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10-21-76

# REPORT TO THE CONGRESS



BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES



## Management Actions Needed To Improve Federal Highway Safety Programs

Federal Highway Administration  
Department of Transportation

A 1972 GAO report said more Federal-aid construction funds should be used to improve highway safety. Although spending on highway safety had increased from \$100 million in 1971 to \$1.1 billion in 1975, neither the Highway Administration nor the States had assurance that the funds obligated were for projects offering the greatest safety benefits.

The Highway Safety Act of 1966 required the States to establish systematic procedures for selecting safety construction projects. None of the eight States GAO reviewed had fully met this requirement. Furthermore, the Highway Administration had not developed adequate procedures to measure the States' progress in implementing their systems and did not know what progress had been made or when the States would meet the spirit of the act.

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OCT. 21, 1976

DIGEST

MANAGEMENT ACTIONS NEEDED  
TO IMPROVE/FEDERAL HIGHWAY  
SAFETY PROGRAMS/FEDERAL HIGHWAY ADMINISTRATION  
DEPARTMENT OF TRANSPORTATION

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The Highway Safety Act of 1966 legislated the Federal Highway Administration's safety program. The Highway Safety Act of 1973 authorized specific funds for making safety improvements. We reported to the Congress the progress that eight States had made since 1966 in developing systematic approaches to identify hazardous locations, determine the most hazardous locations, and select cost-effective projects.

We found that although 10 years had passed, none of the States we reviewed had a fully implemented project selection system or definitive plans for achieving one. We reported that:

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- 1 - All accident data was not being analyzed to determine the most hazardous locations.
- 2 - Safety improvement projects were not always selected on the basis of cost effectiveness.
- 3 - Inventories of cost-effective projects were not being used to establish priorities.
- 4 - Projects financed with Federal-aid construction funds were not selected through a systematic approach.
- 5 - Federal-aid highways under local jurisdictions were not considered and did not receive safety funds.

Because the project selection systems contained weaknesses, the Federal Highway Administration and the States did not have assurance that Federal funds were being used for the most beneficial safety improvements. As a result, we made several recommendations to the Secretary of Transportation including that he direct the Federal Highway Administration to determine, in cooperation with each State, the actions necessary to complete an adequate project selection system and the timeframe for completing these actions. With this information and effective monitoring and evaluation, the Highway Administration will be able to insure that the States develop and use procedures for selecting and performing the most cost-effective safety projects.

FY 1977

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DOT-FHWA

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10-21-76



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

B-164497(3)

To the President of the Senate and the  
Speaker of the House of Representatives

This report describes the Federal Highway Administration's progress in establishing highway safety programs and contains recommendations to the Secretary of Transportation for monitoring and evaluating States' development and use of systems for using safety funds effectively. *two copies*

We reviewed the highway safety programs of the Federal Highway Administration to assess the progress made since our earlier report in 1972 entitled "Problems in Implementing the Highway Safety Improvement Program," (B-164497(3)) and to determine the impact of the categorical safety funds provided by the Highway Safety Act of 1973. Our review was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

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

A handwritten signature in black ink, appearing to read "James B. Starks".

Comptroller General  
of the United States

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COMPTROLLER GENERAL'S  
REPORT TO THE CONGRESS

MANAGEMENT ACTIONS NEEDED TO  
IMPROVE FEDERAL HIGHWAY  
SAFETY PROGRAMS  
Federal Highway Administration  
Department of Transportation

D I G E S T

An enormous amount of money and effort has been devoted to reducing fatalities on the Nation's highways. The traffic fatality rate in 1966 was 5.7 deaths per 100 million vehicle miles. By 1975 the rate had declined to 3.4. Nevertheless, there were 45,000 traffic deaths in 1975.

The Highway Safety Act of 1966 required States to have a federally approved highway safety improvement program. Although States had made varying degrees of progress in developing and using systematic project selection systems, the Federal Highway Administration had not established a date by which States' systems had to be complete.

One of the standards developed in response to the act--Identification and Surveillance of Accident Locations--required the States to select locations for safety improvements systematically. Fulfillment of this standard and development of inventories of cost-effective projects, subject to State and local constraints, would have assured that Federal funds were used for the most beneficial safety improvements.

Providing flexibility to States in terms of the amount of time needed to plan and put into effect a systematic highway safety program was absolutely necessary. However, 10 years have passed and none of the eight States GAO reviewed had a fully implemented system, or definitive plans for achieving one.

States have had enough time to design a highway safety project selection system and to develop a plan, including milestones, for implementing their systems. However, until the plans are implemented, the Federal and State Governments cannot assure the public that they are achieving the greatest safety benefits for its money.

The Highway Safety Act of 1973 gave the program major status by providing \$1.2 billion for safety construction. It also required systematic project selection procedures and an assessment of costs and safety benefits in order to measure program effectiveness.

On May 5, 1976, the President approved the Highway Safety Act of 1976. It provided States funding authority through fiscal years 1977 and 1978 and increased States' flexibility to administer safety efforts.

The new act combined two previously separate programs and increased States' ability to transfer funds to the highest priority program among the various categorical safety programs. In addition, the Congress authorized specific funds to assist States in implementing the safety standards including development of selection systems.

This new authority to the States should improve the overall effectiveness of the highway safety program; but, it will not be enough to guarantee that Federal funds are spent on projects offering the greatest safety benefits unless the Federal Highway Administration takes additional actions to improve its management of the program. (See ch. 2.)

GAO reviewed highway safety programs in eight States--California, Idaho, Louisiana, Maryland, Nevada, Pennsylvania, Texas, and Washington.

GAO found that obligations for safety improvements had increased from about \$100 million in 1971 to \$1.1 billion in 1975--about 15 percent of the total Federal-aid obligations.

States had made progress in identifying and correcting hazardous locations but they had not fully applied systematic approaches to selecting safety projects. Most of the States' systems contained the following weaknesses:

--All accident data was not being analyzed to determine the most hazardous locations.



- Safety improvement projects were not always selected on the basis of cost effectiveness.
- Inventories of cost-effective projects were not being used to determine priorities.
- Projects financed with Federal-aid construction funds were not selected through a systematic approach.
- Federal-aid highways under local jurisdictions were not considered and did not receive safety funds. (See pp. 6 to 13.)

The following cases demonstrate two of the weaknesses found:

- One State used most of its high-hazard location funds for fiscal years 1974-76 for a single improvement--a \$2.6 million project to construct a highway interchange. The intersection did not rank high on the State's accident listing, and its cost effectiveness had not been determined. The project was selected because the engineering plans were on the shelf when funds became available and some safety benefits would be achieved.
- Another State did not use any safety construction funds for improving Federal-aid highways in one of its major cities. The city was not considered for safety projects because an inventory of potential projects had not been developed. A State official said the city's safety needs would be considered in the future.

Because sufficient resources are seldom available to complete all the potentially beneficial projects, the most cost-effective projects should be accomplished first. Examples of deficiencies in project selection procedures described above prevent both the Federal Highway Administration and the States from being reasonably sure that improvements made represent the most effective use of Federal funds.

Although the Federal Highway Administration issued guidelines stating that project

selection systems should be based on accident analysis and cost effectiveness, it did not develop procedures to measure States' progress. Therefore, it did not know what progress States had made in implementing a system or when they would be completed. Consequently, it could not adequately report the States' progress to the Congress or provide States guidance needed to complete their systematic approaches. (See p. 13.)

The Federal Highway Administration has improved management of the safety program by consolidating program management, emphasizing a systematic approach, and establishing obligational goals. However, more consideration needs to be given to States' planning processes to be sure that they use systematic procedures to select cost-effective projects. (See p. 15.)

The Secretary of Transportation should require that the Administrator of the Federal Highway Administration:

- Determine, in cooperation with each State, the actions necessary to complete an adequate project selection system.
- Require the States to submit a plan including realistic time frames, for implementing these actions.
- Monitor and evaluate States' development of project selection systems.
- Monitor States' implementation of project selection systems to insure that safety projects financed with regular construction and safety construction program funds are selected through a systematic approach.
- Establish a definite and reasonable date by which each State must select safety projects from inventories of cost-effective projects. (See p. 18.)

The Department of Transportation generally agreed with GAO's recommendations but did not believe States could develop inventories of cost-effective projects. It pointed out

that cost-effective analysis was, at best, a tool for determining what type of improvements should be made.

GAO believes that procedures to maintain reliable project priorities can be developed and is convinced that within existing constraints, cost-effectiveness analysis should be used not only to select the type of improvement but also to select the location that should be improved. (See p. 20.)

## CHAPTER 1

### INTRODUCTION

The Highway Safety Act of 1966 (80 Stat. 731) requires each State to have a highway safety improvement program approved by the Secretary of Transportation. The objective of this program is to reduce deaths, injuries, and property damage caused by traffic accidents on the Nation's highways. The Secretary, through the Federal Highway Administration and the National Highway Traffic Safety Administration, developed uniform safety standards to lessen the accident-producing characteristics of drivers, vehicles, and highways. These standards established national goals for the States' safety improvement programs. The act requires the Secretary to annually report to the Congress on the administration of the activities, including the degree of compliance with Federal standards.

The National Highway Traffic Safety Administration is responsible for driver and vehicle standards and the Federal Highway Administration is responsible for highway standards. Our review focused on the Highway Administration's management of the States' programs for correcting hazardous highway features.

Highway safety has been improving steadily since 1966 when the traffic fatality rate was 5.7 deaths per 100 million vehicle miles. By 1975, that rate had declined to about 3.4. The Nation's traffic fatalities decreased from about 56,000 in 1972 to about 45,000 during 1975. This decrease has been attributed to several factors, including the 55 mile per hour speed limit, safer vehicles, and safer highways. However, States have identified thousands of existing hazardous locations still needing correction. A study sponsored by the National Highway Traffic Safety Administration showed that the highways and the adjacent roadsides were either principal or contributing causes for about 16 to 33 percent of the traffic accidents investigated.

### PROGRAM EVOLUTION

The highway safety program was initiated in 1964, when the President expressed concern about the large number of fatalities occurring annually on the Nation's highways. The Highway Safety Act of 1966 provided States with financial assistance to develop and implement accident identification and analysis systems--both integral elements

in a systematic approach for selecting cost-effective 1/ safety projects. Between fiscal years 1967 and 1975, States obligated about \$106 million in developing procedures for selecting safety improvement projects. About \$25 million of the obligations were Federal funds, and about \$81 million were State funds.

Although the Highway Safety Act of 1966 provided funds to aid States in planning and implementing a systematic approach for identifying hazardous locations, it did not provide funds for correcting these locations. To promote safety construction, the Highway Administration encouraged States to use their regular Federal-aid construction funds 2/ to correct such locations.

The Highway Administration recognized that accidents tend to cluster at identifiable highway locations and that these high-hazard locations should be given priority for safety improvements. Accordingly, in 1969, guidelines for developing a system for selecting safety projects based on accident data were issued to the States. The Highway Administration believed this system should consist of the following sequential steps:

- Establish methods for identifying accident locations.
- Accumulate accident data by location.
- Identify the most hazardous locations by analyzing the number and severity of accidents for similar highways with similar traffic volumes.
- Determine the cost of correcting identified highway defects and the expected benefits, such as reductions in fatalities, injuries, and property damage.
- Rank the studied locations, giving highest priority to those with the greatest expected benefits compared to the costs of corrective actions.

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1/For purposes of this report, cost-effective is defined as obtaining the most safety benefits for each dollar spent. A cost-effectiveness study is defined as any recognized method for making this determination.

2/Normally used for constructing new highways or upgrading existing highways.

--Select the highest priority locations which can be corrected with the funds available.

Our May 1972 report on the highway safety program, entitled "Problems in Implementing the Highway Safety Improvement Program" (B-164497(3)), showed that, generally, States had spent Federal-aid construction funds for new highway construction rather than for correcting hazardous locations. We pointed out that only about 2 percent of the Federal-aid highway construction funds had been spent for safety improvement projects even though such projects provided greater safety benefits than regular highway construction work.

Our report concluded that the safety program had not achieved the status of a fully implemented major national program. The States reviewed had not selected projects systematically. Therefore there was no reasonable assurance that the limited funds obligated for safety improvements were being used for the most beneficial projects. To promote greater State efforts to improve highway safety, we suggested that part of the highway trust fund be set aside annually for eliminating or correcting hazardous locations.

Subsequently, the Highway Safety Act of 1973 (Public Law 93-87) (87 Stat. 286, 287) required States to assign priorities for correcting hazardous locations. Although the act did not require costs and benefits to be the basis for selecting locations to be improved, it did require the States to evaluate the costs and benefits obtained at the improved locations. The act also provided \$1.2 billion specifically for safety improvements projects for fiscal years 1974-76. The act continued the Special Bridge Replacement Program, established by the Highway Safety Act of 1970, and started new programs for pavement marking, correcting high-hazard locations, eliminating roadside obstacles, and improving rail-highway crossings. In addition to creating programs for the Federal-aid system, except interstate highways, the act also authorized funds for correcting safety defects on non-Federal-aid highways.

In a speech before the annual meeting of the National Conference of Governors' Highway Safety Representatives in October 1975, the Federal Highway Administrator emphasized the importance of the systematic approach:

"\* \* \* Because sound safety programs cannot be developed on hunches, improved accident data collection and analysis systems are vital."

\* \* \* \* \*

"Accident, traffic and highway data are the basis for highway safety improvement planning, scheduling, and evaluating. But unless there is competent analysis of accurate, complete, reliable, and timely data, the process will not produce the needed results--reduction in the frequency and severity of accidents \* \* \*."

The Administrator also commented that safety projects should be selected on the basis of cost versus expected benefits.

#### PROGRAM ADMINISTRATION

The highway safety improvement program is managed and funded cooperatively by the Highway Administration and the individual States. The Highway Administration is responsible for developing program guidance, approving States' plans for developing and implementing systematic procedures for selecting safety improvement projects, and approving States' proposed projects. In addition, it is responsible for evaluating States' assessments of the actual safety benefits achieved from the projects. The Highway Administration requires States to develop a 4-year Comprehensive Plan and an Annual Work Program for measuring their progress in implementing a safety program.

The Comprehensive Plan describes the State's progress in implementing safety programs and identifies what the State plans to accomplish over the next 4 years. The Annual Work Program lists the program elements that the State plans to accomplish during the next year and establishes the activities' funding levels. Federal approval of the States' highway safety programs is based on these plans and the States' progress in implementing systematic procedures for project selection.

#### SAFETY CONSTRUCTION OBLIGATIONS

State obligations of Federal funds for highway safety improvements 1/ have increased considerably since 1970 and increased at an even faster rate during 1975. Obligations ranged from about \$100 million in 1971 to about \$1.1 billion during fiscal year 1975.

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1/For purposes of this report, highway safety improvements are those reported by the Highway Administration in their monthly safety obligation report.

This increase is attributable not only to the availability of specific funds provided by the Highway Safety Act of 1973, but also to States' increased use of Federal-aid construction funds for safety improvements. The growing emphasis on safety construction is evident when the 8.7 percent of Federal-aid funds obligated for safety improvements for fiscal years 1971-75 is compared with the 2 percent obligated for fiscal years 1964-70. (See apps. I and II.)

#### SCOPE OF REVIEW

We reviewed Federal Highway Administration safety improvement programs at its Washington, D.C., headquarters; the State offices responsible for managing the programs in California, Idaho, Louisiana, Maryland, Nevada, Pennsylvania, Texas, and Washington; and the Highway Administration's regional and division offices having management responsibilities for these States. We talked to officials of several cities in these States. We also received comments from State and city officials and considered their views in preparing this report.

We reviewed pertinent Federal legislation, Highway Administration policies and procedures, and Federal and State records pertaining to the safety improvement programs. We also interviewed Highway Administration and State officials.

We reviewed the (1) procedures established to identify and correct hazardous highway locations and (2) States' plans for completing a project selection system.



## CHAPTER 2

### IMPROVEMENTS NEEDED IN MANAGING

#### THE HIGHWAY SAFETY PROGRAM

The Highway Safety Act of 1966 required the Department of Transportation to establish a standard for identifying and surveying accident locations. The standard required the States to systematically select high-hazard locations for safety improvements. All eight States we reviewed were correcting highway hazards; however, none had fully implemented the standard. Although the Highway Administration issued guidelines, it did not develop adequate procedures for assessing the States' progress in developing the required system. As a result, 10 years later the Highway Administration did not know what progress the States had made or when they expected to complete their systems.

Because sufficient resources are seldom available to complete all the beneficial highway safety projects, the most cost-effective projects should be accomplished first. Until the States develop and implement their systematic approaches, the Highway Administration has little or no assurance that the projects selected are those having the greatest accident reduction potential for each dollar spent.

During 1975 and 1976, the Highway Administration initiated several actions to improve its management of the highway safety improvement program. These included efforts to focus responsibility for program management at State and Highway Administration division offices and to determine the status of the States' project selection procedures. However, we believe that additional actions are needed to insure that the States develop and use a systematic approach for project selection.

#### SYSTEMATIC APPROACH TO SELECTION OF PROJECTS NOT IMPLEMENTED

The Highway Safety Act of 1973 added impetus to the highway safety program by providing safety improvement funds; however, the Highway Administration has not aggressively managed the program. Although States have made some progress in identifying and correcting hazardous highway locations, their systems for selecting safety projects need to be improved.

Weaknesses identified in most of the project selection systems of the eight States we reviewed were:

- All accident data was not being analyzed to determine the most hazardous locations.
- Safety improvement projects were not always selected on the basis of cost-effectiveness analysis.
- Priorities were not being established through the use of inventories of cost-effective projects.
- Projects financed with Federal-aid construction funds were not selected through a systematic approach.
- Federal-aid highways under some local jurisdictions were not considered and did not receive safety funds.

All accident data not analyzed

The basis of a successful highway safety program is identification and analyses of accident locations on all highways to determine which hazardous locations should be considered for safety improvements. This involves summarizing all accidents by location. Then, the most hazardous locations are identified. This is done by weighting the severity--in terms of fatalities, injuries, and property damage--of the total number of accidents on similar highways with similar traffic volumes.

Although the eight States we reviewed have accident reporting systems, they did not obtain all the information required for identifying the most hazardous locations, and when available it was not always used. These problems were found to a greater degree for highways under local jurisdictions; however, gaps also existed in the information gathered for State-administered highways.

Examples of weaknesses in States' use of accident data are summarized below.

- Maryland had not analyzed all of its accident data to identify its most hazardous locations. Although 34 percent of the State's accidents occurred in the city of Baltimore, these statistics had not been included in the State's analysis of accident locations.

From 1965 to 1972, Baltimore had its own accident identification system. Then in 1972, the State required

the city to adopt a State-wide uniform accident-reporting form. Because the city's previously developed computer programs could not analyze the computerized list of locations provided by the State, the city did not have an automated accident analysis system. City officials told us that except for occasional manual searches, the city's accident data had not been analyzed since 1972. In August 1976 city officials advised us that they had recently converted their computer program to enable identification and analysis of high accident locations.

--Louisiana's accident identification system did not include 38,000 miles of city streets and parish roads on which 46 percent of the State's accidents occurred. Although the State received individual reports of accidents on these highways, parish accidents could only be identified as occurring within the parish, and city accidents could only be identified as intersection or nonintersection. However, the State plans to upgrade its location identification system by numbering parish roads and installing markers at some intersections. This plan includes a location system for city streets and for midblock accidents in eight major cities. With this new ability, Louisiana expects to be able to identify the location of 90 percent of its accidents.

--California, Maryland, and Pennsylvania gave their local governments computer listings of accidents, including accidents occurring on Federal-aid highways within their jurisdictions. However, the data was not analyzed, as described on page 2 of this report, to identify the most hazardous locations. Maryland officials told us that they were working on a project to develop information to identify hazardous locations.

--The State of Washington had accident data for all accidents but had not developed a State-wide list of the most hazardous locations. Although local jurisdictions were responsible for analyzing their own accident data and developing high-hazard location lists, the traffic volume information needed for the analysis was not available. State officials estimated that only a few local jurisdictions had performed these analyses.

### Cost-effectiveness studies not prepared

The Highway Safety Act of 1973 required States to establish priorities for high-hazard locations needing safety improvements. Although the act did not specify that cost effectiveness was to be the project selection criteria, it required States to assess the costs incurred and benefits obtained from completed projects. The Highway Administration regulations require that proposed safety improvement projects be ranked in priority order based on their comparative estimated costs and benefits. This is done by comparing estimated construction costs with the expected safety benefits.

Of the eight States we reviewed, four did not use cost-effectiveness analysis and another did not consistently use its method for selecting safety improvement projects.

- Maryland officials had not made cost-effectiveness studies. They said that because the available safety improvement funds were sufficient for all the State's planned projects, there was no need to establish project priorities. The State's 1974-76 funds for high-hazard locations were used mainly on one improvement--a \$2.6 million project to build an interchange at an intersection. The intersection did not rank high on the State's accident listing; however, State officials selected the project because the engineering plans and specifications were on the shelf at the time funds became available and some safety benefits would be achieved. Maryland officials told us in August 1976 that they have initiated cost-effectiveness studies and are establishing project priorities.
- Louisiana had established safety improvement priority lists but the priorities were not based on cost effectiveness. Instead they were based on engineering judgment and analysis of accident data. The weakness in this system is that the improvements are not related to anticipated benefits. Although it did not compare benefits to costs, the State expects to implement a cost-effectiveness method in the future.
- Nevada used high-hazard location safety funds for installing illuminated street name signs. The project justification submitted to the Highway Administration stated that the street signs were to be installed at hazardous intersections; however, a cost-effectiveness analysis had not been prepared.

At the time of our review, Nevada was developing a system to select safety projects ranked on the basis of cost effectiveness. The State planned to select its future safety projects with this system.

The 1973 act also provided funds for correcting safety hazards at rail-highway crossings. Each State's annual report on its safety program was to assess the costs of the improvements made at rail-highway crossings and the subsequent accident experience at the improved locations.

--We found that California did not make cost-effectiveness studies before selecting rail-highway grade crossing projects. The State was using \$2.8 million of its Federal funds to construct grade separations at two rail-highway crossings. The State selected these projects because it believed projected increases in automobile traffic would increase the possibility of accidents at the crossings. In September 1975 the Highway Administration told the State that grade separation projects would appear very low in cost effectiveness and in the future would require individual justifications of cost effectiveness.

#### Priority systems not complete

The Highway Administration regulations for selecting safety improvement projects included, as a condition of its approval, that the States prepare a schedule of projects based on priority rankings. However, the Highway Administration recognized that all States had not yet established systematic project selection procedures and consequently allowed States to perform safety improvement projects even if they had not completed their systems. Specifically, the Highway Administration told the States that if priority lists have not been completed, but have been started, high priority projects need not be delayed until all requirements are satisfied.

Developing a list of the most hazardous locations does not assure that the maximum safety benefits are being received for each dollar spent. When selecting hazardous locations for study, there is no assurance that the most hazardous location identified through accident analysis will be the most cost-effective project to perform. Instead, the combined safety benefits of several less hazardous locations may be greater and cost less than correcting the most hazardous location. However, until a large number of locations are studied, this will not be apparent. Establishing a large inventory of projects for which cost and

benefit analyses have been completed enables priority ranking of a large number of safety improvement projects by comparative cost effectiveness.

Five of the eight States we reviewed had not established inventories of cost-effective safety projects. Highway Administration officials did not know how much progress States had made toward developing their inventories or when these inventories would be developed.

Unless these inventories are developed, an effective method of establishing project priorities cannot be accomplished. Selecting projects from a high-hazard location list and determining cost effectiveness as the project is submitted for Highway Administration approval is equivalent to a first-come-first-served procedure.

#### Projects financed with Federal-aid construction funds

Before specific safety construction funds were provided by the Highway Safety Act of 1973, the Highway Administration had authorized States to use Federal-aid construction funds for safety improvements. Program guidance issued in 1974 for the safety construction funds emphasized using other funding sources for safety improvements. Specific safety construction funds were to supplement States' ongoing safety programs previously financed by State and regular Federal-aid funds. Highway Administration records show that during fiscal year 1975, the eight States we reviewed obligated \$207.3 million for safety improvement projects using regular Federal-aid construction funds. This represents one-third of the \$633 million obligated nationally for safety work using these funds.

Our May 1972 report on the highway safety improvement program stated that a large amount of Federal-aid funds spent for safety improvements were for projects not selected through a systematic approach. Our current review shows that in six of the eight States many safety improvement projects financed with regular Federal-aid construction funds during fiscal year 1975 were not selected through a systematic approach. Highway Administration Division officials told us, however, that States were not required to use a systematic approach when obligating regular Federal-aid construction funds for safety projects.

Highway Administration headquarters officials told us that it was their intent, although not specifically stated in the current highway safety improvement program manual, that all federally funded safety projects, whether

funded with safety or construction funds, should be selected through a systematic process. Program guidance as early as March 1969 instructed States to establish project priorities based on cost effectiveness. Therefore, States should have selected all projects for correcting hazardous locations through a systematic approach.

Between July and October 1975 the Highway Administration stressed the use of a systematic approach for selecting safety projects funded with regular Federal-aid funds. In September 1975 it advised States that all federally funded safety improvement projects should be selected by the same procedures established for the high-hazard location program. However, the Highway Administration will have to monitor States' method for selecting these projects to be certain that a systematic approach is being used.

#### Federal-aid highways under local jurisdictions not considered for safety improvements

The Highway Safety Act of 1973 authorized funds for safety projects on all Federal-aid highways except the Interstate System. Although these funds were distributed to the States, locally administered Federal-aid highways were also to be considered when determining the most cost-effective locations to improve. As of 1974, locally administered Federal-aid highways represented about 37 percent or 345,000 miles of the 927,000-mile Federal-aid highway system. Accident data was not readily available for all locally administered Federal-aid highways; however, an average of 4,300 deaths occurred annually from 1967 to 1974 on Federal-aid secondary roads administered by local jurisdictions.

Of the eight States we reviewed, only Idaho and Washington obligated high-hazard location and roadside obstacle removal funds for both State and locally administered Federal-aid highways. The remaining States did not obligate any of these funds for locally administered Federal-aid highways.

Several examples of local Federal-aid highways not considered for safety improvements are discussed below.

--California has 31,754 miles of Federal-aid highways--  
14,391 miles under State jurisdiction and 17,363  
miles under local jurisdictions. The State did not  
use high-hazard location or roadside obstacle funds  
for Federal-aid highways under local jurisdictions  
even though many miles of these highways are in high-  
traffic volume areas, such as Los Angeles and San  
Francisco.

Although most of the main streets of San Francisco are Federal-aid highways under local jurisdiction, a city official told us the city was not aware that funds were specifically available for improving high-hazard locations and removing roadside obstacles. Traffic engineering officials in Santa Clara were vaguely familiar with the roadside obstacle program but were not familiar with the high-hazard locations program.

However, both cities were using regular Federal-aid funds for some safety improvement work. California's Department of Transportation stated that establishing a system to consider funding local Federal-aid highways was impractical because of the large number of local jurisdictions.

--Pennsylvania did not use funds authorized by the Highway Safety Act of 1973 for any Federal-aid highways in the city of Philadelphia. A State highway official said safety projects were not considered because an inventory of potential projects had not been developed for Philadelphia. However, he said that the city's identified safety needs would be considered in the future.

As of August 1976 several States were initiating efforts to obtain project applications from local jurisdictions.

The Department of Transportation's Office of Audits also reported that in six States which they reviewed, not all locally administered Federal-aid highways were included in the accident identification and analysis process for identifying hazardous locations needing correction. Therefore, these highways were not considered for safety improvements.

#### ADDITIONAL INFORMATION NEEDED TO MEASURE STATES' PROGRESS

The Federal Highway Administration and the National Highway Traffic Safety Administration are responsible for measuring States' progress in implementing the highway safety program standards. One of the standards--Identification and Surveillance of Accident Locations--requires the States to develop a systematic approach for selecting highway safety construction projects.

The Highway Administration's procedures and practices for administering this standard did not provide enough information to adequately measure States' progress in im-



plementing a systematic approach for selecting safety projects. As a result the Highway Administration (1) did not know what progress States had made in implementing their systems or when they would be completed and (2) could not adequately report to the Congress on the States' progress or provide States needed additional guidance for improving their systems.

The Highway Administration initially provided the States with the following performance criteria for developing systems.

- Accurate identification of accident locations.
- Analysis of accident data to identify locations having unusually high accident frequency weighted for severity, average daily traffic, and vehicle miles.
- Determination of accident causes so that corrective action, such as speed enforcement or correction of highway features, can be undertaken.
- Analysis of accident reduction measures to determine cost effectiveness, such as cost-benefit ratios of proposed safety improvements. The analysis should include factors, such as traffic volume, construction and financing costs, serviceable life of improvements, and estimated safety benefits.
- Priorities for correctable highway defects based on cost-effectiveness techniques.

Recognizing that States had varying capabilities for analyzing accident data to select locations needing improvement, the Highway Administration required the States to submit Comprehensive Plans, describing their existing procedures and plans for completing the project selection system, every 4 years. These plans were to be one of the bases for measuring States' progress in implementing a highway safety program. The Highway Administration approved the States' 1968 and 1972 Comprehensive Plans. A Highway Administration official told us that States' plans included general outlines of safety planning but did not provide enough information to determine the current status of the States' systems.

Our review of the eight States' plans showed that most of the States described their accident location systems in general terms and indicated that accidents were summarized by location. However, the plans did not (1) describe existing procedures for selecting individual safety

improvement projects, (2) specify what additional actions were needed to complete the required systematic approach, and (3) indicate when the system would be completed. As a result, the Highway Administration did not have assurance that the States' plans for developing and implementing a systematic approach would enable them to achieve the most safety benefits for each dollar spent.

In March 1972 the Highway Administration advised the States that they should be able to accurately identify accident locations on all public roads by December 31, 1975. It did not, however, establish target dates for implementing the other elements of a systematic approach, such as developing inventories of cost-effective safety projects.

The Highway Administration made separate evaluations of the States' safety improvement programs in 1972 and 1974 to assess the progress in implementing systematic approaches for selecting highway safety construction projects. Several Highway Administration and State officials were not satisfied with the evaluation method used. Some said the progress reported should have been based on more qualitative measurements. In addition, several State officials said the evaluation criteria should have been consistently used.

Because neither Highway Administration officials nor State officials were satisfied that the evaluations accurately depicted the status of States' highway safety programs, the Highway Administration initiated a large scale study in October 1975 to identify States' progress and weaknesses in their accident identification and analysis systems. (See p. 17.)

#### RECENT HIGHWAY ADMINISTRATION ACTIONS TO IMPROVE MANAGEMENT

The Highway Administration has improved its management of the highway safety program. Although the improvements should result in a more effectively managed program, additional measures are needed to insure that States develop and use a systematic approach for project selection.

In May 1975 the Highway Administrator appointed an Associate Administrator for Safety, the first since the position was established in 1970. However, the Associate Administrator only had responsibility for the highway-related safety standards. This included responsibility for insuring that the States develop and implement a systematic approach for project selection.

In March 1976, program management responsibilities for all highway safety functions except the Special Bridge Replacement Program were assigned to the Associate Administrator for Safety. This included safety construction projects funded from designated safety programs and from regular Federal-aid construction programs.

In addition, each year the Highway Administration designates several program areas to be emphasized by the States. During fiscal year 1975 these included improving procedures for accident data collection and analysis and increasing the level of funds obligated for safety improvements. The Highway Administration said the States needed to improve the quality, timeliness, and analysis of their accident data to establish a better basis for identifying safety problems, developing corrective improvements, and evaluating results. Also, the States were encouraged to increase obligations of categorical safety funds ten-fold from the \$25 million obligated in fiscal year 1974. Highway Administration reports showed that States subsequently obligated about \$444 million.

The Highway Administration continued to emphasize data collection and analysis and safety construction obligations during fiscal year 1976. It also established improved management of safety programs as an emphasis area. Specifically, it wanted to focus responsibility for program management at State and Highway Administration division levels, promote further development of States' systems for selecting safety improvement projects, encourage the States to select all federally funded safety projects through their systems, and increase the amount of safety construction work being accomplished.

The Highway Administration established a goal of \$900 million in Federal-aid obligations for safety improvements during fiscal year 1976. This included \$400 million for the categorical safety programs, such as correcting high-hazard locations and removing roadside obstacles, and \$500 million for safety projects funded by regular Federal-aid programs, such as Interstate, Primary, and Secondary. These obligational goals were to be met by implementing projects identified exclusively through a systematic process. States obligated \$390 million of the categorical safety program funds and \$635 million of their regular Federal-aid construction funds.

The Highway Administration also pointed out the need for its field offices and the States to improve their planning, implementing, and evaluation capabilities. It said

much improvement was required in the accident data collection and analysis systems of both States and local highway agencies because these systems are the basis for identifying safety defects, establishing project priorities, and evaluating benefits of completed safety improvements.

Because prior efforts had not produced adequate evaluations, in October 1975, the Highway Administration requested its division offices to review each State's existing data collection and analysis system. The objective of the study was to determine how much States rely on accident data analyses in planning, selecting, and evaluating highway safety improvement projects.

The results of the study should provide a good basis for requesting the States to develop plans for completing a systematic approach. The plans, however, should be prepared in enough detail to enable the Highway Administration to monitor and evaluate the States' progress.

#### CONCLUSIONS

The enormous amount of money and effort devoted to combating the high accident and fatality rates on the Nation's highways has contributed to reducing the fatality rate per 100 million vehicle miles from 5.7 in 1966 to 3.4 in 1975. However, there were still 45,000 traffic deaths in 1975. Because the money available for the highway safety program is limited, the importance of using it on the projects which will provide the greatest safety benefit for each dollar spent is increased.

Since the passage of the Highway Safety Act of 1966, requiring the States to have a highway safety improvement program, States have made varying degrees of progress in implementing systematic project selection procedures. However, the Highway Administration has not established a target date for full compliance with a systematic approach.

Providing flexibility to the States in terms of the amount of time needed to plan and put into effect a systematic highway safety program was absolutely necessary. However, 10 years have passed and none of the eight states included in our review had a fully implemented system or definitive plans for achieving one.

In our opinion, the States have had enough time to design a highway safety project selection system and to develop a plan, including specific milestones, for implementing the system. Until this plan has been developed, the

Highway Administration will have difficulty (1) evaluating the States' progress and (2) providing guidance for completing the systems. Furthermore, until the plans are fully implemented, the Federal and State governments will not be assured that they are achieving the greatest safety benefits for their money.

#### RECOMMENDATIONS

To improve management of the highway safety programs, we recommend that the Secretary of Transportation require the Administrator of the Federal Highway Administration to:

- Determine, in cooperation with each State, the actions necessary to complete an adequate project selection system.
- Require the States to submit a plan, including realistic time frames, for implementing these actions.
- Monitor and evaluate States' development of project selection systems.
- Monitor States' implementation of project selection systems to insure that safety projects financed with regular construction and safety construction program funds are selected through a systematic approach.
- Establish a definite and reasonable date by which each State must select safety projects from inventories of cost-effective projects.

#### AGENCY COMMENTS AND OUR EVALUATION

In comments on this report (see app. III), the Department of Transportation generally agreed with our recommendations. It said additional emphasis was needed for improving States' project selection procedures and that the Highway Administration would stress this during fiscal year 1977.

The Department believed the Highway Administration was substantially meeting the intent of the overall highway safety program established by the Highway Safety Act of 1966. The Department pointed out that since 1973, when the Congress provided specific funds for safety improvements, States had made much progress in implementing safety programs. Specifically, it said most states have some type of systematic process for selecting projects and believed that the problems we identified relate more to the degree of refinement than lack of a process.

We recognize that States have made progress and that some problems identified may represent a need for system refinements. In some States, however, important system elements had not been developed or used nor did they have a plan for their development and implementation. Our recommendations, therefore, are designed to present a working framework within which the Highway Administration can measure and evaluate States' progress to insure that they develop and complete systematic project selection procedures within realistic time frames.

The Department acknowledged that States should be working toward a time by which safety projects will be selected through a systematic process. It said the Highway Administration would continue to work with the States to develop their systems within realistic time frames. The Department stated, however, that a system covering all roads in a State may not be cost effective. The Highway Administration's accident location standard currently requires a system for all roads. If the Highway Administration develops information showing that a complete system is not justified for all roads, revision of its current standard would be necessary.

The Department believed it was still too early to expect all States to have fully implemented project selection systems. We believe, however, that the 10 years that have passed since this requirement was established is sufficient time to reasonably expect that States would have designed a system and developed a plan to implement it.

The Department said the Highway Administration's Region and Division Offices, through their administration of the overall Federal-aid highway program, would continue to monitor and evaluate States' development of project selection systems. Because these actions have not been successful thus far, we believe the Highway Administration needs to intensify its efforts to insure that States develop and use systematic procedures in the near future.

The Department disagreed with our position that locations should be selected from a list which had been prioritized through cost-effectiveness evaluations. It pointed out that the 1966 and 1973 highway safety acts do not require the program to be based solely on cost effectiveness and that there are other factors such as categorical funding and State and local constraints which have an impact on the selection process. Cost-effectiveness analysis, it continued, is at best, a comparative tool for deciding what type of safety improvement should be made after the specific highway location to be improved has been selected.

We recognize that constraints exist which must be considered in the use of highway safety moneys. For example, California law stipulates that the funds be divided between northern and southern California. We believe that after such constraints have been considered, cost-effectiveness analysis should be the basis for selecting the locations to be improved. Through this approach, States can obtain assurance that within constraints, the type of improvements made and the locations improved represent the most cost-effective use of safety funds.

The Department was also concerned that changes in accident patterns, traffic, and improvement costs would make it impossible to have an inventory of cost-effective projects. We do not advocate that each project be studied each year to keep the inventory current. Instead, if the studies are based on several years' accident data, application of construction cost indexes to insure cost comparability could maintain reliable project priorities. States' accident analyses should be able to detect those locations where accident frequency is changing. States may then wish to re-study these locations to determine any changes in cost effectiveness.

### CHAPTER 3

#### HIGHWAY SAFETY ACT OF 1976

On May 5, 1976, the President approved the Highway Safety Act of 1976 (Public Law 94-280). This legislation provides funding authority to States for the July 1, 1976, to September 30, 1976, transitional period and fiscal years 1977 and 1978. Because our review of the Highway Administration's highway safety improvement programs was in progress while the Congress was considering new highway legislation, we met with staff members of the Subcommittee on Investigations and Review, House Committee on Public Works and Transportation; and the Subcommittee on Transportation, Senate Committee on Public Works. During these meetings in late December 1975 and early January 1976, we briefly discussed our tentative conclusions and agreed to provide a written summary of the results of our review for their consideration.

On January 20, 1976, we issued a letter report jointly addressed to the Chairmen of the House and Senate Subcommittees. The report, entitled "Summary of Information on FHWA's Highway Safety Improvement Program and Comments on Proposed 1975 Highway Legislation," (RED-76-67) highlighted our results to date and suggested that the Congress adopt several provisions that had been included in either the House- or Senate-passed highway safety legislation.

Our first suggestion was to increase States' flexibility to enable accomplishment of the most cost-beneficial safety improvement projects. This could be achieved through consolidating all or several categorical safety construction programs or providing for increased fund transferability among the individual safety construction programs. However, we cautioned that success of a consolidated program would require States to implement a systematic approach for their highway safety programs, including the development of a large inventory of safety projects ranked by cost-effectiveness analysis.

We emphasized the importance of the systematic approach because the magnitude of the safety effort, approximately \$1.1 billion in fiscal year 1975, requires assurance that States will achieve the maximum potential safety benefits. To develop this approach, we suggested providing specific funding for implementing project selection systems.

In adopting the Highway Safety Act of 1976, the Congress increased States' flexibility to administer safety



efforts. The act provided a single authorization for performing safety improvements under the high-hazard locations and roadside obstacles programs and increased States' ability to transfer funds among the various categorical safety programs to the highest priority program. In addition, the Congress authorized specific funds to assist States in implementing the safety standards including development of selection systems.

#### CONCLUSION

We believe that the authority provided in the Highway Safety Act of 1976 should improve the overall effectiveness of the safety program. However, this authority will not be enough to insure that Federal funds are expended on projects offering the greatest safety benefits unless the Highway Administration takes additional actions, along the lines recommended in chapter 2, to improve its management of the program.

COMPARISON OF FEDERAL-AID OBLIGATIONSFOR HIGHWAY SAFETY IMPROVEMENTS,FISCAL YEARS 1971-75 (notes a and b)

<u>State</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>Total</u>
	(millions)					
California	\$ 3.7	\$ 42.9	\$ 10.9	\$ 13.7	\$ 56.1	\$ 127.3
Idaho	1.8	3.6	8.0	1.7	4.8	19.9
Louisiana	.9	7.0	4.3	5.2	26.4	43.8
Maryland	4.2	15.8	7.2	3.1	36.6	66.9
Nevada	.9	1.6	.5	2.2	7.5	12.7
Pennsylvania	2.2	4.1	2.9	13.5	80.5	103.2
Texas	5.8	16.0	5.4	8.7	73.9	109.8
Washington	2.1	12.5	2.3	2.2	21.5	40.6
Total (eight States)	\$ <u>21.6</u>	\$ <u>103.5</u>	\$ <u>41.5</u>	\$ <u>50.3</u>	\$ <u>307.3</u>	\$ <u>524.2</u>
U.S. total	\$ <u>112.5</u>	\$ <u>410.1</u>	\$ <u>265.1</u>	\$ <u>293.1</u>	\$ <u>1,077.1</u>	\$ <u>2,157.9</u>

a/Data presented individually for the eight States included in the review along with U.S. totals.

b/Includes obligations from the following programs: Interstate, Primary, Secondary, Urban Extension, Rural Primary, TOPICS, Rural Secondary, Urban Systems, Priority Primary, and the categorical safety programs.

PERCENT OF TOTAL FEDERAL-AID FUNDSOBLIGATED FOR SAFETY IMPROVEMENTS

<u>State</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	Average 1971 to 1975
California	1.0	8.9	5.1	3.5	11.9	6.6
Idaho	5.1	11.5	24.5	6.4	7.0	10.2
Louisiana	.9	6.4	4.1	4.8	14.0	7.2
Maryland	4.8	17.0	6.4	2.4	13.0	8.5
Nevada	3.3	3.8	2.1	5.7	15.3	7.0
Pennsylvania	1.1	3.3	1.3	5.0	21.3	8.5
Texas	2.5	5.2	2.9	3.4	20.1	8.6
Washington	1.7	8.3	2.2	1.9	18.7	6.7
Total (eight States)	1.8	7.7	3.3	3.8	16.0	7.8
U.S. total	2.5	8.7	5.6	6.1	15.3	8.7

REPORTED FEDERAL-AID OBLIGATIONS  
FOR HIGHWAY SAFETY IMPROVEMENTS,  
FISCAL YEAR 1975

<u>State</u>	<u>Total</u> <u>safety</u> <u>obligations</u>	<u>Source of funds</u>		<u>Total</u> <u>obligations</u> <u>(note a)</u>	<u>Per-</u> <u>cent</u> <u>obli-</u> <u>gated</u> <u>for</u> <u>safety</u>
		<u>Categorical</u> <u>safety</u> <u>program</u>	<u>Other</u> <u>Federal</u> <u>aid</u>		
(millions)					
California	\$ 56.1	\$ 23.8	\$ 32.3	\$ 471.0	11.9
Idaho	4.8	4.7	.1	69.0	7.0
Louisiana	26.4	12.7	13.7	188.0	14.0
Maryland	36.6	10.5	26.1	282.6	13.0
Nevada	b/7.5	3.1	4.3	48.8	15.3
Pennsylvania	b/80.5	15.9	64.7	377.8	21.3
Texas	73.9	11.9	62.0	367.1	20.1
Washington	<u>21.5</u>	<u>17.4</u>	<u>4.1</u>	<u>114.7</u>	18.7
Total (eight States)	\$ <u>307.3</u>	\$ <u>100.0</u>	\$ <u>207.3</u>	\$ <u>1,919.0</u>	16.0
U.S. total	\$ <u>1,077.1</u>	\$ <u>444.2</u>	\$ <u>632.9</u>	\$ <u>7,025.1</u>	15.3

a/Includes obligations from the following programs: Interstate, Primary, Secondary, Urban Extension, Rural Primary, TOPICS, Rural Secondary, Urban Systems, and Priority Primary, and the categorical safety programs.

b/Figures do not total due to rounding.



OFFICE OF THE SECRETARY OF TRANSPORTATION  
WASHINGTON, D.C. 20590

ASSISTANT SECRETARY  
FOR ADMINISTRATION

August 25, 1976

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

Dear Mr. Eschwege:

This is in response to your letter of July 23, 1976, requesting comments from the Department of Transportation on the General Accounting Office draft report entitled, "Additional Management Actions Needed to Improve Highway Safety Programs." We have reviewed the report in detail and prepared a Department of Transportation reply.

Two copies of the reply are enclosed herein.

Sincerely,

*William P. Davis*  
for William S. Heffelfinger

Enclosures

DEPARTMENT OF TRANSPORTATION REPLYTOGAO DRAFT OF REPORT TO  
THE CONGRESS OF THE UNITED STATESONADDITIONAL MANAGEMENT ACTIONS NEEDED  
TO IMPROVE THE HIGHWAY SAFETY PROGRAMFederal Highway Administration  
Department of TransportationSUMMARY OF GAO FINDINGS AND RECOMMENDATIONS

GAO reviewed the Federal Highway Administration (FHWA) management of an element of the Highway Safety Program pertaining to the correction of identified hazardous locations in eight States: California, Idaho, Louisiana, Maryland, Nevada, Pennsylvania, Texas, and Washington.

The GAO states that this program element requires the States to systematically select locations for safety improvements in order that Federal funds are obligated for improvements offering the greatest safety benefits. Obligations for safety improvements have increased from about \$100 million in 1971 to \$1.1 billion in 1975, however, the report notes that States have not yet fully implemented systematic approaches for selecting safety projects. The report further states that the FHWA has not issued implementing guidelines and procedures for measurement of the States' progress in developing project selection systems and as a result, did not know what progress the States have made in implementing a system or when the States' systems would be completed.

GAO recommends that the Secretary of Transportation require the Administrator of the Federal Highway Administration to establish schedules, monitor States' activities, and evaluate States' processes for the systematic selection of highway safety improvement projects to correct hazardous locations.

SUMMARY OF DEPARTMENT OF TRANSPORTATION POSITION

It is the position of the Federal Highway Administration that we are substantially meeting the intent of Congress in our management of the overall Highway Safety Program established by the Highway Safety Act of 1966. The highway safety program is a continuing effort to reduce the number and severity of highway related accidents including a systematic process of selection, scheduling, constructing, and evaluation of highway safety improvements. Although program requirements were established in 1966, it was not until passage of the Highway Safety Act of 1973 that the program was given major status by the provision of categorical safety funds for construction of highway safety improvements.

Since passage of the Highway Safety Act of 1973, most States have made significant progress in implementing their overall highway safety programs including their highway safety construction efforts. FHWA has initiated several actions as noted in the report to improve program management. An additional effort implemented by FHWA is the establishment of program emphasis areas for the forthcoming fiscal year to assist the States in implementation of the safety improvement program.

We believe the problems identified in the report relating to development of systematic approaches by the States relate more to the degree of refinement rather than lack of a process. Most States do currently have some type of systematic process for the selection of safety improvements. There is a need for additional emphasis on refining States' procedures. FHWA has included this element as a program emphasis area in the forthcoming fiscal year.

Finally, we do not agree that the safety improvement program is intended to be based solely on a cost effectiveness approach. We do not believe this is required by either the 1966 or 1973 Highway Safety Acts. There is a need to recognize other considerations in the overall program to reduce the number and severity of accidents.

POSITION STATEMENT

The GAO report concerns one element of the Highway Safety Program, the management of the States' programs for correcting identified hazardous highway features to reduce the number and severity of highway related accidents. GAO emphasizes that the States have had, since 1966, to plan and implement a systematic approach for identifying hazardous locations. Although funds have been available to States since 1966, for development of highway safety programs, such funds are limited and must be spread over many elements of the total safety program effort.

Since passage of the Highway Safety Act of 1973 which provided funds specifically for highway safety improvements, the States have placed additional effort on project selection procedures and most States have some system for selecting projects. We believe it is still too early in the program to expect all States to have fully implemented systematic approaches for selecting safety projects. We agree that there is a need to obtain additional refinement of most States' systems and this is an area in which FHWA intends to exert additional management effort.

The specific recommendations made by GAO along with the FHWA response follows:

- (1) "determine in cooperation with the States the actions necessary for each State to complete an adequate project selection system."

We agree with the general intent of this recommendation. FHWA has taken steps to obtain additional information on each State's safety program management efforts and on the status of data collection and analysis systems. A program emphasis area has been established for FY'77 to assist the States in developing a system for setting safety priorities.

- (2) "require the States to submit a plan for implementing these actions including realistic time frames within which States could complete their system."

FHWA will continue to work with the States in developing a systematic process for selection of highway safety improvements, including establishment of time frames for accomplishing this objective. It must be recognized that there are elements involved in a systematic process which are not within the direct control of the State highway agency such as accident reporting, record systems, etc. These must be considered in establishing completion schedules. A systematic process is a continuing effort. A complete system covering all roads in a State may not be a cost effective method of project selection.

- (3) "monitor and evaluate States' development of project selection systems."

This is a continuing effort of the FHWA Region and Division Offices through their responsibilities for administering the Federal-aid Highway Program. The FHWA Washington Office monitors and evaluates the safety program activities through a selective review of field activities and a review of States' annual reports on the highway safety improvement program.

- (4) "monitor States' implementation of project selection systems to insure that safety projects financed with regular construction or safety construction program funds are selected through a systematic approach."

Same response as recommendation 3.

- (5) "establish a definite and reasonable date by when each State would be required to select safety projects from inventories of cost effective projects."

We agree that States should be working toward a time by which safety improvement projects will be selected through a systematic process. We do not consider that the systematic process would result in a "one time" or single inventory of projects as there is a continual need to review and revise safety project priorities. All projects developed through the



systematic process should not be based solely on cost effectiveness criteria as there are many other factors, such as categorical funding, State and local constraints and the overall objective of reducing the number and severity of accidents, which must be considered.

The cost effectiveness of a specific project is not constant. Changes in accident patterns, traffic, differences in annual costs, and changing priorities would make it impossible to have an inventory of cost effective projects. Cost effectiveness analysis is at best a comparative tool for selecting improvement projects where a number of alternative courses of action exist. This type of analysis can only be applied after a number of locations have been selected for safety improvements.

**Norbert T. Tiemann**

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**Norbert T. Tiemann**  
**Federal Highway Administrator**

PRINCIPAL OFFICIALS  
RESPONSIBLE FOR ADMINISTERING  
ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
<u>DEPARTMENT OF TRANSPORTATION</u>		
SECRETARY OF TRANSPORTATION:		
William Coleman	Mar. 1975	Present
John W. Barnum (acting)	Feb. 1975	Mar. 1975
Claude S. Brinegar	Feb. 1973	Feb. 1975
John A. Volpe	Jan. 1969	Feb. 1973
Alan S. Boyd	Jan. 1967	Jan. 1969
ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION:		
Norbert T. Tiemann	May 1973	Present
Ralph R. Bartelsmeyer (acting)	July 1972	May 1973
Francis C. Turner	Feb. 1969	June 1972
Lowell K. Bridwell	Apr. 1967	Jan. 1969

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