REPORT BY THE

Comptroller General

OF THE UNITED STATES

Highway Safety Research And Development-- Better Management Can Make It More Useful

The Department of Transportation could strengthen its management of highway safety research and development so that research results can be more effective as a resource for State and local highway safety programs. The Department's National Highway Traffic Safety Administration would be more responsive to highway safety research users if it routinely included them in all phases of planning. The Safety Administration's research results would also be more valuable if these results were evaluated and better disseminated.

Improved financial management is needed to increase the Safety Administration's ability to identify how highway safety research funds are spent. Improved contract design and monitoring would make contract management more efficient.

CED-80-87
JULY 28, 1980

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-197862

The Honorable Norman Y. Mineta, Chairman
The Honorable James C. Cleveland
Ranking Minority Member
Subcommittee on Oversight and Review
Committee on Public Works and
Transportation
House of Representatives

As requested in your April 30, 1979, letter, this report discusses the Department of Transportation's highway safety research and development program. It includes how the Department has managed the financial and contractual aspects of the research program, how it has planned the program, and what it has done with the research results. We were especially attentive to the National Highway Traffic Safety Administration's program management responsibilities.

We are sending copies to the Secretary of Transportation and the Director, Office of Management and Budget.

Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE SUBCOMMITTEE
ON OVERSIGHT AND REVIEW
COMMITTEE ON PUBLIC WORKS
AND TRANSPORTATION
HOUSE OF REPRESENTATIVES

HIGHWAY SAFETY RESEARCH AND DEVELOPMENT--BETTER MANAGEMENT CAN MAKE IT MORE USEFUL

D I G E S T

About 50,000 people died in 1979 on our Nation's highways. A better managed highway safety research program could be a partial solution to this significant problem.

The Congress passed the Highway Safety Act of 1966 establishing a national program to reduce fatalities and to improve highway safety programs at all levels of government. Since that time, about $380 million in Federal highway safety research funds has been spent. For the past few years, the National Highway Traffic Safety Administration has received about $27 million per year, and the Federal Highway Administration, $9 million.

The objective of the research is to design and demonstrate safety methods relating generally to drivers and pedestrians to help State and local governments increase the effectiveness of their highway safety programs. Highway safety research is difficult and complex because of the many factors involved--the major one being unpredictable human behavior.

Highway safety research has many financial management problems. The research program, particularly that portion carried out by the Safety Administration, has suffered from weak planning and a credibility gap. Many of its research results are unsuccessful, and there is a lack of knowledge about the use of results. Problems also exist in contract management.

FINANCIAL MANAGEMENT

The Safety Administration has not known whether its highway safety research funds have been properly used. In fiscal year 1979, it spent about $3.5 million (13 percent) of the funds to support State and community grant programs and to pay more than a fair share of general administration expenses. Research funds have been used for years to support other activities.

The Safety Administration's financial management system does not provide readily accessible summary and detailed information to differentiate highway safety research funds from other program funds. The Safety Administration's lack of adequate funding information has contributed to its funding similar programs under both highway safety research and State grants and to using State grant funds in highway safety research projects. These weaknesses are reflected in the Safety Administration's budget presentations to the Congress which are confusing, misleading, or inaccurate. (See p. 19.)

Recommendations

The Secretary of Transportation should require the Administrator, National Highway Traffic Safety Administration to (1) identify highway safety research and other program obligations and expenditures so that detailed and summary information on contract and administrative matters is available to aid the agency in effectively administering its programs; (2) make clear budget presentations to provide the Congress with schedules and narration showing specific areas where highway safety funds will be spent, including administration; and (3) use highway safety research funds only for that program's activities unless specifically authorized by the Congress to do otherwise.

MEETING RESEARCH OBJECTIVES

The Safety Administration's highway safety research is intended to provide State and local governments with the overall leadership

and innovative ideas necessary for successful safety programs. However, States and local governments have little confidence in the research because individual projects have been poorly planned, promoted, and evaluated.

The Safety Administration has had much difficulty in determining what use is made of its research results. The use of results is unknown partially because the agency does not formally evaluate the program or the individual projects. Lack of evaluation diminishes the agency's ability to know what is worthwhile and to plan further research.

Although the Safety Administration has produced usable results, it has also done considerable research which produced results that could not be used by the States or that had minimal user acceptance. Potential users said that research frequently has been started which had little chance of success or has taken more time than anticipated to complete.

The Safety Administration has a serious credibility gap with the States and the highway safety community in general. Researchers and users said that they have little input into the Safety Administration's planning, they know little about the use of research results, and projects do not address the most important topics. Therefore, the highway safety community hesitates to use the results even if the research was well done.

Until recently, the Safety Administration has had no formal planning tool; past plans were inadequate because they were derived almost exclusively from internal sources without periodic review. An improved highway safety research plan has been developed which should help alleviate some planning and usage problems that have plagued past programs. However, more needs to be done because in developing the plan, the Safety Administration did not

--request suggestions from the highway safety community before drafting the plan (see p. 37);

--analyze what research had been done, what had succeeded, and what had failed (see p. 33);

--establish research priorities acceptable to the highway safety community which is expected to use the research (see p. 35); and

--include two other programs which use about 15 percent of highway safety research funds (see p. 39).

Additional factors which influence the effectiveness of the Safety Administration's program are

--confusion between its two research offices as to their responsibilities (see pp. 25 to 28) and

--its inability to remain aware of individual State research programs and State Federal-grant programs (see p. 28).

The Federal Highway Administration and the National Cooperative Highway Research Program have successful planning processes which could be used as a guide for planning. (See p. 39.)

Recommendations

The Secretary of Transportation should direct the Administrator, National Highway Traffic Safety Administration, to:

--Define the responsibilities of the agency's two offices which are performing research, establish who will have overall responsibility for the highway safety research program, and delegate authority to carry that work out accordingly.

--Consistently use internal and external input in its formal planning process to (1) compile and analyze available research in each

program area, (2) set priorities for countermeasures and projects which will be most beneficial to users, and (3) incorporate all highway safety research activities.

--Use the successful planning processes of other highway safety research groups as a guide for its planning. (See p. 42.)

--Formally evaluate successful and unsuccessful research and determine what uses have been made of the results. (See p. 53.)

--Make available to the highway safety community research results and closely monitor contracts so that usable results can be developed with fewer delays. (See p. 53.)

CONTRACT MANAGEMENT

The Safety Administration's present highway safety research program contract management practices have resulted in unmet time schedules, added costs, and a general lack of continuity in many contracts.

Over 70 percent of GAO's sample of highway safety research contracts were extensively modified, which resulted in extending completion dates and increasing contract costs. Over 67 percent of the contracts in GAO's sample were modified to add work or to change or continue previous work, increasing the research cost by as much as $750,000 and changing the scope. (See pp. 55 to 59.)

Other areas of contract management also need improvement:

--About 60 percent of highway safety research contracts are awarded in the last month of the fiscal year, increasing contracting costs in terms of overtime and adversely affecting contractors' planning cycles. The Safety Administration has tried unsuccessfully to spread contracting throughout the year. (See p. 59.)

--The Safety Administration could not provide GAO with an up-to-date, accurate list of highway safety research contracts. (See p. 60.)

--Contract technical manager turnovers of up to 54 percent result in less continuity and contract delays. (See p. 63.)

Recommendations

The Secretary of Transportation should direct the Safety Administrator to initiate a system of contract design and monitoring that will reduce modifications and award contracts throughout the year. Also, the Safety Administrator should maintain accurate contract lists and take steps to reduce unnecessary contract technical manager turnovers.

FEDERAL HIGHWAY ADMINISTRATION

GAO made a limited review of the Federal Highway Administration's highway safety research program and found fewer problems than in the Safety Administration. However, annual obligations for all highway safety research contracts need to be accurately identified. The Federal Highway Administration also needs a formal process of evaluating research results. (See pp. 21 and 53.)

GAO is making recommendations designed to overcome these problems. (See pp. 22 and 53.)

AGENCY COMMENTS

In commenting on the draft report, the Department of Transportation did not concur in the majority of GAO's findings and conclusions. It said that GAO had reached faulty conclusions based on limited information, and it recommended that GAO carefully review and consider the facts and the Department's comments before writing the final report.

GAO believes its conclusions are not faulty nor are they based on limited information. GAO has based its conclusions and recommendations on comprehensive audit work, including a review of over 100 research and demonstration

contracts, extensive interviews with State officials and private contractors from eight States, and information obtained from the Safety Administration. GAO has carefully considered and evaluated each comment in the Department's 56 pages of summary and detailed comments on the draft report. The Department's summary comments, along with GAO's evaluation, are located at the end of each chapter.

GAO's recommendations are intended to improve the operation of the highway safety research program, particularly in dealing with the research community and should be viewed accordingly by the Department.

Because of the volume of the Department's comments, which deal exclusively with the Safety Administration and are silent on the Federal Highway Administration, these comments and GAO's evaluation have been published as a supplement (CED-80-87A) to this report.

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ABBREVIATIONS

FHWA	Federal Highway Administration
GAO	General Accounting Office
mph	miles per hour
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration

CHAPTER 1

INTRODUCTION

> "In 1966 when the Highway Safety Act was passed, just over 50,000 people died on our nation's highways. Last year after 12 years and hundreds of millions of dollars of Federal aid to the cause, just over 50,000 still died."

The Administrator of the National Highway Traffic Safety Administration (NHTSA) made this statement in September 1979 to illustrate the necessity for effective highway safety programs across this Nation. She further stated that the fatality rate had declined between 1966 (5.48 fatalities per 100 million miles traveled) and 1978 (3.27 fatalities). However, the rate hit a low point in 1976 (3.23 fatalities), and NHTSA sources showed an increase to 3.33 fatalities in 1979. The bottom line, she said, is that "we're losing lives."

On April 30, 1979, the House Committee on Public Works and Transportation, Subcommittee on Oversight and Review, asked us to review highway safety research and development which has been or is being conducted by NHTSA and the Federal Highway Administration (FHWA) under the Highway Safety Act of 1966. The program is commonly referred to as the section 403 program. NHTSA is responsible for most of this work. The subcommittee asked us to determine how research and development funds are spent and to be especially attentive to NHTSA management to determine if NHTSA research can be improved and the use of research results increased. This report addresses these and other areas concerned with highway safety research and development.

HIGHWAY SAFETY LEGISLATION

The Highway Safety Act of 1966, §101, 23 U.S.C. §401, et seq. (1966) (amended 1973), established a national program designed to reduce motor vehicle accidents, injuries, and fatalities and to improve highway safety programs at Federal, State, and local levels. Section 403 (23 U.S.C. 403) authorizes the Secretary to carry out highway safety research, development, and demonstrations to help increase the effectiveness of State and local safety programs. It was also intended to provide new methods and techniques, and to be a catalyst to upgrade State highway safety programs. About $380 million has been appropriated for research since 1967--about $35 million of which was in fiscal year 1979. The research can be done in-house, with other branches of the

Government or State or local agencies, or contracted with other organizations or persons. Private contractors (profit and nonprofit) and State and local government agencies carry out most section 403 research, development, and demonstrations.

Section 402 (23 U.S.C. 402) requires States to establish highway safety programs in accordance with uniform highway safety standards issued by the Secretary of Transportation. Federal grants ($200 million in fiscal year 1979) were to help States conduct programs, such as the following.

--Controlling the drinking driver through development of comprehensive, coordinated alcohol safety programs.

--Increasing the intensity of traffic law enforcement generally.

--Developing improved licensing and testing procedures for motorcycle operators.

--Improving the quality and availability of emergency medical services, particularly in rural jurisdictions.

--Fostering development of community pedestrian and bicycle safety programs.

--Encouraging the use of occupant restraints and child passenger protection.

--Improving the content and quality of accident data required for accident analysis at the State and national levels.

--Strengthening program management capabilities, particularly in the areas of data analysis, problem identification, and evaluation, at all levels of government.

The table on the next page shows the 18 highway safety program standards which are the foundation for improving and expanding traffic safety programs.

Highway Safety Program Standards

Standard number		Administered by (note a)	Date issued
1	Periodic Motor Vehicle Inspection	NHTSA	6-27-67
2	Motor Vehicle Registration	NHTSA	6-27-67
3	Motorcycle Safety	NHTSA	6-27-67
4	Driver Education	NHTSA	6-27-67
5	Driver Licensing	NHTSA	6-27-67
6	Codes and Laws	NHTSA	6-27-67
7	Traffic Courts	NHTSA	6-27-67
8	Alcohol in Relation to Highway Safety	NHTSA	6-27-67
9	Identification and Surveillance of Accident Locations	FHWA	6-27-67
10	Traffic Records	NHTSA	6-27-67
11	Emergency Medical Services	NHTSA	6-27-67
12	Highway Design, Construction and Maintenance	FHWA	6-27-67
13	Traffic Engineering Services	FHWA	6-27-67
14	Pedestrian Safety	NHTSA-FHWA	11- 2-68
15	Police Traffic Services	NHTSA	11- 2-68
16	Debris Hazard Control and Cleanup	NHTSA	11- 2-68
17	Pupil Transportation Safety	NHTSA	5- 2-72
18	Accident Investigation and Reporting	NHTSA	5- 8-72

a/NHTSA administers the 14 standards related to drivers and vehicles and FHWA, the 3 related to highways. Both jointly administer the only standard (Pedestrian Safety) related to each of their areas.

Generally NHTSA has been assigned research and development responsibility for all highway safety program standards, as listed on the preceding page, except those dealing with the roadway, which are FHWA's responsibility. The agencies have also used their funds, as authorized by section 403, for

--training and education of highway safety personnel,

--research fellowships in highway safety,

--development of improved accident investigation procedures,

--emergency service plans,

--demonstration projects, and

--other related activities which would promote section 403 purposes.

In general, section 403 was not to include research, development, or demonstrations related directly to the safety of motor vehicles because this research comes under the National Traffic and Motor Vehicle Safety Act of 1966, §1, 15 U.S.C. §1381, et seq. (1966).

ORGANIZATION FOR RESEARCH

To carry out its responsibilities under section 403, NHTSA has two Associate Administrators. The responsibility of the Associate Administrator for Research and Development (Office of Research) is to conduct research and development to support all NHTSA programs, not just section 403. However, the Office of Research division that deals with driver and pedestrian safety is responsible for conducting all NHTSA section 403 research, except for collection and analysis of most statistical data. Another division, the National Center for Statistics and Analysis, collects and analyzes statistical data for activities under both section 403 and the National Traffic and Motor Vehicle Safety Act of 1966.

The Associate Administrator for Traffic Safety Programs (Office of Traffic Safety Programs) is responsible for using section-403-type research results to demonstrate the effectiveness of new highway safety techniques and countermeasures in operational environments and for achieving widespread acceptance and adoption of these new techniques and countermeasures. This Office is also responsible for section 402 activities including administering the State and community grant program and assisting State highway safety programs.

Appendix I is an organization chart showing NHTSA's section-403-related activities.

FHWA has an Office of Research and Development which is responsible for all its research, development, and implementation, including section 403 activities.

DIFFICULTIES IN PERFORMING HIGHWAY SAFETY RESEARCH

Research and development of highway safety is complex and difficult. Unpredictable human behavior, which contributes to an estimated 90 percent of highway accidents, makes it difficult to identify problems or develop effective countermeasures. The complexities can be seen by examining accident analysis research factors, such as driver behavior, vehicle condition, and roadway conditions. Researchers must somehow categorize and/or quantify causes of accidents to develop information useful in preventing them, even though an accident is almost always due to more than one factor.

Questions which must be answered concerning the causes of accidents include:

--What was the condition of the road?

--Was the driver distracted?

--What was the driver's condition; was alcohol involved?

--Was the driver speeding?

--What was the weather--rain, sunglare?

--Was the vehicle defective?

SCOPE OF REVIEW

The House subcommittee asked us to review areas of the section 403 program involving allocation of funds, contracting procedures, program planning and administration, and use of research results. We determined specific questions to ask and potential problems to review by (1) talking further with the subcommittee, (2) attending the national section 403 conference attended by safety research experts from across the Nation and hosted by the Transportation Research Board, (3) visiting two prominent research contractors, and (4) interviewing NHTSA and FHWA officials. We also reviewed the Department of Transportation's Office of Inspector

General's June 1979 audit report of the NHTSA traffic safety research, development, and demonstration program.

To obtain information concerning various contracting procedures, we selected a sample of section 403 contracts from lists provided by NHTSA and FHWA officials, keeping in view that NHTSA administered the major portion of the program and that the subcommittee was primarily interested in that portion. Based on time constraints, we could review between 100-150 contracts. Therefore, we selected 128 contracts from NHTSA's lists and 34 from FHWA's. Because many selected contracts had been completed and closed and the files sent to storage, the sample was narrowed to 94 (about 25 percent) NHTSA contracts. We narrowed the FHWA sample to 20 contracts (about 7 percent). Although this was not a statistical sample, we tried to include both research and demonstration contracts covering various highway safety program standards and funding levels.

From this sample we selected contractors to visit based on number and type of contracts, dollar amounts, and geographical locations. We visited some NHTSA regional offices, State officials, and additional private contractors because of their close geographical proximity to the contractors chosen from the sample. We visited NHTSA regional offices and interviewed State officials and/or private contractors in California, Connecticut, Massachusetts, Michigan, New York, North Carolina, Tennessee, and Texas. We have not identified private contractors in this report because we obtained information with the understanding that their identities would not be disclosed. Audit work was also conducted at FHWA and NHTSA headquarters in Washington, D.C.

HANDLING AGENCY COMMENTS

The Department of Transportation commented on a draft of this report in an April 18, 1980, letter. (See app. II.) The Department did not concur in the majority of the findings and conclusions in our draft, stating that we had reached faulty conclusions based on limited information. It recommended that we carefully review and consider the facts and its comments before writing the final report.

The Department provided us with 56 pages of comments. The tenor of the Department's comments was argumentative, and the Department was not receptive to most of our suggestions. Many of the Department's comments were irrelevant because they addressed subjects not related to our report and avoided the issues being discussed. The Department did not provide new or additional information that warranted changing our conclusions and recommendations.

The Department's comments did not acknowledge the reason for this report--the subcommittee's concern about the highway safety research program. This report addresses these concerns by identifying and presenting financial management problems, discussing research planning improvements and weaknesses, reporting the lack of knowledge concerning research results, and showing improvements needed in contract management.

We have responded to the Department's 56 pages of summary and detailed comments by evaluating

--its summary comments at the end of each chapter in this report and

--its entire comments in a separate supplement (CED-80-87A) to this report.

Any changes to the draft report which were due to Department comments are incorporated in this final report and are noted in our comments in the report supplement. Other minor changes were made to the draft report during our own internal review process.

CHAPTER 2

HIGHWAY SAFETY RESEARCH HAS MANY FINANCIAL MANAGEMENT PROBLEMS

Financial management of the NHTSA highway safety research (sec. 403) program needs to be improved. We had considerable difficulty obtaining NHTSA's financial information. The records do not readily disclose the amounts spent on research and administration activities. Some financial documents were not accurate or clear. Since 1971, NHTSA has used section 403 funds to support other programs, and we estimate that in fiscal year 1979 at least 13 percent of section 403 funds were used for that purpose. Because of NHTSA's financial management problems, the Congress cannot determine if funds appropriated have been spent for the purposes intended.

MANAGEMENT OF ADMINISTRATIVE FUNDS NEEDS TO BE IMPROVED

The allocation of section 403 funds for NHTSA's general administration was outdated and overstated. Also, section 403 funds have been used to support other programs and to support the administration of the State and community grant program (sec. 402), which has its own funds for such purposes. As a result, NHTSA, and in turn the Congress, has not known how much it costs to administer the highway safety research program. NHTSA's section 403 research funds for administrative and program activities are allotted from a single source to several NHTSA organizations. This practice seems to contribute to the problem.

Section 403 administrative funding

NHTSA uses its section 403 appropriation both for highway safety research and for administrative and support costs. In general, NHTSA divides its section 403 funds between general administration, the Office of Research, and the Office of Traffic Safety Programs. On the other hand, FHWA uses its section 403 appropriation entirely for research and development contracts and pays administrative and support costs from its general operating expense appropriation.

The following schedule shows the breakdown of section 403 funds for the two agencies.

Section 403 Research and Development

Fiscal year	Allotments to operating groups: NHTSA general administration	NHTSA Office of Research	NHTSA Office of Traffic Safety Programs	Appropriations: NHTSA total	FHWA total	Sec. 403 total
	(000 omitted)					
1967	(Breakdown not possible till fiscal year 1970.)			a/$ 4,300	-	$ 4,300
1968				a/7,300	-	7,300
1969				a/10,600	-	10,600
1970	$ 1,097	$ 4,750	$ 4,153	$10,000	-	10,000
1971	1,906	5,967	9,127	17,000	-	17,000
1972	2,223	6,518	29,884	38,625	$ 2,100	40,725
1973	2,798	8,489	32,898	44,185	8,400	52,585
1974	3,584	8,528	27,320	39,432	7,500	46,932
1975	3,554	10,839	13,717	28,110	8,700	36,810
1976	3,481	10,275	15,228	28,984	9,000	37,984
1976TQ	760	2,405	3,155	6,320	2,250	8,570
1977	4,702	10,629	11,750	27,081	9,000	36,081
1978	5,495	10,114	11,191	26,800	9,000	35,800
1979	6,231	10,266	9,838	26,335	9,000	35,335
Total	$35,831	$88,780	$168,261	$315,072	$64,950	$380,022

a/NHTSA was part of FHWA until 1970, and detailed breakdown of funds was not available for prior years.

As shown in this schedule, section 403 funds are used for NHTSA's general administration, which includes salaries and other support costs of offices not directly involved in the section 403 contract program. Office of Research and Office of Traffic Safety Programs funds are used for both research contracts and administrative (salaries/support) costs for those two offices.

NHTSA is authorized to spend section 403 funds in three administrative areas: (1) its general administration, (2) Office of Research salaries and supporting expenses, and (3) Office of Traffic Safety Programs salaries and supporting expenses.

NHTSA's administrative costs for its section 403 program have steadily increased and in fiscal year 1979 were proportionately higher than FHWA's. In fiscal year 1971, about 23 percent ($3.9 million) of NHTSA's total section 403 funds were used for the three areas of administrative costs; the rest were spent for research contracts. These administrative costs for fiscal year 1979 were about 45 percent ($12 million). FHWA officials estimated that their administrative costs related to FHWA's total section 403 funds for fiscal year 1979 were $2.8 million (about 24 percent of FHWA's total costs relating to section 403 activities).

Section 403 funds are used to administer section 402 program

NHTSA uses section 403 funds to subsidize administrative costs of the section 402 State grant program even though the 1966 Highway Safety Act authorizes a deduction not to exceed 5 percent in grant funds for administration. NHTSA has never used that maximum deduction. (Only 3.7 percent is requested for fiscal year 1981.) From fiscal years 1974 to 1979, NHTSA did not request any increase in administrative funds for the section 402 program but subsidized that program with 403 funds. Based on NHTSA estimates, the combined section 402 and 403 funds used for administration have not exceeded the 5-percent maximum reduction. However, because the use of section 403 funds was not reported as section 402 subsidy, it appears on the surface that NHTSA was using far less to administer the section 402 program than was actually used. In fact, NHTSA was spending more for administration than the Congress was apparently aware of, as shown in the schedule on the next page. The estimated figures were provided by NHTSA.

Section 402 State and Community
Highway Safety Administrative Expenses

Fiscal years	Estimated sec. 402 administrative costs	Actual sec. 402 funds appropriated	Estimated sec. 403 funds used to support sec. 402	Estimated other funds used to support sec. 402 (note a)
	(000 omitted)			
1971	$3,591	$2,900	$ 276	$ 415
1972	4,655	3,300	542	813
1973	5,362	3,300	825	1,237
1974	6,087	3,300	1,504	1,283
1975	(b)	3,300	(b)	(b)
1976	5,868	3,300	2,020	548
1977	6,362	3,300	2,481	581
1978	6,722	3,300	2,772	650
1979	7,090	4,904	1,496	690

a/Other funds include those provided by the Traffic and Motor Vehicle Safety Act and the Motor Vehicle Information and Cost Savings Act.

b/Data was not available from the NHTSA budget office.

NHTSA budget officials said the fiscal year 1979 figures are the most accurate because they are based on obligations for that year. They said fiscal years 1976-78 figures are fairly accurate and that fiscal years 1971-74 figures are not as refined as the later data. The most reliable data, 1976 through 1979, shows that NHTSA spent about $8.8 million, or 7.4 percent of its section 403 appropriation, to subsidize section 402 activities. In addition, during this same period, about $2.5 million in other funds was used to subsidize the section 402 activities.

NHTSA's Office of Traffic Safety Programs administers the section 402 program and part of the section 403 program. Some Traffic Safety Programs personnel work with both programs and have not been required to account for the time spent on each. NHTSA officials said they did not believe it practical to ask employees to account for their time in this manner but have recently developed a limited work-sample method of accounting. However, other Federal agencies make more detailed accounting of time.

In its 1973 budget submission to the Congress, NHTSA asked for an increase in administrative funds for the

section 402 program. The Congress stated that the request was inadequate and that if future requests were made, they should be justified in detail. NHTSA did not ask for additional funding again until fiscal year 1979 when $1.6 million was requested and approved; however, NHTSA continued to maintain a steady increase in administrative spending and used both section 403 and other funds to support this spending. NHTSA officials told us that since the Congress had not directed a reduction in the program's level of staffing, it did not disapprove of using section 403 funds for administering the section 402 program. In April 1979 the NHTSA Associate Administrator for Administration stated in a letter to the Department of Transportation's Inspector General concerning the allocation of sections 402 and 403 administrative funds:

> "This matter was discussed with the clerk of the House Subcommittee who informed us that the Subcommittee had no objection to continuing to finance this sum [1/] from the Traffic and Highway Safety Appropriation. We also learned that the chairman's feeling was that we had not sufficiently advanced our case to justify using part of the total requested increase for FY 1973 for Federal Administration rather than having it allocated to the States for basic grants. From the action of the House, which was sustained by the Senate, it is apparent that funding for administrative expense of the 402 Program was being provided from two sources with Congressional sanction.
>
> "We have discussed the matter recently with our Chief Counsel who has concluded that the enabling legislation is unclear as to whether the 5 percent authorized draw down must be exhausted prior to using other funds. He further states that given the lack of clarity, he believes it is legal to use other funds if we believe that the overall purpose of the legislation is being carried out."

NHTSA did not acknowledge the use of section 403 funds for the 402 program in its budget submissions. In fiscal year 1979 it asked for and received an increase of $1.6 million for section 402 administration. In fiscal year 1980 NHTSA asked for an increase of another $1 million, but budget

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1/The $1 million increase for section 402 administrative costs in 1973.

officials told us that even this amount will not be enough to cover section 402 administrative expenses.

The NHTSA Administrator told a subcommittee of the Senate Appropriations Committee in April 1979 that an estimated additional $1 million in fiscal year 1981 would take care of all section 402 administrative costs; however, the fiscal year 1981 budget actually shows a $1.9 million increase above the 1980 request. NHTSA commented that this increase in the estimate was due to increased pay costs and a refinement in the methodology for identifying section 402 administrative costs.

Section 403 funds are used to pay general administrative costs attributable to other acts

In fiscal year 1979 NHTSA's general administrative expenses were about $15 million. These expenses were funded from two sources--about 40 percent from section 403 of the Highway Safety Act and 60 percent jointly from the National Traffic and Motor Vehicle Safety Act and the Motor Vehicle Information and Cost Savings Act. Budget officials said section 403's share of general administrative expenses was based on a detailed study performed by NHTSA's Office of Budget in the early 1970s; however, they could not find the study.

Since the early 1970s, NHTSA has alternately stressed section 403 demonstrations, motor vehicle rulemaking, compliance with Federal laws, and research and development for both motor vehicle and highway safety. Also during this time, reorganizations have taken place in the agency, general administrative expenses for operations and research have almost doubled, and funding levels have fluctuated.

Because of these changes and the fact that the basis for the allocation percentage was not available, we recommended in a September 20, 1979, letter to the Administrator that NHTSA determine and document section 403's fair share of general administrative expenses to assure that the share is equitably based on activities which it supports.

The Administrator responded in November 1979 that section 403 was paying more than its fair share of general administrative expenses and proposed new allocation percentages. According to NHTSA figures and as shown in the following schedule, if the proposed percentages had been used in fiscal year 1979, NHTSA would have had about $2.6 million more section 403 funds available for section 403 activities. Instead, about $2 million was used, in effect, to support

Information and Cost Savings activities and about $600,000 for Motor Vehicle Safety activities.

	National Traffic and Motor Vehicle Safety Act		Motor Vehicle Information and Cost Savings Act		Highway Safety Research and Development (sec. 403)	
	Percent	FY 79 funding	Percent	FY 79 funding	Percent	FY 79 funding
Present allocation	51.8	$7,937,314	4.9	$ 750,827	43.3	$6,634,859
Proposed allocation	55.5	8,504,265	18.2	2,788,786	26.3	4,029,949
Difference between present and proposed	3.7	$ 566,951	13.3	$2,037,959	17.0	$2,604,910

The Administrator said that this information will be monitored annually to ensure that the appropriate allocation continues. NHTSA also stated that the updated methodology was used in formulating the 1981 budget request and the request reflects the new methodology. We agree that the information should be monitored annually, including a review of the methods used to determine the allocation for applicability.

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Allocating section 403 funds among overall NHTSA administration and the two NHTSA offices' contract programs and administration contributes to problems of properly using these funds, as discussed below. It might be helpful if all NHTSA administrative and support costs were paid from an NHTSA general operating expense appropriation, much the way these costs are paid by FHWA. However, if this were done, the budget and accounting structure would still need to relate administrative costs to the program being supported. Also, if this change were made, the Congress would have a better idea of how much NHTSA spent on administration in particular.

RESEARCH PROJECTS AND CONTRACTS ARE NOT READILY IDENTIFIED

NHTSA's section 403 financial management system does not provide readily accessible information. Thus, NHTSA has difficulty in ascertaining that section 403 funds are used for section 403 activities. In fact, section 403 and section 402 funds are used for the same projects and types of projects, even though this practice is not authorized.

All NHTSA programs are funded from two appropriations. The Operations and Research appropriation provides funding for the section 403 program and also for programs under the National Traffic and Motor Vehicle Safety Act, 15 U.S.C. §1381 (1966), and the Motor Vehicle Information and Cost Savings Act, 15 U.S.C. §1901 (1972). The State and Community Highway Safety appropriation (Liquidation of Contract Authority) provides section 402 grants to States. Since all these programs and acts are interrelated, it is necessary that NHTSA's financial management system be able to separate expenses under the proper appropriations. In general, NHTSA is able to account for total section 403 funds, but its Office of Finance does not separate individual section 403 obligations and expenditures from other programs.

NHTSA identifies specific research and development projects and contracts by assigning codes to each. However, when we began this review, NHTSA could not give us a list of section 403 projects. We had to compile a list of about 100 codes which identified section 403 projects since 1975. The list was compiled from documents supplied by the operating groups and the Offices of Finance and Budget. This list was given to the Office of Finance to obtain a universe of section 403 contracts and financial information. Finance officials said they had never been asked for such information before and had felt no need for it. One official said that they could make changes which would enable identification of each contract as a section 403 activity, a Traffic and Motor Vehicle Safety activity, or any other NHTSA program. He said that this change would provide ready access to financial data--obligations and expenditures--for individual section 403 contracts, programs, and categories, as well as for the total program. We believe that such identification could enable NHTSA to more accurately separate expenditures under the proper appropriations. However, NHTSA has no plans for making such changes.

In the National Center for Statistics and Analysis, section 403 funds are not identified by project because these funds and Traffic and Motor Vehicle Safety Act funds

are used to do research and compile statistics common to both programs.

NHTSA cannot properly administer section 403 funds until it can readily identify section 403 obligations, expenditures, projects, and contracts.

Section 402 and 403 funds are used for the same projects and types of projects

Section 403 research is intended to provide new methods and techniques and to act as a catalyst for the section 402 State grant program. Sometimes when NHTSA contracts with a State for a section 403 project, it encourages the State to use section 402 funds when State contributions to the project are necessary. Also, in some instances States use section 402 funds for State-initiated section-403-type projects.

Section 402(g) (23 U.S.C.) states that

> "Nothing in this section authorizes the appropriation or expenditure of funds for * * * any purpose for which funds are authorized by section 403 of this title."

House Report Number 1700, 89th Cong., 2d Sess. 22 (1966), on the bill ultimately enacted as the 1966 statute stated, with respect to the section 402(g) prohibition, that

> "* * * the bill as reported prohibits the use of the funds appropriated to cover section 402 programs * * * for research, which is adequately covered under section 403 * * *."

In our opinion, if, in the words of the House report, a project can reasonably be considered a "research" as opposed to an "action" project, it should be funded under section 403.

With regard to activities susceptible to being described as either section 402 or section 403 projects, a choice should be made for funding exclusively under one or the other section. The following examples, showing projects where such a decision has not been made, are based on information from NHTSA, State, and contract officials and files. The first three examples show similar section 402/403 projects, and the last two show section 403 projects which contain section 402 grant funds.

--The city of Denver, Colorado, was granted about $500,000 for a section 402 pedestrian safety grant. Dade County, Florida, is running a similar program under a $950,000 section 403 contract. Both programs include working with elementary schools at kindergarten to third grade levels; both have a public information and education program; both emphasize enforcement of pedestrian-related ordinances; both use the NHTSA-developed anti-dart-out training program to some degree. Both programs use slogans and mascots; for example, Denver has an owl called Wise Walker and Dade County, a whistle called Willy Whistle.

--In 1979 the California Department of Justice finished a 1-1/2 year, $80,000 study financed by section 402 funds to study one method of detecting marihuana in the blood. Earlier, NHTSA had spent about $161,000 of section 403 funds at the University of Missouri to test another method for detecting marihuana in body fluids.

--North Carolina developed a motorcycle operator skill test using section 402 funds. The test was demonstrated throughout the State in September 1977; it could be set up in a small area. Also, in September 1977 NHTSA awarded a contract from section 403 funds for about $82,000 to redesign a large-scale motorcycle skill test that could be conducted in small areas such as parking lots or school yards.

--NHTSA officials told New York State officials to use up to $450,000 of section 402 funds for State support of an approximate $1.3 million section 403 contract to evaluate the operational feasibility of pinpointing accident locations and police and rescue vehicles.

--NHTSA has a section 403 contract for about $2 million with the County of Sacramento, California--a comprehensive project entitled "Driving Under the Influence Treatment Project." It expects to determine how well various alcohol treatment programs work for persons convicted of driving under the influence. It began in 1977 and is expected to be completed in 1982. While the county uses the section 403 funds for general program operations and for evaluations, the county project director told us it has also spent $195,063 of section 402 funds to pay probation department clerks who assign convicted drivers to a treatment group or a control group. NHTSA commented that the section 402 money was used to expand a monitoring

system which applied to the entire alcohol treatment program.

PROBLEMS EXIST IN IDENTIFYING SECTION 403 FUNDS USED BY THE NATIONAL CENTER FOR STATISTICS AND ANALYSIS

NHTSA's National Center for Statistics and Analysis is administered by the Office of Research and Development. The Center supports projects in both motor vehicle and highway safety research and development. Some Center projects are primarily related to one or the other of these safety areas while other projects relate to both. Funds from the two safety programs are pooled for use in the Center's projects, and no effort had been made to identify which safety program should be funding specific Center projects. NHTSA's Office of Budget determined that section 403's share of the Center's project costs was about 40 percent, based on a comparison of highway safety research (sec. 403) and motor vehicle safety annual appropriations. However, no documentation existed to show that 40 percent was fair and reasonable for the Center's section 403 activities. Therefore, we recommended in a September 20, 1979, letter that the Administrator formulate a method to determine the Center's appropriate share of section 403 funds.

The Administrator responded in November 1979 that NHTSA had analyzed the Center's funding as we had recommended. The analysis indicated that 53 percent of the Center's operations costs should be assigned to the National Traffic and Motor Vehicle Safety Act and that 47 percent should be assigned to section 403 of the Highway Safety Act, as compared with the present allocation of 60 percent and 40 percent, respectively. The analysis also disclosed that the Center's efforts dedicated to programs authorized under the Motor Vehicle Information and Cost Savings Act were negligible and thus no costs should be assigned to this legislation.

If the results of this analysis were applied to fiscal year 1979, the section 403 portion would have been about $600,000 more than was actually charged to the program.

The Administrator said that this information will be monitored annually to ensure that the appropriate allocation continues. She also stated that the updated methodology was used in formulation of the 1981 budget request. We agree that the section 403 funds for the Center should be closely monitored to ensure that (1) the determined allocations are changed when the program emphasis changes and (2) section 403 funds are not used for other expenses.

TRAVEL FUNDS ARE NOT BROKEN OUT FOR SECTION 403

NHTSA is not accurately determining the amount of travel funds used in the section 403 program. The financial management system specifies codes to be used on travel vouchers for identifying travel costs with individual programs. The code for the section 403 program is entitled "403 Contract Implementation and Evaluation." However, some NHTSA officials use this code for other purposes.

When we tried to determine how much NHTSA is spending for section 403 travel, we found the following confusion about the use of codes:

--Financial management officials believed the section 403 travel code was being used by operating groups to account for travel funded by the section 403 program in accordance with the financial management system.

--One research and development operating group official believed the code was being used to account for section 403 travel, and others thought that the code related to any trips for conferences, training, or contractor visits, which would not necessarily be section 403 related.

--Budget officials said they did not use the system codes for travel and could not break out section 403 travel.

Although an accounting system exists for section 403 travel, NHTSA officials do not follow it.

NHTSA BUDGET PRESENTATIONS ARE CONFUSING

In order for the Congress to know how funds are to be spent, budget presentations must be accurate and clear. We found that NHTSA does not present its budget in a manner that defines exactly how section 403 funds are used. Many areas in NHTSA budget presentations are confusing, misleading, or inaccurate. The following are examples of such areas.

--The 1980 budget identifies 80 staff positions in the Office of Traffic Safety Programs funded at a cost of $3.8 million from that Office's section 403 administrative allocation. However, officials can identify only 69 positions actually supported by the $3.8 million. The budget presentation shows 11 other

positions in the Office, but budget officials stated that these are actually supported from the NHTSA general administration allocation. To add to the confusion, the $3.8 million not only supports section 403 administrative expenses but also subsidizes section 402 administrative expenses, as explained earlier in this chapter.

--NHTSA requested an increase of $1 million for section 402 fiscal year 1980 administrative costs. Parts of the budget presentation show this increase and others do not. In fact, one schedule for the Office of Traffic Safety Programs states that the section 402 administrative cost "totals for FY 1979 and FY 1980 are the same."

--The fiscal years 1978, 1979, and 1980 section 403 budgets for Office of Traffic Safety Programs salaries and supporting expenses showed the following.

	Budget request at beginning of year	Adjusted requirement at end of year
FY 1978	$2,928,000	$3,238,000
FY 1979	1,634,000	3,928,000
FY 1980	3,852,000	

Logically, if NHTSA needed $3,238,000 in salaries and support for the section 403 program in fiscal year 1978, a similar amount would be needed in fiscal year 1979. However, this is not the case with NHTSA budgets, as shown above. The fiscal year 1979 budget request of $1,634,000 was a reduction of $1,604,000 from the previous year's adjusted requirement of $3,238,000. The $1,604,000 reduction is identical to a fiscal year 1979 budget request increase for the section 402 program. Section 403 funds have been used since 1971 to support section 402 administrative costs, as discussed earlier in this chapter.

As the table above shows, neither the budget request for fiscal year 1980 nor the adjusted requirement (yearend adjustment for factors such as increased salaries) for fiscal year 1979 reflected the $1,604,000 section 403 decrease. Budget officials told us that the section 403 adjusted requirement for 1979 should have been $2,046,000 instead of $3,928,000, and the balance of $1,882,000 should have been in the section 402 program. They also said that the fiscal

year 1980 budget request should have been about $2,046,000 instead of $3,852,000 for section 403 salaries and support costs.

FHWA SECTION 403 INFORMATION IS MORE READILY AVAILABLE

In general, FHWA has fewer section 403 funding problems than NHTSA. FHWA research funds are used only for contract purposes and are therefore easier to manage. FHWA officials were able to identify obligations by section 403 research category for fiscal years 1972-79 without difficulty. However, FHWA's financial management system does not allow for easy identification of annual obligations on a contract-by-contract basis. FHWA officials said that their system is not 100 percent accurate but gives them the information necessary, in their opinion, to manage their program.

We found that information which was readily available from FHWA's automated system on a contract-by-contract basis was detailed and generally accurate. However, while the information did include total obligations to date for each contract, it did not include annual obligations for each contract.

CONCLUSIONS

Until recently, NHTSA had not tried to determine the costs of administering the section 403 program. In response to our request for these costs, NHTSA developed some estimates. Factors contributing to administrative funding confusion have been (1) administrative expenses being divided into at least three areas and (2) NHTSA's financial management system not making information readily accessible so that section 403 projects and related contract and administrative costs can be pulled together to account in detail for all section 403 funds.

In fiscal year 1979 NHTSA spent at least $3.5 million of its $26.3 million section 403 appropriation on other programs. This practice has been going on since at least fiscal year 1971. Even larger amounts were used in fiscal years 1976-78. These amounts have never been clearly presented in budget presentations. Therefore, the Congress has not had an accurate presentation of the situation because the necessary analysis was not done until we asked. Since section 403 funds are used as a source for other programs, NHTSA apparently considers these other programs more important than the highway safety research program. We believe that if a project can reasonably be considered a "research" as opposed to an "action" project, it should be funded

under section 403. With regard to activities susceptible to being described as either section 402 or section 403 projects, a choice should be made for funding exclusively under one or the other section.

NHTSA does not follow its own procedures in accounting for travel. Neither NHTSA nor FHWA can readily identify section 403 annual obligations and expenditures except by broad categories. In the National Center for Statistics and Analysis, NHTSA cannot identify what projects section 403 funds are being used for. These are examples of NHTSA's problems in managing its section 403 program. They indicate a need for improvement in the program's financial management.

RECOMMENDATIONS TO THE SECRETARY OF TRANSPORTATION

We recommend that the Secretary require the Administrator, NHTSA, to (1) make specific section 403 and other program obligations and expenditures readily identifiable so that detailed and summary information on contract and administrative matters is available to aid in effectively administrating NHTSA programs; (2) make clearer budget presentations to provide the Congress with schedules and narration depicting specific areas where section 403 funds will be spent, including administration; and (3) use section 403 funds only for that program unless specifically authorized by the Congress to do otherwise.

We also recommend that the Secretary require the Administrator, FHWA, to account annually for section 403 contract obligations.

AGENCY COMMENTS AND OUR EVALUATION

In commenting on our recommendation to make specific section 403 and other program obligations and expenditures readily identifiable, the Department said that program obligations have been readily available since fiscal year 1972. The agency said that this information is furnished to the Appropriations Subcommittee in the form of tables which include budget authority, obligations, and outlays attributable to each enabling authorization. However, we found that section 403 obligations were difficult to identify in congressional budget presentations. Summary expenditures and obligations for section 403 were spread throughout, and it was difficult to determine all component costs of the program. No specific section or schedule was devoted to section 403 activities.

The Department further said that it may be desirable to provide an addendum to the congressional justifications for the Operations and Research appropriation to show how the resource components of each budget activity break down by enabling authorization. We believe that such a breakdown would give the Congress a clearer picture of whether the funds are being properly used. To break down the budget activity into its resource components, NHTSA must be able to readily identify individual projects. In the National Center for Statistics and Analysis, NHTSA cannot identify what projects section 403 funds are being used for. The Department's proposal does not indicate that this detailed information will be readily available. Until this information is available on a regular basis, we believe the financial management problems will not be solved, particularly for the Center.

The Department mistakenly assumed that the second recommendation to make clear budget presentations to the Congress was limited to (1) mission support positions, (2) the increase requested for 1980 grant administration, and (3) changes in section 403 salaries and supporting expenses requirements. The three items above are examples used to demonstrate inconsistencies, unexplained figures, and other problems which make areas in the budget presentation confusing, misleading, or inaccurate. The recommendation should not be viewed as being restricted to the three areas above. The recommendation is that the Secretary of Transportation require the Administrator, NHTSA, to make clearer budget presentations to the Congress.

During the review, we had considerable difficulty obtaining financial information from NHTSA. The records did not readily disclose the amounts spent on research and administrative activities. Since 1971, NHTSA has used section 403 funds to support other programs, and we estimate that in fiscal year 1979 at least 13 percent of section 403 funds were used for that purpose. Because of NHTSA's financial management problems, the Congress cannot determine if funds appropriated have been spent for the purposes intended.

The Department did not agree that the mission support positions were unclear in the 1980 budget presentation. However, the budget gives the distinct impression that mission support positions are being paid from Office of Traffic Safety Programs administrative funds when, according to NHTSA budget officials, they are paid from general administration funds. The Department did not agree that the request for additional 1980 grant administration funds was not clearly explained; however, our report states that parts of

the budget presentation show the additional funds and other parts do not.

In addition, NHTSA said that one of the summary schedules in its 1980 budget presentation contained an inadvertent error but that it was minor and did not invalidate the budget request. The error that the Department made is $1 million out of a total of $5.904 million, and this inaccuracy occurs in more than one schedule. There was also a $1.8 million error in the 1979 and 1980 budget presentations, but this was not addressed in the Department's comments. Instead, the Department commented that a significant amount of additional analysis has gone into the development of the 1981 budget request to establish a correct internal distribution of these costs. Our report acknowledges that NHTSA officials stated that an updated methodology was used in formulation of the 1981 budget request; however, we have not analyzed this methodology.

The Department agreed that highway safety research funds should be used only for that program's activities and believes that its actions in formulating the 1981 budget have taken care of this. However, the Department did not acknowledge the last part of the recommendation which recognizes that only the Congress has authority to approve use of those funds for other activities. To be certain that highway safety research funds are used only for section 403 programs, NHTSA must be able to identify how section 403 funds are being used. As stated previously, it has not been demonstrated that NHTSA can do so.

CHAPTER 3

PLANNING FOR HIGHWAY SAFETY RESEARCH IS IMPROVING BUT STILL HAS MANY WEAKNESSES

NHTSA and FHWA highway safety research is intended to help State and local programs. Both agencies develop plans to help determine what research can be applied in State and local programs. FHWA's planning tool is a detailed priority list of specific FHWA projects; the list is derived from internal and external sources and reviewed periodically. Until recently, NHTSA has had no formal planning tool; past plans have been inadequate and general and were derived almost exclusively from internal sources without periodic internal or external review.

NHTSA improved its planning process during fiscal year 1979 by compiling a 5-year highway safety research plan. It is a step in the right direction which can lead to research programs beneficial to State highway safety programs. However, a number of problems need to be solved before NHTSA officials can be confident that the plan encompasses essential highway safety matters. NHTSA could benefit by reviewing other research planning processes and incorporating pertinent features into its own plan.

PAST NHTSA PLANS WERE INADEQUATE

NHTSA's highway safety research is conducted by the Office of the Associate Administrator for Research and Development (Office of Research) and the Office of the Associate Administrator for Traffic Safety Programs (Office of Traffic Safety Programs). Since the late 1960s, NHTSA and its predecessors have developed several multiyear research plans. However, these plans were used for budgeting purposes and neither included input from the highway safety community, nor identified research priorities. In addition, NHTSA has not adequately defined research responsibilities for these Offices.

Research responsibilities have not been well defined

The Office of Research's highway safety responsibilities are to administer programs in researching, developing, testing, evaluating, and processing information concerning the 14 highway safety standards which NHTSA administers. The Office of Traffic Safety Programs' responsibility in

highway safety is generally to demonstrate research results. Although both Offices have done research, few demonstrations have been done. The two Offices lack an effective working relationship and have had problems in coordinating programs. These situations have contributed to the difficulties in planning section 403 research.

According to some NHTSA officials, demonstration projects have consisted of extensive field tests to determine if a new technique or method will work in a test situation rather than to prove to someone that it does work in an operational situation. Field tests of this type usually are associated with research rather than demonstrations. Office of Traffic Safety Programs officials told us that generally they have not known what "works" in highway safety and that therefore they have had little to demonstrate. They said that the Office of Research has provided little which could be used in demonstrating what works because much of its research is not implementable by State or local users in its final form.

Also, uncertainty about the two Offices' responsibilities has been compounded because NHTSA has required the Office of Research to obtain approval from the Office of Traffic Safety Programs for all section-403-type projects. Office of Traffic Safety Programs officials believe they need this control of section 403 research because of their overall responsibilities for section 402, which the research is to support. On the other hand, NHTSA has not required the latter Office to obtain approval from the Office of Research for its projects. Office of Research officials said they believe both Offices should approve each other's projects. The two Offices lack an effective, cooperative working relationship.

When we talked separately with officials of both Offices, it was evident that their responsibilities were unclear and that they disagreed on various philosophies. Each felt that the other Office was encroaching into areas where it should not. Examples of this can be seen in the following comments.

Office of Traffic Safety Programs	Office of Research
Although we are supposed to approve all Office of Research section 403 projects, the Office has done work which we have not approved.	The Office of Traffic Safety Programs approves all our section 403 projects. Any work which the Office of Traffic Safety Programs has not approved was probably done by previous associate administrators under a NHTSA order authorizing them to use 10 percent of funds for basic research, for which they needed no approval. This associate administrator does not use that 10 percent.
We will probably not do any more section 403 "large" demonstrations. Mostly we will do small projects or piggyback off State or local projects. (NHTSA commented that in this statement, "large" relates to "dollars.")	The Office of Traffic Safety Programs should do large-scale projects to test countermeasures. (NHTSA commented that in this statement, "large" relates to project size and length.)
We should have authority and responsibility for section 403 research, but there is a constant fight with the Office of Research on that point.	The Office of Traffic Safety Programs has directed our section 403 program by writing up a proposed statement of work and then negotiating.
The Office of Research does not summarize its reports, and States cannot understand some of the more technical reports.	If a user might misinterpret a research report, we insert an addendum to prevent this.
Not much from the Office of Research can be demonstrated because the results are not implementable in their final form. It would help considerably if we knew what was going on in the States.	We know from the Office of Traffic Safety Programs what States are doing with our research results.

The Associate Administrator for Traffic Safety Programs said that further confusion of the research and planning roles occurs because the two Offices have been organized differently, making it difficult for one to support the other. While the Office of Traffic Safety Programs has been organized by specific highway safety problem areas, such as driver and pedestrian education, enforcement, and emergency services, the Office of Research has been organized on a broader basis of driver/vehicle systems and problem behavior research, as shown in the organization chart in appendix I. This organizational difference has hampered coordination between the Offices--or at the least has not helped the situation--and therefore has added to the problem of carrying research from initial stages to use of results. NHTSA officials told us that planning had also been adversely affected until development of the 1979 5-year plan. In commenting on these problems, NHTSA officials said that steps have been taken to improve coordination at the working level.

Some uncertainty and lack of coordination exist in dealing with the States, as shown by the Offices' last set of comments on the previous page. The Associate Administrator for the Office of Research told us his Office is doing a better job of interacting with the States now and is spending more time with them trying to understand their problems. Nevertheless, Office of Research officials recognize that the Office of Traffic Safety Programs is the primary communication channel for the States and is responsible for promoting research results to them.

The Office of Traffic Safety Programs has not always been aware of State section 402 program activities even though that program is the basic reason for doing highway safety research. As a result, the Office has at times planned and/or carried out similar programs. Below are examples based on information from NHTSA, State, and contract officials and files.

--The Office has a $950,000 section 403 pedestrian program in Dade County, Florida, while the city of Denver, Colorado, has a similar section 402 project started a year earlier. Officials said that they should have "piggybacked" off the Denver project instead of creating their own.

--The Office contracted under section 403 with a private research organization to determine the level of marihuana in the body that impairs driving. The objective is to give individuals differing levels of marihuana in their blood and test their driving ability with a driving simulator. A year later, a

State started a similar section 402 program using a test track instead of a simulator. The section 403 contract technical manager did not discover the State project until a few months after NHTSA approved it and continued the section 403 project while coordinating with State officials.

Research priorities have not been defined

A major challenge facing NHTSA's highway safety research and development program is to effectively set priorities. Priority setting involves the risk of committing resources in one area at the expense of another. We were told by contractors and State officials that NHTSA has been unwilling to assume this risk. They said NHTSA preferred to do work in many areas and to emphasize those projects or countermeasures which appeared to have the greatest congressional and public interest. NHTSA commented that the 5-year plan is proof that the agency is willing to assume risks in setting priorities.

Various NHTSA individuals and groups of officials said that

--many past research projects were decided by "command decisions" of high-level NHTSA officials;

--past plans were more for budget purposes and were not well thought out nor used for determining what work would be done;

--plans were out of date when they were written; and

--plans were written without considering available funding, thus creating inflated "wish" lists.

Past plans were general, identifying broad areas under which many projects could be done. NHTSA usually identified 5 to 10 broad areas which encompassed most highway safety research. NHTSA, State, and contract officials said that the section 403 program funds were spread too thin and that it would be better to work in only a few areas. However, no one suggested criteria to decide which areas should be eliminated or postponed. NHTSA said it does not agree that its funds are spread too thin since the 5-year plan focuses on the most promising safety areas.

We found one attempt by NHTSA to determine priorities for highway safety research and development countermeasures--the 1976 "National Highway Safety Needs Report." This report responded to a congressional directive to provide the

basis for evaluating the continuing highway safety program under title 23, U.S.C. The Congress was interested in determining where the Government efforts in this area would be most cost beneficial. The report identified and determined the priorities for 37 highway safety countermeasures, such as mandatory use of seat belts, enforcement of the 55-miles-per-hour (mph) speed limit, and alcohol safety programs. Criteria used were cost effectiveness and fatalities/injuries prevented. The report stated its figures were not conclusive, but it did provide a methodology to use in determining priorities. Also, NHTSA's current 5-year plan includes the countermeasures which the "Needs" report ranked as being the most beneficial for concentrating future efforts.

NHTSA officials said that the "Needs" report was "about as good as could be expected since it was a conceptual study" but it required updating. The report recommended testing its methodology for determining research priorities in several States to verify the feasibility of using it at the State level and to assess its usefulness as a planning tool. NHTSA officials told us that the report had not been updated and there were no plans to do so.

A methodology such as that in the "Needs" report could help NHTSA's new 5-year section 403 plan by focusing resources on the most beneficial areas and building research on a step-by-step basis. A number of contractors and State officials told us that they felt NHTSA had used a "shotgun" approach because many programs had been implemented without relation to past research, or without regard to the programs' practicality. NHTSA officials and/or contractors provided examples of these types of programs.

--In an attempt to reduce alcohol-related accidents, NHTSA awarded an $81,412 contract in 1975 to make people aware of their intoxication levels at parties, bars, etc. Individuals were encouraged to take breath tests and then were told their blood alcohol concentrations, the driving impairment that would result, and the legal consequences of driving under the influence. NHTSA's contractor monitored the individuals' actions and attitudes to determine whether informing them of their condition would stop them from driving while intoxicated. The contractor found it did not.

NHTSA, however, believed that a modification of techniques used in the first study could lead to more desirable results. In September 1979 the agency awarded $222,226 for another alcohol self-test. In January 1980 we asked agency officials how this test

would differ from the earlier contract. NHTSA officials said they did not know how the second contract would differ because they had not yet approved the detailed work plan. NHTSA apparently disregarded the previous research and awarded a similar contract before deciding how the second contract would differ from the first.

--A 55-mph enforcement program was designed to determine the effects of highway patrolmen on traffic speed in 1978. Similar programs had been done in the early 1970s, but the 1978 contractor did not know the details of these programs. One contractor said that the 1978 study duplicated the previous ones. NHTSA commented that this study does not duplicate the previous studies.

PROPOSED NHTSA 5-YEAR HIGHWAY SAFETY RESEARCH PLAN IS A STEP IN THE RIGHT DIRECTION BUT REVISIONS ARE NEEDED

NHTSA's Offices of Research and Traffic Safety Programs have developed a 5-year highway safety research plan for fiscal years 1980-84. To give the highway safety community an opportunity to comment on the plan, NHTSA published a draft and sponsored a conference to discuss it. Although the plan is a step in the right direction, more needs to be done to make it a useful working document, such as analyzing available information, reconsidering priorities, including all section 403 activities, and including outside sources in all stages of the planning process.

NHTSA designs 5-year plan

The plan is the first such plan on which NHTSA has asked for formal comment from the highway safety community. It was designed as an internal document to guide NHTSA officials and program managers in preparing strategies and estimating resource requirements.

In March 1979 NHTSA published a draft of the plan to give the highway research community an opportunity to react and comment during the early stages of the planning process. NHTSA contracted with the Transportation Research Board, a quasi-governmental agency, to hold a conference in April 1979 to discuss the plan with concerned private, public, and other governmental officials and researchers. The plan was also published so that States and local communities could have insight into NHTSA plans with opportunity to comment on and anticipate NHTSA's programs in their own planning.

NHTSA designed the plan around the 14 highway safety standards it is responsible for. Officials used six steps in developing the particular programs which make up the plan.

1. Identify and analyze problem areas.

2. Identify, develop, and pilot test countermeasures aimed at problem areas.

3. Test and document countermeasures under realistic conditions.

4. Evaluate existing safety programs.

5. Transfer new developments and findings to States and communities.

6. Develop program management and technical assistance for upgrading State and local highway safety programs.

Program priorities were selected using the following criteria.

--Possible accident reduction.

--Proposed program countermeasures.

--Effectiveness of potential for increasing efficiency of current State safety programs.

--Cost, probability, and time of countermeasure implementation.

Based on the above steps and criteria, NHTSA ranked the following program areas in two categories--priority of needs and funding available. In the first category, the program areas were ranked according to the highest payoff in reducing accidents. The ranking of funding priorities was based on the number of worthwhile proposed and current projects, and funds needed to implement these based on NHTSA's past experience. The funding ranking showed where most section 403 money would be spent. Some members of the highway safety community questioned the priority and/or funding rankings of various program areas. We did not try to determine the technical adequacy of NHTSA's 5-year plan because of the many and complex program areas and the diversity of opinions in the research community on each area and on the highway safety research area in general.

Priority ranking	Program areas	Funding ranking
1	55-mph noncompliance and other unsafe driving acts	2
2	Occupant restraints	4
3	Alcohol and drugs	3
4	Pedestrian/bicyclist/pupil transportation	7
5	Driver licensing	6
6	Motorcycle/moped	5
7	Youth	8
8	Emergency medical services	9
9	Systems support (includes State traffic records, State program management, vehicle registration and titling, traffic law adjudication, police traffic services, and the National Driver Register)	1

We believe that developing a 5-year plan is a step in the right direction and that when the plan is finalized, NHTSA should use it to determine what work will be done. If external comments are received and adequately considered, NHTSA should be able to improve the plan and design research programs which will benefit State highway safety programs.

The plan will not be adequate until further steps are taken

NHTSA did not analyze all information available before developing the plan, did not set priorities which were acceptable to the highway safety community, and had little input from users and researchers before preparing the plan. Also, the plan does not include the National Center for Statistics and Analysis and the National Driver Register Program.

Available information needs to be analyzed

Section 403 was to be used partially to pull together research information into a coherent source of accessible information. NHTSA has given the Office of Research the task of advancing the state of the art in research areas,

and much research has been pulled together by that Office and the Office of Traffic Safety Programs. The Offices need to pull this information together before planning/approving a project or going on to new areas. NHTSA officials told us that a state of the art, telling what research has been done, what has succeeded, and what has failed, has been developed for only a few highway safety research areas. Three areas mentioned for which a state of the art existed were alcohol, driver licensing, and pedestrian safety. However, as shown below, doubt exists even in these areas.

NHTSA's November 1979 Alcohol Safety Action Program summary states that because of this program, what needs to be done and how to do it is now known. Yet, a 1978 study which NHTSA released to the public at the same time says that the state of knowledge about alcohol problems is totally inadequate to design and operate drinking-driving programs.

NHTSA driver licensing officials said that in many areas of licensing they need to know what is going on in the States to get a true state of the art. They said that having background research done before the section 403 plan was put together would have been helpful.

NHTSA officials working with pedestrian safety said that they also need more information. No one has compiled all past studies to show what has been tried and what has failed.

Both Associate Administrators for the Offices of Research and Traffic Safety Programs said that NHTSA needs to develop a state of the art for each highway safety area. Office of Research officials want to begin developing a loose-leaf notebook for each area to address countermeasures which work and do not work, but they said they had not begun the notebook. On the other hand, the Associate Administrator of Traffic Safety Programs said he not only thought the notebook to be a good idea but had already started one in the area of adjudication. Even though both agree that developing a state of the art in each area is important, there appears to be no coordinated effort to do so.

We realize that developing a state of the art for any highway safety area can be an enormous task because of the many studies which have been made, but such an effort is necessary to have an effective research program and plan. Researchers told us that they believe many questions can be answered by compiling existing data rather than by doing more research. According to researchers, NHTSA must be willing to make changes such as the following.

--Identify studies and parts of studies that have usable data and/or conclusions, which is not NHTSA's normal practice even if the study was developed under an NHTSA contract.

--Begin to summarize research results for use by State and local operational people who do not have time to or will not read reports or sort through volumes of abstracts.

Compiling such knowledge for each highway safety area would enable NHTSA to more efficiently plan its work and set priorities. NHTSA officials told us this measure would enable them to develop work statements and contracts without having to do a complete background study for each.

NHTSA needs to compile a state of the art for each highway safety area including both successful and unsuccessful countermeasures for use in planning future highway safety research.

Priorities need to be reconsidered

The conference on NHTSA's 5-year section 403 plan, conducted by the National Research Council's Transportation Research Board, was held in April 1979 with more than 200 participants from the highway research community. The resulting conference report stated that the participants' general view was that the plan is a start but cannot be used as a working document for several reasons. They said that NHTSA did not present sufficient rationale for the criteria used in setting priorities within and among projects. The plan, they said, does not adequately present problem identification information, and effectiveness measures are not detailed enough to assess the potential of many proposed projects.

Concerning NHTSA's approach to the section 403 planning process, conference participants said that:

--A formal process that will obtain input from the highway safety community should aid NHTSA in planning.

--Particular emphasis should be placed on getting users' comments concerning the priorities for short-term projects that focus on current issues.

--Long-term research is also important, and goal-setting should encompass both long- and short-term research.

--The Governors' representatives should be involved in setting priorities, and priorities should be made public before implementation.

Participants said that the conference provided an opportunity for all the highway safety community to get together to discuss priorities and the criteria for setting them. Conference workshops suggested adding the following criteria to determine priorities for NHTSA's 5-year plan.

1. Is the project relevant to other state-of-the-art activities?

2. Does the project's probability of success currently justify the time and money already invested in it?

3. What will be the impact of social and economic change on any countermeasure the project might produce?

4. Will the project's end result be maximum safety with minimum impact on mobility?

NHTSA commented that it agreed with all of these criteria and they have been considered in setting priorities.

Conference workshops reviewed NHTSA's planned activities in 14 program areas and commented on program priorities, the basis for the programs, transfer of program results, and the responsiveness of NHTSA's plan to the needs of the highway safety community. Workshops suggested shifting priorities in program areas such as those below.

--NHTSA listed 26 projects in the area of alcohol and drugs. The participants' six highest priority projects in this area included five of NHTSA's six lowest priority projects.

--NHTSA listed 4 priority programs for State program management; participants listed 10. The three top NHTSA priorities were combined into one by participants and ranked as priority number five. NHTSA's number four priority was ranked as the participants' number two priority.

--Other participant workshops listed the same or similar priority programs but altered the order of priorities and/or added programs to NHTSA's list.

Participants said that NHTSA should carefully concentrate its limited section 403 resources on high-priority areas. They proposed reducing low-priority program funding to provide more resources to high-priority programs but offered no suggestions for eliminating or reducing overall areas, only projects within areas. Setting priorities using criteria similar to those in the "Needs" study might prove useful in making these types of decisions. (See pp. 29 and 30.)

Outside sources need to be included in the planning process

Generally, NHTSA section 403 plans have been developed internally. The new 5-year plan was developed in the same manner. Although users and researchers have been given the opportunity to comment on it, our conversations with members of the highway safety community indicate that the general opinion is that NHTSA will not make substantial changes.

NHTSA's acceptance in the past of input into the section 403 program has been limited. For example, States were asked several years ago for their opinions on highway safety research needs. NHTSA subsequently said that the State responses were too varied to use.

Other comments from the highway safety community concerning the section 403 program in general and the new plan in particular follow.

--States, which supposedly use section 403 research results, say they do not know what NHTSA is doing with the section 403 program and consider it a Federal program with no input from them.

--NHTSA has not accepted or, in many cases, acknowledged unsolicited proposals for section 403 research from users or researchers. In fact, NHTSA has discouraged States and others or told them not to submit such proposals. We believe this practice has contributed to reducing State interest in research programs and results which States might otherwise use, because they know best what their own highway safety needs are.

--Some users had not seen the new plan until they arrived at the conference to discuss it.

--The present section 402 planning process provides for asking Governors' highway safety representatives to identify research needs. The representatives have not done so because they feel their comments have not

been given enough attention and because NHTSA has ignored this provision.

--NHTSA will not change its plan based on users' and researchers' comments, so why bother to comment.

It appears that many researchers and users did not submit written comments to NHTSA on the plan because of comments, situations, and opinions such as those above. An NHTSA official told us they received only about 26 responses to the docket published in the Federal Register. NHTSA officials told us that one reason may have been that most users and researchers felt that they made their comments at the conference. Although that may be true in some cases, the general lack of response and the feelings expressed by those attending the conference indicates that the highway safety community does not believe NHTSA will use their suggestions.

This belief is substantiated to a degree because officials from the Offices of Research and Traffic Safety Programs told us that they did not foresee any substantial changes in the 5-year plan as a result of docket comments. They said that (1) the commentors did not understand NHTSA's reasoning; however, NHTSA did not provide that reasoning, (2) many comments were unrealistic, (3) the contractors were biased, and (4) the comments are directed toward broad, basic results.

On December 31, 1979, NHTSA received the Transportation Research Board's conference report containing comments, conclusions, and recommendations. An NHTSA planning official was uncertain what changes would be made in the plan as a result of the report and said that NHTSA would not respond to it before May 1980.

The report stated that a major concern of conference participants was how to involve State and local highway safety groups and researchers in planning the NHTSA section 403 program to (1) avoid duplication of effort among the States and all levels of Government and between section 402 and 403 programs and (2) ensure that Federal programs are relevant and can be applied to State and local needs.

The report stated that NHTSA plans to involve States more closely in research planning by (1) gearing their technology development program to correspond better to the highway safety plans that States develop in response to section 402 requirements, (2) holding conferences and seminars that involve the highway safety community in the planning process,

and (3) making research plans public before implementing them. It stated that users also want to have a continuing dialog with NHTSA as the plan is implemented.

These are positive steps to improving NHTSA's planning process. NHTSA needs to make every effort to include States in the planning process, including exploring avenues such as user advisory or review boards for formal user input and plan evaluation.

Necessary items omitted from plan

NHTSA needs to include other section 403 activities in the plan. Two important activities--the National Center for Statistics and Analysis, which is the data collection center for the Office of Research, and the National Driver Register, a program for uniform national driver registration--were omitted from the 5-year plan. Funds for these two programs totaled over $3 million (about 12 percent) of the fiscal year 1979 section 403 appropriation and about $4 million (about 15 percent) of the fiscal year 1980 appropriation. An NHTSA planning official stated that these will eventually be included in the section 403 plan; however, no time schedule has been set.

The 5-year plan stated that it was necessary to develop separate plans for the Center because

> "* * * it would be too difficult to change the NCSA data requirements and develop a fully responsive NCSA plan while the 403 program itself was in a state of flux and subject to major change."

The plan also stated that the National Driver Register was not formally considered by NHTSA in preparing the proposed 5-year plan. It was decided to wait for a NHTSA report on the development of a fully automated, "quick response" system to submit to the Congress in October 1979. 1/

OTHER PLANNING PROCESSES

Two highway safety organizations--FHWA and the National Cooperative Highway Research Program (NCHRP)--have developed planning processes that NHTSA should review. These have many aspects that could benefit NHTSA's planning process. Both

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1/The report had not been submitted to the Congress as of June 13, 1980.

analyze available information, set priorities, and involve users and researchers in the planning process.

FHWA has used its program plan to coordinate research projects at the Federal level and has disseminated information to State and local users since 1973. Project managers for the Associate Administrator for Research and Development make sure that FHWA studies are nonduplicative and are integrated with other FHWA programs.

The agency also establishes priorities in its program plan. The plan used in 1979 had 19 highway safety projects, such as traffic engineering improvements for safety, pedestrian safety, and skid accident reduction. The projects list the contracts in which research results are designed to build on, and ultimately lead to, demonstrations or manuals for users. When all contracts for one project are completed, the project is dropped from the plan. New projects are added as highway safety priorities change.

To get outside views on how the priorities are changing, FHWA has developed a dialog with researchers and potential users in two ways. First, the agency holds annual reviews of selected projects from the program plan. Researchers, potential users, and regional FHWA representatives are invited to attend the reviews to learn about ongoing contracts and discuss the projects. Second, FHWA solicits views from panels of researchers at the Transportation Research Board every year on projects not necessarily covered at the annual reviews. After receiving the Transportation Research Board comments, FHWA prepares a response which tries to explain any disagreements it has with the researchers on these projects.

Some members of the highway safety community prefer the procedures of the National Cooperative Highway Research Program. Three agencies are the principal participants in this program--the American Association of State Highway and Transportation Officials; the Department of Transportation, FHWA; and the National Academy of Sciences. The plan is developed annually based on the following process:

1. Research proposals are made by the participants.

2. The staff searches the literature for similar efforts.

3. The proposals likely to be successful are screened to prevent duplication.

4. A panel, including potential users who are knowledgeable in the area, is assigned to each project to provide technical guidance and counsel throughout the research and reporting phase.

This last point is one of the major differences between NHTSA and the other two program-planning efforts. As panel members, users become part of the formal research design and review process.

We believe NHTSA, in any effort to redesign its planning process, should look at the FHWA and National Cooperative Highway Research Program planning methods. These can provide valuable guidance to NHTSA's formulation of highway safety research. NHTSA commented that it has identified the "relevant features" of the FHWA planning methods but did not specify these nor state whether they were being used or just "identified."

CONCLUSIONS

NHTSA has done an inadequate job of planning highway safety research in the past because (1) its planning process has been informal, (2) plans have been general, (3) outside advice has not been solicited, and (4) research responsibilities of the Office of Research and the Office of Traffic Safety Programs have not been well defined. Also, problems between the two Offices have not helped the situation. Although a more formal planning process has been established, friction still exists between the two Offices and needs to be resolved to enhance the chances of the process succeeding.

The research plan that has been developed is not adequate because NHTSA has not

--analyzed all available information,

--set priorities which were acceptable to the highway safety community,

--included the outside highway safety community in the planning process, and

--included all section 403 activities in the plan.

Although the plan is a step in the right direction and could help develop programs with results States could use, this goal cannot be accomplished until NHTSA closes its credibility gap with States and the highway safety community. This gap exists because of (1) the highway safety community's general belief that NHTSA's plan will not change, (2) the

community's exclusion from the section 403 program, and (3) NHTSA's past history of not accepting outside input. Both the FHWA and NCHRP plans have many aspects that could benefit NHTSA's planning process.

RECOMMENDATIONS TO THE SECRETARY OF TRANSPORTATION

We recommend that the Secretary of Transportation require the Administrator, NHTSA, to:

--Explicitly define the research, development, and demonstration responsibilities of the Office of Research and the Office of Traffic Safety Programs for the section 403 program and direct the Offices to operate within them. In doing so, the Administrator should determine who will have overall responsibility for the section 403 program and delegate authority to carry it out.

--Consistently use internal and external input in its formal planning process to (1) help analyze all available information and develop a state of the art in each area, (2) determine priorities which will be most beneficial to users, and (3) include all section 403 activities.

--Review the FHWA and NCHRP plans and draw from them beneficial procedures for analyzing available information, setting research priorities, and obtaining outside views on those priorities.

AGENCY COMMENTS AND OUR EVALUATION

The Department of Transportation commented that the two Offices' roles and organizational and functional responsibilities are well defined. It stated that each NHTSA Administrator, past and present, has focused on the Offices' roles and responsibilities and has concluded that there must be two separate and distinct offices sharing responsibilities for section 403 program management. The Department said that during the last 2 years, significant effort has been devoted to addressing and better defining these roles and that for each project in the 5-year section 403 plan, there is a clear assignment of organizational responsibility. According to the Department, where doubt exists as to which Office should handle a project, the Administrator resolves the disagreement. The Department said that we do not give NHTSA credit for instituting a planning process which facilitates better internal coordination as well as external participation.

Our report recommends that the Administrator determine who will have overall responsibility for the highway safety research program and delegate authority to carry out the program. This is necessary because of the program's complexity and importance and the problems which we discuss in this report. The recommendation does not preclude having two separate and distinct offices sharing section 403 responsibilities but recommends that someone have the overall responsibility for coordinating actions within and between the two Offices. Currently they lack an effective, cooperative working relationship.

We recognize that a formal planning process is being established and that it will address some of the problems we identified. However, NHTSA needs to resolve continuing issues, especially the credibility gap and the friction between the two Offices.

The Department and NHTSA apparently do not recognize the problems that exist within NHTSA. Based on our assessment of the situation, NHTSA does have internal problems which affect the highway safety research program. Until NHTSA delegates the overall authority for the program to an individual or office, these problems will continue.

The Department and NHTSA also have not acknowledged the problems that exist between NHTSA and the highway safety community. However, based on our conversations with and documents from the community, a credibility gap does exist. NHTSA needs to adopt a more cooperative attitude and take more positive actions toward the ideas and needs of the highway safety community.

Also, the Department stated that NHTSA has examined the process by which FHWA conducts its research program, has identified the features relevant to NHTSA operations, and has developed a more productive and appropriate system for its section 403 program. The Department did not identify the portions of the FHWA planning process which NHTSA considered relevant nor state that NHTSA is going to use them.

In its detailed comments, NHTSA agreed with the principle of involvement represented by the NCHRP plan but did not envision using any aspects of it. NHTSA's refusal to use parts of the NCHRP's plan may further illustrate some of NHTSA's problems in accepting outside advice.

CHAPTER 4

USE OF HIGHWAY SAFETY RESEARCH RESULTS IS UNDETERMINED

The impact of the highway safety research program has not been determined, and many researchers and NHTSA officials said that much section 403 research does not provide State and local highway safety programs with leadership and innovation. Section 403 highway safety research was intended to develop new methods and techniques benefiting State and local safety programs. Section 403 was to work as a catalyst to upgrade the use of section 402 State and local grants.

Many section 403 research, development, and demonstration results are not or cannot be used because:

--State and local governments and the research community lack confidence in NHTSA.

--Much research has results which are not usable.

--NHTSA does not disseminate or promote all results.

Also, neither NHTSA nor FHWA has developed a formal process to determine the extent to which results are used. Thus, they do not know what research results are successfully used or how to build on them.

THE EXTENT TO WHICH SECTION 403 RESULTS ARE USED IN STATE AND LOCAL PROJECTS IS UNKNOWN

NHTSA does not know the extent to which its highway safety research results are used. It can point out specific instances of use, but neither NHTSA nor users in general are able to identify what highway safety programs across the Nation are a result of or incorporate aspects of section 403 research results.

Determining the extent to which section 403 research results are used is difficult. Since highway research can serve many and varied users, it is not always easy to identify them. Also, potential users cannot identify section 403 products because there is no formal mechanism for identifying them. These factors complicate identification of users or research used. Potential users include

--Governors' highway safety representatives;

--law enforcement officials, including police and judges;

--motor vehicle department administrators;

--emergency medical personnel, including ambulance drivers, paramedics, and physicians;

--city administrators and State legislators;

--traffic engineers; and

--alcohol-treatment counselors.

Users often need to know only what can be applied in a given situation and are not usually concerned with the funding source. Therefore, it makes little difference to them whether they are operating under a section 403 contract, section 402 grant, State-funded contract, or motor vehicle contract. Consequently, users do not always know where an innovation originates and cannot necessarily provide information related to the use of any particular program results.

Several knowledgeable State officials told us that they knew of few results that could be identified as section 403 contracts that had been applied in their States. Ten State and local highway safety representatives from seven States commented on section 403 uses. Representatives from four of these States could not identify specific section 403 contract results used in their States, except for data collection. These representatives included one who managed a section 403 contract in his State, two State researchers, and a Governor's highway safety representative.

Other Governors' representatives said they use few or none of the results of particular section 403 programs. For instance one Governor's representative said none of the NHTSA training programs funded under section 403 are needed in his State. The Governor's Highway Safety Representative's Office in one State identified only three cases where section 403 contract results had been applied, and all three were based on or related to NHTSA contracts in that State.

We selected 101 section 403 contracts and asked NHTSA's Offices of Research and Traffic Safety Programs to describe how contract results had been used. Information provided by NHTSA on use of research results was inconclusive.

USERS AND RESEARCHERS LACK CONFIDENCE IN HIGHWAY SAFETY RESEARCH

Some potential users told us that they do not use section 403 research because they lack confidence in NHTSA's research program. Part of the problem is that NHTSA's past research plans generally were developed without involving potential users and researchers, making the potential users unwilling to implement results when they did not consider the research worthwhile.

The 1979 Transportation Research Board conference report stated that NHTSA appears to support projects that do not address topics which user communities perceive as most important. According to the report, NHTSA's failure to involve users in developing and designing research efforts often results in projects that could not be implemented effectively at local levels. The report pointed out that "* * * even if the research is well done, the results are useless."

Researchers, potential users, and NHTSA officials provided the following as examples of unrealistic studies:

--According to one Governor's representative's office, an NHTSA contract for over $500,000 to demonstrate a motorcycle-testing program was unrealistic because NHTSA told the contractor to use a 1-acre test track. The contractor, a State agency, said 1 acre of land was too expensive but went ahead with the contract. NHTSA later awarded a contract for about $82,000 to design a smaller track. NHTSA's contract technical manager said one of the purposes of the first project was to learn from it.

--When NHTSA solicited States to demonstrate 55-mph enforcement, only two responded. One State withdrew its bid. NHTSA's original proposal included both urban and rural speed enforcement as well as a public information and education campaign. An NHTSA official and a State official said no jurisdiction could afford the high level of enforcement required in part of the design with the funding available. NHTSA called for a large number of enforcement officials, which in some States was the equivalent of an entire State police shift. Subsequently, NHTSA deleted the public information and education campaign and reduced the number of officers needed by awarding two contracts--one for urban speed enforcement and one for rural speed enforcement.

--In the early 1970s, NHTSA embarked on a program to prevent drunks from driving; it has not led to implementable results so far. The program had three phases. During phase one, NHTSA spent approximately $500,000 for laboratory tests to determine whether sobriety-test equipment worked. In 1973 the agency began phase two by spending about $1 million for laboratory tests on equipment that would prevent drinking drivers from starting their cars. In 1978, during phase three, NHTSA awarded almost $500,000 for a contract to determine how a drunk driver-warning system can be used with persons who have been convicted of driving while intoxicated.

In phase three, NHTSA-owned cars will be assigned to persons convicted of drunk driving. The driver must turn the steering wheel to center a meter on the steering column in the time allotted for a sober driver. Although a drunk can still drive the car if he fails the test, the horn will blare and the lights will flash, warning other motorists and police of the hazardous driver. Agency officials believe installing the entire system in any vehicle will cost less than alcohol treatment programs that can amount to $700 per person.

Researchers and some NHTSA officials have many doubts about such a solution; one researcher called it "hokey." While legal and technical questions remain, some NHTSA officials in the alcohol area believe the latest contract will determine if these warning systems are practical.

In summary, NHTSA has conducted some research which has had little chance of being used because it has not always been practical. This is demonstrated by the fact that State and local governments have difficulty identifying its use. State and local officials have not been interested in implementing NHTSA research results because the potential users have not been involved in planning research efforts that they consider most important. As we indicated in chapter 3, involving researchers and potential users in planning can improve the chances of research being accepted and applied.

POTENTIAL USERS HAVE OTHER REASONS FOR NOT USING SECTION 403 RESULTS

NHTSA research results are not always used because many section 403 contracts have led to unimplementable results. Often NHTSA research leads to disproving proposed solutions, commonly called negative results, according to researchers

and individuals at NHTSA and at the State level. Such results can be useful in contributing to knowledge and showing users what does not work, but users also need new and innovative methods to improve highway safety.

Our sample of completed Office of Research contracts showed two usable and two unusable research projects and demonstrated that research takes a long time to complete. Of the 23 completed contracts in our sample, 12 were for collecting data. Of the remaining 11, 2 had negative results and 2 led to products States could use. The remaining seven created additional projects in the Office of Research or the Office of Traffic Safety Programs. These seven projects started between 1974 and 1978 and have not yet produced results implementable by State and local officials. Thus, only four projects provided results, including two that produced negative results.

Three examples below show cases where research led to negative results, and two show contracts that took longer than expected to complete.

--NHTSA spent about $145,000 to determine whether certain drugs would reduce alcohol's impairing effects on the nervous system. When the contracts were near completion, NHTSA said the drugs were ineffective, and in 1979 the agency discontinued plans for further research.

--In 1977 NHTSA began a $103,789 contract to provide safety belt education programs for employees in five businesses. When it was near completion in 1979, NHTSA said that current results showed the program to be unsuccessful.

--A NHTSA contractor completed his research in less than 3 years. NHTSA officials said that several more years of basic research will be needed to solve related technical problems before the research results can be used.

--A 1975 jointly funded NHTSA-FHWA contract was scheduled for completion in 2-1/2 years, but the agencies now expect final results in 1980.

--In one area, no work has been done by two contractors in 3 years. In 1977 NHTSA terminated a $942,319 records system contract with one State when only $19,468 had been spent and the State had failed to move forward on the work. NHTSA reawarded the contract to another State in August 1978 for about $1 million.

One year later the second State had spent only about $12,000. The Governor said he would not move ahead until the State had evidence the records system would be cost effective after the Federal funds were gone. NHTSA believes this is an important contract because the improved data system would help State planners determine where to use section 402 funds. Also, NHTSA believes it should not terminate the second contract because reawarding the contract would cause more delays; however, few results are imminent.

Some research can be expected to have results that cannot be implemented or that will take a long time to complete. However, potential users said these kinds of contracts occur too frequently. NHTSA should be especially conscious of these limitations because of its position as a research leader and should try to minimize these types of projects. Initial discussions with users to determine their needs will aid in selecting research ideas which are most applicable.

RESEARCH RESULTS NEED BETTER PROMOTION AND DISSEMINATION

For research to be useful, the highway safety community must be aware of its existence and results. Even if the results are negative, researchers and State or local users may learn from them, particularly what does not work, and avoid repeating the research unnecessarily. NHTSA officials said a final report is made on each research project; however, they said that they have difficulty finding effective ways to disseminate the research results. The agency recognized dissemination of results and promotion of their use as key elements in the 1980 plan.

The 1979 Transportation Research Board conference report stated that some section 403 reports are not available to State and local users. Many training, public information, and educational materials seem not to be released at all, and getting information on past work or work in progress is difficult, according to the report.

A University of Michigan study, "An Assessment of the Availability and Accessibility of NHTSA's Research, Development, and Demonstration Project Results," examined dissemination of NHTSA research results. The study stated that reports were unavailable for some research projects, and some reports were not easily obtainable. In the 1979 study, researchers looked for reports on 181 completed NHTSA contracts. The study identified 820 reports resulting from these projects. However, it said only 583 were available. No reports were found for contracts representing about $24

million of NHTSA funds, even though the majority of the contracts were completed more than 2 years before the Michigan study.

The study said that 44 of the available 583 reports were not listed in NHTSA's own reference service, "Highway Safety Literature," a printed, computerized list of NHTSA library holdings. According to the Michigan study, the better known and more easily accessible National Technical Information Service contained only 26 percent of all the reports. The latter service is the central source of information about all nondefense, federally sponsored research and is a distributor of technical reports.

Several sources indicated that reports were delayed. The Transportation Research Board conference report said that NHTSA research reports are released months or years after the project is completed. According to the Michigan study, delays of 6 months to over 1 year in releasing reports appeared to be common. The study noted one case in which NHTSA produced training materials for motor vehicle inspectors; NHTSA used the materials for five courses, but the materials were not made available to the public even though the $50,000 contract had been completed 2-1/2 years earlier. In responding to this example, NHTSA stated that:

> "The package has not been used beyond those first five courses, primarily because all but 2 States and the District use private garages for inspection, and they are reluctant to require private garage owners to send their employees to a course which requires 3-5 days of training -- at their expense."

We found one case where a contractor had delivered an alcohol countermeasures report to NHTSA in 1978, but the agency had not released it to the National Technical Information Service until 7 months later. NHTSA said that delays were due to its revisions of the report.

NHTSA regional offices are responsible for providing technical assistance on section 403 issues to State and local officials within their jurisdictions. However, State officials told us they do not ask the regional offices for information because regions are not well informed about current research. Of the two regional offices we visited, one admitted that it did not know what section 403 research was taking place, and the other did not know what research was being used.

Other organizations involved in highway safety research do more to promote their research results. For instance, NCHRP makes results known before publishing formal project reports. In this way, potential users are encouraged to think about the potential usefulness of the results. Also, all known uses of NCHRP results are published. The California Department of Motor Vehicles conducts research and publishes a report summarizing its research findings, conclusions, recommendations, or applications. California sends the report to potential users in other States.

NHTSA has not promoted or disseminated all reports, yet similar organizations have shown it can be done. NHTSA's 5-year plan recognized that the research program had suffered because of difficulty in disseminating results, and the agency is trying to improve its dissemination method. NHTSA can develop better use of contract results if it publishes all findings--positive or negative--and if all reports are readily accessible through the National Technical Information Service or other information sources.

EVALUATION IS NEEDED TO DETERMINE USE OF RESULTS

The use of NHTSA and FHWA section 403 research results is unknown partially because neither agency formally evaluates the program or the individual projects. In both cases, lack of evaluation diminishes the agencies' abilities to know what is worthwhile and to plan further research.

NHTSA has made attempts to evaluate its effectiveness in accomplishing its overall mission. It uses statistics on national traffic accidents and deaths to measure the success of its motor vehicle safety program. Also, it compares the section 402 traffic safety program to State and local safety efforts, using indicators which reflect growth in (1) implementation of safety standards, (2) funding levels in various activities, and (3) total output for various program areas. We pointed out in an April 1979 report entitled "Evaluation of Programs in the Department Of Transportation--An Assessment" (PAD-79-13) that such measures do not distinguish the extent to which NHTSA is responsible for the States' efforts. Section 403 research fits into this category because the agency has no formal means of determining how research and demonstration results are used. The only user feedback comes informally to contract technical managers and other agency officials. NHTSA does not compile or assess cases in which the research has been used.

FHWA does not have a comprehensive method of evaluating individual project results for successful use. An agency official said FHWA provides tear sheets at the back of some reports and asks readers to comment on how results are used. However, FHWA officials said they do not get many responses. When we asked for examples of section 403 reports with tear sheets, FHWA could not provide any.

An FHWA official said the agency is satisfied if 30 States use the results, but the agency does not formally assess which States and others in the safety community use the research results.

NCHRP emphasizes the importance of determining who uses the results and states that:

> "* * * what happens to the products from the research is strictly up to the initiative of the states. It is at this point that the true success of the project is measured. Projects that have accomplished their objectives in providing useful products might just as well have been failures if the states do not at least give consideration to how the results might be used to improve their particular operations. It simply does not make good sense to invest millions in research on critical problems and then not give adequate attention to a determination of the implementation value of the findings."

The problem with not evaluating use of section 403 research results is that managers and planners get little specific information on how to build research programs that will be used. A 1977 overall evaluation of the highway safety program by the Secretary of Transportation pointed out some ill effects of not evaluating results. According to this report, the need to take positive action in highway safety research has often resulted in creating demonstration projects without thorough prior field testing of countermeasures. The report said that because of the lack of evaluation, "large efforts in applied research were made without a clear need toward practical use." Evaluating individual section 403 projects will lead to a determination of who uses the results and how. This knowledge will give planners a rationale for determining the kinds of research projects whose results will have the best chances of successful implementation.

CONCLUSIONS

According to NHTSA's 5-year plan, the Congress intended that Federal highway safety research should develop new ideas to help State and local safety programs. However, we question how well the agencies are meeting that goal. NHTSA and FHWA do not know the extent to which their research results are used because there is no formal process to determine usage.

For the most part, State and local governments we contacted could identify only a few NHTSA research results being used. Researchers and other highway safety leaders give several reasons for this. First, users have not been involved in developing the research plan and they find some of NHTSA's ideas unrealistic. Second, much of the research leads to unimplementable results or takes a long time to complete. Third, NHTSA has not always promoted or disseminated research results regardless of whether they are successful or unsuccessful. All these conditions have led to unused research.

Neither NHTSA nor FHWA knows the amount of research used, but program evaluation could help determine usage. Without knowledge of when and how research is used, the agencies do not know how successful their research programs have been or where they should be going.

RECOMMENDATIONS TO THE SECRETARY OF TRANSPORTATION

We recommend that, to improve the use of highway safety research results, the Secretary of Transportation require the Administrators, NHTSA and FHWA, to develop formal processes to assess the use of research results.

Also, the Secretary of Transportation should require the Administrator, NHTSA, to

--evaluate all research to help users determine which research is good, fair, and poor;

--disseminate all results; and

--closely monitor contracts so that usable results can be developed with fewer delays.

AGENCY COMMENTS AND OUR EVALUATION

The Department of Transportation stated in its summary comments that:

"GAO states that research results would be more valuable if the results were evaluated and disseminated, implying that this is not now being done. NHTSA evaluates all research, and is constantly attempting to improve dissemination. NHTSA now disseminates technical summaries of 403 research results to a free mailing list of researchers in advance of the printing of the final report. Printed final reports are sent free to researchers on existing, special mailing lists and to those designated by the Contract Technical Managers as having an interest in the subject area of the report. Also, the Highway Safety Literature (HSL) prints an index of the final reports, and copies can be ordered. Currently the HSL is distributed to a 1,800 person mailing distribution."

We do not dispute that some research results are being disseminated, and we have given credit to NHTSA for recognizing that it is not doing enough. Our review showed that NHTSA has no formal means of evaluating research and demonstration results to discover who uses them and how. We do recognize that NHTSA has made attempts to evaluate its effectiveness in accomplishing its overall mission.

The Department stated in its detailed comments on our recommendations that:

"NHTSA agrees with the principle of the recommendations and we have as our objective the development of these formal processes for all areas of internal review and research as listed in the recommendations. An interim system for the dissemination of all research results has been developed and is currently being implemented throughout the program offices."

NHTSA said that this system "* * * should be a giant step forward in the rapid dissemination of research results to users with a critical and immediate need, and improvement in the dissemination of completed research."

We agree that these are steps in the right direction and, if properly implemented, should improve the use of NHTSA research results. However, NHTSA did not comment on how it will formally evaluate the section 403 program and individual projects. We believe this determination is necessary to know what is worthwhile in highway safety and to plan further research.

CHAPTER 5

CONTRACT MANAGEMENT NEEDS IMPROVEMENT

Weaknesses exist in NHTSA's section 403 contract management practices. Our review of 94 NHTSA contracts showed present practices resulting in unmet time schedules, added costs, and a general lack of continuity in many contracts. Our limited review of 20 FHWA contracts revealed fewer problems.

NHTSA's extensive contract modifications increase costs and extend delivery dates. Yearend contracting also increases NHTSA's contracting costs by adding overtime and adversely affects the companies bidding on the contracts by inundating them with too many requests for proposals at one time. Other practices affecting contracting are NHTSA's lack of (1) level-of-effort statements in contracts, (2) contract technical manager continuity, and (3) an up-to-date, accurate list of contracts for the section 403 program. NHTSA and FHWA proposal evaluation procedures are similar, but their procedures differ for determining who will be sent requests for proposals.

NHTSA research contract management is carried out by the Office of Contracts and Procurement and by the operating groups. The operating groups initiate and monitor the technical portions of the contracts, and the Contracts and Procurement Office issues the requests for proposals, negotiates and awards the contracts, and monitors the administrative portions. FHWA contract management has its own Contracts and Procurement Office and operates in the same manner.

EXTENSIVE MODIFICATIONS EXTEND DELIVERY DATES AND INCREASE CONTRACT COSTS

NHTSA research and development contracts are often modified, a practice which results in extending completion dates and increasing contract costs.

Of the 94 NHTSA contracts in our sample, 55 contracts were from the Office of Research and 39 contracts were from the Office of Traffic Safety Programs. Of the 55 Office of Research contracts, 40--or about 72 percent--were modified one or more times for an average of about 5 modifications per contract. Of the 39 Office of Traffic Safety contracts, 34--or about 87 percent--were modified one or more times for an average of about 4.4 modifications per contract. Modifications included completion time extensions, additional work, and miscellaneous other changes.

Completion dates are often extended

Contracts are often not completed by the originally estimated dates. In our Office of Research sample, 33 of the 40 modified contracts--or 83 percent--had extended completion dates. Of the 34 Office of Traffic Safety Programs contracts, 27--or 79 percent--were modified to extend the completion dates. These time extensions ranged from 1 month up to 23 months. For example:

--The contract for a 12-month study of the effects of alcohol on the driver's visual information processing was modified to extend it five times--6 months, 3 months, 2-1/2 months, 22 months, and 2-1/2 months--for a total of 36 months. (Total modification cost related to time extensions was $22,859, and total contract cost was $179,061.)

--A 26-month contract for experimental field testing of proposed anti-dart-out (for example, not crossing the street between parked cars) training programs was modified to extend it five times--13 months, 2 months, 3 months, 5 months, and 5 months--for a total of 28 months. (Total modification cost related to time extensions was $32,291, and total contract cost was $373,746.)

--A 12-month contract for field testing a motorcycle safety education course was modified to extend it twice--10-1/2 months and 14-1/2 months--for a total of 25 months. (Total modification cost related to time extensions was $101,891, and total contract cost was $214,932.)

Some reasons for time extensions include adding work, continuing accident investigations, getting a lower than expected sample of accidents, awaiting clearance from other Government agencies for public tests and surveys, and needing more time to write the final report.

Because completion dates are extended, NHTSA is not receiving its research results on a timely basis. Lack of timeliness can affect future research, which may be postponed because of the unavailability of prior results, as discussed in chapter 4. These extensions also suggest that completion dates are overly optimistic and unrealistic.

Modifications add work and increase costs

NHTSA contracts are often modified to add new work or to change or continue previously stated work. Many of these

additions increase contract costs while some change the scope. Although some modifications are justified because of the difficulty of research and development, the number of modifications indicates poor planning.

Of the sample contracts, 85 percent of the Office of Research contracts and 67 percent of the Office of Traffic Safety Programs contracts were modified to add work or to change or continue previously stated work. Most of these modifications increased the contract cost. Modifications from our sample of contracts increased contract cost by $1,000 to as much as $756,844. The following are examples of modifications.

--A $43,123 contract to study motorcycle helmet usage was modified to extend the observational survey and to add an economic impact statement on accident victims at a cost of $55,771. (Total contract cost, including other modifications, was $104,751.) NHTSA officials stated that this modification was in response to a congressional request made after the original contract was awarded.

--A $239,155 contract comparing drug use in driver fatalities and similarly exposed drivers was modified at a cost of $98,000 to collect data on control drivers at 6-week intervals rather than the originally stated 5-month intervals. (Total contract cost, including other modifications, was $346,705.)

--A $52,620 contract to determine public acceptability of highway safety countermeasures was modified at a cost of $62,349 to double the number of potential countermeasures considered. After a questionnaire included in the original contract was reviewed by the Offices of Research and Traffic Safety Programs, the contract was modified at a cost of $36,253 to redesign the questionnaire and to add other work. The contract was modified again to further revise this questionnaire and other items of work at an added cost of $36,695. The contract completion date was extended each time from the original date of September 1977 to January 1979 to September 1979 to January 1980. (Total contract cost was $187,917.)

--A $444,426 contract on safety belt usage was modified at a cost of $19,943 toward the end of its contract period to obtain data on position of passengers. The original contract collected only data on driver seatbelt usage. The modification was needed to determine if out-of-position passengers would be a problem when

passive restraints were used. This contract was also modified at a cost of $33,555 to add a survey of driver/owners to obtain attitudes toward passive restraint systems in the VW Rabbit and GM Chevette. This modification appears not to be in line with the original purpose of the contract--that is, to observe and record belt usage. (Total contract cost, including other modifications, was $555,822.)

--A $97,049 contract for a truck and bus safety inspection demonstration project was modified at a cost of $32,543 to increase the number of vehicles inspected. (Total contract cost was $129,592.)

--A $17,600 contract was modified to a total value of $106,082. The sole-source contract's objective was to inform NHTSA Office of Traffic Safety Programs staff of all major pending and recently enacted State laws on drugs and alcohol as they relate to highway safety and to analyze these laws. The original contract was for 1 year, from May 1975 to May 1976, but was extended for $9,627 to continue the work to March 1977. It was again extended to March 1978 to continue the work at a cost of $28,870, more than the cost of the original contract. The contract was extended again to March 1979 for $24,990 for the same reason. The contracting officer noted that the next requirement should be for competitive bidding in fiscal year 1979. However, the contract was modified for $24,995 to extend it to March 1980. NHTSA commented that a sole-source justification was approved for this last modification. (Total contract cost was $106,082.)

The Associate Administrator, Office of Traffic Safety Programs, told us that modifications were due to time extensions with or without added costs and to such causes as shifting funds, changing directions, salary increases, and demand for more people. He also told us he did not believe modifying 50 to 60 percent of the contracts was abnormally high. The Associate Administrator, Office of Research, told us that most modifications are due to unforeseen findings. He also said that most contracts are cost reimbursable and that if a contractor has overruns, the Government has to pay--"NHTSA cannot force a contractor to stick to the cost estimate" (that is, the original negotiated contract cost). He said that some overruns are excusable and some are not. NHTSA officials do not appear overly concerned with contract modifications although these change the contracts' scopes and increase their costs.

We believe that NHTSA needs to (1) do better planning of individual contracts, (2) keep modifications to a minimum, and (3) closely monitor modifications to keep research on track and to lower contract costs. Until these steps are taken, NHTSA will continue to have large numbers of modifications which increase costs and delay results.

YEAREND CONTRACTING INCREASES COSTS AND ADVERSELY AFFECTS CONTRACTORS

Over 60 percent of the NHTSA contracts we reviewed were awarded at the end of the fiscal year. Thus, contract costs were increased and contractors were uncertain whether they would be awarded contracts. Delays in contracting increased the number of yearend contract awards.

Sixty-two percent of the contracts we reviewed from the Office of Research and almost 60 percent of the contracts from the Office of Traffic Safety Programs were awarded in the last month of the fiscal year. Because of the large rush of yearend contracting, NHTSA's Office of Contracts and Procurement incurred $11,000 of overtime for fiscal year 1979. We were told that the Offices of Research and Traffic Safety Programs were trying to spread out contracting; however, one Associate Administrator said his Office had not been successful in 1979.

One contract technical manager told us that the busiest time for writing requests for proposals is April and May. For fiscal year 1978 contracts, seven out of the nine requests for proposals we looked at had been issued in April, May, and June. A contractor's records showed it had received 19 requests for proposals from NHTSA in July 1979. The most it had received in any other month in 1979 was nine. Because contractors receive so many requests for proposals at one time, they cannot respond to as many as they would like. The Transportation Research Board section 403 conference report stated that requests for proposals should be scheduled so that they are issued evenly throughout the year--at least so that several in the same subject area do not come out at the same time.

The NHTSA Office of Contracts and Procurement has established criteria called procurement standard leadtimes for the various types of contracts, such as sole-source contracts over $100,000, contracts under $100,000, and small business contracts. The criteria set forth the number of days for each procurement action. For example, the time from procurement request to mailing the request for proposal is 28 days for a competitive procurement request over $100,000. However, in our sample of 55 Office of Research contracts,

only 5 met the leadtime standards--from time of receipt of the procurement request in the Office of Contracts and Procurement to the contract award. NHTSA should try to adhere better to its procurement leadtime standards and start its contracting process earlier in the fiscal year. NHTSA commented that:

> "The leadtimes currently are being revised to allow time to meet new requirements for audit and socio-economic program goals and to spread contracting over the whole year."

It appears to us that adjusting leadtimes will not solve the problems.

OTHER MANAGEMENT PRACTICES AFFECT EFFICIENT CONTRACTING

NHTSA lacks an up-to-date, accurate list of section 403 contracts and lacks contract technical manager continuity. Also, NHTSA does not include level of effort in its requests for proposals, a practice which might benefit both bidders and NHTSA. NHTSA and FHWA use different procedures for bidders lists; however, they use similar procedures for evaluating proposals.

Reliable NHTSA contract lists were unavailable

To collect data on NHTSA contracts, we chose a sample from lists of contracts provided by the Offices of Research and Traffic Safety Programs. Because these lists were not up to date and were not accurate, data for some listed contracts could not be found in the Office of Contracts and Procurement files.

The Office of Research gave us two computer lists of section 403 contracts which used fiscal year 1979 funds--one for its driver and pedestrian research and one for the National Center for Statistics and Analysis. All contracts on the driver and pedestrian research list were identified as section 403 contracts. However, because the Center's contracts are not coded by funding source, we could not identify section 403 contracts. Therefore, the Center had to identify them for us. We selected an overall sample of 34 percent from these lists. Our final Office of Research sample became an overall 24 percent because some contracts had been closed and the files removed to storage. The lists furnished by NHTSA contained both open and closed contracts; however, files for closed contracts were unavailable. Some contracts were repeated under more than one identification code.

The Office of Traffic Safety Programs' contract list is not computerized. This list was out of date and contained administrative support as well as section 403 research contracts. Our original sample was about 35 percent of all that Office's section 403 contracts but was reduced to 27 percent because contracts had been closed, making the files not easily available, and because the list contained non-section-403 contracts. NHTSA commented that it is taking steps to update and improve contract lists.

NHTSA does not indicate level of effort in its requests for proposals

Both NHTSA and FHWA requests for proposals include statements of work that describe the tasks to be performed, the items or equipment to be developed, the method by which the Government determines that its requirements have been met, and the technical and management data to be delivered under the contract. In addition, FHWA requests for proposals contain an estimated level of effort (staff-years) to do the work. An FHWA procurement official told us that FHWA indicates level of effort on its requests for proposals because it limits the quantity and improves the quality of the proposals. Also, it keeps bidders from spinning their wheels. The level of effort gives companies more data on which to base proposals. NHTSA does not indicate a level of effort but relies on the work statement narrative to imply it. Some contractors told us that NHTSA gives insufficient guidance for writing its proposals by not indicating level of effort.

Contractors we talked with agreed that they need to know the level of effort. Some told us that NHTSA is simplistic in thinking that if a request for proposal does not indicate the magnitude of the work, it will get better bids. Contractors also said that because NHTSA does not indicate a level of effort, they spend an unnecessary amount of time on proposal efforts which may be rejected because they differ from the level of effort NHTSA intended. Researchers at the Transportation Research Board section 403 conference recommended that NHTSA include in its requests for proposals some indication of the level of personnel or maximum dollars budgeted for the projects. In addition, the Associate Administrators for Research and Development and for Traffic Safety Programs told us that they would like to have a level of effort indicated in the requests for proposals.

NHTSA does not indicate level of effort, according to a 1978 memorandum by the Associate Administrator for Administration, because it saved half a million dollars in 1975 awards and $3.5 million in 1977 by not publicizing the

Government estimates. The Associate Administrator also stated in this memorandum that:

> "My objection to publicizing our levels of funding or effort also relates to the quality of our Government estimates, which are, more often than not, budgetary figures established over a year earlier. They are not adequate engineering estimates for procurement purposes, and they can grossly underestimate true project costs."

However, the Associate Administrator's cost savings estimates above are questionable because (1) he used these same engineering estimates in calculating these savings and (2) according to NHTSA, the savings did not consider modifications which increased the contract cost. NHTSA commented that:

> "To further document our view that the Government should not reveal its estimate of cost with the RFP [request for proposal], NHTSA has already initiated a study of completed contracts, to analyze contract results in terms of award amounts vs. Government estimates vs. completion costs."

NHTSA further states that it intends to test and objectively evaluate the use of level of effort this year.

Since level of effort may be in terms of staff-years like FHWA contracts, and since the value of a staff-year can vary, considerable latitude exists for negotiating with prospective contractors.

An indication of level of effort could be a useful guide for companies bidding on NHTSA proposals, and both operating group Associate Administrators agreed with this. NHTSA should reexamine its position on including this information in its requests for proposals, especially in light of FHWA's use of level of effort.

Contract monitoring lacks continuity

The contract technical manager who initiates a research contract is often not the same one who receives the final product. This fact leads to loss of continuity and contract delays.

According to an NHTSA order, contract technical managers are NHTSA's reference points for all activities pertaining to the technical performance of their assigned

contracts. They maintain close and regular contact with contractors, monitoring all phases of technical activity and progress. Contractors told us that generally the technical managers monitor the contracts adequately, but some contractors told us that they experienced unnecessary difficulties because of technical manager turnover. These turnovers include staff changes, retirements, and promotions. The Transportation Research Board section 403 conference report stated that the general turnover in personnel affects the continuity and the quality of highway safety programs.

Continuity is lost with a change of contract technical managers

Of the Office of Research contracts we reviewed, 54 percent had one or more technical manager changes. Contract age was not a factor in the number of turnovers. For the Office of Traffic Safety Programs, 25 percent of the contracts had one or more changes. In this Office, contract age was apparently a factor; the oldest contracts had three times as many changes as more recent ones.

Contractors dealt with the turnovers in varied ways. Some said that turnovers are not a problem, although there is a learning curve for each new contract technical manager. One felt turnovers caused minimal problems, and another felt that changes in the first 2 or 3 months could be a problem. However, problems can arise when a contract has more than one contract technical manager. For example, one contract had four managers. The contractor said the first manager's attitude was, "You do it"; the second's was, "I don't care"; the third's was, "You're doing it wrong"; and the fourth had just started and had not caught up yet.

Some delays are due to contract technical manager turnovers

When a contract technical manager is changed, a contract can be delayed at any stage from start to finish. Because of these delays, some contracts are not awarded or completed on time.

The award of a contract for field testing driver manuals was apparently delayed when the contract manager who had originated the contract left before it was awarded. The procurement request was dated May 1978, and the request for proposal was dated June 1978 with a closing date of August 1978. The new manager took over in December 1978 and made a site visit in January 1979. This contract, awarded in April 1979, took almost a year from procurement request to

award; the procurement leadtime goal is 125 days. In commenting on this example, NHTSA stated:

> "The delay in award was caused by the fact that only one proposal was received, and it was judged unacceptable. The time between August and December 1978 was spent trying to discover alternative bidders. During this time frame, the original CTM did leave the agency and the procurement action was assigned to a caretaker CTM.
>
> "There was a one month delay when the permanent CTM was assigned in December."

The completion of another contract was delayed due to contract manager changes. In this case the manager changed twice. The contractor's letter requesting an extension of the completion date noted that manager changes were one reason for requesting the extension. The original completion date of April 1979 was changed to June 1979.

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The Associate Administrator, Traffic Safety Programs, told us he was trying to decrease the number of turnovers. This is a step in the right direction.

NHTSA and FHWA procedures differ for sending companies requests for proposals

NHTSA procedures for sending out requests for proposals to prospective contractors include formal, coded bidders lists. However, contractors may unknowingly be dropped from a bidders list or may not know how to be put on one. FHWA does not use coded bidders lists but compiles a mailing list for each request for proposal.

A company must request to be placed on NHTSA's bidders lists. The Contracts and Procurement Office has code-numbered lists for each research and development area. The company states its qualifications and designates lists on which it wants to be placed. The requests for proposals are coded and sent to companies appearing on the appropriate bidders list.

A company can be dropped from a particular bidders list for three unacceptable replies, although the company is not informed that it has been dropped. Contracts and Procurement officials said that an unacceptable reply is one that does not say why the company is not bidding.

Having a bidders list system increases NHTSA's chances of receiving proposals from companies which are interested in a particular area of research. Companies that do not know how to get on the bidders list or are dropped from a list are still able to know what NHTSA is proposing. Notice of requests for proposals over $10,000 are placed in Commerce Business Daily, which is a daily list of U.S. Government procurement invitations and contract awards published by the U.S. Department of Commerce.

Reactions we received from contractors concerning bidders lists were so varied that we could not determine whether the lists were adequate or acceptable. Contractors we talked to with a large number of contracts find the method acceptable. One contractor said it was getting its information on requests for proposals from Commerce Business Daily until it was put on the lists. Then it had no problem receiving the ones it was interested in.

FHWA's procedures for selecting companies to receive requests for proposals differ from NHTSA's. FHWA keeps files of company capabilities and uses them as a source for sending out requests for proposals. The Contracts and Procurement Office compiles a mailing list for each request for proposal. Companies can make their capabilities known to FHWA by filling out qualifications forms and returning them to the Office. Like NHTSA, FHWA publishes notices of requests for proposals in Commerce Business Daily.

FHWA and NHTSA follow similar proposal evaluation procedures

In accordance with each agency's regulations, both NHTSA and FHWA set up committees to evaluate the technical proposals separately from the cost proposals.

When the proposals are received, the technical proposal portions are forwarded to the program office and the cost proposal portions are kept in the Contracts and Procurement Office. The technical proposals are evaluated by a board composed of the contract technical manager and other program office staff knowledgeable in the research area. The proposals are ranked as technically acceptable, technically unacceptable with correction potential, and technically unacceptable. The Contracts and Procurement Office matches the acceptable technical proposals with the cost proposals and negotiates with contractors.

In our sample of NHTSA Office of Research contracts, about 76 percent were awarded to the bidders with the highest technical scores. Fifty-five percent were awarded to

neither the lowest nor the highest bidders because most of these bidders (about 56 percent) had unacceptable technical proposals.

Inspector General report finds deficiencies in contract administration

In June 1979 the Department of Transportation's Office of Inspector General reported on the results of its section 403 program audit. The Inspector General had reviewed NHTSA contract functions in the Office of Contracts and Procurement. The report stated:

> "The computer report of open contracts prepared by NHTSA [Office of Contracts and Procurement] was not accurate as to contract amount, contract expiration date, or personnel monitoring assignments. The other report, prepared by the Office of Installations and Logistics (Office of the Secretary of Transportation) from information provided by NHTSA's Office of Contracts and Procurement, was not always updated for contract modifications or corrected for duplicate entries. Regarding contract closing functions, we found that completed contracts were frequently not administratively identified on a timely basis. When identified, the contracts were not actually closed for periods ranging between two and nine years."

In commenting on this report in October 1979, the Associate Administrator for Administration said that the NHTSA computer report of contract information was designed to be an internal reporting system and that it was not current because resources had been assigned to higher priority work. The reply also stated that the Contracts and Procurement Office had established a control point to assure that its input into the Office of the Secretary of Transportation would be submitted in a timely manner. On contract closeouts, the reply stated that through the efforts of a full-time, three-member task force, the Office had accomplished 170 contract closeouts, or one-third of all contracts ready for closeout.

During our review we also found that the Contracts and Procurement computer list of contracts was out of date and inaccurate. It did not accurately distinguish between section-403-funded contracts and other contracts. Therefore, we could not use it to establish a universe of contracts. We did not review contract closeouts. However, a

Contracts and Procurement official told us that there is presently no task force and that individual contract specialists are working on their own closeouts.

CONCLUSIONS

NHTSA's contract management problems center primarily in the Offices of Research and Traffic Safety Programs. The problems of extensive modifications and yearend contracting result in unmet time schedules, added costs, and a general lack of continuity in many contracts.

NHTSA officials are aware of these problems and, in the case of yearend contracting, have tried unsuccessfully to solve them, whereas in the case of extensive modifications, they do not agree that the situation is a problem. We believe that NHTSA's contract management problems are due primarily to the following factors.

- --The Offices of Research and Traffic Safety Programs' planning and monitoring of individual contracts do not discourage modifications.

- --The Offices continue to delay contracting until the end of the fiscal year, resulting in overtime expenses in the Office of Contracts and Procurement and adversely affecting contractors' responses to requests for proposals.

Other problems in NHTSA contract management include inaccurate and out-of-date section 403 contract lists and loss of continuity due to contract technical manager turnovers. Also, including a level of effort in the requests for proposals would aid contractors in writing their proposals.

RECOMMENDATIONS TO THE SECRETARY OF TRANSPORTATION

We recommend that the Secretary direct the Administrator, NHTSA, to initiate a system of contract design and monitoring that will

- --promote better initial contract planning to reduce the necessity for and the number of future modifications and

- --allow contract awards to be spread throughout the year.

We also recommend that the Offices of Research and Traffic Safety Programs maintain accurate contract lists and make

every attempt to reduce contract technical manager turnovers. In addition, the NHTSA Contracts and Procurement Office should give closer consideration to including a level of effort in its requests for proposals.

AGENCY COMMENTS AND OUR EVALUATION

In its response to our draft report, the Department stated:

> "We disagree with GAO's assertion that contract management practices have resulted in unmet time schedules, added costs, and general lack of continuity in many contracts. Our practices on contract modification demonstrate sound management principles in that modifications are made to recognize interim results, and their impact on work specification and expected products.
>
> "Sound management dictates the need to modify contracts when the need becomes apparent rather than to accept less usable results or engage in another time and manpower-consuming competitive procurement where the current contractor is highly likely to win because of previous work in the same area."

We believe our report adequately demonstrates that NHTSA has contracts which have not met proposed time schedules, have had added costs, and have generally lacked continuity. We recognize that because of the nature of research, these practices will occur from time to time; however, they seem to be prevalent in NHTSA. With better initial contract planning, NHTSA can reduce the occurrence of modifications which extend time schedules and add costs.

Four modifications per contract and a modification rate of over 70 percent do not support a system of sound contract management regardless of modification purposes. Moreover, contracts we reviewed showed that there were many reasons for modifications other than those mentioned by the Department, including extending completion dates, adding work, shifting funds, changing directions, and increasing sample size. Many of these increased contract costs and delayed final products.

The Department's response acknowledged that its contract lists were out of date and would be revised by the end of June so that they will be current. The Department stated that:

"NHTSA does not change contract technical managers in an arbitrary manner but change is obviously required based on attrition of personnel."

We do not contend that contract technical managers are changed in an arbitrary manner but that these changes lead to loss of continuity and contract delays and therefore should be kept to a minimum.

In response to our recommendation that NHTSA give closer consideration to including a level of effort in its requests for proposals, the Department stated that it opposed

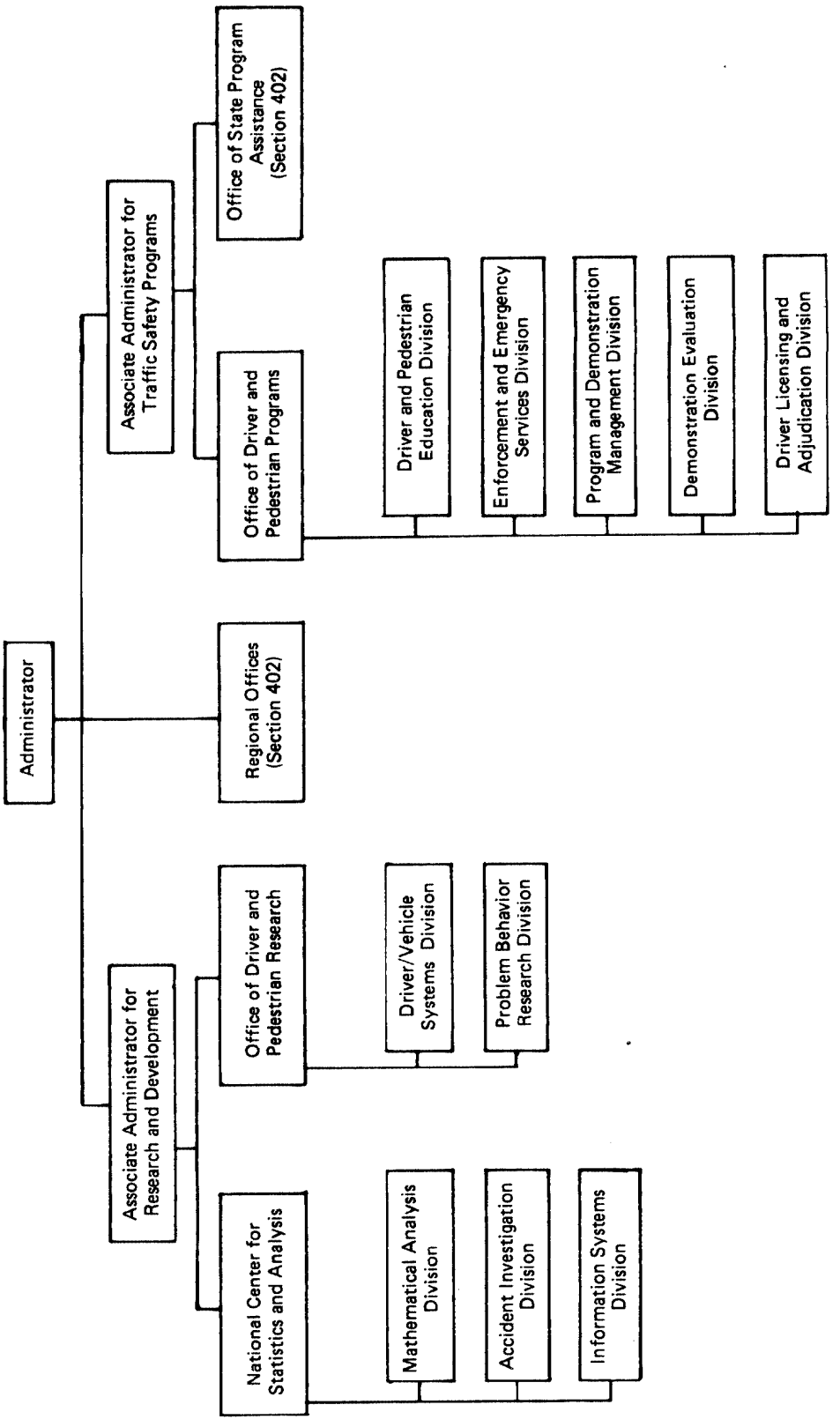
"* * * publicizing level of effort because it would result in substantially increased cost to NHTSA in executing its contract program. * * * The average award has been less than the Government estimate. If we publish the Government estimate, we are sure that all bids will be at or very near that figure."

We believe NHTSA has not shown that publicizing level of effort would substantially increase costs or obtain less for the research dollar. We agree that the average award has been less than the Government estimate. However, the average award amount is not the total contract cost because it does not include the numerous contract cost modifications, and an NHTSA Associate Administrator said that the estimates can grossly underestimate true project costs. NHTSA stated in its detailed response that it is pilot testing level of effort. If this test is objectively done, it should help NHTSA obtain a better evaluation of the effects of including level of effort in its requests for proposals.

APPENDIX I

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

(Organization Chart for Section 403-related Activities)



APPENDIX II

U.S. Department of Transportation
Office of the Secretary of Transportation

Assistant Secretary for Administration

400 Seventh Street, S.W.
Washington, D.C. 20590

APR 1 3 1980

Mr. Henry Eschwege
Director, Community and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

We have enclosed two copies of the Department of Transportation's (DOT) reply to the General Accounting Office (GAO) draft report, "Highway Safety Research And Development—Better Management Can Make It More Useful."

DOT does not concur in the majority of the findings and conclusions of the draft report. We believe that GAO has reached faulty conclusions based on limited information. We recommend that GAO carefully review and consider the facts and the enclosed statement prior to writing the final report.

If we can further assist you, please let us know.

Sincerely,

Edward W. Scott, Jr.

Enclosures

(347492)

U.S. GOVERNMENT PRINTING OFFICE : 1980- 620-386/227

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