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AN ASSESSMENT OF THE AVAILABILITY
AND ACCESSIBILITY OF NHTSA'S RESEARCH,
DEVELOPMENT, AND DEMONSTRATION
PROJECT RESULTS

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ABSTRACT

This document reports an assessment of the National Highway Traffic Safety Administration's (NHTSA) dissemination of technical information for the research, development, and demonstration projects it sponsors in the field of human-oriented highway safety. A representative group of 181 projects is examined and data are presented on the availability and accessibility of technical reports of study results produced by the performing contractors. Findings indicate gaps in NHTSA's dissemination practices as of the time the study data were assembled (March 1979). Conclusions concerning the need to improve dissemination of research, development, and demonstration project results to practitioners and researchers in the highway safety field are presented.

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Without the cooperation provided by these individuals this study would

not have been possible. While every attempt has been made to accurately record and interpret the information provided, the responsibility for any errors of compilation and judgment lies with the authors and not with those who willingly supplied data.

EXECUTIVE SUMMARY

This report presents an assessment of the National Highway Traffic Safety Administration's (NHTSA) dissemination of technical information from the research, development, and demonstration projects it sponsors in the field of human-oriented highway safety. The study on which the report is based was conducted between September 1978 and March 1979 by the Policy Analysis Division of The University of Michigan Highway Safety Research Institute (HSRI). It was part of a continuing HSRI project sponsored by the Motor Vehicle Manufacturers Association (MVMA) to examine and improve the use of highway safety research findings.

NHTSA was selected as the focus of the study because it controls and sponsors most of the knowledge development work in the human-oriented highway safety field. Under the authority of Section 403 of the 1966 Highway Safety Act, NHTSA has funded almost \$220 million of research, development, and demonstration projects in this field during the past ten years.

The study examined the availability and accessibility of project reports from NHTSA-sponsored projects. Making reports available and accessible are the first two essential steps in a dissemination process. As defined in the study, **available** means released to the public. **Accessible** means that reports and information about them can be obtained by prospective users from well-known and easily accessed sources.

Four steps were followed in completing the study. First, as many completed projects as possible were identified by accessing the Department of Transportation's (DOT) Transportation Research Activities Information System (TRAIS) computer file, examining NHTSA reports, and searching the HSRI Library. Second, a representative group of 181 projects was selected from the more than 1200 that were found. These included most demonstration and materials development and training projects and 65 of the more numerous group of exploratory research

projects. All of the Alcohol Safety Action Projects (ASAPs) were included. Third, reports from the selected projects were identified by searching many sources, including the files and bulletins of NHTSA's own Highway Safety Literature (HSL), DOT's Transportation Research Information Service (TRIS), the National Technical Information Service (NTIS), the U.S. Government Printing Office (GPO), and the HSRI Library. In this process the fourth step of assembling data on the availability and accessibility of reports was also completed.

In the context of this study, availability and accessibility were determined on the basis of the identification of reports in one or more of the four federal sources--HSL, TRIS, NTIS, and GPO. Total reports identified included those found in the HSRI Library. In all, 820 reports were identified as being in existence. **Only 583 of these were determined to be available.**

The principal findings derived from examining the 181 representative NHTSA human-oriented highway safety research, development, and demonstration projects are as follows:

- Although some information had been made available on the majority of projects, significant gaps were found to exist. At least one project report was found to have been released for 87 percent of the 181 representative projects that were examined. This usually included a final report. However, no report was found for 24 projects representing approximately \$24 million in NHTSA funding.
- Lack of availability was most evident among the ASAP demonstration projects. Although each of these projects was required to produce an average of 25 technical reports, in nine cases not a single report was identified as being available. No final report was available for 26 of the projects, even though most of the demonstrations were completed more than two years ago.
- Accessibility was found to be more limited than availability.

The evidence indicates that in many cases when reports were found to have been released, i.e., made available, they had not been made easily obtainable. Of the 583 reports identified as being available, 44 were not listed in Highway Safety Literature (HSL), NHTSA's own reference service. The proportion of available reports that could be found in the better-known and more easily accessible National Technical Information Service (NTIS) was far less--only 26 percent of all reports and 51 percent of all non-ASAP reports. As with availability, the ASAP projects were most poorly represented. Only 53 percent of identified ASAP reports were accessible through HSL and only two percent through NTIS.

- Limited availability and accessibility have affected projects dealing with important highway safety problems. This is illustrated by case studies of projects that dealt with drunk driving, vehicle inspection, and the safety belt-interlock regulation. In this last case, a study that indicated the interlock system might have led to greatly increased safety belt use was not made available until after Congress had repealed the law mandating such systems.
- Timeliness of availability and accessibility was found to be a problem worth particular emphasis. The interlock case is a particularly dramatic instance of what can happen when delays occur in making technical reports available and accessible. That undue delays have occurred in more than isolated instances is demonstrated by the data on the 24 projects for which no reports were found. The great majority of these projects were found to have been completed more than two years ago, and eleven had been completed five or more years ago.

In general, the research and development projects that NHTSA has sponsored have dealt with major problems in highway safety. The limited knowledge base in the human-oriented aspects of the field virtually

guarantees this will be true. Because of this, it is particularly important that the results of NHTSA's research, development, and demonstration programs be widely circulated. The data and the case studies presented in this study show that NHTSA's past dissemination practices have left significant gaps. As a result, the information needs of the field have not been served as effectively as they could or should have been.

NHTSA has become increasingly concerned with the problems of disseminating and transferring knowledge. The results of this study suggest that attention to the initial and relatively simple stages of the dissemination process--providing for availability and access to the information from projects--continues to be needed. NHTSA can make significant, immediate progress by improving the availability and accessibility of reports produced by NHTSA and NHTSA contractors. All reports should be promptly released and made accessible to users.

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1.0 INTRODUCTION

This report presents the results of a study to assess the availability and accessibility of results from human-oriented research, development, and demonstration projects sponsored by the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) under Section 403 of the Highway Safety Act. The study was done at The University of Michigan Highway Safety Research Institute (HSRI). The research on which the assessment is based was completed between September 1978 and March 1979.

This study is a part of a continuing HSRI project begun in 1976 under sponsorship of the Motor Vehicle Manufacturers Association (MVMA) to study research information utilization in the field of highway safety. The objective of this ongoing effort is to improve the use of highway safety research findings at all levels of government and in the country generally.

During the past ten years in excess of \$400 million is estimated to have been spent in the United States on research, development, and demonstration to advance the state of knowledge concerning the behavioral or human-oriented aspects of highway safety problems. Most of this—an estimated seventy percent—has been funded by the federal government. NHTSA has been the major source of funds and direction. It alone has accounted for almost \$220 million of the total expenditures (1).

This NHTSA effort has addressed a significant need. Human failure is widely recognized to be the primary cause of some eighty percent of vehicle crashes in this country. Each year these crashes take tens of thousands of lives, injure millions, and cause billions in economic loss. Knowledge of the causes of this human failure and how to counteract it is limited. Far more is understood about how to design safe roads and vehicles. Congress recognized the need for a concerted effort to build knowledge about the human aspects of the highway safety problem when

it initiated federal programs in this field in 1966. The 1966 Highway Safety Act mandated in Section 403 a program of research and development on the behavioral problems and how to control them with effective enforcement, judicial, administrative, and educational systems. Most of the highway safety research since that time has been funded under this law.

As research and development activity has grown, so has recognition that completing studies does not by itself ensure that new knowledge becomes widely known and used. Knowledge utilization--or lack thereof--has become a major concern of those inside and outside government. This concern is not unique to the highway safety field. The universally recognized "information explosion" has caused similar problems in most fields, has generated a burgeoning field of inquiry known variously as knowledge utilization, technology transfer, or knowledge transfer, and is generally considered part of the broader discipline of information science.

While the problems of knowledge utilization are not unique, they are particularly critical in such recently defined social problem fields as highway safety. In these fields the knowledge base is frequently small, and the practical need to build and disseminate knowledge is great. The user community--both practitioners and researchers--is poorly organized and not well interconnected. Compared to long-established fields of research and problem-solving, the need for knowledge is particularly great, while the system to disseminate and apply knowledge is relatively weak.

Although much concern has been expressed about the state of knowledge dissemination and utilization in the field of highway safety, discussion of the problem has been based largely on impressions and anecdotal experiences. The facts have not been clarified by careful investigation and analysis. Without these facts no sound basis exists on which to shape remedial action.

The study that is reported here is an initial effort to describe and assess one aspect of the current state of human-oriented research information utilization in the field of highway safety. This study deals with the two beginning steps of the complex process of information

transfer and utilization. It is based on the premise that for information to be used a necessary first condition is that it be **available** and **accessible** to potential users. The simple objective of this study has been to determine how available and accessible the research results and other information outputs of NHTSA are to those concerned with the human-oriented aspects of highway safety problems. The study centers on NHTSA output because, as noted earlier, for more than a decade this agency has been responsible for sponsoring and directing most of the relevant research and other information products that have been generated in this country.

Available and **accessible** have specific and distinct meanings in the context of this study. Information produced in a study is **available** when it has been released for outside use by the controlling source. In this case the source is a federal government agency, NHTSA. **Available** means simply "released for public use." For information to be used fully, it must be made **accessible**. Potential users must be made aware of it and must be able to obtain it easily. Clearly, availability precedes accessibility, and accessibility is a precondition to widespread utilization. Accessibility is a relative term. Information may be more or less accessible. The goal is to make it highly accessible.

In this study data have been assembled on the information output of a representative group of NHTSA-sponsored research, development, and demonstration projects. The availability and accessibility of these documents have been assessed. The findings and conclusions are reported below.

The body of this report is organized as follows. Section 2.0 provides background on NHTSA—its missions, its organization for human-oriented highway safety research, development, and demonstration programs, and its procedures for disseminating information outputs.

Section 3.0 summarizes the study method. Section 4.0 presents the major findings. Section 5.0 discusses significant conclusions drawn from the findings. Footnotes and references appear at the end of the text. The appendixes include the detailed data tables developed for this study.

2.0 BACKGROUND

The National Highway Traffic Safety Administration (NHTSA) is the principal federal agency directing efforts to solve this nation's human-oriented highway safety problems. The development of this agency has been rapid since 1966. Its original safety mission has remained fairly constant. However, new responsibilities beyond the initial focus have been added by Congress. Today NHTSA is a relatively complicated organization, and human-oriented highway safety research and development is only one of its areas of involvement.

2.1 NHTSA's Development and Current Missions

NHTSA operates under the authority of three federal laws. Two deal directly with highway and motor vehicle safety. The third deals with consumer protection and more recently with vehicle fuel economy. Highway and motor vehicle safety have been NHTSA's primary concern since it was created, although fuel economy regulation has become increasingly important as the "energy crisis" has deepened.

Concern leading to federal action in highway and motor vehicle safety had a long period of development. It began as soon as the motor vehicle became a prominent factor in this country's surface transportation system in the period just prior to World War I. As motor vehicle usage increased, the loss from crashes rose rapidly. By 1924, this problem had become a significant national concern. In that year the First National Conference on Street and Highway Safety was convened by the Secretary of Commerce, Herbert Hoover. Three more national conferences were held in the next ten years. In 1936, acting on advice from these conferences, Congress directed the Bureau of Public Roads to study the causes of highway accidents and to recommend countermeasures. The following year, the bureau submitted to Congress studies dealing with the need for uniform traffic laws, vehicle inspection, the problem of

accident-prone drivers, and other topics. However, highway safety action remained centered at the state level.

In 1946, national concern was raised to a new level when President Truman called the first President's Highway Safety Conference. The conference proposed an action program, but no federal agency was given authority to implement it. Responsibility for implementation was left to the voluntary action of the states.

The voluntary action program failed to produce adequate results, and in 1956 the Federal-Aid Highway Act (Public Law 84-627) authorized the Secretary of Commerce to study the alternative roles the federal government might take in highway safety. The resulting report proposed direct federal government involvement.

In 1965 the Baldwin Amendment (Public Law 89-139) was passed. It called for the states to develop highway safety program plans to be approved by the Secretary of Commerce in compliance with uniform standards that would also be subject to the Secretary's approval. The provisions of this act had not been implemented before the landmark safety acts of 1966 were enacted. These began a new era of strong federal action supported by major federal funding.

The two laws Congress passed in September 1966 were The National Traffic and Motor Vehicle Safety Act (Public Law 89-563) and the Highway Safety Act (Public Law 89-564). The first focused primarily on promoting safer vehicles. It authorized establishment of safety standards for motor vehicles and associated equipment, enforcement of these standards, and a research program to support these programs.

The second law dealt with the roadway environment and the human-oriented aspect of the highway safety problem, including specifically driver behavior, education, and control. The Highway Safety Act initiated two distinct but closely related efforts, one an action program and the other a research and development program. Section 402 authorized the establishment of national highway safety standards and required the states to design programs to implement these standards. Federal approval of the programs was required. Failure of a state to produce and implement an approved program could result in its losing ten

percent of its federal highway funds. A system of federal grants to the states was initiated to help support these highway safety programs.

Research, development, and demonstration activities were authorized under Section 403. In this provision the federal government recognized the need to vastly improve the knowledge base underpinning highway safety action. A program of research and technical support was initiated to promote the design of safer roadways and vehicles and to bring about safer driving. Authorized activities included research and development, demonstration projects, training personnel, funding research fellowships and a program of accident investigation.

Section 403 defined "highway safety" broadly as including "but not limited to highway safety systems, research and development relating to vehicle, highway, and driver characteristics, accident investigation, communications, emergency medical care, and transportation of the injured." The output from the research, development, and demonstration program authorized by this section is the focus of the present study.

Initially when the 1966 safety laws were passed, Congress established two separate units within the Department of Commerce to administer the laws. The National Traffic Safety Agency was created to administer the Motor Vehicle Safety Act, and the National Highway Safety Agency was created to administer the Highway Safety Act. One month after the acts were passed, Congress approved creation of the Department of Transportation (DOT). Both agencies were moved to the new department where they became bureaus within the Federal Highway Administration (FHWA).

In June 1967 the two units were merged into a single National Highway Safety Bureau (NHSB). Three years later the Federal Aid Highway Act of 1970 (Public Law 91-605) elevated the bureau to the status of an administration independent of FHWA. Responsibility for the safety programs authorized under Sections 402 and 403 of the Highway Safety Act was split. The roadway safety aspects remained in FHWA. The new National Highway Traffic Safety Administration (NHTSA) was given responsibility for both the motor vehicle safety program and most of the human-oriented aspects of highway safety. The two agencies

shared responsibility for administering the pedestrian safety program.

The basic purposes of the 1966 acts remain the core of NHTSA's safety programs. There have been changes in the laws and shifts in the focus of congressional directives. However, these have not altered the basic thrust of the original legislation.

Two congressional actions have expanded NHTSA's responsibilities into areas beyond the central safety focus. In 1972 the Motor Vehicle Information and Cost Savings Act (Public Law 92-513) was passed in response to concern about rising repair costs and the incidence of safety defects in automobiles. The act made NHTSA responsible for dealing with (1) bumper standards to reduce repair costs in low speed collisions, (2) consumer information activities, (3) diagnostic inspection demonstration projects, and (4) odometer regulations. Following the Arab oil embargo in the winter of 1973-1974, the 1972 law was amended by the Energy Policy and Conservation Act of 1975 (Public Law 94-163) to give NHTSA responsibility for the development of mandatory vehicle fuel economy standards. This energy-related responsibility has become increasingly important as the oil shortage has become the center of national attention.

Today NHTSA carries out responsibilities in four major areas: human-oriented highway safety, motor vehicle safety, consumer protection related to motor vehicles, and vehicle fuel economy regulation. The agency shares direction of the nation's highway safety program with the Federal Highway Administration. It shares responsibilities relative to vehicles and their use with other federal agencies, including notably the Department of Energy, in the case of fuel conservation, and the Environmental Protection Agency, which regulates vehicle emission control standards.

Within highway safety, NHTSA administers a set of national standards, coordinates state highway safety programs, administers the federal grant program to support implementation of the national standards in the states, and sponsors research, development, and demonstration activities. NHTSA's organization for research, development, and demonstration reflects the close relationship intended between these activities and its operational responsibility for directing and supporting state programs.

2.2 NHTSA Organization for Human-Oriented Highway Safety Research, Development, and Demonstration Programs

NHTSA's research, development, and demonstration activities in human-oriented highway safety fall generally into three broad categories. The first includes **exploratory or discovery research**. Projects in this category investigate the fundamental causes and characteristics of safety problems and explore innovative actions or countermeasures appropriate to meet these problems.

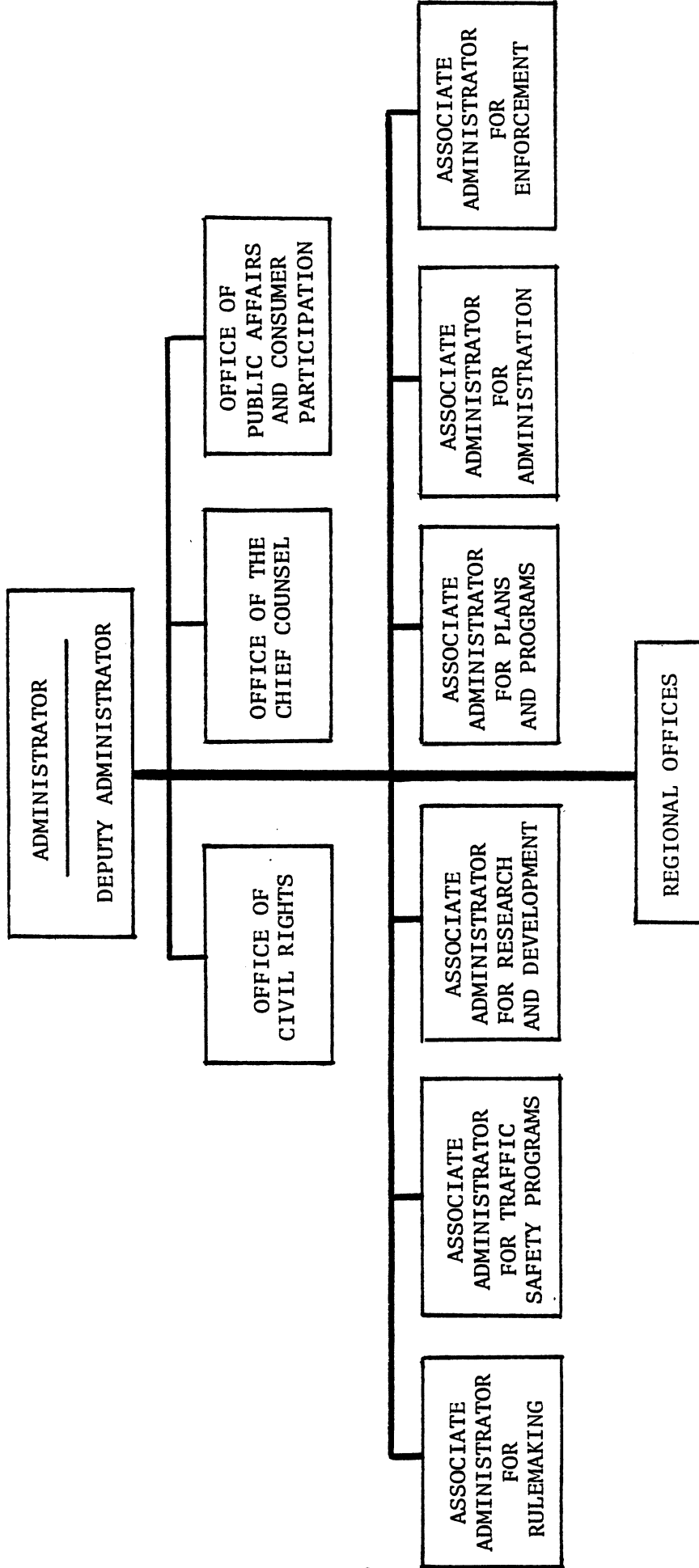
The second category includes **demonstration projects**. These involve the field testing and evaluation of new or improved methods of counteracting highway safety problems. The methods are generally evolved as part of exploratory research efforts.

The third category, **materials develop and training**, involves projects to improve highway safety management capabilities. These projects include the design and implementation of training programs and the development of training materials to improve capabilities of state and local highway safety personnel.

The way NHTSA is organized to carry out these activities is somewhat complex and is conditioned by the general structure of the agency. The overall organization of NHTSA is depicted in Figure 2-1. In general, the agency is organized along functional lines. Similar functions for the different agency missions are clustered under a set of associate administrators. Thus, under the Associate Administrator for Rulemaking are offices that develop and implement mandatory regulations covering both vehicle safety and fuel economy standards. Enforcement of these two sets of regulations is under the Associate Administrator for Enforcement.

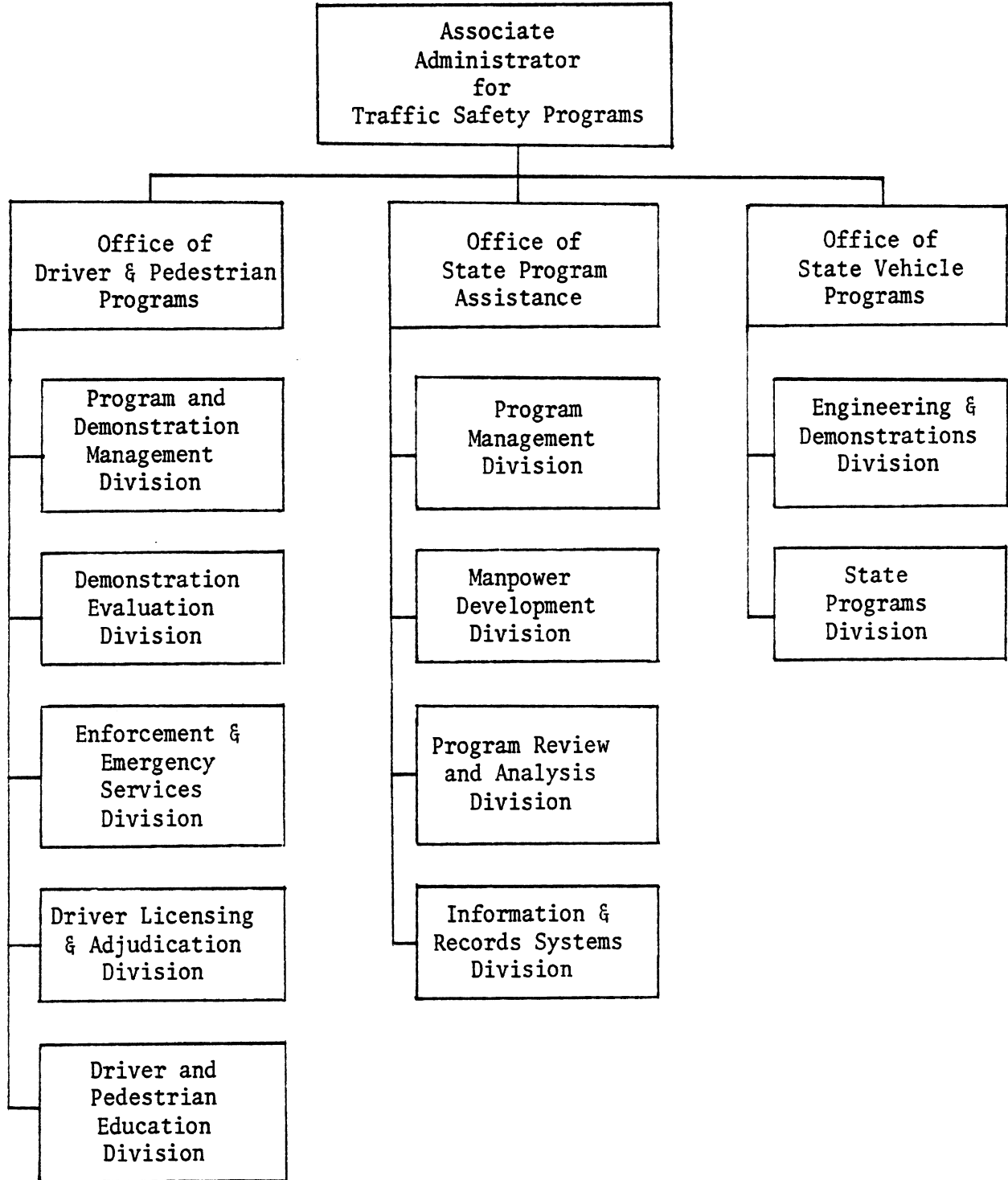
Human-oriented highway safety activities are located for the most part in two divisions of the agency. One division is under the Associate Administrator for Traffic Safety Programs (TSP). The other division is under the Associate Administrator for Research and Development (R&D). Figures 2-2 and 2-3 show the detailed organization of these two divisions.

FIGURE 2-1
 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION



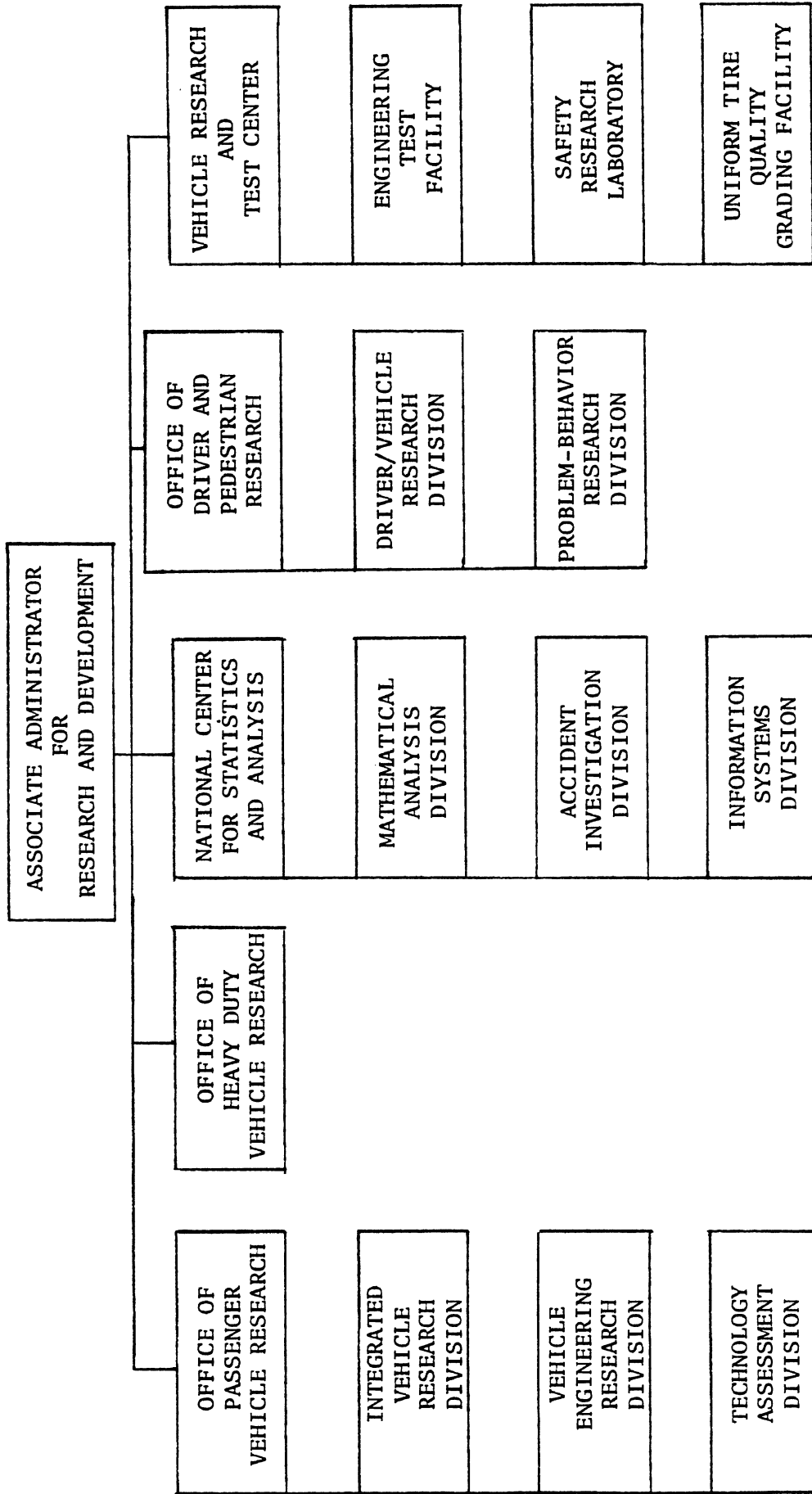
Source: U.S. Department of Transportation. 1977. NHTSA Reorganization Information. p. 2-1.
 United States Government Memorandum.

FIGURE 2-2
 TRAFFIC SAFETY PROGRAMS ORGANIZATIONAL STRUCTURE



Source: Croke 1977, Figure I-3, p. I-8.

FIGURE 2-3



Source: U.S. Department of Transportation. 1977. NHTSA Reorganization Information. p. 2-1.
 United States Government Memorandum.

As the figures show, TSP and R&D both have responsibilities in the vehicle safety as well as the human-oriented highway safety areas. Only the latter are of concern here.

NHTSA's research, development, and demonstration activities related to human-oriented highway safety are divided among several units of TSP and R&D. The functional divisions between these several units are not always clear. However, the following general distinctions are appropriate.

The Office of Driver and Pedestrian Research within R&D is a major sponsor of exploratory or discovery research. The Office of Driver and Pedestrian Programs within TSP is primarily responsible for designing and implementing demonstration projects but also sponsors research and evaluation studies to support these projects. The results of these demonstrations are intended to provide a proven basis for developing effective countermeasure programs to be implemented for the most part by the states. These projects also provide a basis for developing and updating the national standards for which TSP is operationally responsible.

The third unit that has an important knowledge-development role is the Office of State Program Assistance, also located in TSP. This office has primary responsibility for supervising state highway safety programs and assisting in their implementation. As part of the assistance, the office's Manpower Development Division designs and implements training programs and develops training materials and manuals intended to improve the capabilities of state highway safety personnel.

With relatively few exceptions, research, development, and demonstration projects are not conducted by NHTSA personnel. Most projects are contracted out to universities, research and consulting firms, and sometimes to state and local government agencies. NHTSA offices plan the research, development, and demonstration programs, determine what projects are to be conducted, select contractors, guide the work in progress, and release the final results. They are also responsible for ensuring that the results are disseminated.

Dissemination is obviously a crucial part of the process. NHTSA's research, development, and demonstration activities are not meant solely or even primarily for internal agency consumption. They are done to

expand the highway safety knowledge base and to generate more effective action by thousands of national, state, and local governmental and nongovernmental agencies. To be useful the results must be disseminated. The necessary first steps are to make reports of the results available and accessible.

2.3 NHTSA Dissemination Procedures

From an operational point of view, this study is an assessment of how effective NHTSA's report dissemination procedures are in making the agency's human-oriented highway safety research, development, and demonstration results available and accessible to those concerned with solving highway safety problems. On the surface, neither availability nor accessibility ought to be issues. Formal and detailed procedures to accomplish both have been developed as required by federal law and administrative policy.

The Freedom of Information Act (Public Law 93-502) requires that federal documents other than classified materials be made generally available at reasonable cost. Both the Department of Transportation (DOT) and NHTSA have established administrative regulations requiring the timely release of technical work products from highway safety studies. To ensure accessibility, the federal government, DOT, and NHTSA have developed formal systems for making the availability of reports known and providing ways to easily obtain copies of reports at modest cost.

The rest of this section summarizes NHTSA's formal report dissemination procedures. Three separate procedures exist. The first is the broadest and covers most technical reports from research, development, and demonstration projects. The second is specific to demonstration projects, except the series of Alcohol Safety Action Project (ASAP) demonstrations that NHTSA sponsored between 1969 and 1975. The third covers the thirty-five ASAP demonstrations.

2.3.1 Technical Reports. Current procedures for disseminating technical reports are outlined in NHTSA Order 170-2, dated 5 November 1976. This order implemented DOT Order 1700.18B, dated 8 March 1976.

The stated purposes of these orders included improving dissemination of technical reports and ensuring their inclusion in the Department of Transportation's computerized Transportation Research Information System (TRIS). No explicit mention was made of any objective to improve the dissemination of reports to researchers, practitioners, and other individuals and agencies outside of NHTSA. However, TRIS has been developed specifically to make information accessible to outside parties. The system is not fully operational, but is expected to become so in the near future.

Order 170-2 defined "technical reports" as:

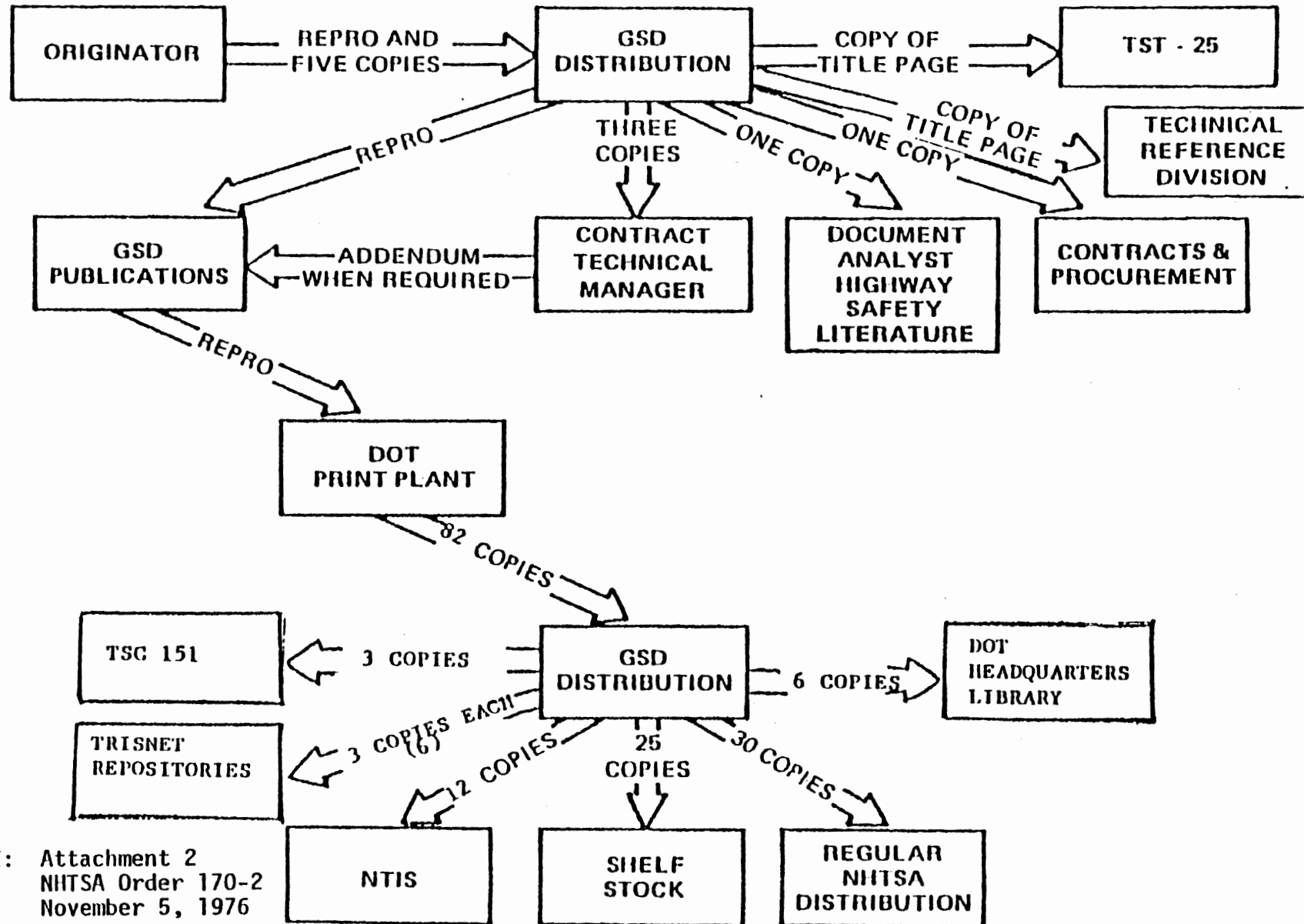
. . . interim and final reports from NHTSA contracts, demonstration projects, grants, and reimbursable agreements. Also included are technical reports developed by NHTSA staff and the Transportation Systems Center. . . . This order does not apply to instructions and directives, technical or training manuals, journals or journal articles, or their manuscripts, public information materials, progress reports, status reports, and NHTSA technical notes. However, where the contents of a NHTSA publication (regardless of its format) warrant, it may be treated as a technical report in conformity with this Order. (p. 1.)

The NHTSA order described two types of information flow:

- the flow of the report itself from the contractor through NHTSA to the user community, and
- the flow of information about the project and resulting reports from NHTSA to users.

The key elements of the first process that related to reports themselves are illustrated in Figure 2-4. The contractor is required to submit copies of each interim and final report to NHTSA's General Services Division (GSD). GSD forwards copies to the contract technical manager (CTM) who has monitored the technical aspects of the contract. The CTM has two weeks to complete a technical review. During the review period, the CTM may develop an addendum to the report if there is disagreement with the report's findings, but the contractor's conclusions may not be altered. The order indicates that after this time GSD will

FIGURE 2-4
 FLOW CHART FOR NHTSA TECHNICAL REPORTS



15

SOURCE: Attachment 2
 NHTSA Order 170-2
 November 5, 1976

deliver the print order to the DOT printing plant.

At least eighty-two copies of each report are printed and distributed. The main flow to the public or research community is through the National Technical Information Service (NTIS). This is a federal service from which the general public may obtain copies of government reports at modest cost.

More specialized libraries and research organizations receive copies through the "regular NHTSA distribution" or through other means listed on the figure. These libraries are usually designed to serve the needs of particular organizations. However, they often provide reference services to more sophisticated users who are aware of their capabilities.

The NHTSA Library is essentially a repository and does not engage in large-scale dissemination of documents. It will, however, provide photocopies and microfiche of certain documents on special request. The Government Printing Office (GPO) provides printed copies of documents that are usually of more general interest or less technical than those available from NTIS.

GSD estimates that the time required for internal processing is **six to eight weeks**. Approximately **ten weeks** after a satisfactory report has been submitted, it should have been released and delivered to the libraries and organizations included in the distribution scheme. It should be available from NTIS shortly thereafter.

While the report itself is proceeding through the process described above, information about it is also being distributed. A primary channel is through NHTSA's monthly publication, Highway Safety Literature (HSL). This publication contains citations and abstracts of recent relevant publications. It is available generally to those who request to be placed on the mailing list. HSL is also compiled as a computerized file that is accessible to those who purchase service from Informatics, Inc., the company that maintains the file under an NHTSA contract.

Copies of NHTSA technical reports go to the agency's Technical Services Division. There an HSL analyst is responsible for ensuring that an abstract and a reference to the report are included in the HSL computerized file and in the monthly bulletin.

All publications available through NTIS are also abstracted and identified in its computerized bibliographical service and bimonthly catalog. NTIS provides copies of its tapes to specialized information retrieval organizations (e.g., the Lockheed Corporation's DIALOG system). These provide computerized searches to identify available information on work in progress and reports. The Government Printing Office (GPO) also has printed indexes and a computerized bibliographic service.

2.3.2 Demonstration Project Reports. The current reporting procedures for demonstration project reports are discussed in detail in NHTSA's Management and Evaluation Handbook for Demonstration Projects in Traffic Safety 1976 (Croke 1977). The handbook specifies that the following reports should be submitted: detailed project plans, quarterly reports, management information reports, annual reports, and final reports. The latter two include the analytic studies.

The channels of distribution specified in the handbook are for internal review. They do not include submission to NHTSA's General Services Division for general distribution, and dissemination according to Order 170-2 is not explicitly incorporated into the procedures outlined in the handbook. However, a review of the actual dissemination of information on demonstration projects, undertaken as part of this study, shows that, in general and after some delay, the final reports are disseminated according to the procedures of 170-2. On the other hand, annual reports are generally not disseminated according to those procedures. It is apparent that demonstration projects are treated differently from research projects by NHTSA.

2.3.3 ASAP Reports. The thirty-five Alcohol Safety Action Projects (ASAPs) represent the largest single research, development, and demonstration program NHTSA has carried out. The ASAPs were a coordinated set of demonstration projects designed to test comprehensive, community-based approaches aimed at reducing the drunk driving problem. They were carried out in selected states, counties, and metropolitan areas across the country between 1970 and 1975.

Almost forty percent of the human-oriented highway safety research and development funds NHTSA spent between 1970 and 1979 were committed to these demonstration projects. A separate process was established for handling certain reports generated by the ASAPs. Several different types of reports were required of ASAP projects and many included significant technical information of interest to the general highway safety community. These latter types of reports included the following:

- Baseline Data--a single volume of statistics for a two-to-three year period preceding the start of each project.
- Executive Summary--two annual volumes, plus a final report.
- Appendix H Tables--data similar to baseline data submitted quarterly and annually. (These may have been included with the executive summary, but they were often bound separately.)
- Analytic Studies--up to six per year for two years, plus a final report for each. These were submitted for each countermeasure program employed.
- Household Studies--three reports, one for each year.
- Final Data Report--single volume submitted after the completion of each project.

A typical site was required to submit about twenty-five technical reports over its two and one-half year life, and this number could range as high as thirty-five. The total number of required technical reports from all projects is estimated to have been close to 900. This does not include a comparable number of "management reports."

Dissemination of scientific and technical reports generated from the ASAPs appears to fall within the domain of Order 170-2. However, as the results of this study show, such dissemination was not well implemented.

A special order was written for the internal processing of all ASAP quarterly and annual reports. This detailed an extensive internal review process for program management purposes. In the order, provisions were

specified for the release of certain reports, especially analytic reports, to be used in scientific journals and conferences. Clearance through NHTSA was required in these provisions. However, the bulk of the ASAP information was to be channeled through the CTM and the NHTSA regional offices to the Office of Alcohol Countermeasures (OAC) where the program was administered. Evaluation would take place in OAC and be reported to the user community in the form of NHTSA-authored publications. The effect of this procedure was to make much original data inaccessible to users despite the provisions of Order 170-2 that require technical reports from demonstration projects be made available and accessible to users.

Recently (1979), NHTSA has begun to place ASAP reports in its Technical Reference Service. These reports are being microfilmed and will be made available in microfiche form only. The reports are to be referenced in the HSL computerized file but need not be announced in the regular monthly publication of HSL. Nevertheless, some ASAP reports have been abstracted and placed both in the HSL computerized file and in the monthly publication. As of the Summer 1979, ASAP reports have begun appearing in the biweekly NTIS bibliographic publication, Government Reports Announcements and Index.

3.0 METHOD

The objective of this study has been to assess whether the procedures described in the previous section have been effective in making the results of NHTSA's human-oriented highway safety research development, and demonstration program available and accessible. The steps followed to do this study were straightforward, although not always simple to carry through. First, as many NHTSA research, development, and demonstration contracts as possible were identified. Second, because the number of these was large, a representative group was selected. Third, a search was made to determine whether reports of the results of the selected studies had been released—that is, were available. Fourth, the prominent sources of study reports and information about them were searched to measure accessibility. The findings reported in Section 4.0 are based on simple counts and percentages of "finds." The data on which the findings are based were current as of March 1979. In the rest of this section, further detail on each of the procedural steps is presented.

3.1 Identification of NHTSA Research, Development, and Demonstration Contracts

The primary source used to identify NHTSA research, development, and demonstration contracts dealing with human-oriented highway safety was the Transportation Research Activities Information System (TRAIS). TRAIS is a computerized file that contains summary information on Department of Transportation study contracts.

Over twelve hundred contracts relevant to this study were identified by accessing the TRAIS file. The file is intended eventually to encompass all significant contracts, but is known to be incomplete. The file is believed to include eighty percent or more of the studies that have been undertaken. However, no information was found that provided an exact figure for its coverage.

Three other sources were checked to supplement the information in TRAIS. The NHTSA report, Traffic Safety Programs. Research and Development, Demonstrations, Manpower Development. FY1975-FY1976, was particularly useful in identifying demonstration projects and manpower development and training contracts. It provided a compilation of many projects undertaken up through fiscal year 1976. NHTSA's publication series, Highway Safety: A Report Under the Highway Safety Act of 1966 as Amended, was also examined. This annual publication summarizes the agency's activities. It includes tables listing major research projects performed during each year. Finally, the HSRI Library was accessed. This library maintains an index file on NHTSA contracts that come to its notice in various government publications. Additional contracts that had not been found in TRAIS were identified from these sources. However, based on these cross-checks, the conclusion that TRAIS includes a very high proportion of relevant contracts proved reasonable.

3.2 Selection of Contracts for Study

Examining the availability and accessibility of the output from more than 1200 projects was beyond the resources available for this study. Therefore, a smaller group of approximately 200 was selected. These were chosen so that they were representative of NHTSA's total research, development, and demonstration program in the human-oriented highway safety area.

Because the purpose of this study was to examine the availability and accessibility of NHTSA project reports, it was necessary to ensure that only completed contracts were included. TRAIS lists ongoing as well as completed projects, and for this reason the status of each selected project had to be determined independently. The result of this check was to reduce the number of projects included for analysis to 181.

The selected group of projects included most of the relevant demonstration and manpower development and training projects that NHTSA had undertaken, because the total number of those was relatively small. It included all thirty-five Alcohol Safety Action (ASAP) demonstration projects, because these had been done as an integrated

effort and accounted for a large part of NHTSA's funds. Greater selectivity had to be exercised in the exploratory research area. Historically, NHTSA has sponsored studies under nine program areas. Sixty-five contracts representative of all but one very small category were selected. In total, the one hundred and eighty-one contracts represented funding of \$123 million, or approximately fifty percent of the total amount that had been spent by NHTSA on human-oriented highway safety research and development.

Table 3-1 gives the number of contracts selected in four major categories as well as a detailed breakdown for the exploratory research subcategories. Total funding figures in each category and subcategory are included. Appendix B includes a listing of the name, contract number, and period of performance for each contract by category.

3.3 Identification of Project Reports and Their Sources of Access

The last two steps of the study were carried out more or less simultaneously. An extensive effort was undertaken to identify all of the technical reports and outputs produced by the contractors under the 185 selected contracts (2). This involved searching a set of bibliographic publications and computerized files where notice and information about these were most likely to be found. These same sources are the ones that a potential user would be expected to access in a search for material of interest. Therefore, the process of identifying reports and outputs also produced data on accessibility.

The following is a listing and brief description of the primary sources that were examined:

Highway Safety Literature (HSL)

HSL is a compilation of all materials in the NHTSA Library. It includes any written report with a DOT contract number on its cover and encompasses final, interim, progress, and special reports from research contracts as well as training manuals and other contract outputs.

HSL appears as a monthly publication that cites and abstracts recent acquisitions. The publication is available free on request. HSL also exists as a computerized file of

TABLE 3-1
DISTRIBUTION OF CONTRACTS SELECTED FOR STUDY

CATEGORY	NUMBER OF CONTRACTS	FUNDING (IN \$1,000s)
<u>Exploratory Research</u>	65	\$ 8,557
Alcohol/drugs*	(22)	2,542
Driver licensing	(9)	1,161
Driver education	(7)	910
Motorcycle operator training**	(4)	232
Safe driving conformances	(3)	383
Safety belt usage	(10)	1,568
Pedestrian safety	(10)	1,761
<u>Demonstration</u>		
(other than ASAP)	21	19,168
<u>ASAP Demonstrations</u>	35	90,866
<u>Materials Development and Training</u>	60	4,850
<u>TOTAL</u>	181	\$123,441

*NHTSA defines two separate categories of research on alcohol and drug related problems: (1) Alcohol/Drugs - Relationship and Effects; and (2) Alcohol/Drugs Countermeasure. These have been combined in this study.

**NHTSA calls this general category Vehicle Factors. Because the contracts identified are all related to motorcycle operator training, the category is renamed in this study to make the designation clearer.

accumulated listings. The file may be accessed through the Informatics, Inc. RECON system by those who contract for this computerized information retrieval service.

Transportation Research Information System (TRIS)

TRIS is a computerized file that contains selected references to transportation research reports from DOT, the National Technical Information Service, and the Transportation Research Board of the National Academy of Sciences. It includes "all DOT sponsored research technical reports and abstracts produced during the past three to five years. Reports older than five years may be selected based on the technical merits of the reports" (Transportation System Center 1976, p.1).

TRIS is to be added in the near future to the Lockheed Corporation DIALOG system. This system includes many reference files and is accessible at modest cost to general users.

National Technical Information Service (NTIS)

NTIS is a service of the U.S. Department of Commerce. Copies of nonclassified technical reports from all agencies of the federal government can be obtained at modest cost from NTIS. All final reports from research projects are supposed to be available from NTIS. Only selected interim reports of significant technical importance are available. Historically NTIS has not included training manuals. However, more recently these have begun to be made available through this service.

NTIS publishes a listing of recent publications together with abstracts of them twice a month. Its title is Government Reports, Announcements, and Index. This is available on a subscription basis and is commonly found in major libraries. NTIS also exists as a cumulative computer file. The file is included in the Lockheed DIALOG system and several other computerized information systems, and is generally accessible.

U.S. Government Printing Office (GPO)

The GPO provides copies and reports bibliographic information on federal publications that are generally of a less technical nature than those contained in NTIS. Therefore, it includes relatively few of NHTSA's research reports. The major exception is training manuals. These have traditionally been heavily emphasized in GPO listings.

GPO publishes a Monthly Catalog of United States Government Publications that includes recent additions to its offerings. This is available on a subscription basis and is found in most major libraries. A cumulative computer file is also maintained. The file for entries since July 1976 is included as part of the Lockheed DIALOG system.

The Highway Safety Research Institute (HSRI) Library

The HSRI Library maintains one of the world's most extensive and complete highway safety collections. The facility is open to the public. The library shares its acquisitions bulletin with other transportation libraries that comprise an international network for exchange of publications and acquisition information on highway safety. The HSRI collection is accessed by a manual system. Limited reference and search services are provided external users for a fee. Individuals are referred to an appropriate source for copies of publications (e.g., publisher, GPO, NTIS). If a copy cannot be obtained elsewhere, the HSRI Library will reproduce a copy for a fee.

Careful searches were made of each of the sources described above to identify reports and other written outputs, such as training manuals, from the NHTSA projects selected for this study. Additionally, NHTSA annual reports and a printed list of publications obtained directly from NHTSA were checked. Every attempt was made to ensure that as many reports as possible were located and that data were obtained concerning which of the sources examined contained information about each report.

3.4 Summary

The four-step process followed in this study began with the identification of as complete a list of relevant NHTSA research, development, and demonstration project contracts as could be assembled. The primary source for the final list was DOT's Transportation Research Activities Information System (TRAIS). More than 1200 contracts were found on this system. This is estimated to represent more than eighty percent of all relevant contracts.

A representative group of contracts was selected for detailed examination. After the exclusion of projects found to be still in progress, the final group numbered one hundred and eighty-one. These included

sixty-five research contracts, thirty-five ASAP demonstrations, twenty-one other demonstration projects, and sixty materials development and training projects.

Identification of reports and other written outputs such as training manuals from the selected projects involved a careful search of five primary information sources: NHTSA's Highway Safety Literature (HSL), DOT's Transportation Research Information System (TRIS), the National Technical Information Service (NTIS), the U.S. Government Printing Office (GPO), and the HSRI Library. In conjunction with this process of identification, data were compiled to measure the extent to which written outputs from the projects were available and accessible.

4.0 FINDINGS

The underlying premise of this study has been that the usefulness of research, development, and demonstration projects is significantly dependent on whether the information from them is disseminated to practitioners and the general research community working in a field. NHTSA is the major sponsor within the United States of research and development in the human-oriented highway safety field. It largely controls the initial stages of the dissemination process, that is, making reports available and accessible. It operates under laws and administrative objectives that require it to implement effective dissemination procedures. The procedures that have been established, as described in Section 2.3, are reasonably explicit and provide a workable formal framework. The central question here is how well those procedures work.

The 185 projects examined in this study were selected to be representative of NHTSA's research, development, and demonstration activities in human-oriented highway safety. They included most demonstration projects, including all of the ASAP demonstrations, most significant materials development and training projects, and approximately five percent of the far more numerous exploratory research studies.

The discussion that follows deals first, in Section 4.1, with the availability of the technical reports from the studies. The accessibility of reports is considered in Section 4.2. Illustrative case studies describing the dissemination of technical output from several NHTSA projects are presented in Section 4.3. The problem of timely availability and accessibility is discussed in Section 4.4. The major findings are summarized in Section 4.5.

4.1 Availability

Making the technical results of a project available is the first step in

any information dissemination process. As used in this study, **availability** occurs when the technical reports of a study are released by NHTSA for use by all interested parties outside the agency. Availability precedes **accessibility**. This latter refers to a condition that permits a potential user to identify, locate, and obtain a copy of a report at reasonable cost through some regular channel.

Availability was measured in this study by identifying whether technical reports from a representative group of NHTSA research, development, and demonstration projects had been made public. Reports were identified by a careful search of the sources described in Section 3.3.

Two specific criteria for availability were used. The first criterion was whether **at least one technical report** on a project could be identified from any of the government sources that were searched. These included HSL, TRIS, NTIS, and GPO. Location of a report in the HSRI Library was obvious proof of its existence, but not of its availability. The library frequently seeks out copies of reports or receives them for internal HSRI use even before they have been made generally available. In the sense that "availability" is used in this report, i.e., released to the general public, a report found in the HSRI Library is not necessarily generally available or accessible. This can occur because the corporate or personal authors make copies available.

The second criterion was more restrictive and was based on whether a **final report** could be identified. This second criteria is meaningful because in general the significant output from research, development, and demonstration projects like those examined in this study is encompassed in a final comprehensive report. The major exception appears to be projects in which manuals are developed, primarily materials development and training projects. In these, the manuals frequently stand as the final reports.

Two comments need to be made about what these criteria measure. First, it should be apparent that the criteria deal with availability of at least some significant technical information about a project. They do not deal with the availability of **all** reports that may have been required or produced. While this would be a more comprehensive criterion, measuring

it would have required complete knowledge of all technical reports that ought to have been produced or were actually submitted by contractors. It was not feasible to develop this information.

Some approximation of this latter measure was possible in the case of the ASAP demonstration projects. This will be discussed at an appropriate point below. However, with this exception, the availability that is measured focuses on release of some significant technical information from each project. This is obviously a less demanding criterion than one that would measure actual release of reports against all reports that ought to have been made public.

The second point to be kept in mind concerning the way availability has been measured is that the criterion employed is not exactly equivalent to measuring release to the public by NHTSA administrative personnel. However, it was impractical to trace this specific action. NHTSA procedures require that copies of all released reports be distributed at least to the NHTSA Library. This should lead to an early inclusion in Highway Safety Literature. Therefore, checking this source (as well as many others) was deemed to be a practical approximation for determining the existence of a released report.

Table 4-1 summarizes the data on availability for each major type of NHTSA contract and for the subcategories of exploratory research. The table presents the number and percentage of projects for which (a) at least one report of any kind and (b) a final report could be identified in any of the four government sources that were searched.

The table shows that a report of some kind could be identified in one or more of the four federal sources for 157, or 87 percent, of the 181 projects. Note, however, that the number of projects for which reports were found in the HSRI Library is 6 more than were located in the federal sources.

Looking at the major categories, availability was found highest for exploratory research projects--ninety-four percent. It was eighty-seven percent for materials development and training projects, eighty-six percent for demonstrations other than ASAPs, and only seventy-four percent for the ASAP demonstration group. There is no significant difference among

TABLE 4-1
 AVAILABILITY OF INFORMATION
 FROM REPRESENTATIVE NHTSA HUMAN-ORIENTED
 RESEARCH AND DEVELOPMENT PROJECTS

PROJECT CATEGORY	NUMBER OF PROJECTS	PROJECTS WITH AT LEAST 1 IDENTIFIED REPORT IN <u>HSL</u> , TRIS, NTIS, OR GPO		PROJECTS WITH AN IDENTIFIED FINAL REPORT IN <u>HSL</u> , TRIS, NTIS, OR GPO		PROJECTS WITH AT LEAST 1 REPORT IN HSRI	
<u>Exploratory Research</u>	65	61	(94)*	61	(94)*	61	(94)
Alcohol/ Drug Problems	22	22		22		22	
Driver Licensing	9	7		7		7	
Driver Education	7	6		6		6	
Motorcycle Operator Training	4	4		4		4	
Safe Driving Conformance	3	2		2		2	
Safety Belt Usage	10	10		10		10	
Pedestrian Safety	10	10		10		10	
<u>Demonstrations</u>							
(other than ASAPs)	21	18	(86)	18	(86)	15	(71)
<u>ASAP Demonstrations</u>	35	26	(74)	9	(26)	34	(97)
<u>Materials Development & Training</u>	60	52	(87)	52**	(87)	53	(88)
TOTAL	181	157	(87)	140	(77)	163	(90)

*Figures in parentheses are percent of category.

**In this category, manuals were accepted as the equivalent of final reports. Eight projects had manuals, but no formally identified final report.

the subcategories of exploratory research. The categorical breakdown shows that the HSRI Library had reports on eight more ASAPs, one more materials development and training projects, and three fewer non-ASAP demonstration projects than were found in the federal sources.

At first glance the availability of final reports appears lower—seventy-seven percent versus eighty-seven percent for at least one report of any kind. However, the difference is accounted for entirely by the ASAP demonstration projects. All non-ASAP projects that had at least one report available had a final report available.

The ASAPs present a picture that is clearly different from the rest. A final report was found to be available for only nine of the thirty-five ASAP demonstrations. The twenty-six percent availability of final reports in this category is far lower than is true for other project groups. The availability of at least one technical report for three-quarters of the ASAP projects clearly is in contrast to the situation with respect to the most important type of report that ought to be available for most research and development projects. This lack of availability is all the more striking because five additional ASAP final reports were found in the HSRI Library. The availability of ASAP reports in general bears further comment. This subject will be returned to after discussion of the general availability of technical information from the NHTSA projects included in this study.

The fact that technical information is available for almost ninety percent of the one hundred and eighty-one NHTSA research, development, and demonstration projects examined in this study represents a situation that could be much worse. However, in evaluating the situation with respect to availability, it must be remembered that the criteria used are generous.

The minimum requirement that one report or a final report be available is most meaningful in the case of relatively short-term projects, particularly research studies taking a year or less. Frequently, a single final report is the total technical output of this type of project. Longer and more complex studies often result in multiple annual, interim, and special technical reports. This is particularly true for demonstration

projects. Even leaving aside the ASAP demonstration projects, where production of numerous reports was required, the average number of identified reports for projects included in this study is two. Multiple reports are clearly frequent.

Given the minimum criteria used and the range of sources that were searched, the fact that no reports could be found for twenty-four projects and no final report could be found in other cases is a finding that causes concern. Even the HSRI Library, with its extensive collection practices, lacked reports on eighteen of the projects.

The twenty-four projects with no identifiable report were not all small studies. Nine of these were ASAP demonstrations, one of which was funded for more than \$4.5 million. Together these ASAPs accounted for almost \$22 million of NHTSA funds. Among the remaining fifteen were an exploratory research project funded for \$126 thousand, two non-ASAP demonstration projects, each funded for \$300 thousand, and one materials development and training project funded for \$570 thousand. Together these non-ASAP projects accounted for more than \$2.1 million of NHTSA funds.

If size is not related to the lack of report availability, neither is time since project completion. Project completion dates range as far back as 1972, and all but five had been completed prior to 1978. (The question of timeliness is considered further in Section 4.4 below.)

Finally, lack of availability is not limited to specific categories of projects. Eight of the projects with no available report involved materials development and training projects from which a manual or course material should have been forthcoming. Twelve were demonstrations, including nine ASAPs. Four were research projects. Thus all categories of NHTSA research, development, and demonstration projects in human-oriented highway safety were represented.

The information loss represented by these projects, assuming they accomplished something, appears proportionately small. However, it ought not to occur at all, given legislated and administrative requirements and the existence of extensive formal procedures for making research and development results available.

The ASAP demonstration projects bear specific discussion. The four federal sources taken together were found to have no report for nine of the thirty-five projects. Three of the projects with no available report were completed in 1974. All but one had been finished by mid-1977. Of the twenty-six ASAP projects with no available final report, all but five had been completed before the end of 1977. Reports for projects completed so long ago should have been available but were not.

Furthermore, a conservative estimate is that close to 900 technical reports were required from these complex, multiyear projects. The extensive search carried out in this study led to identification of only 305 of these as being available. Even with the HSRI Library holdings included, only 528 could be found in all. Thus, less than 60 percent could be located in any source, and only a third could be identified as having been made available, that is, generally released for public distribution.

Such an apparent loss of output from NHTSA's largest and most significant demonstration effort is unacceptable. Beyond the questions it raises concerning information dissemination from the ASAPs, it generates doubt about whether the extent of information loss from other projects is greater than the availability measures used in this study indicate. It raises the possibility that reports from non-ASAP projects may not have been identified because they were never released. If this were true, it would lead to a more negative conclusion concerning the availability of results from NHTSA projects.

The findings with respect to availability indicate that significant gaps exist. The next section examines the accessibility of project reports that were found to be available.

4.2 Accessibility

Once information from projects has been made available, i.e., released to the public, the next step in the dissemination process is to provide access to the relevant reports. Reports are accessible when there is a widely known public source that distributes information about them and the opportunity exists for users to obtain copies with relative ease and at modest cost.

Accessibility has been measured in this study by assembling data on how many of the reports from NHTSA-sponsored human-oriented highway safety research, development, and demonstration projects a potential user could locate by drawing upon four federal information sources widely known in the field. The four sources, described more fully in Section 3.3, include: Highway Safety Literature (HSL), a printed and computerized listing of the holdings in NHTSA's Library; the **Transportation Research Information System (TRIS)**, the Department of Transportation's computerized file containing selected references to transportation research; the **National Technical Information Service (NTIS)**, which is the central source of information about all nondefense federally sponsored research and a distributor of copies of technical reports; and the **U.S. Government Printing Office (GPO)**, which lists and supplies copies of less technical government reports.

NTIS publishes a biweekly bulletin, and GPO publishes a monthly bulletin, both of which report new accessions. They also maintain cumulative computer files, both of which are part of the Lockheed Corporation DIALOG system as well as other information bases. TRIS is soon to be entered into the DIALOG system. In terms of relative familiarity and ease to access, NTIS and GPO probably rank first. HSL is known through its bulletins but the accessibility of its computerized file is less well known. TRIS is still in the process of development and is not yet accessible through a widely used channel, such as DIALOG.

Data are also presented on the reports that were found in the HSRI Library. The holdings of this library present a useful gauge against which to compare the number of project reports made accessible through the four federal sources. The library is among the largest of its kind in the world and offers extensive reference services. It is well known among researchers in the highway safety field. The library is among the largest of its kind in the world and offers extensive reference services. It is well known among researchers in the highway safety field. The library does not publish a composite listing and does not maintain a computerized bibliographic file of its holdings. While open to the public, it is accessible primarily by the user visiting The University of Michigan.

The accessibility of NHTSA's human-oriented research, development, and demonstration project outputs has been assessed on two related but different basis. In measuring both, only the projects with at least one available project report were considered, because in the absence of any availability, accessibility is meaningless (2). The number of projects included in the discussion that follows is one hundred and fifty-seven. The twenty-four projects for which no available report was found are excluded.

The first measure of accessibility focuses on projects. The identification of at least one report from a project in a given source implies that technical information about the project is accessible through that source. This is a criterion similar to the one used in measuring availability; in this case, the measure is source-specific.

The second basis for measuring accessibility focuses on reports rather than projects. The number of project reports in each research, development, and demonstration program category found accessible through each federal source is measured against the total number identified as being available and accessible across all of them. In addition, both the overall and individual accessibility from federal sources is measured against the total number of reports identified when the holdings of the HSRI Library are included. The figures on HSRI holdings taken by themselves provide a useful comparison with the federal sources.

Each of the two ways of measuring accessibility is discussed separately below.

4.2.1 Accessibility of Project Technical Information. Table 4-2 summarizes the data indicating the accessibility of at least some significant technical information from the NHTSA projects included in this study. Because availability has been measured by the presence of reports in any one of the four federally maintained information services—HSL, TRIS, NTIS, and GPO—a high level of **project** accessibility ought to be expected. High accessibility on a project basis is evident from the table. However, it is limited to one of the federal sources—NHTSA's HSL. This source contains a report on all but one project for which reports were

TABLE 4-2
 ACCESSIBILITY OF INFORMATION
 FROM REPRESENTATIVE NHTSA HUMAN-ORIENTED
 RESEARCH AND DEVELOPMENT PROJECTS

PROJECT CATEGORY	NUMBER OF PROJECTS WITH AVAILABLE REPORTS	PROJECTS WITH AT LEAST ONE REPORT IN:										
		HSL	TRIS	NTIS	GPO	ISRI	ISRI	ISRI	ISRI			
Research	61	61	38	57	1	61	61	(100)*	22	22	22	(100)
Alcohol/ Drug Problems	22	22	16	20	0	22	22	(100)*	7	7	7	(100)
Driver Licensing	7	7	2	7	0	7	7	(100)*	6	6	6	(100)
Driver Education	6	6	3	6	0	6	6	(100)*	4	4	4	(100)
Motorcycle Operator Training	4	4	0	4	0	4	4	(100)*	2	2	2	(100)
Safe Driving Conformance	2	2	1	2	0	2	2	(100)*	10	10	10	(100)
Safety Belt Usage	10	10	8	9	1	10	10	(100)*	10	10	10	(100)
Pedestrian Safety	10	10	8	9	0	10	10	(100)*	18	18	18	(100)
Demonstrations (other than ASAPs)	18	18	10	11	1	18	18	(100)	26	26	26	(100)
ASAP Demonstrations	26	26	14	5	0	26	26	(100)	52	52	52	(100)
Materials Development & Training	52	51	38	33	20	51	51	(98)	157	157	157	(104)**
TOTAL	157	156	100	106	22	156	156	(99)	131	131	131	(98)
TOTAL, excluding ASAPs	131	130	86	101	22	130	130	(99)				

*Figures in parentheses are percent of category.

**ISRI figures exceed 100 percent because more projects were represented in the Institute's library than were available through public, i.e., federal government, sources.

found available. In fact, this should be a minimum expectation. The NHTSA Library is on the agency's internal distribution list for technical reports, and HSL is supposed to encompass all reports designated with an NHTSA contract number.

The high accessibility to some project information afforded by HSL appears less positive when a comparison is made with the HSRI Library. The figures show that this latter source, not considered among those providing official public access, actually contains identifiable information on seven more projects than NHTSA's own reference service. The difference is particularly great for the ASAP demonstration projects. All except one of the thirty-five projects in this category are represented in the HSRI Library, but only twenty-six have an identifiable report in HSL.

If HSL and HSRI were the most readily accessed sources, then accessibility would not seem to be a significant problem, at least in terms of locating one available report from a project. Unfortunately, this is not the case. The two most widely accessible sources are NTIS and GPO. The proportion of projects with at least one technical report accessible through NTIS was found to be considerably lower than was true in the cases of HSL and HSRI. Overall project accessibility through NTIS was only sixty-eight percent. The highest accessibility provided by NTIS is for research projects, but the ninety-three percent accounted for is still significantly less than is true for HSL and HSRI.

Accessibility of projects in the remaining categories through NTIS is considerably lower. Approximately two-thirds of the materials development and training projects and the non-ASAP demonstrations are represented in NTIS. Only five of the ASAP demonstrations have one identifiable report in NTIS. GPO would not be expected to list most research or demonstration reports, but should provide access to the output from materials development and training project. Nevertheless, fewer of these are represented in GPO than in HSL and HSRI. The relatively low accessibility provided by TRIS is probably indicative of its incomplete status. However, it is particularly notable, because one stated purpose of the 1976 DOT order setting down dissemination guidelines was to ensure inclusion of technical reports from departmental research projects in TRIS.

4.2.2 Report Accessibility. Table 4-3 summarizes data showing the total number of reports identified, the number of available reports, and the number of reports accessible through the four federal sources for each research, development, and demonstration category. Figures are also presented for reports identified in the HSRI Library.

Columns [1] and [2] of Table 4-3 allow the number of available reports to be compared with the total number found to exist. Available reports include only those known to have been released. Total identified reports include those found only in the HSRI Library as well as those in the four federal sources.

Only one identified exploratory research report was found to be not available. The figures for demonstrations other than ASAPs and for materials development and training projects also show high proportions of identified projects were available. Nevertheless, the nine percent that were found not available in the former group and the six percent in the latter category represent nontrivial gaps. The fifty-eight percent availability of identified ASAP reports is another indication of how limited has been the dissemination of the output from this group of projects.

Columns [3] through [6] of Table 4-3 show the extent to which available reports are accessible through each of the four federal sources. The percentages in parenthesis are based on the available reports in each category (column [2]), not on total identified, since in general reports must be made available before they become easily accessible. The HSRI percentages in column [7] are calculated on a comparable base; this is why some percentages exceed one hundred. In these categories the HSRI Library has copies of reports that could not be identified as being generally available.

In general, the proportions of available project reports within each category that are accessible from any one source are lower than the comparable figures on a project basis. However, the pattern of accessibility is similar. It is highest for exploratory research and materials development and training projects, lower for non-ASAP

TABLE 4-3
ACCESSIBILITY OF REPORTS
FROM REPRESENTATIVE NHTSA HUMAN-ORIENTED
RESEARCH AND DEVELOPMENT PROJECTS

PROJECT CATEGORY	TOTAL IDENTIFIED REPORTS [1]	TOTAL AVAILABLE REPORTS [2]		REPORTS IDENTIFIED IN:									
		HSL [3]	TRIS [4]	NTIS [5]	GPO [6]	HSRI [7]							
<u>Research</u>	96	95	(99)*	87	(92)**	58	(61)	73	(77)	6	(6)	88	(93)
Alcohol/Drug Problems	31	31	(100)	29	(94)	22	(71)	24	(77)	0	(0)	29	(94)
Driver Licensing	10	10	(100)	10	(100)	4	(40)	9	(90)	0	(0)	10	(100)
Driver Education	7	7	(100)	7	(100)	4	(57)	7	(100)	0	(0)	7	(100)
Motorcycle Operator Training	3***	3	(100)	3	(100)	0	(0)	3	(100)	0	(0)	3	(100)
Safe Driving Conformance	4	4	(100)	4	(100)	2	(50)	3	(75)	0	(0)	3	(75)
Safety Belt Usage	21	20	(95)	16	(80)	11	(55)	10	(50)	6	(30)	18	(90)
Pedestrian Safety	20	20	(100)	18	(90)	15	(75)	17	(85)	0	(0)	18	(90)
<u>Demonstrations (other than ASAPs)</u>	53	48	(91)	48	(100)	23	(48)	27	(56)	5	(10)	47	(98)
<u>ASAP Demonstrations</u>	528	305	(58)	280	(92)	47	(15)	12	(4)	0	(0)	403	(132)****
<u>Materials Development & Training</u>	143	135	(94)	124	(92)	63	(47)	41	(30)	65	(48)	132	(98)
TOTAL	820	583	(71)	539	(92)	191	(33)	153	(26)	76	(13)	670	(115)****
TOTAL excluding ASAPs	292	278	(95)	259	(93)	144	(52)	141	(51)	76	(27)	267	(96)

*Figures in parentheses are percent of column [1].

**Figures in parentheses are percent of column [2].

***Two projects had one joint final report in this category.

****HSRI figures exceed 100% because more reports were represented in the Institute's library than were available through public, i.e., federal government, sources.

demonstrations, and lowest for the ASAPs.

A notable exception occurs in the case of HSL. Among the four federal sources, NHTSA's own listing includes the highest proportion—approximately ninety-two percent—of all available reports.

The fall-off in accessibility through HSL is modest, but significant. Leaving the ASAP projects aside for separate consideration, all but one of the remaining projects had at least one report in HSL. However, only ninety-three percent of all identified reports from these projects could be accessed through this source. The fall-off in the exploratory research category is of particular concern, because these projects represent the cutting edge of the field. All of the sixty-one projects in this category that had an available report were represented in HSL. However, HSL was found to lack eight percent of the ninety-five available technical reports. It is also apparent that HSL lacks reports that are accessible through other federal sources. Nineteen available reports in the non-ASAP categories were not found in HSL. Two questions raised by the figures in the table are: (1) why does NHTSA's HSL contain fewer reports in three of the four major research and development categories than were found in the HSRI Library; and (2) why does HSL fail to list reports that could be found in other federal sources. The answers are not known.

Looking at the other federal sources, it is disturbing that even with ASAP reports not considered, only fifty-two percent of available reports are accessible through NTIS. Even among technical reports from research projects, only seventy-seven percent could be located in NTIS, the central repository for technical reports from federally sponsored research projects.

Accessibility through TRIS across all categories appears worse when the focus is on reports rather than on projects. This only strengthens the view that this file is as yet a poor source to be relied upon. The GPO is clearly only of limited use for accessing output.

Finally, the poor state of accessibility to ASAP project information is further revealed by the detailed data on reports. As noted above, only 528 of the estimated 900 required reports could be identified at all in any source. Of these, the largest number were identified in HSRI—403, or 76 percent of the total identified. Only 305, or 58 percent were

found to be publicly available. Of these, 92 percent were found in HSL. Only 15 percent were found in TRIS and 4 percent in NTIS. This evidence shows that many existing technical reports generated from the ASAP projects were not available and that they were largely inaccessible even when known to be available at the time of this study.

Taken together, the data reported above show that while some technical information was accessible for most of the NHTSA human-oriented research, development, and demonstration projects examined in this study, a significant number of available reports are not accessible. Some reports that were known to exist, because they were found in the HSRI Library, could not even be identified as having been made generally available. They were clearly not easily accessible. The accessibility of ASAP reports was found to be particularly low, thus strengthening the negative picture disclosed when availability was considered.

The numbers presented and discussed to this point have meaning but are dry and abstract. The full import of failing to make research and development project results available and accessible is best illustrated by specific occurrences. The next section presents case studies from the group of projects included in this study.

4.3 Case Studies

The case studies summarized below are presented to illustrate situations in which the NHTSA dissemination process has not worked. They give a more vivid picture than bare statistics of how important technical information has remained unavailable or inaccessible to the highway safety field.

4.3.1 Motor Vehicle Inspection Training. On April 22, 1975, NHTSA awarded contract DOT-HS-5-01136, entitled Materials Development for Motor Vehicle Inspection Training, to Dunlap and Associates, Incorporated of Darien, Connecticut. This contract, managed by the Office of State Program Assistance, Division of Manpower Development, was funded with \$51,355 to produce teaching materials to train motor vehicle inspectors in

inspection procedures for vehicles with a gross vehicle weight rating of less than 10,000 pounds.

The materials produced by Dunlap and Associates were: **Course Guide**, designed to be used by the training administrator as a basic planning document for the course; **Instructor Lesson Plan Manual**, prepared to assist the instructor in conducting each lesson; **Teaching Aids**, to be used in conjunction with the lesson plans; **Trainee Instructional Manual**, which provides state inspection procedures for reference during and after the course; and **Final Report** prepared to describe the development of the training course and course documents. This course package was field tested under realistic circumstances, and the package was revised according to this experience. This contract was completed in December 1976.

Extensive searches were made of four publicly accessible government information repositories (HSL, NTIS, TRIS, and GPO) for these training materials and bibliographic references to them. The HSRI Library was also searched. None of the materials produced from this contract, except the final report, were available or accessible.

The contract technical manager (CTM) in the Division of Manpower Development, who handled this contract, was contacted by telephone for information regarding the missing materials. The CTM indicated that the materials produced by the contract are presently under review by NHTSA graphics specialists and that the materials should be released for printing in "a few months."

None of the training materials produced from this contract have been available to the public since the contract was completed nearly two and one-half years ago.

4.3.2 Legal Training Materials. On June 26, 1974 NHTSA awarded contract DOT-HS-4-00986, entitled Seminar Briefing Package for State and Local Bar Associations, to Dunlap and Associates, Incorporated, of Darien, Connecticut. This contract, monitored by the Division of Manpower Development, Office of State Program Assistance, was founded with \$22,578 to produce teaching materials for attorneys in alcohol safety

countermeasures for a seminar to be conducted by a state or local bar association.

The materials produced by Dunlap and Associates were: **Instructor's Manual**, consisting of detailed lesson plans for the seminar; **Student Manual**; **Course Administration Manual**, to provide detailed information to potential users on how to organize and present the seminar, and a **Final Report**. This contract was completed on June 30, 1975.

On September 30, 1976 NHTSA awarded contract DOT-HS-6-01515, entitled Presentence Investigation Training: Material Development and Seminar, to Applied Science Associates, Incorporated, of Valencia, Pennsylvania. This contract, also monitored by the Division of Manpower Development, was funded with \$69,965 to produce a training package and five seminars on skills involved in presentence investigation of drinking-driving cases.

The materials produced by Applied Science Associates included a **course guide**, **instructors guide**, and **participant manual**. This contract was completed on June 15, 1978.

None of the training materials produced from either contract was available or accessible through HSL, NTIS, TRIS, GPO, or HSRI, although final reports for both projects were found.

The contract technical manager (CTM) in the Division of Manpower Development, who handled both contracts, was contacted by telephone for information regarding the missing materials. The CTM indicated that the materials were never released by NHTSA for printing. However, the seminars were conducted as contracted. The CTM explained that specialists in the Office of Driver and Pedestrian Programs had requested that the materials not be released so that a comprehensive training package, including materials for legislators, judges, prosecutors, and educators, could be developed to replace the materials produced in these contracts that were oriented to each discipline separately. Funding for the comprehensive materials package proposal has not yet been provided. The result is that none of the training materials produced from these two NHTSA contracts have been made available to the public since both contracts have been completed, nearly four years ago and one year ago,

respectively.

4.3.3 Seat Belt-Ignition Interlock Study. In June of 1972, Indiana University received a contract from NHTSA for \$59,785 to develop a procedure for rapidly collecting data on special topics associated with highway crashes. The contract, DOT-HS-034-2-410, was entitled Rapid Response Generation of Highway Crash Data.

The Indiana researchers developed a procedure and field tested it in Pennsylvania with the cooperation of the Pennsylvania State Police. As the seat belt interlock had recently been required for 1974 model year vehicles, the test topic was the rate of use of seatbelts of accident-involved vehicles. Use rates for 1974 vehicles with the ignition interlock was contrasted with use rates for 1973 vehicles without the ignition interlock. Data were collected for four periods (November 1973, June 1974, September 1974, and January 1975). Interim reports were prepared presenting the results of the first three data collection periods and submitted to NHTSA. The first interim report was submitted in February 1974 and the others subsequently after each of the next two collection periods. The final report presented data from the last collection period and from prior periods. This report was released by NHTSA in January 1976.

The findings from the early collection periods indicated a high use rate of seat belts in the interlock equipped cars. In November 1973, seventy-five percent of the drivers in 1974 cars who were involved in crashes were reported to be wearing lap and torso belts, as contrasted with seventeen percent of the drivers of 1973 vehicles. These data and comparable data from other collection periods are reported in the final report dated January 1976 that is available through NTIS and listed in HSL.

At first glance, the failure to publish the interim reports in a timely manner seems irrelevant. However, late in 1974 Congress debated and passed a law striking down the requirement for the ignition interlock system. Prompt release of the interim reports would have made relevant data available to those discussing the issue. Delaying the publication of the data until the final report in January 1976 had the effect of removing

from the policy arena information relevant to the policymaking process.

4.3.4 DWI Probation Demonstration. Two projects that have been ongoing for more than four years within the alcohol demonstration program are:

Memphis D.W.I. Probation Demonstration Project
(DOT-HS-5-01199; \$932,000; 6/30/75-12/31/80)

DUI Probation Follow-up Project—Mississippi (DOT-HS-5-01198;
\$950,000; 6/30/75-6/30/80)

The stated goals of these projects include the demonstration and evaluation of different treatments for convicted drinking drivers. Information on the involvement of participants in subsequent crashes and drinking driving offenses and other data are being selected.

A search of publicly accessible information systems (HSL, NTIS, TRIS, and GPO) identified no information on the projects. HSRI staff members working on another project were able to obtain two reports (one for each project) directly from the contractors. While these reports are not as detailed as required by the NHTSA Demonstration Projects Manual, they were useful and would be of assistance to state and local officials developing similar programs.

These two significant projects, funded at almost a million dollars each, are essentially nonexistent as far as the research and user communities are concerned. The terms of the contracts require that reports be produced, but they are not available.

4.3.5 Motor Vehicle Diagnostic Demonstration Programs. The NHTSA practice of not releasing reports on demonstration projects is not limited to alcohol projects. Five demonstration projects were funded in 1974 to conduct motor vehicle diagnostic inspections under the Consumer Information and Cost Savings Act. The demonstration projects were conducted in Alabama, Arizona, Tennessee, the District of Columbia, and Puerto Rico at a cost of over \$11 million. An engineering support contract and an evaluation contract added \$1.8 million to the program

costs.

Twelve technical reports of the engineering contract have been made available through NTIS and GPO. Three technical reports of the evaluation contract are also available through NTIS. All of these reports were also identified through a search of HSL.

The contractor reports for the demonstration projects themselves have not been as readily available. The Alabama and Tennessee projects produced twenty-nine reports. Eight of these have been assigned DOT numbers and twenty have been listed in the HSL computer file. None of the reports are available through NTIS or GPO.

Reports for the remaining projects had been repeatedly requested by HSRI staff and other individuals since 1977. Earlier, NHTSA responded that they were not available. In early 1979 they were assigned DOT numbers and are available in microfiche from NHTSA and are likely to be listed in the HSL computer file. They will not be available through NTIS or GPO, even though they were final reports of projects dealing with an important highway safety problem. No annual or interim reports were identified, although these would normally be required in projects such as these.

4.3.6 Summary. The case studies described above illustrate that past failure to release project results and make items accessible has blocked dissemination of information dealing with important highway safety problems. The potential impact of not carrying through timely dissemination is most evident in the case of the seat belt-ignition interlock study. The results of this research might not have changed the congressional decision to repeal the regulation that made these mandatory. Nevertheless, they were certainly germane to the debate and ought to have been considered before legislative action was taken.

The other cases considered do not relate so closely to important policy action, but they do involve problems of major concern. How to effectively handle convicted drinking drivers remains a prime unresolved question. Improving motor vehicle inspection techniques could directly affect millions of vehicles.

4.4 Timeliness

The question of whether technical information from NHTSA's human-oriented highway safety research, development, and demonstration projects is made available and accessible in a timely way has been touched on above, but bears specific consideration in its own right. Time is clearly important with respect to both availability and accessibility. Information needs to be released and made obtainable as soon as feasible. This is particularly true in a field like highway safety, where important policy and operational decisions are being made continually, not only at the federal level but also in the states and localities.

The case of the seat belt-ignition interlock study described in the previous section is a striking illustration of what may be the impact of not releasing the results of technical studies in a timely fashion. However, it is only a single instance. Other anecdotal examples could be cited, but these do not provide adequate evidence. It would have been useful if as part of the present examination comprehensive information could have been assembled to analyze the question of timeliness. This would have required determining for the projects studied how many reports were required, when they were submitted, when they were released to the public, and when copies became readily obtainable. It was not possible to assemble these data with the resources that were available.

A strong indication that timeliness is more than an occasional problem can be inferred from the data on projects for which no report was found to be available. One need only to look at the dates when the projects that fall into this group were finished to see what very significant delays have occurred. The distribution of completion dates for the twenty-four projects was examined. Three-quarters of these projects were completed more than two years ago and nearly half were finished five or more years ago. As indicated in Section 2.3, where NHTSA dissemination procedures are discussed, technical reports ought to complete the review and release process in approximately ten weeks. Allowing additional time for final processing and distribution, reports ought to become available and

accessible at least from NHTSA's own services in no more than six months following submission. The most generous allowance for slippage in the system cannot account for the delays in making available information on the projects included in the tabulation below.

<u>Completion Date</u>	<u>Projects With No Report</u>
1972	1
1973	4
1974	6
1975	2
1976	2
1977	4
1978	4
1979	<u>1</u>
Total	24

Discussions with other contractors and HSRI's own experience indicates that release of a technical report seldom occurs within ten weeks. Delays of six months to more than a year are common.

4.5 Summary of Findings

The findings presented in this section support several major inferences concerning the availability and accessibility of the technical output from NHTSA's human-oriented highway safety research, development, and demonstration programs. (Note that these findings are based on data developed to March 1979.)

- Although some information had been made available on the majority of projects, significant gaps were found. At least one project report was found to have been released for eighty-seven percent of the one hundred and eighty-one representative projects that were examined. This usually included a final report. However, no report was found for twenty-four projects representing approximately \$24 million in NHTSA funding.
- Lack of availability was most evident among the ASAP demonstration projects. Although each of these projects was

required to produce an average of twenty-five technical reports, in nine cases not a single report was identified as being available. No final report was found available for twenty-six of the projects, even through most of the demonstrations were completed more than two years ago.

- Accessibility was found to be more limited than availability. The evidence indicates that in many cases where reports were found to have been released, i.e., made available, they had not been made easily obtainable. Of the 583 reports identified as being available, 44 were not listed in Highway Safety Literature (HSL), NHTSA's own reference service. The proportion of available reports that could be found in the better-known and more easily accessible National Technical Information Service (NTIS) was far less--only 26 percent of all reports and 51 percent of all non-ASAP reports. As with availability, the ASAP projects were most poorly represented. Only 53 percent of identified ASAP reports were accessible through HSL and only 2 percent through NTIS.
- Limited availability and accessibility have affected projects dealing with important highway safety problems. This is illustrated by case studies of projects that dealt with drunk driving, vehicle inspection, and the safety belt-interlock regulation. In this last case, a study that indicated the interlock system led to greatly increased safety belt use was not made available until after Congress had repealed the law mandating such systems.
- Timeliness of availability and accessibility was found to be a problem worth particular emphasis. The interlock case is a particularly dramatic instance of what can happen when delays occur in making technical reports available and accessible. That undue delays have occurred in more than isolated instances is demonstrated by the data on the twenty-four projects for which no reports were found. The great majority of these projects were found to have been completed more than two years ago,

and eleven had been completed five or more years ago. Delays of six months to more than one year in releasing reports appear to be common.

In general, the research and development projects that NHTSA has sponsored have dealt with major problems in highway safety. The limited knowledge base in the human-oriented aspects of the field virtually guarantees this will be true. Because of this, it is particularly important that the results of NHTSA's research, development, and demonstration programs be widely circulated. The data and the case studies presented in this section show that NHTSA's past dissemination practices have left significant gaps. As a result, the information needs of the field have not been served as effectively as they could or should have been.

5.0 CONCLUSION

The results of this study indicate that the dissemination of technical information from human-oriented highway safety research, development, and demonstration projects sponsored by the National Highway Traffic Safety Administration (NHTSA), the federal agency that funds most such work in this country, is not as effective as the law requires and the situation in the field demands. The focus of this study has been the critical first stages of the dissemination process. This begins when the reports from projects are made available, that is, released to the public. The necessary next step is to make potential users of these reports aware that the documents exist and can be obtained with relative ease from some recognized source. This constitutes making information accessible.

One hundred and eighty-one representative NHTSA research, development, and demonstration projects have been examined in this study. The findings show that neither availability nor accessibility had been adequately provided for up to the time when this study was completed in March 1979. This is certainly true for the set of projects examined. There is every reason to believe that the process used to select these projects makes it valid to generalize the conclusion. The clear intent of federal law and the administrative orders promulgated to implement the law has not been adequately fulfilled. More importantly, the great need to expand the base of knowledge in the relatively undeveloped field of highway safety has not been adequately served.

This conclusion may seem to be stated with undue strength. The findings show that some information is available for most projects. With the notable exception of the ASAP demonstration projects, the majority of project reports appear to be both available and accessible. However, given the pressing need for information in the field, there are sufficient gaps in what is released and made accessible by NHTSA and when reports are released to cause concern and to require corrective action.

For 13 percent of the projects studied no report at all was found to be available. Only 71 percent of the 820 project reports that could be identified as existing were found to be available. The accessibility of many of these was limited. NHTSA's own library service, HSL, lacked 8 percent of these. The federal National Technical Information Service (NTIS), which is the best known channel for accessing technical reports from exploratory research projects, was found to provide access to only three-quarters of the available reports from exploratory research projects, less than 60 percent of those from non-ASAP demonstration projects, and only about a quarter of the total from all research, development, and demonstration categories.

The processes of reviewing reports and releasing them to the public are not conceptually difficult. The channels for making reports accessible through the National Technical Information Service (NTIS), the Government Printing Office (GPO), or via NHTSA's Highway Safety Literature (HSL) service--are established and usable, provided that the necessary information and reports are delivered to them.

This study has not examined why the system does not work as well as it needs to. If more staff and resources are needed within NHTSA, then means of providing these ought to be explored. If there are administrative entanglements that hold up the process, then these ought to be identified and corrected. Additional cost may be involved, but if this proves necessary it would certainly seem justified. The sum spent to develop the information is large, and the need for the information is great.

The total process of disseminating new knowledge--of ensuring that it reaches those who need it--is complex and not well understood. It is difficult to conduct effectively. However, it is certain that knowledge or technology transfer starts with making information available and accessible. These steps are relatively simple.

NHTSA has become increasingly concerned with the problems of disseminating and transferring knowledge. The results of this study suggest that attention to the initial and relatively simple stages of the dissemination process--providing for availability and access to the information generated from projects--is needed. NHTSA can significantly

improve implementation of the better-understood initial stages. All reports should be promptly released and made accessible to users.

APPENDIX A
DETAILED TABLES

KEY TO APPENDIX A TABLE CODES

Key to sources:

- HSRI = The University of Michigan Highway Safety Research
Institute Library
- TRIS = The U.S. Department of Transportation's Transportation
Research Information System
- HSL = The National Highway Traffic Safety Administration's
Highway Safety Literature service
- NTIS = The National Technical Information Service
- GPO = The U.S. Government Printing Office

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SUMMARY OF MAJOR CATEGORIES

Category:	Funding (000)	No. of Contracts	Total* Identified Reports	Reports Available**	Report Accessibility					FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO	
Research and Development	8557	65	96	95	88	58	87	73	6	59
Materials Development and Training	4850	60	143	135	132	63	124	41	65	45
Demonstration Projects	19168	21	53	48	47	23	48	27	5	17
SUBTOTAL	32575	146	292	278	267	144	259	141	76	121
ASAP Reports	90886	35	528	305	403	47	280	12	0	14
TOTAL	123441	181	820	583	670	191	539	153	76	135

* Includes reports found in HSL, TRIS, NTIS, GPO and the HSRI Library

** Excludes reports found only in the HSRI Library

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RESEARCH AND DEVELOPMENT CONTRACTS: SUMMARY

Category:	Funding (000)	No. of Contracts	Total Identified Reports	Reports Available	Report Accessibility					FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO	
Alcohol/Drugs--Relation- ships and Effects	2239	18	25	25	25	16	25	20	0	18
Alcohol/Drugs-- Countermeasures	303	4	6	6	4	6	4	4	0	4
Driver Licensing	1161	9	10	10	10	4	10	9	0	7
Driver Education	910	7	7	7	7	4	7	7	0	6
Motorcycle Operator Training	232	4	3	3	3	0	3	3	0	3
Safe Driving Conformance	383	3	4	4	3	2	4	3	0	2
Safety Belt Usage	1568	10	21	20	18	11	16	10	6	9
Pedestrian Safety	1761	10	20	20	18	15	18	17	0	10
TOTAL	8557	65	96	95	88	58	87	73	6	59

R&D ALCOHOL AND DRUG CONTRACTS

Contract Number	Funding* (000)	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility						FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO		
009-2-322	91	4/74	1	1	1	1	1	1	1	0	1
119-2-440	40	6/74	1	1	1	1	1	1	1	0	1
150-3-668	174	7/75	1	1	1	1	1	1	1	0	1
359-3-733	283	6/74	4	4	4	4	4	4	4	0	1
099-3-747	95	6/74	1	1	1	1	1	1	1	0	1
031-3-754	57	2/74	1	1	1	1	1	1	1	0	1
4-00941	347	2/77	1	1	1	0	1	1	1	0	1
4-00945	88	8/78	1	1	1	0	1	1	1	0	1
4-00954	216	2/77	2	2	2	2	2	2	2	0	1
4-00968	235	12/76	1	1	1	0	1	1	1	0	1
4-00989	22	12/74	1	1	1	1	1	1	1	0	1
4-00990	37	12/74	2	2	2	1	2	1	1	0	1
4-00991	24	12/74	1	1	1	1	1	1	1	0	1
4-00992	29	12/74	1	1	1	0	1	1	1	0	1
4-00999	233	1/78	2	2	2	0	2	0	0	0	1
4-01003	52	5/75	1	1	1	1	1	1	1	0	1
5-01242	116	12/76	1	1	1	1	1	1	1	0	1
6-01456	100	10/77	2	2	2	0	2	0	0	0	1

*Source of funding and date finished information: Transportation Research Activities Information System (TRAIS) file.

R&D: ALCOHOL AND DRUG CONTRACTS (continued)

Contract Number	Funding * (000)	Date * Finished	Total Identified Reports	Reports Available	Report Accessibility						FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO		
010-2-452	50	1/74	2	2	1	2	1	1	1	0	1
253-3-744	50	6/74	1	1	1	1	1	1	1	0	1
364-3-757	152	12/76	1	1	1	1	1	1	1	0	1
4-00995	51	5/75	2	2	1	2	1	1	1	0	1
TOTAL	2542		31	31	29	22	29	24	0	22	

*Source of funding and date finished information: Transportation Research Activities Information System (TRAIS) file.

R&D: DRIVER LICENSING CONTRACTS

Contract Number	Funding* (000)	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility					FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GOP	
009-1-009	279	4/74	1	1	1	0	1	1	0	1
4-00817	243	8/75	3	3	3	3	3	3	0	1
4-00960	133	12/75	1	1	1	1	1	1	0	1
4-00963	137	7/75	2	2	2	0	2	1	0	1
5-01204	74	3/76	1	1	1	0	1	1	0	1
5-01275	97	9/78	1	1	1	0	1	1	0	1
6-01397	97	2/78	0	0	0	0	0	0	0	0
7-01698	49	2/78	1	1	1	0	1	1	0	1
7-01762	52	6/78	0	0	0	0	0	0	0	0
TOTAL	1161		10	10	10	4	10	9	0	7

* Source of funding and date finished information: Transportation Research Activities Information System (TRAIS) file.

A-5

R&D: DRIVER EDUCATION CONTRACTS

Contract Number	Funding * (000)	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility					FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO	
003-2-427	466	9/74	1	1	1	1	1	1	0	1
4-00885	10	8/74	0	0	0	0	0	0	0	0
4-00993	70	2/75	1	1	1	0	1	1	0	1
5-01206	93	6/76	2	2	2	2	2	2	0	1
5-01221	52	11/76	1	1	1	0	1	1	0	1
5-01253	143	6/77	1	1	1	1	1	1	0	1
5-01263	76	6/77	1	1	1	0	1	1	0	1
TOTAL	910		7	7	7	4	7	7	0	6

*Source of funding and date finished information: Transportation Research Activities Information System (TRAIS) file.

A-6
R&D: MOTORCYCLE OPERATOR TRAINING CONTRACTS

Contract Number	Funding* (000)	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility						FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO		
5-01143	31	7/76	1	1*	1	0	1	1	0	0	1
5-01165	32	7/76									
5-01182	70	2/77	1	1	1	0	1	1	1	0	1
7-01526	99	12/77	1	1	1	0	1	1	1	0	1
TOTAL	232		3	3	3	0	3	3	3	0	3

*Source of funding and date finished information: Transportation Research Activities Information System (TRAIS) file.

**Two separate contracts performed jointly and described in one final report.

A-7
R&D: SAFE DRIVING CONFORMANCE CONTRACTS

Contract Number	Funding * (000)	Date * Finished	Total Identified Reports	Reports Available	Report Accessibility					FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO	
4-00988	92	4/75	2	2	2	2	2	2	0	1
5-01259	165	10/76	2	2	1	0	2	1	0	1
6-01285	126	11/77	0	0	0	0	0	0	0	0
TOTAL	383		4	4	3	2	4	3	0	2

*Source of funding and date finished information: Transportation Research Activities Information System (TRAIS) file.

A-8

R&D: SAFETY BELT USAGE CONTRACTS

Contract Number	Funding* (000)	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility					FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO	
11-7522	354	4/72	6	6	6	2	3	0	6	0
11-7610	127	10/71	1	1	1	1	1	1	0	1
010-1-012	83	3/73	2	1	2	1	1	1	0	1
200-2-320	50	11/72	1	1	1	1	1	1	0	1
223-3-638	57	3/74	1	1	1	1	1	1	0	1
230-3-674	67	5/74	2	2	1	2	2	1	0	1
4-00805	382	3/75	2	2	1	2	1	1	0	1
5-01039	152	5/76	3	3	2	1	3	2	0	1
5-01154	102	3/76	1	1	1	0	1	1	0	1
6-01340	194	8/78	2	2	2	0	2	1	0	1
TOTAL	1568		21	20	18	11	16	10	6	9

*Source of funding and date finished information: Transportation Research Activities Information System (TRAIS) file.

A-9
R&D: PEDESTRIAN SAFETY CONTRACTS

Contract Number	Funding* (000)	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility							FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GP0			
190-2-480	368	7/76	4	4	3	4	3	3	0	1		
099-3-705	72	6/74	2	2	1	2	1	1	0	1		
355-3-718	553	8/77	2	2	2	2	2	2	0	1		
339-3-726	83	6/74	2	2	2	2	2	2	0	1		
099-3-728	71	7/74	1	1	1	1	1	1	0	1		
4-00982	176	5/77	4	4	4	2	4	4	0	1		
5-01144	190	12/77	1	1	1	0	1	1	0	1		
5-01168	103	7/77	1	1	1	0	1	0	0	1		
5-01185	57	6/76	1	1	1	1	1	1	0	1		
5-01187	88	10/76	2	2	2	1	2	2	0	1		
TOTAL	1761		20	20	18	15	18	17	0	10		

*Source of funding and date finished information: Transportation Research Activities Information System

MATERIALS DEVELOPMENT AND TRAINING MATERIALS CONTRACTS

Contract Number	Funding * (000)	Date * Finished	Total Identified Reports	Reports Available	Report Accessibility					FINAL REPORTS IDENTIFIED
					HSRI	TRIS	ISL	NTIS	GPO	
11-6967	-	1973	4	4	4	3	2	0	1	1
11-7602	123	1-73	3	3	3	3	3	1	1	1
11-7616	300	9-73	4	3	4	3	3	3	0	1
003-1-003	206	11-71	3	3	2	2	2	2	1	0
011-1-011	40	10-71	2	2	2	2	2	2	0	1
099-1-137	104	1973	6	6	4	5	5	1	3	1
034-1-207	43	3-72	1	1	1	1	1	1	0	1
168-2-286	-	3-76	3	3	3	1	2	0	3	0
034-2-351	68	8-73	2	0	2	0	0	0	0	0
100-2-391	64	5-73	4	4	4	1	4	1	3	1
036-2-404	63	5-73	1	1	1	1	1	1	0	1
034-2-410	60	3-75	3	2	3	2	2	2	0	1
240-2-414	69	5-73	3	3	3	0	3	1	1	1
240-2-431	164	4-74	5	5	3	0	5	0	5	0
099-2-473	53	12-72	4	4	4	1	4	0	3	1
099-2-474	65	6-73	4	4	4	1	4	1	3	1
118-2-488	30	12-73	0	0	0	0	0	0	0	0
134-2-498	55	1-73	4	4	4	1	4	1	3	1
099-3-570	15	6-73	4	4	4	1	4	1	3	1
334-3-645	150	10-74	5	5	5	5	4	1	4	1
115-3-647	54	1-74	1	1	1	1	1	1	1	1

*Source of funding and date finished information: NIJ/SA contract personnel.

A-10 (continued)

Contract Number	Funding* (000)	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility						FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO		
339-3-652	46	2-74	6	6	6	6	6	0	0	5	1
036-3-712	149	6-76	3	3	2	1	3	0	0	0	0
4-00883	73	3-75	2	2	2	0	2	0	0	1	0
4-00983	73	8-76	3	1	3	1	1	1	0	0	1
4-00985	54	8-75	2	2	1	2	2	1	0	0	1
4-00986	23	6-75	1	1	1	1	1	1	0	0	1
4-00987	49	5-75	4	4	4	1	1	1	2	2	1
5-01136	51	8-76	1	1	1	1	1	1	0	0	1
5-01150	-	2-77	3	3	3	3	3	3	0	0	1
5-01196	570	12-78	2	0	2	0	0	0	0	0	1
5-01207	55	2-76	16	16	16	0	16	0	16	0	0
5-01248	64	8-76	1	1	1	0	1	0	0	0	0
5-01268	60	12-76	3	3	1	1	3	1	2	2	1
5-01269	49	6-76	2	2	0	0	0	0	2	2	0
5-01271	23	12-75	4	4	4	1	4	1	3	3	1
6-01425	50	8-77	2	2	2	0	2	2	0	0	1
6-01438	76	10-77	5	5	5	0	5	1	0	0	1
6-01515	70	9-77	1	1	1	0	1	0	0	0	1
6-01520	36	6-77	1	1	1	1	1	1	0	0	1
Materials Subtotal	3297		128	120	117	53	109	34	65	30	30

*Source of funding and date finished information: NITSA contract personnel.

MATERIALS DEVELOPMENT AND TRAINING: TRAINING CONTRACTS

Contract Number	Funding* (000)	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility					FINAL REPORTS IDENTIFIED
					HSRI	TRIS	HSL	NTIS	GPO	
11-7289	130	1974	0	0	0	0	0	0	0	0
099-1-141	58	9-72	1	1	1	1	1	1	0	1
127-1-189	22	2-72	0	0	0	0	0	0	0	0
034-2-409	50	5-73	1	1	1	1	1	1	0	1
100-2-503	98	6-73	1	1	1	1	1	0	0	1
034-3-669	180	6-75	0	0	0	0	0	0	0	0
350-3-707	151	12-75	1	1	1	1	1	1	0	1
034-3-717	70	6-74	0	0	0	0	0	0	0	0
100-3-738	156	6-74	1	1	1	1	1	1	0	1
099-3-760	47	8-74	1	1	1	0	1	0	0	1
4-00847	60	10-74	1	1	1	1	1	1	0	1
4-00953	65	12-75	0	0	0	0	0	0	0	0
4-00959	107	3-75	1	1	1	1	1	0	0	1
4-00962	57	3-75	1	1	1	1	1	0	0	1
4-01014	55	3-75	1	1	1	1	1	0	0	1
5-01209	54	7-76	1	1	1	0	1	0	0	1
5-01219	60	12-76	1	1	1	0	1	1	0	1
6-01362	59	11-77	1	1	1	0	1	0	0	1
6-01475	29	11-77	1	1	1	0	1	0	0	1
126-2-353	45	4-73	1	1	1	1	1	1	0	1
Training Subtotal	1553		15	15	15	10	15	7	0	15
TOTAL	4850		143	135	132	63	124	41	65	45

*Source of funding and date finished information: NHTSA contract personnel.

VOH ASAP DEMONSTRATION PROJECT CONTRACTS

Abbreviated Title	Contract Number	Funding* (000)	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility					FINAL REPORTS IDENTIFIED
						HSRI	TRIS	HSI	NTIS	GPO	
STEP CA	109-1-155	548	3/75	1	1	1	1	1	1	0	1
STEP TX	110-1-156	540	5/75	1	1	1	1	1	1	0	1
STEP ND	224-2-384	539	9/75	2	2	2	2	2	2	0	1
STEP WA	225-2-385	724	12/75	1	1	1	1	1	1	0	1
STEP FL	259-2-463	707	11/75	2	2	2	2	2	2	0	1
STEP Evaluation	268-2-517	164	12/74	1	1	1	1	1	1	0	0
FCRP MI	253-2-501	300	2/73	0	0	0	0	0	0	0	0
FCRP TX	254-2-502	300	2/73	0	0	0	0	0	0	0	0
DCP	034-1-039	252	2/72	3	3	3	0	3	3	0	1
MVI TN	5-01041	2753	7/76	9	6	8	0	6	0	0	1
MVI PR	5-01055	2249	10/76	1	1	0	0	1	0	0	1
MVI AL	5-01056	2768	11/76	6	3	6	0	3	0	0	1
MVI AZ	5-01057	1890	7/76	1	1	0	0	1	0	0	1
MVI DC	5-01098	1353	11/77	3	3	0	0	3	0	0	1
MVI Evaluation	5-01036	869	4/77	3	3	3	3	3	3	0	1
MVI Engin. Support	5-01037	1090	12/76	12	12	12	10	12	11	5	1
Truck/Bus Inspect.	7-01725	97	5/78	0	0	0	0	0	0	0	0
SD TN	11-7544	385	6/73	1	1	1	1	1	0	0	1
SD MI	11-7542	121	12/72	1	1	1	1	1	1	0	1
SAFE WA	343-3-682	668	12/76	1	2	1	0	2	1	0	1
SAFE RI	4-00956	851	6/77	4	4	4	0	4	0	0	1
TOTAL		19168		53	43	47	23	48	27	5	17

*Source of funding and date finished information: Transportation Research Activities Information System (TRAVIS) file.

A-13

ASAP CONTRACTS

Contract Number	Funding* (000)	Site	Date* Finished	Total Identified Reports	Reports Available	Report Accessibility				FINAL REPORT IDENTIFIC.
						HSRI	TRIS	HSL	NTIS	
11-7534	1720	Denver, CO	6/74**	7	5	7	1	2	1	0
11-7535	1644	Washtenaw County, MI	6/74**	20	14	20	13	1	8	1
11-7536	2150	Oregon	6/74**	3	0	3	0	0	0	0
11-7538	1950	Mecklenburg County, NC	6/74**	7	4	4	0	4	0	0
11-7539	1923	Washington	6/74**	1	0	1	0	0	0	0
11-7543	2214	Vermont	6/74**	13	7	12	2	5	1	0
11-7545	1749	Madison, WI	6/74**	8	2	7	0	2	0	1
11-7547	1502	Nassau County, NY	6/74**	17	13	4	0	13	0	1
11-7548	1482	New Mexico	6/74**	7	1	7	0	1	0	0
037-1-044	2094	Cumberland/York Counties, ME	11/77	0	0	0	0	0	0	0
038-1-045	2310	Richland County, SC	9/77	27	1	27	0	1	0	0
043-1-059	2626	Baltimore, MD	12/74	1	0	1	0	0	0	0
044-1-060	1600	Nebraska	12/74	24	23	16	0	23	0	0
045-1-061	3349	South Dakota	6/76	26	23	14	3	23	0	1
048-1-064	3693	Minnesota	9/78	35	20	34	7	18	1	1
049-1-065	3259	San Antonio, TX	3/79	20	13	10	1	13	0	1
050-1-066	2244	Ohio	6/77	5	0	5	0	0	0	0
051-1-067	4705	Oklahoma	3/79	11	0	11	0	0	0	1
052-1-068	3235	Arizona	3/79	43	28	21	4	26	0	1
054-1-070	1901	Kansas	3/76	12	0	12	0	0	0	0
055-1-071	2562	New Hampshire	6/77	29	20	24	1	19	0	1
056-1-073	2095	Pulaski County, AR	12/74	10	10	10	0	10	0	0
057-1-074	1617	Columbus, GA	6/77	10	0	10	0	0	0	0
058-1-075	2600	Indianapolis, IN	6/75*	15	3	12	0	5	0	0

A-13 (continued)

Contract Number	Funding (000)	Site	Date Finished	Total Identified Reports	Reports Available	Report Accessibility				FINAL REPORTS IDENTIFIED
						HSRI	TRIS	HSL	NTIS	
059-1-076	3691	New Orleans, LA	3/79	14	11	10	0	10	0	1
062-1-080	3291	Florida	6/77	17	6	13	0	6	0	1
067-1-087	3643	Fairfax, VA	12/77	29	15	24	4	15	0	0
075-1-098	2508	Boston, MA	3/77	22	20	7	0	20	0	1
077-1-100	3420	Kansas City, MO	3/79	30	21	23	3	21	0	0
153-2-239	2282	Idaho	6/77	8	7	8	0	7	0	0
157-2-247	2453	Delaware	1/76	1	0	1	0	0	0	0
159-2-249	2047	Utah	12/76	13	7	13	1	6	0	0
160-2-251	3022	Puerto Rico	8/77	8	7	3	1	6	1	1
161-2-252	6167	California	6/77	19	14	14	5	13	0	1
163-2-256	2118	Iowa	6/75	16	10	15	1	10	0	0
TOTAL	90866			528	305	403	47	280	12	14

*Source of funding and date finished information: Transportation Research Activities Information System (TRAIS) file.

**Actual completion date unknown

APPENDIX B
INDEX TO CONTRACTS

INDEX TO R&D: ALOCHOL AND DRUG CONTRACTS
(see Table A-3)

(contract number*; title; performing agency; dates of contract)

- 009-2-322 Alcohol Concentration and Performance Impairment; Systems Development Corporation (6/30/72-4-19-74)
- 119-2-440 Drug Use Fatality Prediction. Collect and Analyze Urine and Blood Samples; Midwest Research Institute (6/17/72-6/30/74)
- 150-3-668 Effect of Marijuana and Alcohol on Visual Search Performance; University of California, Los Angeles (6/18/73-7/31/75)
- 359-3-733 Equipment Necessary to Facilitate Implementation of Objective Measurements of Vehicle Driving Performance; Systems Technology, Inc. (6/30/73-6/28/74)
- 009-3-747 Identification of Countermeasures for the Youth Crash Program Related to Alcohol; Dunlap and Associates, Inc. (6/25/73-6/28/74)
- 031-3-754 The Effects of Lower Legal Drinking Ages on Youth Crash Involvement; University of Michigan (6/30/73-2/28/74)
- 4-00941 A Comparison of Drug Use in Driver Fatalities and Similarly Exposed Drivers; Midwest Research Institute (6/28/74-2/25/77)
- 4-00945 Identification of Specific Problems and Countermeasure Targets for Reducing Alcohol Related Casualties; Calspan Corporation (6/17/74-6/17/75)
- 4-00954 A Comparison of Alcohol Involvement in Exposed and Injured Drivers; Essex Corporation (6/20/74-2/28/77)
- 4-00968 The Development of Technology for Detection of Marihuana Intoxication by Analysis of Body Fluids; University of Missouri (6/28/74-12/30/76)
- 4-00989 Analysis of High Risk Groups for Alcohol Countermeasures; B.F.H. Associates (6/28/74-12/28/74)
- 4-00990 Analysis of High Risk Group for Alcohol Countermeasures; University of Michigan (6/28/74-12/28/74)
- 4-00991 Analysis of High Risk Groups for Alcohol Countermeasures; Anacapa Sciences, Inc. (6/28/74-12/28/74)

- 4-00992 Analysis of High Risk Groups for Alcohol Countermeasures; Ketron, Inc. (6/28/74-12/30/74)
- 4-00999 The Effects of Alcohol on the Drivers' Decision Making Behavior; Systems Technology, Inc. (6/28/74-8/31/77)
- 4-01003 Marijuana Contact Test Evaluation and Development; Midwest Research Institute (6/27/74-5/25/75)
- 010-2-452 Countermeasure Program for Drinking Drivers; University of Southern California (6/15/72-1/31/74)
- 253-3-744 Testing of Sobering Agents; Research and Education Foundation (6/28/73-6/30/74)
- 364-3-757 On-the-Road Driving Behavior and Breath Alcohol Concentration; Psychological Research Foundation (6/22/73-12/31/76)
- 4-00995 System Analysis of Alcohol Countermeasures; General Research Corporation (6/27/74-5/31/75)

* All contract numbers are DOT-HS- numbers, except those that begin with an ll-; these are FH- numbers

INDEX TO R&D: DRIVER LICENSING CONTRACTS
(see Table A-4)

(contract number; title; performing agency; dates of contract)

- 009-1-009 Driver Vision Test Device; System Development Corporation
(10/31/70-4/30/74)
- 4-00817 Handbook for Developing Safety Driving Knowledge
Dissemination and Testing Techniques for License Applicants;
Missouri Central State College (2/28/74-8/31/75)
- 4-00960 Accident Avoidance Skill Training and Performance Testing;
URS; Matrix Company (6/28/74-12/31/75)
- 4-00963 Mark II Integrated Driver Vision Tester; Honeywell, Inc.
(6/28/74-7/11/75)
- 5-01204 Peripheral Vision Training for Motor Vehicle Drivers; Human
Factors Research, Inc. (6/16/75-3/17/76)
- 5-01275 Driver Visual Limitations Diagnosis and Treatment; Indiana
University (6/30/75-9/30/76)
- 6-01397 Integrated Safe Driving Information System Development;
National Public Services Research (6/10/76-2/28/78)
- 7-01698 Analysis of State Road Test Examinations; Highway Safety
Research Center (9/15/77-2/15/78)
- 7-01762 Feasibility of Designating Medical Examiners for Interstate
Commercial Vehicle Drivers; Health and Safety Associates,
Inc. (9/1/77-6/30/78)

INDEX TO R&D: DRIVER EDUCATION CONTRACTS
(see Table A-5)

(contract number; title; performing agency; dates of contract)

- 003-2-427 Curriculum for Secondary School Driver and Traffic Safety Education; Human Resources Research Organization (6/14/72-9/1/74)
- 4-00885 Driver Improvement Training; United States Coast Guard (4/1/74-8/1/74)
- 4-00993 Parent Participation in Driver Education In-Car Instruction; Human Resources Research Organization (6/28/74-2/28/75)
- 5-01206 Impact Study on Driving by Special Populations; Dunlap and Associates, Inc. (6/23/75-6/23/76)
- 5-01221 Visual Presentation Techniques For On-The-Road Driver Training and Testing; Randomline, Inc. (6/23/75-11/15/76)
- 5-01253 Approaches to the Rehabilitation of Convicted DWIs; McBer and Company (6/27/75-6/30/77)
- 5-01263 Safe Performance Curriculum Performance Measures; University of Southern California (6/30/75-6/30/77)

INDEX TO R&D: MOTORCYCLE OPERATOR TRAINING CONTRACTS
(see Table A-6)

(contract number; title; performing agency; dates of contract)

- 5-01143 Development and Evaluation of a Motorcycle Skill Test, Manual and Knowledge Test; National Public Services Research Institute (5/75-7/76)
- 5-01165 Development and Preliminary Evaluation of Motorcycle Operator Manual and Knowledge Test; National Public Services (5/30/75-7/31/76)
- 5-01182 Motorcycle Safety Education Curriculum Specifications; National Public Services Research Institute (6/16/75-2/28/77)
- 7-01526 Development of an In-Traffic Test for Motorcyclists; National Public Services Research Institute (10/14/76-12/8/77)

INDEX TO R&D: SAFE DRIVING CONFERENCE CONTRACTS
(see Table A-7)

(contract number; title; performing agency; dates of contract)

- 4-00988 Current Knowledge and Information Needs for Safe Driving Conformance Initiative; Human Science Research, Inc. (6/28/74-4/30/75)
- 5-01259 Identification of Unsafe Driving Actions and Related Countermeasures; North Carolina University (6/30/75-10/30/76)
- 6-01285 Decriminalization of Non-Serious Traffic Violations; PRC Systems Sciences Company (9/30/75-11/30/77)

INDEX TO R&D: SAFETY BELT USAGE CONTRACTS
(see Table A-8)

(contract number; title; performing agency; dates of contract)

- 11-7522 Development of a National Program to Encourage Use of Restraint Systems; American Institute for Research (6/12/70-4/30/72)
- 11-7610 Motivating Factors in the Use of Restraint Systems; National Analysts, Inc. (6/70-6/71)
- 010-1-012 Experiment in the Use of Broadcast Media in Highway Safety; University of Southern California
- 200-2-320 Evaluation of the Effects of Seat Belt Education Among Elementary School Children in Loudoun County, Virginia; National Analysts, Inc. (3/72-6/72)
- 223-3-638 Safety Belt Warning and Interlock System Effectiveness in Assigned and Pool Cars; Automobile Club of Southern California (3/16/73-3/16/74)
- 235-3-674 Sources and Remedies for Restraint System Discomfort and Inconveniences; Man-Factors, Inc. (5/23/73-5/22/74)
- 4-00805 Safety Belt Interlock System Usage Survey; Opinion Research Corporation (11/5/73-3/5/75)
- 5-01039 Safety Belt Interlock System Usage Survey; Opinion Research Corporation (9/25/74-5/31/76)
- 5-01154 Effectiveness of Various Safety Belt Warning Systems; Opinion Research Corporation (5/30/75-3/21/76)
- 6-01340 Safety Belt Usage Survey: Traffic Population; Kirschner Associates, Inc. (5/26/76-8/22/78)

INDEX TO R&D: PEDESTRIAN SAFETY CONTRACTS
(see Table A-9)

(contract number; title; performing agency; dates of contract)

- 190-2-480 Urban Pedestrian Accident Countermeasures Experimental Evaluation; Bio-Technology, Inc. (6/27/72-7/31/76)
- 099-3-705 Identification and Test of Pedestrian Safety Messages for Public Education Program; Dunlap and Associates, Inc. (6/12/73-6/14/74)
- 355-3-718 Study of the Causative Factors in Rural Pedestrian Accidents and Corrective Countermeasures; Bio-Technology, Inc. (6/25/73-8/15/77)
- 339-3-726 Threat Detection Training Programs for Child Pedestrian Safety; Applied Science Associates, Inc. (6/22/73-6/30/74)
- 099-3-728 Development of Model Regulations for Pedestrian Safety; Dunlap and Associates, Inc. (6/20/73-7/31/74)
- 4-00982 Identification of Specific Problems and Countermeasure Approaches to Enhance Bicycle Safety; Anacapa Sciences, Inc. (6/28/74-5/6/77)
- 5-01144 Experimental Field Test of Ice Cream Vendor Model Ordinance; Dunlap and Associates, Inc. (6/7/75-12/31/77)
- 5-01168 Enforcement Frequency, Sanctions and Compliance Level For Pedestrian Safety; Dunlap and Associates, Inc. (6/15/75-7/31/77)
- 5-01185 Pedestrian Warning Devices; Wyle Labs (6/10/75-6/10/76)
- 5-01187 Measurement of Pedestrian Behavior; American Institute for Research (6/6/75-10/16/76)

INDEX TO MATERIALS DEVELOPMENT AND TRAINING: MATERIALS
CONTRACTS
(see Table A-10)

(contract number; title; performing agency; dates of contract)

- 11-6967 Emergency Medical Service - Entrance Level Training; Dunlap and Associates, Inc. (-1973)
- 11-7602 Development of Course Guides for Teacher and Instructor Preparation in Driver Education; Human Resources Research Organization (6/30/70-1/31/73)
- 11-7616 Development of a National Item Bank for Tests of Driving Knowledge; The University of Michigan (7/70-9/73)
- 003-1-003 Manpower Development Program for Managers of Model Alcohol Safety Projects; Human Resources Research Organization (7/70-11/12/71)
- 011-1-011 Accident Summary state Systems Manual/Exotech Systems, Inc. (10/21/70-10/14/71)
- 099-1-137 Policy Traffic Services: Supervisory Level Training; Dunlap and Associates, Inc. (6/21/71-10/21/72)
- 034-1-207 Training Materials for Traffic Court Judges; Indiana University (6/28/71-3/14/72)
- 168-2-286 Seminar on Alcohol and Safety; National Highway Traffic Safety Administration (-3/76)
- 034-2-351 A Training Program for Probation Personnel at ASAP Sites--Curriculum Development and Evaluation; Indiana University (4/18/72-8/1/73)
- 100-2-391 Training Curriculum for Driver License Examiner Supervisors and Administrators; Technical Education Research Center (5/15/72-5/15/73)
- 036-2-404 Statewide Police Traffic Service Manual for Governor's Representatives and Policy Development; (-5/73)
- 034-2-410 Rapid Response Generation of Highway Crash Data; Indiana University (6/1/72-3/15/75)
- 240-2-414 Instructor Training - Traffic Court Judges; ABT Associates, Inc. (6/1/72-5/31/73)
- 240-2-431 National Alcohol Countermeasures Program. Workshops,

- Curriculum Materials Development and Evaluation; ABT Associates, Inc. (6/12/72-4/30/74)
- 099-2-473 Training State and Local Instructors in the Use of NHTSA Development Curriculum Related to Policy Traffic Services; Dunlap and Associates, Inc. (6/20/70-12/20/72)
- 099-2-474 Driver Improvement Analyst: Curriculum Materials Development; Dunlap and Associates, Inc. (6/29/72-6/28/73)
- 118-2-488 Driver Education for Spanish-Speaking People; Black Hawk College (6/27/72-12/31/73)
- 134-2-498 Curriculum Materials For Training Course in Traffic Records; Computer Sciences Corporation (6/30/72-1/73)
- 099-3-570 Curriculum Material for Emergency Medical Care Training: Highway Patrol; Dunlap and Associates, Inc. (11/22/72-5/20/73)
- 334-3-645 Course and Materials for Training Regarding DWI Law Enforcement; Michigan State University (6/29/73-10/31/74)
- 115-3-647 Revision and Update of Traffic Safety Manpower Training Program Development Guide; Ohio State University (3/30/73-1/1/74)
- 339-3-652 School Bus Driver Instructional Program; Applied Science Associates, Inc. (4/5/73-2/28/74)
- 036-3-712 Model Police Traffic Services Policy Document and Model Procedures Manual for Police Services; International Association of Chiefs of Police, Inc. (6/27/73-6/30/76)
- 4-00883 Development of an Instructional Manual on Evaluation of State and Community Traffic Safety Programs; Indiana University (3/29/74-3/28/75)
- 4-00983 Development of Training Materials for Traffic Court Administration; Indiana University (6/27/74-8/30/76)
- 4-00985 Materials Development for Legislators Seminar Program; Applied Sciences Associates, Inc. (6/27/74-8/30/75)
- 4-00986 Seminar Briefing Package for state and Local Bar Associations; Dunlap and Associates, Inc. (6/26/74-6/30/75)
- 4-00987 Materials Development for Police Management Training Package on Factors Influencing DWI Arrests; Dunlap and Associates, Inc. (6/26/74-5/25/75)

- 5-01136 Materials Development for Motor Vehicle Inspection Training; Dunlap and Associates, Inc. (4/22/75-8/31/76)
- 5-01150 Summary of ASAP Results for Application to State and Local Programs; Southwest Research Institute (-2/77)
- 5-01196 Motorcycle Licensing and Education Program; California Department of Motor Vehicles (7/1/75-12/31/78)
- 5-01207 Emergency Medical Technician--Ambulance: Advanced Course; Pittsburgh University (6/30/75-2/29/76)
- 5-01248 Handbook for Evaluation of Demonstration Projects in Traffic Safety; Teknekron, Inc. (6/26/75-8/31/76)
- 5-01268 Development of a Training Program for Driver Licensing Administrative Hearing Officer; Applied Science Associates, Inc. (6/30/75-12/30/76)
- 5-01269 Users Manual for Problem Identification; National Driver Center (6/30/75-12/30/76)
- 5-01271 Develop Ambulance Dispatchers Training Materials; Innovatrix, Inc. (6/30/75-6/30/76)
- 6-01425 Materials Development for Program of Motor Vehicle Registration Including Titling; Young and Company (6/28/76-8/31/77)
- 6-01438 Materials Development of Uniform Guidelines; American Association of Motor Vehicles Administrators (7/19/76-10/31/77)
- 6-01515 Presentence Investigation Training: Material Development and Seminar; Applied Science Associates, Inc. (9/30/76-9/30/77)
- 6-01520 Material Development for State Legislators and Officials on Techniques to Increase Safety Belt Usage; North Carolina University (9/30/76-6/30/77)

INDEX TO MATERIALS DEVELOPMENT AND TRAINING: TRAINING
CONTRACTS
(see Table A-11)

(contract number; title; performing agency; dates of contract)

- 11-7289 Support Training of Manpower; University of California, Los Angeles (6/19/79-1974)
- 099-1-141 Emergency Medical Technician Instructor Training Institute; Dunlap and Associates, Inc. (6/21/72-6/30/74)
- 127-1-189 Training Course in Alcohol Safety for ASAP CTMs; Rutgers University (6/21/71-2/23/72)
- 034-2-409 ASAP Traffic Court Judge Training; Indiana University (5/16/72-5/1/73)
- 100-2-503 Alcohol and Highway Safety Curriculum Workshops: Washington, D.C.; Technical Education Research Centers, Inc. (6/28/72-6/30/73)
- 034-3-669 Judicial and Prosecutor Seminars at ASAP Sites; Indiana University (5/29/73-6/30/75)
- 350-3-707 Alcohol Safety Action Program Level II Group; McBer and Company (6/22/73-12/31/75)
- 034-3-717 Probation-Diagnosis-Referral Seminars at 14 ASAP Sites; Indiana University (6/15/73-6/19/74)
- 100-3-738 Training State and Community Instructors in Use of NHTSA Curriculum Packages; Technical Education Research Centers, Inc. (6/29/73-6/30/74)
- 099-3-760 NHTSA Curriculum Package; Dunlap and Associates, Inc. (6/25/73-8/26/74)
- 4-00847 Instructor Training in Use of NHTSA Curriculum Package: Crash Injury Management; Dunlap and Associates, Inc. 1/10/74-10-9-74)
- 4-00953 Pilot Program of Curriculum: Emergency Medical Service; Dunlap and Associates, Inc. (6/17/74-12/31/75)
- 4-00959 Instructor Training Institute for NHTSA Curriculum Package: Detection and Apprehension of DWI Driver; Dunlap and Associates, Inc. (6/26/74-3/6/75)
- 4-00962 Instructor Training Institute for NHTSA Curriculum Package:

- Traffic Court Judge; Technical Education Research Centers, Inc. (6/28/74-3/31/75)
- 4-01014 Instructor Training Institute - School Bus Operator; Dunlap and Associates, Inc. (6/28/74-7/15/75)
- 5-01209 Police Management Training on Factors Influencing DWI Arrests: Training State and Community Instructors; Applied Science Associates, Inc. (6/17/75-7/15/76)
- 5-01219 Seminars for Probation - Diagnosis Referral Personnel in Alcohol Highway Safety Programs; Indiana University Foundation (6/29/75-12/31/76)
- 6-01362 Motor Vehicle Inspection Training State and Community Instructors; Dunlap and Associates, Inc. (5/11/76-11/30/77)
- 6-01475 Training in the Driver Licensing Administrative Hearing Process; Dunlap and Associates, Inc. (9/1/76-11/1/77)
- 126-2-353 Prototype Highway Safety and Traffic Offense Adjustment Training Program; Denver University (3/15/72-4/1/73)

INDEX TO NON-ASAP DEMONSTRATION PROJECT CONTRACTS
(see Table A-12)

(contract number; title; performing agency; dates of contract)

- 109-1-155 Selective Traffic Enforcement Program: California; City of Sacramento (6/30/71-3/31/75)
- 110-1-156 Selective Traffic Enforcement Program: Texas; City of El Paso (6/30/71-5/31/75)
- 224-2-384 Selective Traffic Enforcement Program: North Dakota; North Dakota State Highway Department (5/9/72-9/30/75)
- 225-2-385 Selective Traffic Enforcement Program: Washington; City of Tacoma (5/15/72-12/31/75)
- 259-2-463 Selective Traffic Enforcement Program: Florida; Ft. Lauderdale City Government (6/30/72-11/30/75)
- 268-2-517 STEP Program Evaluations; Systems Science Development Corporation (7/1/72-12/31/74)
- 253-2-501 Fatal Crash Reduction: Michigan; Office of Highway Safety Planning (6/30/72-2/15/73)
- 254-2-502 Fatal Crash Reduction: Texas; Texas Office of Traffic Safety Administration (6/30/72-2/15/73)
- 034-1-039 Demonstrate Computerized Police Traffic; Indiana University (12/1/70-2/29-72)
- 5-01041 A Motor Vehicle Diagnostic Inspection Demonstration Project; State of Tennessee (10/15/74-7/31/76)
- 5-01055 A Motor Vehicle Diagnostic Inspection Demonstration Project; Commonwealth of Puerto Rico (11/15/74-10/31/76)
- 5-01056 A Motor Vehicle Diagnostic Inspection Demonstration Project; State of Alabama (10/15/74-11/30/76)
- 5-01057 A Motor Vehicle Diagnostic Inspection Demonstration Project; State of Arizona (11/15/74-7/31/76)
- 5-01098 A Motor Vehicle Diagnostic Inspection Demonstration Project; City of District of Columbia (3/10/75-11/20/77)
- 5-01036 Diagnostic Motor Vehicle Inspection Demonstration Projects Program Evaluation Support; Computer Sciences Corp. (11/4/74-4/30/77)

- 5-01037 Diagnostic Motor Vehicle Inspector Demonstration Projects Program Engineering Support; Avco Systems Division (11/4/74-12/31/76)
- 7-01725 Truck and Bus Safety Inspection Demonstration Project; Dept. of Motor Vehicles, Washington, D.C. (9/27/77-5/27/78)
- 11-7544 Coordinated Comprehensive Highway Safety Demonstration: Shelby County, Tennessee; Shelby County Commission (6/26/70-6/30/73)
- 11-7542 Safety Demonstration Program For Oakland County, Michigan; Board of Commissioners, Oakland County, Michigan (6/25/70-12/24/72)
- 343-3-682 Special Adjudication for Enforcement (SAFE); Department of Motor Vehicles, State of Washington (7/73-12/76)
- 4-00956 Special Adjudication for Enforcement (SAFE); Department of Transportation, State of Rhode Island (6/28/74-12/31/77)

FOOTNOTES

1. No accurate compilation of total expenditures for highway safety human-oriented research, development, and demonstration expenditures in the United States is known to exist. The \$400 million estimate is based on known NHTSA and Federal Highway Administration expenditures and a survey of activities in the field for its calendar year 1976 that reviewed almost a thousand documents received by the HSRI Library. The survey results were reported in an unpublished HSRI working paper (Joscelyn and Jones 1977). See specifically Figure 3-11, of this report entitled Sponsors of Human-Oriented Highway Safety Research in the United States (calendar year 1976).
2. The focus of this study is the dissemination of reports produced by the contractors performing the work and required under their contracts. One small project was eliminated from this study because investigation revealed that no report was required. Two reports were identified that had been produced by NHTSA staff as summary evaluations of contractors' results. One of these was a 1974 interim evaluation of the ASAP program and the second was an NHTSA summary of two demonstration projects in the Fatal Crash Reduction Program (FCRP). Neither of these reports were included in this study, because they did not constitute project output within the definition cited above.

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Joscelyn, K.B., and Jones, R.K. 1977. Working paper--highway safety planning study. Interim report no. 1. Ann Arbor: The University of Michigan Highway Safety Research Institute.

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