Atlanta	13
Denver	11
Chicago	14
San Francisco	13
Manchester	13
Total	64

All participants attending the five-day workshops came prepared with an assigned lesson plan unit developed according to the specifications set forth by the project staff in the packet of pre-workshop information.

The teacher educator consultants made their presentations on the topics as indicated on the schedule. The format of the schedule was altered for each workshop in an effort to accomodate the needs of the participants, project staff, and the teacher educator consultant. It was felt by the project staff that flexibility of the schedule was necessary to achieve the overall stated workshop purpose of developing completed lesson plan topics for inclusion in a curriculum on accident investigation. A complete discussion of the evaluation process can be found in the section on Evaluation.

In the third workshop the project staff decided that a better measure of participant attitude toward the workshop activities

could be obtained by administering the workshop evaluation form on Wednesday instead of waiting until the last day.

This midweek evaluation procedure was followed for the fourth and fifth workshops.

On the final day of the workshop, the participants completed both reimbursement forms and evaluation forms. Reimbursement for travel and subsistence was made by mail, usually within three to four weeks following receipt by the project staff of the appropriate forms. An analysis of the information obtained from the evaluation forms is presented in the following section on workshop evaluation.

Upon completion of the workshop, all participants were presented with certificates of completion by either the regional representative of NHTSA or an official of the host institution.

The draft lesson plan units represent the curriculum for the Instructor's Lesson Plan Guide. The materials were gathered from the participants' contributions at the five workshops. The four-step lesson plan was adapted by the project staff to a three-step lesson plan in an effort to facilitate the ease of writing the lesson plan units as detailed by the assigned topics in the course outline. The modification involved incorporating the evaluation step into the application step.

The Battelle task analysis proved to be very helpful in developing the course outline materials. The project staff did adapt and modify the Battelle information by eliminating the police function so that the information would more accurately reflect the activities of an entry-level accident investigator technician.

The Cornell Aeronautical Laboratory materials were helpful in the development of the course outline and pre-workshop information. However, the project staff found that these materials were oriented toward the preparation of a higher competency level of personnel than was within the scope of this project. The Cornell materials offered too much in-depth knowledge and called for a high level of expertise in a variety of disciplines that would not be applicable at entry-level technician position.

Findings

One of the findings related to curriculum development involves the use of standard reference materials in the field of accident investigation. Specifically, the project staff noted throughout the workshop and in the editing process following the workshop that the heavy reliance on J.S. Baker's text entitled *Traffic Accident Investigator's Manual for Police* provided a heavy emphasis

on police functions, chain of evidence, and evidence admissible in court which was not applicable for the scope of this project. There was little information provided in Baker's manual on the subject of the vehicle, and therefore, the materials provided by the participants offered less in-depth information in that section related to the vehicle.

One of the project staff's major findings of the study relating to curriculum development was that a five-day workshop did not provide enough time to develop curriculum materials at a technically refined level. Additional findings concerned the participants' inability to develop the type of pedagogical materials desired by the project staff. This apparent lack of ability was related to the fact that the people who will implement accident investigation technician programs as represented by the workshop participants are: (1) not aware of the job market for such a technician (2) not aware of the changing requirements in the field of accident investigation and (3) due to their law enforcement background, envision accident investigation as a police function only.

Teaching Skills Improvement

This section will present information relating to findings, as related to the project purpose of improving the teaching skills of participants. Generally, it was found that the selection of workshop participants was consistent with the selection process as outlined in the methodology section. That is, approximately one-third of the participants were non-teachers. It was found by the project staff that they did contribute and enhance the workshop, especially in the technical areas.

Workshop Participants

The following section provides description of the participants, their role in accident investigation training, the institutions and organizations represented, the participants' level of accident investigation experience and teaching experience, and summary comments.

Role in Accident Investigation Training

A total of 64 individuals participated in the five regional workshops held from March 30 - May 4, 1972. These participants represented a total of 35 states. Generally no more than three participants come from any one state. The exceptions were California and Florida, each of which were represented by four participants.

Half of the participants (N=32) represented departments of criminal justice, law enforcement education, or police science at the community college level. An additional 10 individuals represented law enforcement education at the vocational-technical college level. Therefore, 42 of the 64 participants were educators. Participants' job responsibilities ranged from instructor to coordinator or department chairman.

Nine instructors from law enforcement or police academies were involved with the five workshops. Six officers from the state police and state highway patrol were participants as were two individuals from the university level of public safety and vocational education. Five individuals from the U.S. Postal Service with general responsibilities in vehicle operation were also included as participants. Two participants were from the Traffic Engineering Technician Programs of the Red Rocks Denver Community Colleges and the Kansas City Community College. Therefore, 22 participants could be classified as lay persons.

Organizations Represented

The 64 participants represented two major types of institutions: (1) basic police academies and (2) community-junior colleges. Table 1 provides a complete breakdown of the types of organizations represented by the participants.

The total of 101 responses reflects the fact that the participants indicated that there is more than one type of program in the same institution.

The participants indicated that the institutions they represented offered three major types of accident investigator programs: (1) police training, (2) police science, and (3) accident investigation.

Table 2 reflects the complete breakdown of the number and types of accident investigation programs at participating institutions. The total of 105 responses indicates that there is more than one type of program in the same institution.

Accident Investigation Experience

Thirty-five participants indicated that each had five to six years of accident investigation experience, while 13 had no accident investigation experience. Six persons had three to four years experience, five persons had two to three years experience, with four persons noting four to five years experience. Two participants had one to two years experience in accident investigation.

Table 1
Institutional Profile
(Types of Training Institutions by Group)

Workshop	Types of Training Institutions**							
	Basic Police Academy	Advance Police Academy	Technical Institute	Community-Junior College	Four-Year College	On-the-Job Training	Other Specify*	
Atlanta	8	3	3	2	1	4	1	
Denver	3	3	1	6	2	4	1	
San Francisco	5	3	0	8	0	3	5	
Chicago	1	0	5	8	1	2	1	
Manchester	8	4	1	8	2	4	0	
TOTALS	25	13	10	32	6	17	8	T:101

*Others includes non-respondents.
**More than one type of program in same institution.

Table 2
Institutional Profiles
Number and Types of Accident Investigation Programs by Group

Workshop	Number of and Types of Accident Investigation Programs at Participants' Institutions**						
	Police Training	Accident Investigation	Traffic Safety	Criminal Justice	Police Science	Traffic Engineering	Other (Specify)
Atlanta	6	6	5	2	1	0	=
Denver	5	1	2	2	4	0	0
San Francisco	8	3	0	1	6	0	0
Chicago	4	2	0	2	6	0	5
Manchester	3	5	7	3	9	2	1
TOTALS	26	17	14	10	26	2	10

T:105

**More than one type of program in same institution.

It should be noted that three of the 13 who indicated no experience in accident investigation were the the teacher-educators who served as consultants to the workshops. Table 3 provides information on the participant's profile including the average years of accident investigation experience by group. The Manchester group averages the highest number of years of experience (6.6 year) with the Chicago group (4.3 year) being the second most experienced group. The Atlanta, Denver, and San Francisco participants reported an average of 3.7, 3.6, and 3.4 years of accident investigation experience, respectively. The overall average years of accident investigation experience for participants of all five workshops was 4.32 years.

The average age of participants in the Manchester and Chicago groups was 46.9 and 35.3 years, respectively. The average age for all participants was 40.78 years.

Teaching Experience

Twenty-two participants each reported in excess of six years teaching experience while three individuals indicated no years of teaching experience. Twenty persons had one to three years of teaching experience while the remaining (20) participants reported a range of teaching experiences ranging from three to six years. The total of 65 responses reflects one teacher educator who served as a consultant in the Atlanta workshop.

The average years of teaching experience by groups indicates that the Manchester workshop reported the most teaching experience (4.9 years) followed by the San Francisco group (4.6 years) and the Atlanta group (4.5 years). Groups in Denver and Chicago showed 3.6 years and 3.5 years teaching experience, respectively. The overall averages of teaching experience for all five workshops was 4.22 years.

Table 4 presents a complete breakdown by workshop of the average years of teaching experience.

Teacher Educator Consultants Presentations

In attempting to meet the stated purpose of improving the teaching skills of participants, it is necessary to discuss the effects of the pragmatic presentation of information by the consultants. The actual agenda for the workshops (see Figure 8) provides a capsule view of what the consultants taught. Basically, the pragmatic presentations were closely related to the five instructional objectives of the workshop. The consultants utilized the inductive method to enhance the learning and teaching abilities of the participants instead of the lecture method. Tables 6 and

Table 3
Participants Profile
(Average Years of Accident Investigation Experience by Group)

Workshops	Average Year of Age of Participant	Average years of Accident Investigation Experience by Group*	Number of Years of Accident Investigation Experience Per Participant					
			0	1-2	2-3	3-4	4-5	5-6
Atlanta	40.8	3.7	5	0	0	0	0	8
Denver	40.0	3.6	3	0	1	2	1	5
San Francisco	40.9	3.4	3	1	2	1	1	5
Chicago	35.3	4.3	2	1	1	1	2	7
Manchester	46.9	6.6	0	0	1	2	0	10
TOTALS	40.78	4.32	13	2	5	6	4	37

*These are conservative estimates because of the categorization of six or more years experience was interpreted as seven years of experience.

Table 4
Participants Profile
(Number of Years of Teaching Experience
By Group)

Workshops	Average Years of Teaching Experience By Group	Number of Years of Teaching Experience Per Participant						
		0	1-2	2-3	3-4	4-5	5-6	6+
Atlanta	4.5	1	2	0	1	2	1	6
Denver	3.6	1	3	2	1	0	1	4
San Francisco	4.6	0	1	2	1	2	3	3
Chicago	3.4	0	3	5	2	1	2	2
Manchester	4.9	1	0	2	1	1	1	7
TOTALS	4.22	3	9	11	6	6	8	22

Figure 8
Agenda for Accident Investigation
Workshop--Atlanta

	Monday 3/20	Tuesday 3/21	Wednesday 3/22	Thursday 3/23	Friday 3/24
8:30-10:00	Welcome Introductions Center Overview Highway Occupation Overview Purposes Workshop Plans	Daily Plan Behavioral Objectives	Daily Plan Cone of Experiences Demonstration and Critique	Daily Plan How to Give a Demonstration	Daily Plan Informal Presentations to Entire Group
10:00-10:15	Break	Break	Break	Break	Break
10:15-11:45	Teaching and Learning Principles of Learning	Work on Material First Day Evaluation	Small Groups Work on Materials	Small Groups Work on Materials	Informal Presentations (4)
11:45-1:15	Lunch	Lunch	Lunch	Lunch	Lunch
1:15-2:45	4-Step Method	Demonstrations Critique of Demonstration	Audiovisual Aids Film Small Groups Work on Materials	Tour of Technical School	Center: Summation, Travel Form, Final Evaluation Presentation of Certificates - Larry Thompson
2:45-3:00	Break	Break	Break	Break	Adjournment
3:00-4:00 3:30	Analysis Process Adjournment	Work on Material- Tomorrow's Plan	Audiovisual Aids Film Small Groups Work on Materials Tomorrow's Plan	Tour of Technical School Tomorrow's Plan	
3:30-6:30	Evaluation	Evaluation	Evaluation	Evaluation	

7 in the section Evaluation of Workshops present information regarding the achievement of instructional objectives as well as participants' reactions to the instructional quality and overall worth of the workshops.

Improvement of Teaching Skills

There were no provisions for a long-range follow-up study to be conducted in order to determine what effect the information regarding teaching techniques presented in the workshops had on the participants. Therefore, the project staff had no way to measure whether the participants benefited from the workshop activities in relation to the project's second major objective of improving teaching skills of participants.

Summary

The 64 participants represented a nationwide sampling of individuals primarily involved with some phase of police training, police science, accident investigation, and traffic engineering programs at community colleges, police academies, or state highway patrol agencies. Five participants represented the U.S. Postal Service.

The average participant could be described as caucasian male, age 40, with slightly more than four years of accident investigation experience in addition to four years of teaching experience. There were no female participants in the workshops.

The draft lesson plan units provided the nucleus for the Instructor's Lesson Plan Guide. The participants utilized a modified version of the four-step lesson plan to develop the lesson plan units. The two major influences in the development of the course outline and curriculum model were the task analysis conducted by Battelle Memorial Institute and the accident investigation training materials from the Cornell Aeronautical Laboratory.

Evaluation of the Workshops

The presentation of the data will be as follows:

1. A brief presentation of each workshop's daily evaluation sessions and the presentation of the actual agendas

2. Presentation of the participants' evaluation of selected planning activities

3. Presentation of the participants' evaluation of the quality of instruction and their general reactions to the workshops

4. Presentation of the participants' evaluation of how effectively the workshops met their instructional objectives

5. Presentation of the participants' perception of how the curriculum materials would be implemented at their institutions

Daily Evaluation Meetings

Each workshop administrator conducted a daily evaluation meeting during which three participants were asked to give their perceptions of the workshop and to offer suggestions on how the purposes might be met. Changes were made in the proposed agendas as a result of these meetings. This section will present the agendas and highlight the evaluation meetings.

Atlanta. Figure 8 gives the actual agenda for the Atlanta workshop. A major shift in the format was from presentation and demonstration to small group sessions aimed at developing materials.

The Atlanta evaluation meeting brought out several key points. There was some confusion as to what were the purposes of the workshop. This was, in the main, due to the conflicting statements between the pre-conference material and necessary changes as expressed in the introductory remarks by the project director. A second major change was the deletion of the 20-minute presentation by participants. The participants expressed irritation at the manner and style of criticism given the presenter by some of their peers. The primary purpose of developing curriculum material was given more time and the participants were arranged in small working groups in which each refined his lesson plan. Later in the week, it was felt that short, descriptive presentations of the lesson plans might be useful, and these were given on a voluntary basis. Over all, the evaluation meeting pointed out the need for more explicit statements of the workshop's purposes and the necessity of reallocating the workshops time so that a major portion of it could be devoted to the writing of curriculum material.

Denver. Figure 9, Appendix G gives the actual agenda for the Denver workshop. A more complete listing of comments from the daily evaluation meetings is available from The Center for Vocational and Technical Education. The tone of the Denver daily evaluation meetings were different in that there was little concern expressed about the 20-minute presentations; most discussion

centered around the context of the developing curriculum, concern about logical sequence of course outline, adequate physical setting, and getting the job done. It was felt that working in small groups might aid in developing better curriculum materials, and modifications were made in the schedule to accommodate this request.

Overall the evaluation meeting brought out two major questions: (1) Is the course sequence correct? and (2) Will the curriculum meet the needs of community college programs and police academy programs?

San Francisco. Figure 10, Appendix G shows the actual agenda for the San Francisco workshops. The daily evaluation meetings at San Francisco dealt mainly with the instructional content and the method used for instruction at the workshop. It was felt by several of the evaluation teams that the instruction on behavioral objectives should come sooner in the workshop format, that more time should be given for this instruction, and that the instructional method used should more fully involve the participants. Also, there was still some confusion as to the purposes of the workshop. The agenda reflected a redirection of time away from the teacher education purpose to the curriculum development objectives. The actual agenda is more in line with that developed at the Atlanta workshop. A more complete account of the meetings is available from The Center for Vocational and Technical Education.

Chicago. Figure 11, Appendix G gives the actual agenda for the Chicago workshop. A summary of the daily evaluation meetings is available from The Center for Vocational and Technical Education. A brief account of the action of these meetings follow. The actual agenda for the Chicago workshop resembled that of the San Francisco workshop.

The major concerns in the evaluation meetings were the adequacy and availability of resource materials for participant use. The need for more basic information about the workshop by participants prior to arriving at the workshop was again mentioned and the need to know types of groups or people that the curriculum is targeted toward was of some concern. There was some minor concern experienced about the format of the lesson plans.

Manchester. Figure 12, Appendix G gives the actual agenda for the Manchester workshop. The daily evaluation meetings again brought up the concern about the purposes of the workshop. The agenda was very similar to that of the Chicago and San Francisco workshops, and the participant reactions at the evaluation meetings were very positive. One concern expressed was that the curriculum material may not be useable in the junior-community college setting because there is some question regarding the potential job market for a non-law enforcement accident investigator.

Planning Activities

In an effort to meet the needs of the participants, the project staff made decisions that directly affected the workshop participants. Table 5 gives the ratings of participants on 10 of the most relevant areas. In reference to the total planning effort, only two areas were rates less than adequate: (1) reference materials and (2) pre-workshop information.

Apparently the reference material available was not indexed well or was not conspicuously placed; as for pre-workshop information disseminated caused some confusion as the the purposes of the workshop. In all, the ratings show a well planned workshop effort.

The participants agreed that five days was an appropriate length for the workshops and 86 percent agreed that there should be no organized instructional night sessions.

General Reactions

There were two measurements of the general quality and worth of the workshop as viewed by the participants. The first was an evaluation by participants of instructional quality of five workshops; Table 6 shows the five mean scores. There is little difference in these scores, all of which represent rating of more than adequate instructional quality. The participants' general reaction, monitored at all workshops, is on a 10-point scale (10 being the worst reaction and one being the best reaction). The Manchester participants had the best general reaction to the workshop.

Instructional Objectives

Each workshop had five instructional objectives:

1. To identify factors peculiar to instruction of adults in relation to how they learn, how they differ, and how to arouse and maintain their interest in classroom discussion and participation

2. To demonstrate a variety of methods and techniques which will enhance trainee learning in the conduct of local training programs

3. To apply the basic four-step lesson plan as set up in *The Preparation of Occupational Instructors*

4. To write project plans for local training programs

Table 5
Average Participant Evaluation
of Planning Activities by Workshop

Key: The following activities are: 1. not at all adequate 2. somewhat adequate 3. adequate 4. extremely adequate — PLANNING ACTIVITIES	WORKSHOPS					
	Atlanta	Denver	San Francisco	Chicago	Manchester	Totals
Meeting Facilities	3.3	2.9	3.5	3.1	3.7	3.3
Reference Materials	3.0	2.8	2.7	2.3	3.3	2.8
Pre-workshop Information	2.2	2.4	1.8	2.0	3.1	2.3
Accommodations	2.8	3.6	2.8	3.0	3.4	3.1
Meals	3.0	3.5	3.2	3.1	3.3	3.2
Transportation	3.2	3.6	3.6	3.6	3.5	3.5
Training Equipment	3.2	3.1	2.9	3.1	3.6	3.2
Length of Workshop Day	3.2	3.3	3.2	3.1	3.5	3.2
Recommended Length of Workshop in Days	5	5½	5	4½	5	5
Should There be Night Sessions? Yes	15%	27%	8%	0%	23%	14%
No	85%	73%	92%	100%	77%	86%

Table 6
Reactions of Participants to Instructional
Quality and Overall Workshop Worth

Workshops	Participant* General Reaction Mean Score	Participant** Evaluation of Instructional Quality Mean Score
Atlanta	3.27	3.28
Denver	3.62	3.09
San Francisco	4.84	3.18
Chicago	3.95	3.12
Manchester	2.52	3.38

* 1 = very good; 10 = very bad
** 1 = very bad; 4 = very good

5. To evaluate the trainees and the training programs as he conducts local training activities

Table 7 summarizes the participants assessment of their confidence in performing the five tasks related to each of the objectives. Objective 4 was least achieved with a rating of less than adequate. The writing of project plans for a local training program would basically be the same task as they performed in the workshop setting under the guidance of the workshop presenter.

Table 7 also shows that the Manchester participants' ratings were again the highest.

Implementation of Curriculum Materials

An open-ended portion of the evaluation dealt with questions about implementation. The complete responses to this item are available from The Center for Vocational and Technical Education. A summary of responses to each question are given below:

What role do you see yourself playing in the implementation of the training program developed for accident investigation at the local level?

The participants answered this question by saying they would either: (1) instruct, (2) institute all or part of the proposed curriculum, or (3) disseminate the ideas and materials received at the workshop, or (4) that they count or will not be involved with the accident investigation program. A follow-up study may be helpful in determining the impact of the workshop on the implementation of the materials.

What problems might be encountered in implementing the program?

The problem most often mentioned was that of funding for the program. Other problems mentioned were a lack of administration support and a lack of need for the program.

So far, do you see any serious errors of ommission or commission in the accident investigation curriculum?

Most of the participants believed there were no serious problems with the materials. Other participants mentioned the need for an audiovisual reference list, that the sequence should be changed, that the specific user (instructor and student) of the materials is not identified. These comments are in the minority, but they should be considered as possible ways of improving the curriculum materials.

Table 7
Mean Score of Participants' Rating of Their Confidence in Achieving the Five Conference Objectives

The extent to which the below objectives were met: 1 = not at all 2 = somewhat 3 = adequate 4 = extremely	WORKSHOPS					Total
	Atlanta	Denver	San Francisco	Chicago	Manchester	
1. To identify factors peculiar to instruction of adults in relation to how they learn, how they differ, and how to arouse and maintain their interest in classroom discussion and participation	3.1	3.0	2.8	3.1	3.5	3.1
2. To demonstrate a variety of methods and techniques which will enhance trainee learning in the conduct local training programs.	3.2	3.2	3.0	3.2	3.5	3.2
3. To apply the basic four-step lesson plan as set up in *The Preparation of Occupational Instructors.*	3.6	3.3	3.1	3.3	3.6	3.4
4. To write project plans for local training programs.	3.2	2.7	2.7	2.9	3.2	2.9
5. To evaluate the trainees and the training programs as you conduct local training activities.	3.2	3.0	2.8	3.1	3.2	3.1
TOTALS	3.3	3.0	2.9	3.1	3.4	

In your opinion, how much time will be required to implement the program?

Of the 48 responding to the question, 29 felt it would take less than a year to implement the program and 15 felt it would take a year or longer.

Results of the Follow-Up Workshop

The general refinement and technical editing of the Instructor's Lesson Plans were carried out in the follow-up workshop by three NHTSA representatives, the project staff, and six workshop participants representing each of the regional workshops and possessing expertise in the field of accident investigation. Each workshop participant represented one of the geographical areas.

In evaluating the results of the follow-up workshop it was evident to the project staff that each of the workshop participants arrived at the workshop with the assigned tasks completed.

Considerable strength was added to both the course outline and the lesson plans as a result of recommendations and changes outlined by the participants in the follow-up workshop. Based upon the concensus of the participants it was recommended that further revision of the technical content would be essential to produce a completed curriculum package. Specific changes that were suggested in relationship to the course outline appear in the Final Course Content Outline for Accident Investigation Technician Curriculum, Figure 13.

Based upon the results of the follow-up workshop, the draft curriculum package consists of the Course Guide (Appendix H), the Instructor Plan Guide (Appendix I), and the Student Study Guide (Appendix J).

Figure 13
Final Course Content Outline For
Accident Investigation Technician Curriculum

I. Introduction
   A. Highway transportation system
   B. Purposes, responsibilities and objectives of the accident investigator
   C. Reconstruction principles and causation analysis
   D. Definitions and classifications
   E. Plan the investigation

II. Identify
   A. The driver
      1. Identify the driver
      2. Examine for and identify pre-crash and post-crash contributing conditions of the driver
         a. Identify pre-crash physical conditions
            (1) Sobriety (alcohol/drugs)
            (2) Emotions, fatigue, physical illness
         b. Identify behaviors as driver personality and attitude
      3. Identify actions--reactions of the driver
         a. Natural abilities
         b. Learned capabilities
      4. Identify persons other than the driver as potential sources of information
   B. The vehicles
      1. Identify vehicle types and components
      2. Examine and identify pre-crash, crash, and post-crash vehicle damage and defects
      3. Examine the vehicle and identify for courses of injury to occupants and/or pedestrians
   C. The environment
      1. Identify and determine environmental attributes
      2. Identify pre-crash marks on the roadway, shoulder, and environment
      3. Identify position and angle of infliction
      4. Identify debris
      5. Identify vehicle parts with crash marks on the roadway and surrounding environment
      6. Determine point of impact from marks on the roadway
      7. Identify post-crash roadway marks in relation to the accidents

III. Collect
   A. Pre-crash actions and reactions
   B. Interview
   C. Collect and preserve physical evidence
   D. Make relocation measurements
   E. Photograph
   F. Make speed estimates

IV. Record
   A. Introduction to methods of recording data
      1. How to record via photography
      2. How to record via field sketches
      3. How to record via notes from interviews

V. Report
   A. Finalize case, file material
   B. Catalog report forms

VI. Simulated (mock) traffic accident investigation

SUMMARY AND CONCLUSIONS

NHTSA recently funded four technical teacher-training institutes in the area of highway safety. The four areas studied were: (1) emergency medical technician-ambulance; (2) breath examiner specialist; (3) driver license examiner; and (4) accident investigation technician.

The Center for Vocational and Technical Education was awarded a contract to develop a curriculum package to train entry-level accident investigation technicians. In developing a curriculum model, the project staff utilized a task analysis performed for the NHTSA by Battelle Memorial Institute and the multidisciplinary team training materials developed by the Cornell Aeronautical Laboratory. A multidisciplinary matrix was developed by the project staff from these two major references. The matrix for accident investigation technician curriculum included the following elements: pre-crash, crash, and post-crash as phases of an accident; vehicle, driver, and environment as elements in an accident; and identify, collect, record, and report as tasks performed by an accident investigator.

An extensive review of the literature was conducted in four major areas: (1) highway safety literature; (2) accident investigation literature; (3) manpower literature; and, (4) curriculum development literature.

The changing "state of the art" of accident investigation had a profound effect on the development of a curriculum to train accident investigation technicians in that legislative and administrative efforts dictate certain directional flow and emphases which in turn change the job functions and job market for an entry-level accident investigation technician.

The methodology employed by the project staff to develop curriculum materials was as follows: (1) develop a curriculum model to include all available data and project objectives; (2) develop a proposed course content outline for curriculum; (3) establish criteria and select teacher educator consultants; (4) establish criteria and select workshop participants; (5) plan and conduct five regional workshops to develop assigned lesson units; (6) edit and revise draft lesson units; and, (7) plan and conduct follow-up workshops.

The project findings were discussed in relationshop to the two overall project purposes of curriculum materials development and improvement of participants teaching skills. The project findings lend credence to the conclusions about the materials presented. Specifically, the project staff experienced difficulty with developing curriculum materials due to the changing "state of the art" of accident investigation and the lack of previous research applicable to training entry-level accident investigation technicians. The project staff was able to forward to all participants the resource materials in the form of a pre-workshop package including a proposed course content outline, instructions for writing behavioral objectives, and sample lesson plans. However, the project staff and participants needed more lead time to allow for more effective development of curriculum materials.

The workshop participants had difficulty in comprehending the project purposes and this directly effected the quality and quantity of the product. There seemed to be an inability on the part of the workshop participants to write lesson plans of the pedagogical quality desired by the project staff to correspond with the project objectives. Many participants also had difficulty accepting the inductive method versus the lecture method of instruction from the teacher educator consultants and project staff. When the project staff attempted to change or revise the pre-workshop materials, many of the participants resisted changing from the four- to a three-step method of lesson plan writing. The project staff concluded that much of the participant resistance to change was related to the lockstep approach and chain of command approach that most participants were familar with. The other major factor influencing resistance to change was the participants' view of the credibility of the realistic potential for a job market for a non-law enforcement accident investigator technician.

Some workshop participants seemed to have an ability to perceive a realistic application of the lesson units in the proposed curriculum setting, while others did not.

The project staff anticipated that there would be some difficulty in curriculum development for a non-law enforcement accident investigation technician due to widely known commercially developed materials, such as the J.S. Baker text. The influence of commercial materials became evident to the project staff during the workshops as well as during the editing process prior to the follow-up workshop. It was prior to and during the follow-up workshop that the final Course Content Outline for Accident Investigation Technician Curriculum was developed to minimize the law enforcement influence as much as possible.

Therefore, the project staff concluded that it is difficult to develop an initial cadre of trained instructors to teach a non-law enforcement accident investigation technician when most of the

instructors possess a law enforcement-oriented accident investigation background and a strong belief that accident investigation must be done by law enforcement personnel.

The major conclusion reached by the project staff regarding curriculum development is that the curriculum package as submitted in the attached appendices is not a final product, but is unproven since it has not been field tested. Thus, the acceptability of the final product is questionable until an ongoing formative evaluation scheme is undertaken to assess the content validity and curriculum acceptability.

Two conclusions relating to the improvement of participants' teaching skills were reached by the project staff. There was a high degree of compatibility among community college and police academy instructors as evidenced by the cooperation observed by the project staff during the workshops. The teacher educator consultants' presentations seemed to enhance the learning and teaching abilities of the participants as indicated by the participants' reactions to an evaluation questionnaire.

A number of participants with coordinating (as opposed to teaching) responsibilities attended the workshops. Their attendance by no means was undesirable. Exposing such individuals to teacher training and curriculum development processes can only serve to make them appreciative of the value of such programs and provide them with the impetus to implement such programs at the local level.

The project staff concluded that having a secondary project purpose such as instructor training does in fact complement the primary purpose of curriculum development. This conclusion is based on the observations of the project staff and the data interpretation of the participants' evaluation of the overall worth of the workshop (see Table 6).

RECOMMENDATIONS

In conjunction with the preceeding information and findings of this project, the following recommendations are made by the project staff for future training programs for highway safety occupations:

1. Generally, there needs to be more lead time for the project staff and participants to develop curriculum materials.

2. Selection of workshop participants should be completed as early in the planning phase as possible to insure representation from all states and to allow sufficient time for participants to receive information regarding the workshop.

3. The selection of workshop participants should be under the direction of those conducting the workshop, as was the case for this project. Less breakdown in communicating criteria for nomination and selection will result when the contractor has the freedom to seek out those most appropriate for the workshops.

4. The use of teacher educators as consultants should be continued in future projects. The positive comments received from the workshop participants regarding the teacher trainers in addition to the evaluation of the overall effectiveness of the teacher trainers by the project staff are sufficient to recommend the continuation of such personnel in instructor training programs for other highway safety projects.

5. It is recommended that the evaluation instruments and resulting data for workshop planning and assessment should be utilized in planning for future workshops.

6. It is recommended that workshops should continue to be conducted in various areas of the country to allow for representation across the nation and to minimize participant travel time and cost.

7. It is recommended that consideration should be given to the continuation of the use of colleges as hosts for

the workshops. They proved helpful in locating facilities, lodgings, meals, and audiovisual aids equipment. In addition, they might provide impetus for future training programs for highway safety occupations.

8. It is recommended that provisions should be made for the draft of the curriculum package to be field tested for a specified time period (one year) at selected institutes throughout the nation. The field test sites and personnel should be selected from those participating in this project to develop the curriculum. It is further suggested that NHTSA identify and appropriate funds necessary to field test the curriculum package.

9. It is recommended that there be more correlation of accident investigation standards and curriculum development with the "state of the art" of accident investigation. A closer correlation between what exists and what is desired would benefit both the contractor and the contracting agent, as well as improve the final product.

10. Concurrently, it is recommended that the potential job market be more clearly defined so that the potential employment opportunities are obvious to potential employers, employees, and those institutions that will offer a curriculum designed to train accident investigation technicians.

11. It is recommended that the improvement of teaching skills aspect of the project be continued in conjunction with curriculum development provided enough time is allotted to conduct both activities adequately.

12. It is recommended that a follow-up study be conducted to determine how effective the project staff and the workshops were in achieving the two overall purposes of curriculum materials development and the improvement of participants' teaching skills.

13. It is recommended that the draft curriculum package be implemented after field testing for training an entry-level accident investigation technician and not for training members of multidisciplinary accident investigation teams.

14. It is recommended that copies of the finalized curriculum package for training accident investigation technicians be distributed to each state director of vocational education, state director of community junior colleges, and governor's highway safety representative.

APPENDIX A

Pre-Workshop Information

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

Phone (614) 486-3655

THE OHIO STATE UNIVERSITY
1900 KENNY ROAD
COLUMBUS, OHIO 43210

TO: Workshop Participants

FROM: Dr. Ronald Daugherty, Project Director

RE: Regional Workshop in Accident Site Investigation

We are pleased that you will be participating in the regional workshop for developing curriculum materials and training instructors in the use of a curriculum package for automobile accident site investigation.

Enclosed in the package of materials are the following items:

1. Objectives for the Regional Workshop in Accident Site Investigation.
2. Lesson Planning for Teachers of Accident Site Investigators.
3. Guidelines for the Development of Behavioral Objectives.
4. Instructor's Lesson Plan Format for both Skill and Information Lessons.
5. Instructor's Lesson Plan--sample lesson plans for both skill and information lessons.
6. Course Content Outline for Traffic Accident Site Investigation.
7. Reference List for Accident Site Investigation.
8. Room reservation cards.

Prior to your arrival at the workshop it will be essential for you to complete the following assignment. Using the blank Instructor's Lesson Plan formats would you please develop a lesson plan(s) for the topic that is encircled in red on the Course Content Outline for Traffic Accident Site Investigation. When developing the lesson plan, please follow the instructions as presented in the enclosure entitled Lesson Planning for Teachers of Accident Site Investigation. Will you develop a skill lesson plan and when necessary develop an information lesson. You will find the sample lesson plans helpful in illustrating the proper use of the Lesson Plan formats. The reference list is only a suggested list and far from being inclusive so please feel free to add additional sources that you have found useful from your experience.

1/9/75

During the course of the workshop, two consultants will critique your lesson plan(s) and assist you in making minor revisions, if necessary, for inclusion in the final curriculum package which will be compiled by the project staff at the end of the project.

The second responsibility consists of presenting a twenty (20) minute teaching demonstration based upon the lesson plan you have developed. (Due to the time element you may not be able to present the lesson in its entirety.) The presentation will be critiqued on the basis of being a learning experience for all the workshop participants. Please bring with you the necessary tools, equipment, materials, etc. (within reason) that you will need when presenting your demonstration. We will have available the standard audio visual aids equipment such as overhead projector, tape recorder, and slide projector for your use in the presentation. Please feel free, also, to share any additional teaching aids, references, etc., that you have found useful in the area of accident investigation. We strongly encourage you to use techniques in your presentation that allow hands-on experiences and with a minimum of lecture. This demonstration is to address the group as though they were your students learning accident investigation. We cannot stress enough the importance of you fulfilling these two responsibilities:

--preparing the lesson plan prior to coming to the workshop and
--preparing to give a 20 minute teaching demonstration.

A major proportion of the workshop success will be determined by your activities prior to the workshop.

The enclosed reservation card is for you to fill out and return directly to the motel/hotel for accommodations. The motel/hotel will assign two people to a room prior to your arrival in Atlanta. If you have any questions please contact us at 614-422-2973.

We are looking forward to working with you during the workshop. When you check in at the hotel/motel, you may want to check with one of our staff for a schedule of the workshop. We will assemble in the lobby Monday morning by 8 a.m. for our trip to the workshop site.

RD/pf

COURSE CONTENT OUTLINE FOR TRAFFIC ACCIDENT SITE INVESTIGATION

I. COURSE BACKGROUND

A. HIGHWAY TRANSPORTATION SYSTEM

The student will indicate an overall view of the highway transportation system emphasizing the traffic accident problem and explain the need for specific accident information.

B. DEFINITIONS AND CLASSIFICATIONS

The student will apply the legal and investigative terms assigned to the various elements in an accident investigation and use the "Manual of Classification of Motor Vehicle Traffic Accidents."

C. PURPOSES, RESPONSIBILITIES AND OBJECTIVES OF THE ACCIDENT INVESTIGATOR

The student will be able to explain the scope and underlying principles of accident investigation and describe the role of the investigator in accident investigation.

D. PLANNING THE INVESTIGATION

The student will be able to write a proper plan using the methods for efficient accident investigation and to arrange the many facets of the investigation into a reasonable order of priority within the scope of any governing policies.

E. PROTECTING THE SCENE

The student will be able to perform the many activities involved upon arrival at the accident scene to keep it from getting worse or disturbed.

The student will be able to perform the necessary activities to protect the scene from further traffic damage, fire, theft, explosion, corrosion, and other hazards.

F. ACCIDENT SCENE PHOTOGRAPHY

The student will be able to demonstrate the mechanics of photography unique to accident investigation.

The student will be able to explain the evidentuary value of photography and its potential use in accident investigation to document and record physical evidence.

G. LOCATING AND INTERVIEWING WITNESSES

The student will be able to interview witnesses and define the legal implications in admitting the statements into court.

II. DRIVER

A. EXAMINATION FOR PRE-CRASH CONTRIBUTORY CONDITIONS

The student will be able to recognize and identify any condition or factor of the driver that would explain the direct cause of the accident.

1. NATURAL ABILITIES

The student will be able to identify and explain the relationship of vision, hearing, reaction, disabilities, I.Q., etc., to accident causation.

2. LEARNED CAPABILITIES

The student will describe laws, signs, and evasive action and recognize hazards and conditions of the particular vehicle.

3. PERSONALITY AND ATTITUDE

The student will be able to describe the effects of show-off, over-aggressive, over-confident, etc., behavior in relation to accident investigation.

4. DISTRACTIONS

The student will be able to identify passenger actions, driver distractions, operational distractions, etc., in relation to accidents.

5. PHYSICAL CONDITION AT ACCIDENT TIME

a. ALCOHOLIC INFLUENCE

The student will be able to conclude the alcoholic influence in relation to the accident.

b. DRUG INFLUENCE (unlawful and prescribed)

The student will be able to conclude the drug influence in relation to the accident.

c. EMOTION, FATIGUE, AND PHYSICAL ILLNESS

The student will be able to conclude the effects of emotion, fatigue, and physical illness in relation to the accident.

B. PRE-CRASH ACTIONS AND REACTIONS

The student will be able to study the driver actions and reconstruct the chain of events from his point of possible perception of the hazard through perception, recognition, reaction, evasive action, impact and final position.

C. LOCATING AND IDENTIFYING THE DRIVERS

The student will be able to locate the drivers involved as soon as possible and apply the methods and techniques involved in initiating a "hit and run" investigation immediately if one of the drivers has fled the scene.

D. TECHNIQUES IN INTERVIEWING DRIVERS

The student will be able to apply the proper methods of diplomatically extracting from the driver all of his knowledge of the accident and to explain the many factors which effect driver testimony.

E. NON-MOTOR VEHICLE UNITS INVOLVED

The student will be able to retrieve the necessary information if one of the units involved is a pedestrian, bicyclist, horseback rider, etc.

III. VEHICLE

A. EXAMINATION FOR PRE-CRASH DAMAGE AND DEFECTS NOT CONTRIBUTORY

The student will be able to identify and record all damage and defects found at the accident scene which had been either present or caused previous to this accident yet was not a causation factor in it.

B. EXAMINATION FOR PRECEEDING AND CONTRIBUTORY DISREPAIR

The student will be able to identify and record all damage and defects found at the accident scene which had been either present or caused previous to this accident yet was not a causation factor in it.

C. EXAMINATION FOR CRASH DAMAGE

The student will be able to write a critical evaluation of the damage not only to estimate monitarily but to establish exactly "HOW" the accident happened.

1. DIFFERENTIATING BETWEEN CONTACT AND INDUCED DAMAGE

   The student will be able to explain the difference between contact and induced damage.

2. EVALUATION OF POSITION AND ANGLE OF INFLICTION

   The student will be able to evaluate and describe the position and angle of infliction.

3. SEGREGATING DAMAGE FROM MULTIPLE IMPACTS

   The student will be able to segregate and explain damage from multiple impacts.

4. MATCHING VEHICLE PARTS WITH CRASH MARKS ON THE ROADWAY AND ENVIRONMENT

   The student will be able to match and explain relationship of vehicle parts with crash marks on the roadway and environment.

5. EXAMINATION OF THE VEHICLE FOR SOURCE OF INJURY

   The student will be able to locate and identify sources of injury when examining the vehicle.

D. TECHNIQUES OF VEHICLE EXAMINATION

The student will be able to apply the methods of examination and disassembly of certain parts and to determine if certain factors were present prior to the accident.

E. METHODS OF GATHERING AND RECORDING VEHICLE DATA

The student will be able to apply specific photographic techniques in recording damage and demonstrate the proper method of removing and preserving items of physical evidence.

IV. ENVIRONMENT

A. RECOGNIZING, DETERMINING AND RECORDING PHYSICAL ENVIRONMENT ATTRIBUTES

The student will be able to recognize, to collect information and to determine characteristics of the roadway and environment such as percent of grade, degree of curve, etc., in relation to the accident.

B. DETERMINING MODIFIERS OF THE ENVIRONMENTAL ATTRIBUTES AT THE ACCIDENT TIME

The student will be able to identify modifiers of the environmental attributes and ascertaining conditions such as glare, wet surface, ice, view obstructions, etc., in relation to the accident.

C. EVALUATION OF DEBRIS

The student will be able to evaluate the debris and explain the how and why of the accident from the type, amount, location, and direction of underbody debris, vehicle parts, vehicle fluids, loose cargo, etc.

D. UTILIZATION OF PRE-CRASH MARKS ON THE ROAD, SHOULDER AND ENVIRONMENT

The student will be able to detect and read pre-crash marks on the roadway such as skidmarks, scuffmarks, shoulder marks, etc., in determining the behavior of the driver and vehicle prior to impact.

E. DETERMINING AREA OF IMPACT FROM MARKS ON THE ROADWAY

The student will be able to analyze roadway marks such as skids, scrubs, chips, chops, and gouges to determine the position of vehicles at impact.

F. POST CRASH DATA TO FINAL POSITION

The student will be able to demonstrate how to trace the path of each vehicle from initial impact through each subsequent impact until its final position.

G. METHODS OF RECORDING ENVIRONMENTAL DATA

1. RELOCATION MEASUREMENTS

The student will be able to make relocation measurements that would permit him to reconstruct the actual scene.

2. FIELD SKETCHING PHYSICAL EVIDENCE

The student will be be able to make a free-hand sketch of all the physical evidence at the scene including only what he actually observes and can give direct testimony to.

3. SCALE RECONSTRUCTION DIAGRAMMING

The student will be able to take the measurements by using triangulation coordinate methods and to draw a scale map of the scene or to draw a reconstruction diagram from a free hand sketch.

4. COLLECTING AND PRESERVING PHYSICAL EVIDENCE

The student will be able to identify, collect and preserve significant physical evidence to be removed physically from the accident scene and demonstrate the methods that should be employed in the gathering, preserving, transporting, analyzing and storing of it.

5. PHOTOGRAPHY

The student will be able to apply the specific techniques of photographing the attributes and modifiers of the environment and the physical signs left from the crash.

H. SPEED ESTIMATES

The student will be able to identify the elements that are necessary to determine the minimum speed of a vehicle involved in an accident.

1. TECHNIQUES IN MAKING TEST SKIDS

The student will be able to make a safe accurate test skid to determine the coefficient of friction of a road surface which will be necessary to determine vehicle speeds.

2. SKIDMARKS

The student will be able to demonstrate the application of a "speed nomograph" and be able to determine the coefficient of friction of a road surface, the percent of grade, and combine them with the average length in the skid to calculate a vehicle minimum speed.

3. CRITICAL SPEED SCUFF

The student will be able to apply the "critical speed nomograph" and be able to combine the chord and middle ordinate of a curve scuff with the coefficient of friction, grade, and superelevation to determine the minimum speed that a vehicle had to be traveling to go off a curve.

V. RELATED ESSENTIALS

A. RECONSTRUCTION PRINCIPALS AND CAUSATION ANALYSIS

The student will be able to combine all of the data gathered from a study of the vehicle, driver and environment at the accident site and determine exactly "how and why" the accident occurred.

B. FORMULATING OPINIONS AND CONCLUSIONS

The student will apply the proper steps in the opinion forming process and explain where in an investigation an investigator has the right and the responsibility to record his opinions and conclusions and be able to differentiate among facts, opinions, and conclusions.

C. USE AND PREPARATION OF ACCIDENT REPORT FORMS

The student will be able to identify the forms that should be used in each circumstance and apply the proper method in filling out each form and describe the data that is essential.

D. EXPERT ASSISTANCE AVAILABLE

The student will be able to identify what experts and facilities are available to the investigator such as coroners, police. university, industrial and governmental laboratories, etc., and identify the information and evidence that must be obtained at the scene to properly utilize these facilities.

E. POTENTIAL EMPLOYERS OF ACCIDENT INVESTIGATORS

The student will be able to identify potential employers of accident investigators.

VI. EVALUATION EXERCISE

A. SIMULATED TRAFFIC CRASH SITE INVESTIGATION

The student will demonstrate expertise of accident site investigation by applying knowledge and skills acquired to a simulated traffic crash site.

LESSON PLANNING
for Teachers of
ACCIDENT SITE INVESTIGATORS

Efficiency in teaching and learning can be achieved only by planning the lesson and following the plan. The best lesson plan is usually done by the one who is to teach the lesson--planned in the light of student background and ability, the teacher's special talent, the specific objective(s) to be achieved, and the physical facilities that are available at the teaching site. Lesson planning is an on-going and never ending task for one who would teach.

You are being asked to prepare one lesson before you come to the planning seminar. You will be expected to teach this lesson during the seminar. The training session will be of greatest value to you if you have tried your hand at planning several lessons. The enclosed Lesson Plan Sheets will serve as a guide as you make this preparation.

There are two types of lessons:

1. The Skill Lesson -- a lesson designed to teach a person how to perform a task.
2. The Information Lesson -- a lesson designed to aid the learner to acquire information necessary to the intelligence performance of skills.

In this seminar, we are concerned with the skills or tasks that a person must be able to perform if he is to be an Accident Site Investigator. And we are equally concerned with the knowledge that he must

acquire so that he may use judgment in doing whatever he does. The planning of these two kinds of lessons is somewhat different, so two kinds of planning sheets are provided. The first page of each type is the same; but subsequent pages are different. This brief explanation will serve as a guide as you proceed with filling out your first lesson plan.

TOPIC: Here you will write a few words telling what the lesson is about. Possible topics might be "Photographing Skidmarks on the Highway" (skill lesson) or "Accident Information from Accident Site Debris" (information lesson). There may be several lessons under the same title, some skill and/or some information.

OBJECTIVE: The objective is always stated in terms of what the learner is to do. (Not what the teacher is to do!) The objective is the "bull's-eye" of the lesson. There may be more than one objective in a lesson. Writing objectives is a very important step in the preparation of a lesson--so important that a detailed sheet entitled "Guidelines for the Development of Behavioral Objectives" is enclosed. Let this be your guide as best you can. Once the objective has been clearly stated, the rest of the planning is much easier.

TOOLS AND EQUIPMENT: This point calls for a listing of the things you will need to have at hand to teach the lesson. If the lesson is one of teaching the learner how to photograph skidmarks on hard surface highway, one would need a certain type of camera, light source (perhaps), skidmarks on concrete, skidmarks on blacktop, etc., etc. Make the list so complete that you would not have to omit a single step in the process due to failure to have the proper item on hand.

Information lessons may require overhead projectors, spare bulbs, blackboard, erasers, etc.

MATERIALS: This item refers to expendable supplies such as a bucket of sand (to set up sand on highway situation), chalk, film, gasoline (to show marks left by gasoline fire on the highway) and other items that are used up in the process of teaching the lesson.

TEACHING AIDS: This item refers to all types of visual aids--aids that help the student to learn. Such items may include transparencies, slides, motion picture film, hand-out instruction sheets, models, mock-ups, cut-aways, charts, or samples of items taken from other accident sites.

REFERENCES: Good students invariably want more information than you can give them in short class periods. Provide them with a list of the best references you can find. And be specific with author, title, and exact page of references. (Remove any excuse a student might have for not reading the material.) Many lessons are better understood if students have done some reading before class time to establish a common base for the lesson.

PREPARATION: It is already obvious that there are two parts to lesson preparation:

1. What the teacher does to prepare himself.
2. What the teacher does to prepare the learners to receive the lesson. (Let's call it motivation!)

Our work thus far has been done by the teacher in preparing himself for teaching a specific lesson. One cannot assume that simply because the students are there, they are ready to learn what you want them to learn. Generally, for adults, a concise statement or illustration which points out the need for learning this lesson is sufficient. Another approach might be to show or tell what happened to an investigator who failed to have this knowledge or skill at the right moment. When one works with adults, motivation is seldom a problem for the teacher who has a carefully selected and well-planned lesson.

PRESENTATION: (Skills) The teacher should be concerned with helping the student acquire a skill. Skills are performed and learned--one step at a time. The teacher should analyze the skill, write down the step-by-step procedure in a logical order which, if followed, is almost certain of successful performance of the task. Key points include safety precautions, important observations, limits of operation, etc., that will serve as guides for each step.

The teaching of skills leaves little choice as to method of teaching. The demonstration is the acceptable method. You will be taught how to put on an effective demonstration during this seminar. But from the beginning, remember this--no demonstration has been completed until each of the learners has returned the demonstration for the teacher.

APPLICATION: (Skills) The fact that each learner has returned the demonstration does not give much assurance of one's being able to perform in the future. It is the teacher's responsibility to provide opportunity for the student to practice the skill that he is to learn. Practice should be aimed toward improving one's performance. And practice--per se, does not assure perfection.

1. One must practice correctly.
2. One must strive to improve.

3. One must be aware of errors.

4. One must know how to correct his errors.

5. One must have a conception of what the desirable practice or product should be.

This calls for supervision by the teacher.

EVALUATION: The real test lies in the ability of the learner to perform the skill satisfactorily without aid from others. Paper and pencil tests have poor validity in measuring a student's ability to perform a skill.

PRESENTATION: (Information) Here, in the left column, the teacher should make a careful outline of the information that is to be included in the lessons. In the right column, illustrations may be included, attention called to charts, slides, transparencies, models, etc. That will be used to illustrate the points of information. To the extent possible, tie the new information with information the student has already acquired.

The teacher has a wide choice of teaching methods. He should adapt the method to the kind of information to be taught and the background of students he is teaching. It may be a lecture, a discussion, a class report, a supervised study period, an assignment sheet procedure, etc.

APPLICATION: (Information) This step is appropriately named. Here provisions must be made to apply the information to situations that made it desirable to learn it in the first place. If the learner sees that the information he is learning is enabling him to operate more efficiently as an Accident Site Investigator, he will learn more rapidly. Discussion questions, problem situations, or situations for diagnosis offer students an opportunity to learn how to apply knowledge.

EVALUATION: Paper and pencil tests can test for knowledge. Such tests are best if they are problem-solving situations.

Adults do not like tests if the only outcome is a grade. They do not wish to be embarrassed by competitive grading. They do want to know how well they are doing.

Testing procedures should be directed toward finding areas in which the student has not learned and hence areas in which re-teaching must be done. The student should be aware of the fact that the evaluation process is in reality helping him and his classmates rather than to serve as a degrading exercise for purposes of assigning rewards and punishment.

INSTRUCTOR'S LESSON PLAN

Unit_____

Lesson_____

TOPIC:

OBJECTIVE(S):

TOOLS AND EQUIPMENT:

MATERIALS:

TEACHING AIDS:

REFERENCES:

I. PREPARATION (of the learner)

II. PRESENTATION (of the information) METHOD:

Instructional Topics	Things to remember to do or say

II. PRESENTATION, Continued

Instructional Topics	Things to remember to do or say

III. APPLICATION (drills, illustrations, analogies, oral questions, or assignments)

IV. TEST (final check on students comprehension of material presented)

SUGGESTED READING FOR STUDENT:

SAMPLE
INSTRUCTOR'S LESSON PLAN
(INFORMATION)

Unit_____

Lesson_____

TOPIC: The Role of the Accident Site Investigator

OBJECTIVE(S): To identify the purpose of Accident Site Investigators as a member of the highway traffic safety team. To list the responsibilities of the Accident Site Investigator and the corresponding objectives which he will seek to achieve at each investigation.

To develop an awareness of the role of the accident investigator to the extent that the demands of the role are fulfilled without conflict with others at the accident site.

TOOLS AND EQUIPMENT:

MATERIALS: Problem situations

TEACHING AIDS: Chartboard and Crayon

REFERENCES:

I. PREPARATION (of the learner)

Accidents often cause persons on the scene to act in an irrational manner. It is essential that there be at least one person who will act rationally and who will sytematically go about gathering facts at the scene for possible later use by the court and to protect the rights of all individuals concerned. Highway and traffic pattern improvement must be based on accurate, factual information. You may be that person. But you can't do this unless you know the part you are to play in the total traffic safety team. You are not apt to perform efficiently unless you know what your job is before the emergency arises.

II. PRESENTATION (of the information) METHOD: Develop by discussion and chart

Instructional Topics	Things to remember to do or say
Discussion Question:	
What kinds of activity are a part of accident investigation?	1. Handle emergency (protect life and property) 2. Seek facts (gather information) 3. Record information (prepare reports) 4. Form opinions (analyze in light of facts) 5. Follow-up duties (notify, cite, restore traffic, report, testify)
What other kinds of people will be doing some kind of investigating? Do all have a right to be there? What is the relative responsibility that each may assume? In which of the (5) areas of accident activity does the accident investigator have major responsibility?	1. Vehicle owner 2. Driver 3. Police 4. Highway patrol 5. Accident investigator(s) 6. Fleet supervisor 7. Claim adjuster 8. Prosecutor, attorney 9. Technician specialist

II. PRESENTATION, Continued

Instructional Topics	Things to remember to do or say

III. APPLICATION (drills, illustrations, analogies, oral questions, or assignments)

Provide a hand-out with several paragraph incidents which might likely present themselves to the accident investigators and let the total group, small groups, or individuals points out the error and provide a solution to the situation. Suggested paragraphs:

1. The by-stander, civicly inspired, who decides to make an investigation on his own.
2. The fellow who gets out his tools to bend the fender of the tire so he can be on his way.
3. The driver who decides to "tell them and show them nothing until my lawyer arrives."
4. The car owner who callenges your authority to investigate.

IV. TEST (final check on students comprehension of material presented)

Teacher will evaluate progress of individual student on basis of discussion response and on basis of judgements shown during discussion of problem situations.

SUGGESTED READING FOR STUDENT:

SAMPLE
INSTRUCTOR'S LESSON PLAN
(SKILL)

Unit_____

Lesson_____

TOPIC: Relocation Measurement (A Simulation)

OBJECTIVE(S): To acquire the ability to make relocation measurements at the accident site so that critical site information can be reproduced for court and highway study purposes.

TOOLS AND EQUIPMENT: For simulation: straight edge, scale, and clipboard. For on-site demonstration: tape measure/measuring wheel.

MATERIALS: Simulation: Assignment sheets with 8-10 accident sites in increasing complexity. Assignment sheet: "Suggested Items for Relocation"

TEACHING AIDS: Overhead transparencies of 8-10 accident sites, chart board/blackboard and chalk, over-all pictures/slides of accident sites.

REFERENCES: (To be secured)

I. PREPARATION (of the learner)

1. Point out the need for the new learning, or

2. Dramatize with a one-man dialogue between a lawyer and a site investigator (on the stand) who made no measurements at the site, or

3. Recount a case of your own experience where measurements were improperly done.

II. PRESENTATION (of the skills) METHOD: Teacher will "walk through" the process--using picture of accident, transparency and diagram #1 on work sheets.

Operations or Steps	Key Points (things to remember to do or say)
1. Identify objects to be relocated Assignment sheets: "Suggested Items for Relocation"	1. Identify short-lived evidence and measure <u>immediately</u>. 2. Mark with chalk, the evidence that is apt to be moved before measurements can be made.
2. Identify reference points	1. Select fixed objects--objects that will remain long after the site is cleared. 2. Avoid acute angles between fixed object <u>and</u> items to be relocated.
3. Make measurements from reference points to objects	1. When time permits, make secondary measurements as a check on accuracy.
4. Make a drawing of the site and label pertinent information	1. Sketch to scale as best you can. 2. Add to drawing as investigation progresses.
Teacher walks through a second scene with students carrying major responsibility for determining what to do and how to do it.	

II. PRESENTATION, Continued

Operations or Steps	Key Points (things to remember to do or say)

III. APPLICATION (practice by learner under close supervision):

Students will proceed independently with additional scenes from work sheet. Teacher will circulate, ask questions of individual regarding procedures. Spend more time with students who have having difficulty.

(Students may work in pairs initially, but should be put on their own for at least two site investigations.)

IV. TEST (performance of skill to acceptable standards)

Discuss two site investigations from work sheet with class. (Use transparency) Assign additional sites to those who have not demonstrated desired skill and knowledge during application step and discussion.

(Where time and opportunity permit, students should be taken to on-site accident scene, real or contrived, and carry out the procedure, preferably working independently or in pairs.)

SUGGESTED READING FOR STUDENT:

APPENDIX B

Guidelines for the Development
of Behavioral Objectives

Appendix B

Guidelines for the Development of
Behavioral Objectives

This material is to define a behavioral objective, to state the purpose of behavioral objectives and to present guidelines for the development of behavioral objectives. These objectives are to be developed in relation to the Accident Site Investigation Technician Guide.

Definition of a Behavioral Objective:

A Behavioral Objective is a specific, precise statement of the type of behavior ourcome expected, the conditions under which it is expected, and the level of performance expected which aid in planning, implementing and evaluating the learner.

Purpose of a Behavioral Objective:

The purpose of a statement of objectives is to indicate the kinds of changes in the student to be brought about so that instructional activities can be planned and developed in a way likely to attain these objectives; that is, to bring about changes in students.

Writing Behavioral Objectives:

A behavioral objective may include:

(a) who will perform the desired behavior (e.g., the Accident Site Investigation Technician, the learner).

(b) what the learner is expected to be able to do at the completion of the course. (e.g., identify factors; apply measuring techniques).

(c) how well the behavior is expected to be performed. (e.g., number of errors permitted--Give three out of five items; number of times completed--percentage of successful trials, speed).

(d) under what circumstances the learner is expected to perform. (e.g., an oral test; a written test; a written plan).

Checklist for Developing Behavioral Objectives

Behavioral objectives should be brief, clear statements that describe instructional intent in terms of the desired learning outcomes on simply educational ends--Any statement of the objectives should be a statement of changes to take place in students. In evaluating your list of objectives, general criteria have been incorporated into this checklist.

This checklist is intended as a diagnostic tool for detecting and correcting errors in the behavioral objectives. Any negative answer indicates an area where improvement is needed. The checklist is also useful as a guide for developing the original list of behavioral objectives.

CHECK LIST

Criteria	Yes	No
1. Does each behavioral objective emphasize a verb that requires action on the part of the student?		
2. Is each behavioral objective stated in terms of student performance (rather than teacher performance?) Does it describe what the learner will do when demonstrating this achievement of the objective?		
3. Is each behavioral objective stated so that it indicates terminal behavior (rather than subject matter to be covered during instruction)?		
4. Is each behavioral objective stated so that it includes only one learning outcome (rather than a combination of several outcomes)?		
5. Is there a sufficient number of behavioral objectives to adequately describe the desired achievement of the learners?		

Behavioral Terms

I. Illustrative verbs for stating general instructional objectives:

analyze	create	listen	think
apply	demonstrate	locate	translate
appreciate	evaluate	perform	understand
comprehend	interpret	recognize	use
compute	know	speak	write

II. Illustrative verbs for stating specific learning outcomes:

Creative Behaviors

alter	predict	rename	revise
ask	question	reorganize	rewrite
change	rearrange	reorder	simplify
design	recombine	rephrase	synthesize
generalize	reconstruct	restate	systematize
modify	regroup	restructure	vary
paraphrase		retell	

Complex, Logical, Judgmental Behaviors

analyze	contrast	evaluate	infer
appraise	criticize	explain	plan
combine	decide	formulate	structure
compare	deduce	generate	substitute
conclude	defend	induce	

General Discriminative Behaviors

choose	differentiate	isolate	pick
collect	discriminate	list	place
define	distinguish	match	point
describe	identify	omit	select
detect	indicate	order	separate

Study Behaviors

arrange	copy	locate	organize
categorize	diagram	look	quote
chart	find	map	record
cite	follow	mark	reproduce
circle	itemize	name	search
compile	label	note	sort
			underline

Mathematical Behaviors

add	divide	interpolate	solve
bisect	estimate	measure	square
calculate	extrapolate	multiply	subtract
check	extract	number	tabulate
compute	graph	plot	tally
count	group	prove	verify
derive	integrate	reduce	

Laboratory Science Behaviors

apply	dissect	limit	report
calibrate	feed	manipulate	reset
conduct	grow	operate	set
connect	increase	plant	specify
convert	insert	prepare	straighten
decrease	keep	remove	time
demonstrate	lengthen	replace	transfer
			weigh

Suggested References for Writing
Behavioral Objectives

Armstrong, Robert J., Cornell, Terry D., Kroner, Robert E., and Roberson, E. Wayne, eds. A Systematic Approach to Developing A Handbook Designed to Increase the Communication of Laymen and Educators. Tucson, Arizona: Educational Innovators Press, Inc., 1968.

Gronlund, Norman E. Stating Behavioral Objectives for Classroom Instruction. New York: The MacMillan Company, 1970.

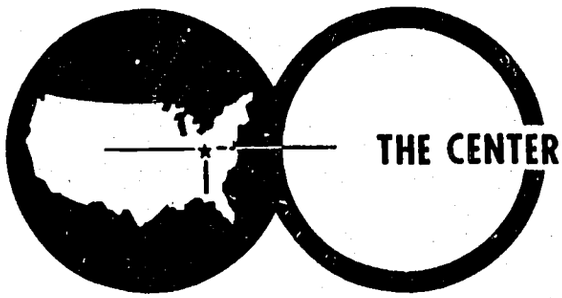
Hernandez, David E. Writing Behavioral Objectives. New York: Barnes and Noble, Inc., 1971.

Kibler, Robert J. Barner, Larry L., and Miles, David T. Behavioral Objectives and Instruction. Boston: Allyn and Bacon, Inc., 1970.

Mager, Robert F. Preparing Instructional Objectives. Palo Alto, California: Fearon Publisher, 1962.

APPENDIX C

Letter Requesting Nominations
of Participants



THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

Phone (614) 486-3655

THE OHIO STATE UNIVERSITY
1900 KENNY ROAD
COLUMBUS, OHIO 43210

February 2, 1972

The Center for Vocational and Technical Education in cooperation with the National Highway Traffic Safety Administration is in the process of planning five regional workshops for developing curriculum materials and training instructors in the use of a curriculum package for automobile accident site investigation.

One of our major responsibilities includes the selection of participants within each region to attend the workshop. Would you, as state director of the community college system, assist us in this task by nominating from one to three people from the community-college programs within your state that we might consider in our selection of workshop participants? We strongly recommend that the person(s) you nominate be an instructor and have experience in the Police Science program and in the investigation of vehicle accidents.

The responsibilities for participants will consist of:

1. attending the one-week workshop within a designated region of the nation.

2. developing a lesson plan in accident investigation prior to the workshop following designated guidelines.

3. taking an active role in the workshop activities.

4. applying expertise gained from the workshop upon return to his home state.

We are prepared to reimburse participants for one round-trip, economy class plane ticket, lodging, and meals.

Please send the nominees name, title, institution address, and phone number to:

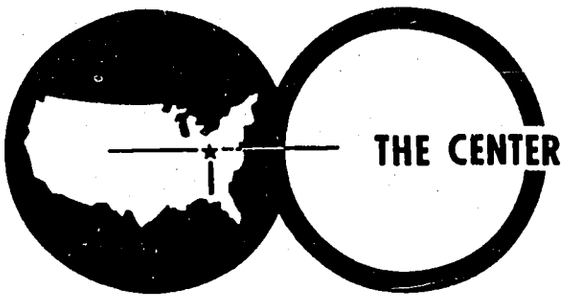
Dr. Ronald Daugherty, Project Director
The Center for Vocational and
Technical Education
1900 Kenny Road
Columbus, Ohio 43210

I would appreciate having your nominations by no later than February 16, 1972. If you have any questions, please contact us at area code 614-422-2973. Any assistance in this matter will be greatly appreciated.

Sincerely,

Ron Daugherty
Project Director

RD/pf



THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

Phone (614) 486-3655

THE OHIO STATE UNIVERSITY
1900 KENNY ROAD
COLUMBUS, OHIO 43210

February 2, 1972

The Center for Vocational and Technical Education in cooperation with the National Highway Traffic Safety Administration is in the process of planning five regional workshops for developing curriculum materials and training instructors in the use of a curriculum package for automobile accident site investigation.

One of our major responsibilities includes the selection of participants within each region to attend the workshop. Would you assist us in this task by nominating one person from your vocational educational curriculum laboratory that we might consider in our selection of workshop participants? We strongly recommend that the person you nominate have a knowledge of the U. S. Office Publication, The Preparation of Occupational Instructions, as this provides the format for developing the curriculum. The person you nominate should also be oriented to post-secondary curriculum development, since this is the level for which the curriculum will be structured.

The responsibilities for participants will consist of:

1. attending the one-week workshop within a designated region of the nation.

2. developing a lesson plan prior to the workshop following designated guidelines.

3. taking an active role in the workshop activities.

4. applying expertise gained from the workshop upon return to his home state.

We are prepared to reimburse participants for one round-trip, economy class plane ticket, lodging, and meals.

Please send the nominees name, title, institution address, and phone number to:

Dr. Ronald Daugherty, Project Director
The Center for Vocational and
Technical Education
1900 Kenny Road
Columbus, Ohio 43210

I would appreciate having your nominations by no later than February 16, 1972. If you have any questions, please contact us at area code 614-422-2973. Any assistance in this matter will be greatly appreciated.

Sincerely,

Ron Daugherty
Project Director

RD/pf

APPENDIX D

Letter Requesting Confirmation
of Workshop Attendance

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

Phone (614) 486-3655

THE OHIO STATE UNIVERSITY
1900 KENNY ROAD
COLUMBUS, OHIO 43210

February 28, 1972

We are pleased to inform you that you have been selected to attend the Regional Workshop in Automobile Accident Site Investigation to be held in Atlanta, Georgia, from March 20-24, 1972, at the Atlanta Area Technical School. The workshop will begin on Monday, March 20, 1972, at 8:30 a.m.

The workshop is being conducted by The Center for Vocational and Technical Education in cooperation with the National Highway Traffic Safety Administration. The purpose is to develop curriculum materials for national distribution and to train instructors in the use of a curriculum package for automobile accident site investigation.

Your responsibilities will consist of:

1. Attending the one-week workshop.
2. Developing a lesson plan in accident investigation prior to the workshop following designated guidelines with an assigned topic.
3. Taking an active role in the workshop activities.
4. Applying expertise gained from the workshop upon return to your home state.

Under separate cover you will receive the essential information in regard to your responsibilities for the workshop. It is essential that you fulfill these requirements prior to coming to the workshop. If you do not receive the packet of materials by March 7, 1972, please let us know.

We are prepared to reimburse you for one round-trip, economy class plane ticket or automobile mileage as well as lodging, and meals up to $25 per day. Your room reservation card will be enclosed in the packet of materials to be sent later. Tentative reservations have been made for the group to stay at the Holiday Inn South for Sunday, March 19, through Friday, March 24. Transportation from the motel/hotel to the workshop site will be provided.

Please fill out the enclosed postcard to inform us as to whether you can accept this invitation under the conditions outlined herein and return to us no later than March 8. Your most prompt reply on this is essential.

We hope you may be able to accept this invitation and that we will have the chance to work with you during the workshop. If you have any questions, please contact us at (614) 422-2973.

Sincerely,

Ron Daugherty
Project Director

RD/pf
enclosure

APPENDIX E

Evaluation Forms Completed by Participants

PARTICIPANT FEEDBACK QUESTIONNAIRE:

REGIONAL WORKSHOP ON AUTOMOBILE
ACCIDENT SITE INVESTIGATION

The following information will assist us in improving future training workshops and training materials. Please complete each item by providing the appropriate response.

Name _____

Age:

1. 25 or under
2. 26 - 35
3. 36 - 45
4. 46 - 55
5. 56 or over

Years of Experience in Automobile Accident Site Investigation: (Circle one)

1. None (0)
2. Less than 1
3. 1 but less than 2
4. 2 but less than 3
5. 3 but less than 4
6. 4 but less than 5
7. 5 but less than 6
8. 6 or more _____
specify

Years of Teaching Experience: (Circle one)

1. None (0)
2. Less than 1
3. 1 but less than 2
4. 2 but less than 3
5. 3 but less than 4
6. 4 but less than 5
7. 5 but less than 6
8. 6 or more _____
specify

Type of Accident Investigation Program at your Institution: (Circle one)

1. Police Training
2. Accident Investigation
3. Traffic Safety
4. Criminal Justice
5. Police Science
6. Traffic Engineering
7. Other (specify) _____

Type of Training: (Circle only one)

1. Basic Police Academy
2. Advance Police Academy
3. Technical Institute
4. Community-Junior College
5. Four-year College
6. On-the-job Training
7. Others (specify) _____

Please indicate to what extent the workshop planning met your needs in the following areas. Please comment on any item. (Use back side for additional comments.)

	Not at All	Some-what	Ade-quate	Extremely Well
- Meeting Facilities (comfortable, etc.)	1	2	3	4
(comments) _____				
- Reference Materials (helpful, etc.)	1	2	3	4
(comments) _____				
_ Pre-workshop Information (meets needs)	1	2	3	4
(comments) _____				
- Accommodations (comfortable, etc.)	1	2	3	4
(comments) _____				
- Meals (convenient, etc.)	1	2	3	4
(comments) _____				
- Transportation (travel while at workshop, etc.)	1	2	3	4
(comments) _____				
- Training Equipment	1	2	3	4
(comments) _____				
- Length of workshop Day	1	2	3	4
(comments) _____				

Recommended Length of Workshop: (Circle one)

1. 2 or less days
2. 3 days
3. 4 days
4. 5 days
5. 6 days
6. 7 days
7. 8 or more days

Comment _____

Should there be Night Sessions?

1. Yes
2. No

Comment _____

Directions: Please indicate the extent you now feel confident to:

	Not At All	Some-what	Ade-quate	Extremely
1. Identify factors peculiar to instruction of adults in relation to how they learn, how they differ, and how to arouse and maintain their interest in classroom discussion and participation.	1	2	3	4
2. Demonstrate a variety of methods and techniques which will enhance trainee learning as you conduct local training programs.	1	2	3	4
3. Apply the basic four-step lesson plan as set up in The Preparation of Occupational Instructors.	1	2	3	4
4. Write project plans for local training programs.	1	2	3	4
5. Evaluate the trainees, the training programs, and your own performance as you conduct local training activities.	1	2	3	4

WORKSHOP EVALUATION

Please follow directions carefully. Read all twenty of the following statements. Check as many statements as necessary to describe your reaction to the workshop.

1. _____ It was one of the most rewarding experiences I have ever had.
2. _____ Exactly what I wanted.
3. _____ I hope we can have another one in the near future.
4. _____ It provided the kind of experience that I can apply to my own situation.
5. _____ It helped me personally.
6. _____ It solved some problems for me.
7. _____ I think it served its purpose.
8. _____ It had some merits.
9. _____ It was fair.
10. _____ It was neither very good nor very poor.
11. _____ I was mildly disappointed.
12. _____ It was not exactly what I needed.
13. _____ It was too general.
14. _____ I am not taking any new ideas away.
15. _____ It didn't hold my interest.
16. _____ It was much too superficial.
17. _____ I leave dissatisfied.
18. _____ It was very poorly planned.
19. _____ I didn't learn a thing.
20. _____ It was a complete waste of time.

Implementation

Implementation of Curriculum. Please indicate your commitment and your institution's commitment (as you see it) to implementing the site accident investigation curriculum by answering the following questions.

1. What is the status of site accident training programs in your institution? (Circle one)

   A. Presently have a program operating.

   B. A program planned and funded.

   C. A program planned and waiting for funds.

   D. Presently planning a program.

   E. Presently not planning a program.

   Other (specify) _____

   _____

2. What role do you see for yourself in implementing the training program for site accident investigation at the local level?

   _____

   _____

   _____

   A. What problems might be encountered in implementing the program?

   _____

   _____

   B. So far, do you see any serious errors of omission or commission in the site accident investigation curriculum?

   _____

   _____

   C. In your opinion, how much time will be required to implement the programs?

   _____

   _____

   D. Identify those individuals which are in a position of influencing highway safety training in your state.

   _____

   _____

Presenter _____

Date _____

Lesson Title _____

Observation Profile
for
Information Lesson

Each of the items below relates to an aspect of the teaching demonstration. Rate the presenter by placing a check mark (✓) at the appropriate point on the scale.

Example:

acceptable no further work needed	acceptable, but further work needed	not acceptable because	not applicable

Write in any additional comments that you wish to make in the space provided.

Rating Scale

	acceptable no further work needed	acceptable, but further work needed	not, acceptable because	not applic
1. Was the purpose of the lesson clearly stated? Comments:				
2. Was all material and equipment on hand at the proper time? Comments:				
3. Was the class well arranged for the lesson? Comments:				
4. Was the need for this this lesson explained and was it related to accident investigation? Comments:				

	acceptable no further work needed	acceptable, but further work needed	not acceptable because	not available
5. Did the instructor develop the topic in a logical manner? Comments:				
6. Was the instructor's voice and other mannerisms appropriate? Comments:				
7. Was opportunity afforded for the group to practice the new learnings? Comments:				
8. Did the instructor do an effective job of questioning? Comments:				
9. Was the evaluation procedure appropriate to the lesson? Comments:				
10. Was there reasonable assurance of the level of learning of each student? Comments:				
11. Were audio-visual aids appropriately used? Comments:				
12. Was the lesson completed in a reasonable length of time? Comments:				

	acceptable no further work needed	acceptable, but further work needed	not acceptable because	not applic
13. Did the instructor sufficiently motivate the class to maintain continued interest of students? Comments:				
14. Was the group actively involved in the learning process? Comments:				
15. Did the total lesson period represent a professional teaching effort? Comments:				

Presenter_____

Date_____

Lesson Title_____

Observation Profile
for
Skill Lesson

Each of the items below relates to an asepct of the teaching demonstration. Indicate your rating of the presenter by placing a check mark (✓) at the appropriate point on the scale.

Example:

acceptable no further work needed	acceptable but further work needed	not acceptable because	not applicable

Write in any additional comments that you wish to make in the space provided.

acceptable no further work needed	acceptable but further work needed	not acceptable because	not applicable

I. Preparation

1. To what extent do you think the demonstration was well planned?
   Comments:

2. To what degree did the demonstration proceed without interruption or mishap?
   Comments:

3. To what extent were all tools and materials available during the demonstration?
   Comments:

	acceptable no further work needed	acceptable but further work needed	not acceptable because	not applicable
4. How well were additional audio-visual aids used in the demonstration? Comments:	/	/	/	/
5. To what degree was the demonstration skill performed by the demonstrator? Comments:	/	/	/	/
6. To what extent were samples of finished or unfinished jobs used in the demonstration? Comments:	/	/	/	/

II. Presentation

1. How well did the demonstrator explain the purpose of the lesson without being too lengthy in the explanation? Comments:	/	/	/	/
2. To what degree do you think the group could see and hear what was being done and said? Comments:	/	/	/	/
3. To what extent were members in the group encouraged to ask questions? Comments:	/	/	/	/

	acceptable no further work needed	acceptable but further work needed	not acceptable because	not applicable
4. To what degree was the presentation performed at a rate that the group could see what was actually being done? Comments:				
5. To what extent did the demonstrator explain what he was doing while he was performing? Comments:				
6. To what extent did the demonstrator ask questions during his presentation? Comments:				
7. To what degree was the demonstration centered around one method? Comments:				
8. To what extent did members of the group participate in the demonstration? Comments:				

III. Evaluation

1. To what extent were summarizing questions asked at the end of the presentation phase of the demonstration? Comments:				

	acceptable no further work needed	acceptable but further work needed	not acceptable because	not applicable
2. To what degree were provisions made for the group to perform what they had seen and heard? Comments:				

LESSON PLAN CRITIQUE

Critique's Name_____

Presenter's Name_____

Lesson Topic_____

1. What are the major technical strengths of this plan from an accident investigator's point of view?

_____

_____

_____

2. What are the major technical weaknesses of this plan from the accident investigator's point of view?

_____

_____

_____

3. What technical areas which were omitted should be included?

_____

_____

_____

4. What technical changes would you recommend?

_____

_____

_____

_____

_____

_____

DAILY REVIEW

Region_____
M T W Th F

NO NAME REQUIRED

Directions: Answer evaluative statements A, B, and C by placing the most appropriate evaluative remark 1, 2, 3, or 4 in the matrix cell for each of the daily program dimensions listed. Feel free to comment.

Evaluative Remarks:

1 = not at all
2 = somewhat
3 = adequately
4 = extremely

Evaluative Statements:	Program Dimensions: Consultants' Presentation	Work Session	Simulation and/or Actual Site Experiences (if given)	Using Reference Materials	Consultants Presence at Work Sessions (Helpful)
A. This was ___?___ useful to me.					
B. The time spent on this activity was ___?___ appropriate.					
C. The organization of this activity was ___?___ well done.					

Comments: _____

_____

_____

_____

_____

(Additional space on back)

DAILY REVIEW

NO NAME REQUIRED

Region_____
M T W Th F

Directions: Answer evaluative statements A, B, and C by placing the most appropriate evaluative remark 1, 2, 3, or 4 in the matrix cell for each of the daily program dimensions listed. Feel free to comment.

Evaluative Remarks:

1 = not at all
2 = somewhat
3 = adequately
4 = extremely

Evaluative Statements:	Program Dimensions:				
A. This was ___?___ useful to me.					
B. The time spent on this activity was ___?___ appropriate.					
C. The organization of this activity was ___?___ well done.					

Comments: _____

_____

_____

_____

_____

(Additional space on back)

DAILY EVALUATION MEETINGS

M T W T F
Region_____

Reaction of Participants

_____

_____

_____

_____

Questions and Concerns

_____

_____

_____

_____

Discussion

_____

_____

_____

_____

Summary and Actions

_____

_____

_____

_____

WORKSHOP SUMMARY

Region_____

Major Problems (and Solutions):

Summary:

APPENDIX F

Follow-up Workshop Information

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

Phone (614) 486-3655

THE OHIO STATE UNIVERSITY
1900 KENNY ROAD
COLUMBUS, OHIO 43210

June 13, 1972

This letter is a follow-up to Mrs. Hayes' telephone conversation with you regarding the workshop for editing the technical content of the Accident Investigation Curriculum Package.

The workshop will be held at The Center for Vocational and Technical Education, 1900 Kenny Road, Columbus, Ohio, from July 17-19, 1972. We plan to begin at 8:30 a.m. Monday and to complete our work by 4:30 p.m. Wednesday. You should arrange your travel around these times. We have made motel reservations at Stouffer's University Inn, Olentangy River Road, for Sunday night, July 16, until checkout time, Wednesday, July 19, 1972.

The procedure for the workshop will be to work in two small groups on Monday and Tuesday for the purpose of editing the lesson plans for technical content. On Wednesday we plan to work in a large group for the purpose of combining all the information. The final outcome of the three days should consist of technically accurate lesson plans ready for inclusion into the Teachers' Guide.

Enclosed is a copy of the revised course outline. Please react to the outline for inclusiveness of essential skills for an accident investigation technician to acquire in order to perform on-the-job. Your critiquing should be from the standpoint of a technician and not as a police function. Please try to avoid major revisions unless absolutely necessary. Please return the outline with your recommendations by June 28, 1972.

We will pay you an honorarium of $100 a day or a total of $300 for the three days in Columbus. Reimbursement will consist of one round-trip economy class plane fare and up to $25 per day for actual costs of meals and lodging. Receipts for plane fare and lodging are essential. Procedures for reimbursement will be the same as for the regional workshops.

Please send me a letter, at your earliest convenience, confirming your acceptance of this request. If you have any questions, please call me collect at (614) 422-2973. We will be looking forward to working with you in Columbus.

Sincerely,

Ron Daugherty
Assistant Director for Field
Services and Special Projects

RD/pf
enclosure

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

Phone (614) 486-3655

THE OHIO STATE UNIVERSITY
1900 KENNY ROAD
COLUMBUS, OHIO 43210

June 30, 1972

TO: Workshop Participants

FROM: Ron Daugherty, Assistant Director for Field Services and Special Projects

RE: July Workshop

Plans for the July 17-19 workshop are progressing. To accomplish the objectives for the workshop we are requesting your assistance in the following activities prior to arrival in Columbus.

1. Critiquing of enclosed lesson plans. Enclosed are selected copies of the revised lesson plans and a Lesson Plan Critique form. Using the eight questions on the critique form as guidelines would you please analyze each lesson to make it more thorough and accurate. It is our intention to use this same critique form at the workshop for reviewing the remaining lesson plans. In using the critique form it is not necessary for you to write out answers to the questions. We suggest that you insert revisions right on the actual lesson plan.

2. Writing a descriptive paragraph for the enclosed lesson topics. Based upon each of the enclosed lesson plans, would you write a brief description paragraph for each lesson topic. This paragraph will become the description of each lesson topic on the outline which will be included in the course guide.

3. Preparing a list of trainee activity skills for the enclosed lesson topics. During the workshop one task is to develop a Trainee Activity Chart to be included in the curriculum package. The purpose of the trainee activity chart will be to have each trainee, as he proceeds through the program, complete designated investigation activities illustrating accomplishments of desired competencies for an accident investigation technician. Would you prepare a suggested list of skills related to the enclosed lesson topics that you consider essential for an accident investigation technician to achieve proficiency in and the method that he might use to demonstrate this proficiency. We will compile all the participants ideas and finalize the trainee activity chart during the workshop.

4. Preparing written suggestions for Trainee Study Guide. The project plans include the preparation of a Trainee Study Guide. The intent of the guide is to include materials appropriate for trainee use throughout the course and to supplement the instructor's lesson plans. Would you bring to the workshop any ideas and any prepared materials that might be incorporated into the guide. These materials could include trainee handouts, activity sheets, assignment sheets, etc., that would enhance the learning process. As a group at the workshop we will finalize the materials for the trainee study guide.

Reservations in your name are confirmed for late arrival on Sunday, July 16, 1972, at Stouffer's University Inn, 3025 Olentangy River Road. The only available transportation from the airport to the motel is by taxi. In order to be refunded for your taxi fare be certain to get a receipt.

We are looking forward to your arrival in Columbus and to a profitable work session. Please bring all revised lesson plans, descriptive paragraphs, and trainee guide suggestions with you to Columbus rather than sending the information through the mail.

If you should have any questions regarding this information, please do not hesitate to call us collect at (614) 422-2973.

RD/pf
enclosures

ACCIDENT INVESTIGATION WORKSHOP
The Center for Vocational and Technical Education
1900 Kenny Road Columbus, Ohio

AGENDA

MONDAY, JULY 17, 1972 (Conference Room 1 and 3)

8:30	Orientation to workshop
9:30	Discuss example for workshop procedure
10:30	Review previously assigned lesson plans (groups of 2)
11:30	Lunch
1:00	Work on lesson plans (groups of 3)
4:45	Day's review and distribute lesson plans
5:00	Adjourn
5:30	Picnic - Griggs Dam

TUESDAY, JULY 18, 1972 (North and South Auditorium)

8:30	Individual work session
10:30	Group session
11:30	Lunch
1:00	Individual work session
3:00	Group session
4:45	Day's review and distribute lesson plans
5:00	Adjourn
8:30	Play - OKLAHOMA - Kenley Players - Veterans Memorial Auditorium, 300 West Broad Street

WEDNESDAY, JULY 19, 1972 (North and South Auditorium)

8:30	Individual work session
10:30	Group session
11:30	Lunch (Cork & Cleaver)
1:00	Individual work session
3:00	Group session
4:00	Travel and consultant forms
5:00	Adjourn

Accident Investigation Instructors Guide

Lesson Plan Critique

Reviewer's Number _____

Lesson Plan Topic Number _____

1. What are the major techncial strengths of this plan from an accident investigator's point of view?

2. What are the major technical weaknesses of this plan from the accident investigator's point of view? What technical changes would you recommend?

3. What technical areas and content were omitted and should be included?

4. What sequencing changes in lesson content would you recommend?

5. Are the application suggestions appropriate and adequate to accomplish the objectives?

6. After critiquing the lesson plans, do the behavioral objectives adequately cover the lesson presentation?

Overall Rating Scale

Please rate this lesson plan on the following scale:
1 - Excellent; 2 - Good; 3 - Average; 4 - Poor;
5 - Unacceptable.

OVERALL RATING: _____

No. of this Rating _____

Accident Investigation Technician
Course Outline Description

LESSON PLAN TITLE:

DESCRIPTIVE PARAGRAPH: (Write a brief descriptive paragraph for the lesson topic.)

Accident Investigation Technician
Job Activity Sheet

LESSON PLAN TITLE:

ASSIGNED ACTIVITIES: (These activities should list skills that an accident investigation technician should be able to perform to demonstrate an acquired proficiency in the specific area of investigation as it relates to the lesson unit.)

APPENDIX G

Workshop Schedules

Figure 9
AGENDA FOR ACCIDENT INVESTIGATION WORKSHOPS--Denver

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30-10:00	Welcome Introductions Center Overview Highway Occupation Overview Purposes Workshop Plans	Daily Plan Individual and group Work on materials	Daily Plan Behavioral objectives Discussion	Daily Plan Individual and group work on materials	Daily Plan Reports and discussion
10:00-10:15	Break	Break	Break	Break	Break
10:15-11:45	Teaching and Learning Principles 4-step method	How to give a demonstration	Individual and group work on materials	Individual and group work on materials	Center staff: closing procedures; final evaluation; travel form, etc.
11:45-1:15	Lunch	Lunch	Lunch	Lunch	Lunch
1:15-2:45	Analysis Process Discussion of course content outline; work in small groups	Demonstration and discussion	Reports and discussion	Reports and discussion	Presentation of certificates--Bob O'Connell, Region 8
2:45-3:00	Break	Break	Break	Break	Adjournment
3:00-4:00	Work on materials	Work on materials	Work on materials	Reports and discussion	
4:00-5:30	Evaluation	Evaluation	Evaluation	Evaluation	

Figure 10
AGENDA FOR ACCIDENT INVESTIGATION WORKSHOPS--San Francisco

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30-10:00	Welcome Introductions Center Overview Highway Occupation Overview Purposes Workshop Plans	Daily Plan Work on behavioral objectives	Individual progress reports on objectives	Daily Plan Demonstration	Daily Plan Individual prog. How to give a demonstration Evaluation techniques
10:00-10:15	Break	Break	Break	Break	Break
10:15-11:45	Teaching and learning principles	Work in small groups on materials	Individual progress reports on objectives	Work in small groups on materials	Individual work Center staff Feedback questionnaire
11:45-1:15	Lunch	Lunch	Lunch	Lunch	Lunch
1:15-2:45	4-step method	Teaching techniques as applied to lesson planning Demonstration (John Knight)	Work in small groups	Individual progress report on lesson plans	Travel forms Presentation of certificates
2:45-3:00	Break	Break	Break	Break	Break
3:00-4:30	Behavioral objectives Evaluation committee	Review behavioral objectives Work in small groups Evaluation committee Tomorrow's plans	Work in small groups Evaluation committee	Individual prog. Report on lesson plans Evaluation committee Tomorrow's plans	

Figure 11
AGENDA FOR ACCIDENT INVESTIGATION WORKSHOPS--Chicago

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30-10:00	Welcome Introductions Center Overview Purposes Workshop Plans	Daily Plan Work in small groups on behavioral objectives	Daily Plan Presentation of "Preparation of the Learner" Section by Participants	Daily Plan How to give a demonstration Techniques of evaluation	Daily Plan Individual progress reports on lesson plans
10:00-10:15	Break	Break	Break	Break	Break
10:15-11:45	Teaching and learning principles 4-step method	Work in small groups on behavioral objectives	Work in small groups on materials	Work in small groups on materials and individual critique	Individual progress reports on lesson plans Center staff Feedback Questionnaire
11:45-1:15	Lunch	Lunch	Lunch	Lunch	Lunch
1:15-2:45	Behavioral objectives	Individual progress reports on behavioral objectives and critique	Work in small groups on materials	Work in small groups on lesson plans and critique	Travel forms Presentation of certificates
2:45-3:00	Break	Break	Break	Break	Break
3:00-3:30	Behavioral objectives Center staff Daily evaluation form Evaluation Com. Tomorrow's plan	Individual progress reports on behavioral objectives and critique Evaluation Com. Tomorrow's plan	Individual progress reports on lesson plans Center staff--Kropp Vernor Evaluation Com. Tomorrow's plan	Tour of Harper College Evaluation committee Evaluation Com. Tomorrow's plan	

Figure 12
AGENDA FOR ACCIDENT INVESTIGATION WORKSHOPS--Manchester

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30-10:00	Welcome Introductions Center Overview Highway Occupations Overview Purposes Workshop Plans	Daily Plan Review objectives Work in small groups	Daily Plan Methods of teaching	Daily Plan How to give a demonstration	Daily Plan Progress reports
10:00-10:15	Break	Break	Break	Break	Break
10:15-11:45	Teaching and learning principles	Individual reports on objectives	Work in small groups	Work individually and in small groups	Center staff: travel forms feeback questionnaire
11:45-1:15	Lunch	Lunch	Lunch	Lunch	Lunch
1:15-2:45	How people learn Behavioral objectives	4-step method	Work in small groups	Work individually and in small groups	Center staff: Presentation of certificates Final Evaluation Summation
2:45-3:00	Break	Break	Break	Break	Break
3:00-4:30	Behavioral objectives	Work in small groups	Individual progress reports on lesson plans	Individual progress reports on lesson plans	
	Tomorrow's plan	Tomorrow's plan	Tomorrow's plan	Tomorrow's plan	

REFERENCE LIST

REFERENCE LIST

Armstrong, Robert and Associates. A Systematic Approach to Developing a Handbook Designed to Increase the Communication of Laymen and Educators. Tucson, Arizona: Educational Innovators Press, Inc., 1968.

Baker, J. Stannard. "Experimental Case Studies of Traffic Accidents." Evanston, Illinois: The Traffic Institute, Northwestern University, 1960.

_____. "Limitations on Accident Reconstruction." Evanston, Illinois: The Traffic Institute, Northwestern University.

_____. Problems of Determining Causes of Specific Accidents. Evanston, Illinois: The Traffic Institute, Northwestern University, July, 1963.

_____. Traffic Accident Investigator's Manual for Police. Evanston, Illinois: The Traffic Institute, Northwestern University, 1963.

Baker, J. Stannard and Leroy R. Horn. An Inventory of Factors Suggested as Contributing to Traffic Accidents. Evanston, Illinois: The Traffic Institute, Northwestern University.

Baker, J. Stannard and H. Lawrence Ross. Concepts and Classifications of Traffic Accident Causes. Evanston, Illinois: The Traffic Institute, Northwestern University.

Battelle Memorial Institute. Traffic Accident Investigation: A Course Guide. Columbus, Ohio: Battelle Memorial Institute. (Unpublished document.

Bendix Corporation. "The Accident Investigation of Braking and Steering Equipment. A Manual for Traffic Enforcement Officers." South Bend, Indiana: Bendix Corporation, 1966.

Bishop, R. W. and Associates. Manpower Development in Highway Safety. Tallahassee, Florida: Highway Transportation Consultant's Education and Training Programs, 1971.

Blumenthal, M. and H. Wuerdemann. "A State Accident Investigation Program --Phase II." Department of Transportation Contract FH-11-6926. Hartford, Connecticut: Travelers Research Corporation, July, 1969.

Booz, Allen, and Hamilton, Inc. Safety Specialist Manpower. 4 vols. Washington, D. C.: The National Highway Traffic Safety Administration Bureau, U. S. Department of Transportation, 1968.

Brittenham, J. G. and D. M. Glancy, and E. H. Karrer. "A Method of Investigating Highway Traffic Accidents." Highway Research Board, Bulletin 161, 1957.

Campbell, W. F., R. J. Carson, et. al. "Report of the Motor Vehicle Accident Study Group." Ottawa, Canada: National Research Council of Canada, Technical Note No. 7, May, 1966.

Collins, James C. and Joe L. Morris. Highway Collision Analysis. Springfield, Illinois: Charles C. Thomas, 1967.

Cornell Aeronautical Laboratory, Inc. "A Symposium on the State of the Art of Collision Investigation Methodology." Warrenton, Virginia: August, 1969.

Crane, F. "How to Investigate Accidents." Raleigh, North Carolina: Department of Labor.

Cromack, J. Robert. "Multi-Disciplinary Accident Investigation." Final Report, Contract FH-11-7219. Washington, D. C.: U. S. Department of Transportation, August 1, 1970.

Daugherty, Ronald; Kent Brooks; and Carroll Hyder. Highway Safety Occupational Program Development Guide. Columbus, Ohio: The Center for Vocational and Technical Education, July, 1970.

Dev, L. M. "Photographing Traffic Accidents." Rochester, New York: Eastman Kodak Company, 1968.

Division of Vocational Education. Trade and Industrial Education Service. Columbus, Ohio: State Department of Education, 1955.

Dye, Edward R. "Crash Research is for You." Presented at American Society of Body Engineers." Ithaca, New York: Cornell University, November, 1961.

Fell, James C. and Kenneth J. Tharp. "Multidisciplinary Investigation to Determine Automobile Accident Causation: Report No. 2, Accident Case Analysis and Data Processing Procedures." Buffalo, New York: Cornell Aeronautical Laboratory, Inc., CAL No. VJ-2224-V-2, October, 1969.

Fralish, John C. and Robert A. Wolf. "A Brief History of Motor Vehicle Accident Investigation." Presented at Collision Investigation Methodology Symposium. Warrenton, Virginia, August, 1969.

Garrett, John W. and Pitcher, E. M. Program of Instruction for Highway Collision Investigation Training Program. Buffalo, New York: Cornell Aeronautical Laboratory, Inc. CAL Report No. VJ 2980-V-1, June, 1971.

General Motors Corporation. Collision Performance and Injury Report. Milford, Michigan: General Motors Corporation, 1969.

Grunlund, Norman E. Stating Behavioral Objectives for Classroom Instruction. New York: The MacMillan Company, 1970.

O'Hara, Charles E. Fundamentals of Criminal Investigation. Springfield, Illinois: Charles C. Thomas, 1970.

"Reconstruction Experts Use Engineering Skill and Scientific Techniques to Uncover the Shrouded Secrets in Accidents," Journal of American Insurance, Vol. 43, No. 4, 1967. pp. 18-21.

Rizer, Conrad K. "Estimating the Speed of a Motor Vehicle in a Collision," Journal of Criminal Law, Criminology and Police Science, Vol. 58, No. 1, March, 1967. pp. 119-127.

Slavin, J. M. "A Report: Weaknesses in Traffic Accident Investigation." Evanston, Illinois: The Traffic Institute, Northwestern University, March, 1968.

Stanford Research Institute. The Feasibility of Establishing Highway Safety Manpower Development and Research Centers at University-Level Institutions. Washington, D. C.: National Highway Traffic Safety Administration, U. S. Department of Transportation, 1969.

"Summary of 1968-1970 Multidisciplinary Accident Investigation Reports," DOT HS-600-596. Washington, D. C.: U. S. Department of Transportation, June, 1971.

Teesdale, Kenneth J.B. "Vehicle Accident Studies: State-of-the-Art Review (Non-U.S.A.)," presented at SAE Automobile Safety Conference, May, 1970.

Tharp Accident Data Project. "Exercises in Classifying Motor Vehicle Trafficway Accidents." Chicago, Illinois: The National Safety Council.

Traffic Accident Data Project. "Exercises in Classifying Motor Vehicle Trafficway Accidents." Chicago, Illinois: The National Safety Council.

_____. "Guide to Classification of Motor Vehicle Trafficway Accidents." Chicago, Illinois: The National Safety Council.

_____. "Instructor's Kit for Classifying Motor Vehicle Traffic Accidents." Chicago, Illinois: The National Safety Council, 1971.

_____. "Manual on Classification of Motor Vehicle Traffic Accidents." Chicago, Illinois: The National Safety Council.

_____. "Vehicle Damage Scale for Traffic Accident Investigation." Chicago, Illinois: The National Safety Council, 1971.

Traffic Institute. Accident Investigation. Evanston, Illinois: Northwestern University, 1966.

"Training Aids and Techniques." Traffic Digest and Review. Evanston, Illinois: Northwestern University, September, 1971.

Haddon, W. F., E. A. Suchman, and D. Klein. "Accident Research: Methods and Approaches." New York: Harper and Row, 1964.

Hernandez, David E. Writing Behavioral Objectives. New York: Barnes and Noble, Inc., 1971.

Huelke, Donald F. and Paul W. Gikas. "Investigations of Fatal and Non-Fatal Automobile Accidents." Ann Arbor, Michigan: University of Michigan, Ann Arbor Medical School, 1965.

Improvement of the Present System of Traffic Accident Records. Evanston, Illinois: The Traffic Institute, Northwestern University, June, 1963.

Keryeski, John M. and John W. Garrett, "Research to Improve the Process of Accident Investigation." Buffalo, New York: Cornell Aeronautical Laboratory, Inc. CAL No. VJ-2515-V-2, October, 1968.

Kibler, Robert; Larry Barnes; and David Miles. Behavioral Objectives and Instruction. Boston, Massachusetts: Allyn and Bacon, Inc., 1970.

Mager, Robert. Preparing Instructional Objectives. Palo Alto, California: Fearon Publisher, 1962.

McFarland, Ross A. "Measurement of Human Factors in Accident Research," Traffic Digest and Review. Evanston, Illinois: Northwestern Univ., 1966.

_____. "Psychological and Behavioral Aspects of Automobile Accidents," Traffic Safety Research Review, Vol. 12, No. 3, September, 1968.

National Highway Accident and Injury Analysis Center. "Summary of 1968-1969 Multidisciplinary Accident Investigations." Washington, D. C.: U. S. Department of Transportation, National Highway Safety Bureau, December, 1969.

National Highway Traffic Safety Administration. "Federal Register," Vol. 37, No. 150. Washington, D. C.: U. S. Department of Transportation, August 3, 1972.

_____. "Highway Safety Literature." Washington, D. C.: U. S. Department of Transportation.

_____. The News. Washington, D. C.: U. S. Department of Transportation.

_____. Weekly. Washington, D. C.: U. S. Department of Transportation.

National Safety Council. Highway Safety Manpower and Training. Chicago, Illinois: National Safety Council, Traffic Education and Training Committee.

_____. Traffic Safety. Chicago, Illinois: National Safety Council.

U. S. Department of Health, Education, and Welfare. The Preparation of Occupational Instructors. Washington, D. C.: U. S. Government Printing Office, 1966.

Vey, A. H. "Traffic Accidents." Philadelphia, Pennsylvania: Simpson and Curtis, 1965.

White, Andrew J. "Dynamics of Accident Investigation." Lee, New Hampshire: Motor Vehicle Research of New Hampshire, 1969.

White, Andrew J. Tire Dynamics. Lee, New Hampshire, 1956.

Wright, Paul H., ed. "A Study of Severe Vehicular Accidents." Phase II, Contact FH-11-6796. Washington, D.C.: U. S. Department of Transportation, FH-11-6797, February, 1969.

Zogby, John J. "Pennsylvania's In-Depth Accident Investigation Program." Harrisburg, Pennsylvania: Traffic Accident Analysis Division, Pennsylvania Department of Highways, August, 1968.