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Because of the complexity and importance of the U.S. transportation system, government at all levels--Federal, State, and local--has assumed a wide range of roles and responsibilities in transportation. At the Federal level, these responsibilities include: promoting the development of an efficient and accessible national transportation system; promoting fair competition and protecting the public from abuse of monopoly power; protecting the safety of travelers and cargo; and balancing environmental, social, and energy goals with transportation needs. Findings/Conclusions: Current transportation issues involve: rail freight transportation, rail passenger service, urban mass transit, highway and auto safety, trucking industry regulation, air transportation, inland waterways, ocean transportation, and pipelines. Future developments in three areas--energy, environmental quality, and new technology--are likely to have particular importance for the U.S. transportation system. GAO has been involved in: developing and coordinating balanced national transportation policies and

programs; evaluating efforts at restructuring and rehabilitating the railroad freight transportation system; evaluating programs to develop a safe motor vehicle--highway transportation system; evaluating the management of Federal assistance programs for highway construction and maintenance; and evaluating the justifications for transportation regulation. Other GAO activities have included audits of Amtrak's management role and studies of aircraft safety and economic regulation. GAO's role in developing economically viable urban public transit systems has been limited. (RRS)

STUDY BY THE STAFF OF THE U.S.

7966

General Accounting Office

Transportation Issues

The Federal Government spends over $18 billion a year on transportation programs. These programs affect every part of the transportation system including

- aviation
- highways
- inland waterways
- intercity buses
- motor vehicles
- ocean shipping
- pipelines
- rail freight service
- rail passenger service
- trucking and
- urban mass transit.

This study examines current and emerging issues relating to Federal involvement in transportation. It emphasizes congressional interests and potential congressional needs for GAO assistance.

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OCTOBER 10, 1978

UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

IN REPLY
REFER TO:

COMMUNITY AND ECONOMIC
DEVELOPMENT DIVISION

B-164497

PREFACE

The Federal Government performs many functions in the U.S. transportation system, including financial and technical aid, development and operation of transportation facilities and support services, economic regulation, research and development, and safety regulation. The Federal Government spends over $18 billion per year on transportation programs.

Because of the size and significance of these activities, we devote a substantial part of our audit work to Federal transportation agencies and programs. In order to coordinate and plan this work, the Comptroller General has assigned the Community and Economic Development Division the responsibility for understanding, assessing, planning and communicating what we are doing now and should do in the future regarding transportation issues.

This study is based on our plan for audit work in transportation. Chapter 1 presents a perspective on current and future transportation issues. Chapters 2 through 9 discuss major transportation issues on which our work will focus over the next 2 years. Each chapter analyzes a major transportation issue and summarizes our recent work in the area. Emphasis is placed on congressional interests and potential congressional needs for GAO assistance. Appendix I presents an overview of major government agencies, congressional committees, private sector lobby groups and research organizations involved in transportation.

Information on this study and on our current and planned work in transportation can be obtained from John Vialet, Assistant Director and Transportation Program Coordinator, Community and Economic Development Division, on (202) 426-1777.

Henry Eschwege

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Director

Contents

ABBREVIATIONS

Amtrak	National Railroad Passenger Corporation
CAB	Civil Aeronautics Board
Conrail	Consolidated Rail Corporation
DOT	Department of Transportation
FAA	Federal Aviation Administration
GAO	General Accounting Office
ICC	Interstate Commerce Commission
METRO	Rail transit system of the Washington Metropolitan Area Transit Authority
4R Act	Railroad Revitalization and Regulatory Reform Act of 1976
UMTA	Urban Mass Transportation Administration
USRA	United States Railway Association
WMATA	Washington Metropolitan Area Transit Authority

CHAPTER 1

PERSPECTIVE ON TRANSPORTATION ISSUES

INTRODUCTION

Transportation affects the daily lives of all Americans--as passengers, consumers, employees, shippers and investors. Transportation influences population distribution, economic development, the shape of cities, energy consumption, the balance of trade, business and farm access to markets and materials, and the pace, style and quality of life. On the international scene, transportation is the connecting link which permits the exchange of goods and people among the nations of the world.1/

In 1975, the national transportation bill--the total cost of all private and civilian government spending for transportation equipment and services--amounted to more than $300 billion, equal to one-fifth of the gross national product. About one out of eight persons in the labor force is employed directly in some aspect of transportation. The Federal Government alone spends more than $18 billion per year on transportation related agencies and programs, not including its own purchases of transportation goods and services These cost estimates actually understate the real impact of transportation on our society, since they exclude the indirect social and environmental costs of accidental deaths and injuries, environmental pollution, urban sprawl, reduced mobility for the elderly and handicapped, and dependence on foreign energy sources.

Because of the importance and complexity of the U.S. transportation system, government at all levels--Federal, State and local--has assumed a wide range of responsibilities and roles in transportation. At the Federal level, these responsibilities include:

Promoting the development of an efficient and accessible national transportation system.

Promoting fair competition and protecting the public from abuse of monopoly power.

1/Some of the material in this study was published previously in Chapter Five of the Senate Committee on Governmental Affairs' December 1977 report on Regulatory Organization (Volume V, Study on Federal Regulation), which we helped the Committee to prepare.

Protecting the safety of travelers and cargo.

Balancing environmental, social and energy goals with transportation needs.

The enormous size of the U.S. transportation system and the diversity of public and private activities which compose the system have strongly influenced the scope and character of our audit work in transportation. There is no single Federal program or "transportation problem" on which most of our audit work should focus. Instead, the U.S. transportation system encompasses a wide range of federal programs, problems and policy issues--some linked to a single transportation mode, others crossing modal lines.

The following perspective on current and future transportation issues was developed to provide the background and analytical framework for identifying the major transportation programs and problems which our audit work should address. The perspective begins with a description of current transportation issues. This is followed by a discussion of the long-range perspective for the U.S. transportation system--problems and opportunities that are likely to demand national attention during the 1980's and beyond. Chapter 1 concludes with the identification of eight major transportation issues on which our audit work will focus over the next two years.

CURRENT TRANSPORTATION ISSUES

Rail freight transportation

Since World War II, fundamental changes in transportation needs and in transportation technology have caused severe economic problems for the railroads. Rail freight remains a vital component of the total freight transportation system, responsible for carrying more than one-third of the 2.5 trillion ton miles of freight generated by the economy. However, the railroad industry has experienced serious and continuing financial difficulties, exemplified by the bankruptcy of the Penn Central and other Northeast railroads.

In 1976, the Consolidated Rail Corporation (Conrail) was established by the Congress to operate and modernize the reorganized Northeast-Midwest rail system. Conrail has not yet been successful in achieving the self-sustaining for-profit status intended by the Congress, and doubts are growing as to Conrail's potential future profitability. Meantime, there have been additional bankruptcies among midwestern railroads and others are considered financially

shaky. Conrail's most recent financial plan, released in February 1978, estimated that an additional $1.3 billion in direct Federal subsidies will be needed to rehabilitate the system plus a possible $1 billion in Federal loan guarantees. In August 1978, the Interstate Commerce Commission warned that Conrail's estimated costs through 1982 were understated by at least $1.1 billion.

During the next decade, the rail freight system will face serious problems of rehabilitation and modernization. Much of the existing track, equipment and operations is already antiquated and outmoded. Substantial expansion of facilities will be needed to carry the anticipated doubling of rail coal traffic tonnage. To meet these needs without further requirements for Federal subsidies, the rail freight industry urgently needs to achieve greater financial stability and profitability.

Rail passenger service

Despite the efforts of Amtrak (the National Railroad Passenger Corporation) to revitalize the rail passenger system, there is increasing public and congressional concern that the present Amtrak route system is too large and costly. Since the formation of Amtrak in 1970, Federal subsidies for intercity rail passenger service have totalled over $2 billion. Current Federal subsidies amount to more than one-half billion dollars a year, and are increasing. The Department of Transportation estimates that 50 percent of the cost of each Amtrak ride is subsidized by the Federal Government.

In May 1978, the Department of Transportation recommended major cutbacks in Amtrak's route system in order to prevent future increases in Federal subsidy requirements. Previously, congressional efforts to limit the Federal subsidy had focused primarily on improvements in Amtrak's management and operating efficiency. Most observers now believe that limitation of Federal subsidies will also probably require substantial reduction in Amtrak's present route structure, particularly the longer distance routes. Even in the Northeast Corridor, where Amtrak service has been most successful, there is little question that continued rail passenger service will depend on continuing and large Federal subsidies.

Urban mass transit

Another transportation mode with serious economic problems is urban mass transit. Federal aid to mass transit in the Nation's older urban areas has largely succeeded in halting the rapid decline in transit

ridership. However, transit systems continue to experience large and growing operating deficits, placing a difficult burden on already strained municipal finances. New high-speed rail transit systems are very expensive and apparently have only a limited ability to attract traffic from private automobiles.

While public and congressional support continues for Federal assistance to mass transit, there is growing sentiment that Federal programs can be more cost-effective and more sensitive to local needs and objectives. There is also increasing recognition that fuel prices and Government policies which encourage automobile travel may have to change before mass transit programs can become more effective.

Highway and auto safety

Despite the recent drop in motor vehicle fatalities caused by the 55 mph speed limit, motor vehicles are still the most dangerous transportation mode. In 1976, motor vehicle accidents caused an estimated 45,000 fatalities and 4 million injuries. The causes of motor vehicle accidents are complex and include such basic elements as the operating characteristics of motor vehicles and highways and the physiological limitations of the human driver. Increasing the safety of motor vehicle transportation--through improvements in the design and operating characteristics of vehicles and highways and through more effective driver-oriented safety programs--is one of the Nation's most serious transportation problems.

Trucking industry regulation

Economic regulation of the commercial trucking industry by Interstate Commerce Commission is currently a major transportation issue. Critics of the motor carrier regulatory system charge that regulation causes economic inefficiency and excessively high freight rates. Defenders of regulation believe that it protects small shippers and communities and preserves the stability of the trucking industry. Recent proposals for changes in motor carrier regulatory practices have become the focus of substantial controversy and debate by the public and the Congress.

The Carter administration has not introduced motor carrier regulatory reform legislation in the 95th Congress. If introduced, such legislation will probably include provisions to ease entry into the industry, prohibit carrier association rate agreements, and give individual carriers more flexibility in establishing their rates. But strong opposition by trucking industry and shipper groups makes it

likely that any legislative changes will stop well short of full-scale deregulation.

Air transportation

Aviation safety, economic regulation and the development needs of the aviation system are current issues in air transportation. Although air transportation is one of the safest U.S. transportation modes, the interstate character and complex technology of air travel and the high potential for catastrophic accidents make continued direct Federal involvement in aviation safety essential. Concern is presently focused on whether the Federal Aviation Administration is sufficiently responsive to new aviation safety problems and hazards and on whether Federal air safety programs give adequate weight to the economic impacts and cost-effectiveness of new safety standards.

Economic regulation of the commercial air transport industry is also a current issue. Critics of the present regulatory system believe that the Civil Aeronautics Board's (CAB's) policies and practices discourage competition between airlines and cause economic inefficiency and unnecessarily high air fares. Defenders of the regulatory system assert that Federal regulation promotes needed financial stability in the aviation industry and facilitates the long-range growth and development of the aviation system. Legislative proposals for change in the CAB regulatory system are currently under consideration in the Congress (S.2493 and H.R. 12611). These proposals would provide for a progressive transition to a deregulated airline industry, easing entry and increasing rate-making flexibility. Recent CAB actions have also *de facto* deregulated the airlines to some extent, providing greater freedom to change fares without prior CAB approval, and a liberalized attitude toward granting new routes. CAB has recently announced plans to increase freedom of entry into the airline industry even further.

Finally, the development needs of the air transportation system are receiving increasing attention in the Congress. Current concern focuses on the adequacy of major airports and the federally-owned and operated national air traffic control and navigation system to meet current and future capacity demands. Proposals are also under consideration (H.R. 8729, H.R. 11986) to provide financial assistance to airports and airlines in order to meet Federal noise standards.

Inland waterways

The inland waterway industry has traditionally operated on a system of navigable channels constructed and maintained at public expense by the U.S. Army Corps of Engineers. The resulting waterway system provides a substantial public subsidy to the barge transportation industry, which has been the subject of increasing criticism--particularly by the competing railroads. Both Houses of Congress have recently enacted legislation which would establish a waterway user charge (H.R. 8309) and the bill has been referred to conference. President Carter has threatened to veto this bill because it lacks a capital recovery provision, but prospects for eventual enactment of a user charge appear to be good. Environmental impacts and costs of waterway construction and maintenance also are receiving increasing public attention. Determining the appropriate future role of the inland waterway system in the U.S. transportation system is likely to be an issue of increasing importance to the public and the Congress.

Ocean transportation

Economic problems continue to trouble the American shipbuilding and shipping industries. Despite improvements in productivity, U.S. shipyards continue to be uncompetitive with foreign shipyards and to require Federal subsidies. Automated ship operating technologies and larger ships have combined to reduce the need for labor in the shipping industry. This has improved the competitive position of the U.S. shipping industry versus foreign flag lines but has had an adverse effect on the maritime labor force. There is also concern that Federal operating subsidies for U.S. flag lines which operate on essential foreign trade routes may be too costly for the benefits produced and may tend to discourage some carriers from operating as efficiently as possible. Finally, the energy crisis has added to the already difficult problems of developing and maintaining an efficient, low-cost, environmentally compatible, and politically secure ocean transportation system for importing petroleum and natural gas. The defeat of proposed cargo preference legislation which would have earmarked part of U.S. petroleum imports for shipping in U.S. flag ships, and controversies over the control of marine oil pollution are two recent issues which have received considerable attention.

Pipelines

Although the pipeline industry carries 25 percent of all intercity freight ton miles--more than the trucking industry--

it has received comparatively little public attention. This has resulted from the industry's economic productivity and low costs, high level of automation and absence of a large labor force, and little or no Federal aid. In recent years, increased public attention has been given to the environmental aspects of pipelines. Concern for the environment was a major factor in the controversy over the Alaska pipeline and is also a factor in the current controversy over coal slurry pipelines in the western United States--which might have adverse effects on scarce regional water supplies. The potential effects on water supplies and the possibility of adverse economic effects on the railroads were major factors in the recent House defeat of legislation providing eminent domain powers for coal slurry pipelines (H.R. 1609).

LONG-RANGE PERSPECTIVE--PROBLEMS AND OPPORTUNITIES IN THE 1980's AND BEYOND

Looking ahead to the 1980's and beyond, developments in three areas are likely to have particular importance for the U.S. transportation system: 1) energy, 2) environmental quality, and 3) new technology.

Energy

The energy crisis cuts across traditional modal boundaries, and presents a number of difficult problems for the U.S. transportation system. The close relationship between transportation and energy was dramatically illustrated by the October 1973 Arab embargo on oil shipments to the United States. During the petroleum shortage which followed the oil embargo and the subsequent rapid escalation in gasoline prices, millions of American motorists received a painful lesson on the economic importance of energy for transportation. In the continuing energy crisis, the U.S. transportation system plays three important roles: (1) a vital economic sector for which adequate energy supplies at economically efficient prices must be assured; (2) a prime target for national energy conservation efforts; and (3) a major element in the energy materials distribution system.

As the Arab oil embargo fuel shortage demonstrated, the supply of energy is an essential factor of production in transportation; without energy, the transportation system cannot function. But the price of energy also plays a major part in transportation industry economics. The substantial and sudden increase in gasoline prices in 1973 seriously affected consumer demand for new automobiles during the 1974 and 1975 model years and contributed to the economic recession. In the railroad industry, fuel and power costs doubled in size in 1974--increasing by $592 million and reducing

the industry's total 1974 net income by more than one-third. Price increases on aviation jet fuel--from 12 cents per gallon in July 1973 to 38 cents per gallon in January 1978--similarly affected aviation industry costs.

Because transportation is a major user of energy resources, it has become a primary target in national efforts to conserve energy. The U.S. transportation system is one of the Nation's largest consumers of energy, accounting for 31 percent of total net energy inputs. The automobile alone accounts for approximately 40 percent of U.S. petroleum consumption, and reducing automobile energy consumption is a major element in Federal energy conservation plans. Public attention is also focusing on the possibilities for energy conservation through increased use of energy-efficient transportation modes such as mass transit, railroads, and inland waterways.

Finally, the U.S. transportation system plays a vitally important role in distributing energy materials throughout the economy. Railroads, pipelines, highways, inland waterways and supertankers form a complex transportation network through which coal, petroleum and natural gas are distributed to refineries, industries, utilities and consumers. Economic inefficiencies in the energy transportation network are inevitably reflected in the delivered price of energy materials, and thus in the price of energy as a factor of production. In the long run, the productivity of the U.S. economy will be strongly influenced by the efficiency with which we plan and operate the energy transportation network.

Looking ahead to the 1980's and beyond, it is likely that our present reliance on the family automobile as the primary mode of urban passenger transportation may continue. But the auto is already becoming much smaller in size, and is likely to become even smaller, in order to economically adjust to higher energy prices.

Our national preference for single-passenger long-distance suburban commuting by private automobile will probably change radically over the next decade. Greater reliance on carpools, a shift toward shorter commuting trips, and increased commuting by public transit are likely to result. Also likely is a change in the preferred location of middle-income residential areas from the outer suburbs to the inner suburbs and central city. Improved financial viability for public transit systems may also result as private auto travel becomes less economically attractive.

Some transportation planners are concerned that the private automobile may become obsolete because of the unavailability of petroleum-based fuels, with disastrous consequences for the economy and quality of life. But alternative propulsion technologies for the private automobile have been available for many years. Electric-powered motor vehicles have been in operation for more than than 50 years, and combustion engines burning coal-derived fuels were used extensively during World War II to propel trucks and automobiles. As the price for petroleum fuels continues to rise, use of these alternative technologies in the private automobile will become increasingly economically feasible.

Despite the concerns voiced by many energy conservationists, it appears unlikely that the energy crisis will radically change the modal characteristics of intercity passenger travel during the next 10 to 15 years. From the standpoint of energy-efficiency, a fully loaded passenger automobile compares very favorably with other modes of intercity travel, as does a fully-loaded jet passenger airplane. Rising energy costs are likely to foster more efficient use of existing modes such as the recently introduced trans-Atlantic air shuttle. But a large-scale shift of passenger traffic to long-distance intercity passenger trains is unlikely, unless very large energy price increases or actual fuel shortages occur.

The energy crisis is already having major impacts on the freight transportation system. In the freight railroads, the expected increases in demand for coal transportation will create difficult problems but also great opportunities. Massive requirements for new equipment and facilities and for modernization of the existing system will strain the financial and management capabilities of the railroads. At the same time, the assurance of a growing and profitable market for rail freight services may be the financial medicine which is needed to cure the railroad industry's economic malaise.

The energy crisis is also likely to result in increased economic viability and public support for the inland waterway industry. Because the inland waterways are very energy-efficient, they are well-suited to line-haul transportation of high-bulk/low-value commodities like coal (although the need to use less energy-efficient transportation modes to bring coal to and from the waterways may counterbalance line-haul energy savings). The waterways are therefore likely to play an important role in the future coal transportation network. Over the next decade and a half, the resulting expansion of existing waterway facilities is

also likely to encourage greater use of the energy-efficient waterways for other transportation needs.

Environmental quality

A second important factor in shaping our future transportation system over the next 15 years will be the quality of our physical environment. Several interactions between the environment and transportation are likely to be of particular importance. First, the interaction of transportation and air quality will continue to present difficult and possibly insoluable conflicts. Historically, air pollution emissions from automobiles have been a major contributing factor to air pollution. Modifications in automobile technology have substantially reduced the emissions from individual vehicles--but aggregate emissions from all vehicles continue to present a serious problem.

One often proposed solution is the absolute prohibition of automobile travel in the most heavily impacted urban areas, coupled with drastic reductions in auto travel elsewhere. To date, the nation has rejected this and related solutions (such as heavy taxes on central city auto travel) because they have seemed incompatible with the need for personal mobility and with consumer preferences for the automobile.

In the foreseeable future, the most promising areas for solution of this conflict are side-effects of the energy crisis. Reductions in automobile size and energy consumption will also reduce air pollution emissions from automobile engines. Shifts from single-occupancy driving to carpools, and from autos to mass transit will also reduce automotive pollution emissions. Finally, some new automotive technologies such as the battery-powered car will reduce the pollution emission of individual cars--and shift the pollution effects to more easily controllable electric generating plants.

Concern for environmental quality is also likely to shape the character and economic costs of future additions to our transportation system's physical plant and facilities. In the aviation area, community concern over aircraft noise has already placed a virtual lid on new airport construction in many parts of the country. Requirements for government ownership and control of noise-impacted zones around airports are likely to substantially increase the future cost of new airports and airport expansions. In addition, meeting Federal noise standards for aircraft poses major financial problems for the commercial airlines, which will be required to retrofit, re-engine or replace a large number of

existing aircraft by 1985. Legislation has been introduced in the 95th Congress (H.R. 8729, H.R. 11986) to provide financial assistance to the airlines for this purpose.

Environmental quality considerations are also likely to exert a major influence on development of the future coal transportation system. The railroads are planning to make extensive use of continuous "unit" coal trains of up to 100 hopper cars in length (or more than 1 mile). At expected levels of up to 35 trains per day, some communities might be physically divided in half for several hours each day. This would disrupt traffic, delay essential hospital, fire and police services, and effectively destroy the life of the affected communities. To avoid these consequences, major public investments will be needed to provide rail-highway grade separation structures and alleviate other adverse effects.

New Technology

Traditionally, much of the speculation about future trends and developments in transportation has involved new technologies. Over the next decade and a half, it is likely that some relatively new transportation technologies will come into greater use. However, there is little likelihood of a radical shift in the character of our major transport technologies.

There is some possibility that unconventional high-speed ground transportation modes such as tracked air cushion vehicles and magnetically-levitated vehicles will become operational during the next 15 years. At present, these technologies are in operation as engineering prototypes but are not economically feasible. However, increased energy costs and further engineering refinements may permit the practical implementation of these technologies in short-medium intercity passenger service during the 1990's.

Short and vertical take-off and landing aircraft have been operational for several decades, and are in limited civilian use at present. Some further implementation of these vehicles in civilian passenger transport service is possible if economic costs can be further reduced.

In urban transportation, the most likely new technologies (as previously discussed) will involve shifts in automotive propulsion technology to non-petroleum-fuel-based engines. Urban mass transit is likely to make increased use of an old technology, the streetcar, and a new technology, the personal rapid transit system. The streetcar is receiving increasing attention because of its

flexibility and economy. The personal rapid transit system also is a possible alternative to the automobile. It uses a computer-based automatic command and control system to route small transit vehicles (5-10 passengers) directly to waiting travellers and then non-stop to their destination. If cost and reliability problems can be solved, this new technology could potentially combine the personal auto's attractiveness to consumers with the societal advantages of public transit.

Improvements in communications technology are also likely to exert an increasing influence on transportation. As new forms of communications--visual telephones, and computerized message systems--become less expensive, physical travel will become unnecessary for many purposes. While physical travel will continue to be preferred for personal reasons such as visits to relatives and to tourist sites, business and government will make increasing use of electronics communications media as an economical alternative to physical travel.

ISSUES FOR FUTURE AUDIT WORK

Based on an analysis of transportation issues and the expected needs of the Congress, we have identified eight major transportation issues on which our audit work should focus over the next 2 years:

Developing and coordinating balanced national transportation policies and programs.

Restructuring and rehabilitating the railroad freight transportation system.

Developing a safe motor vehicle-highway transportation system.

Developing and maintaining an adequate and cost-effective national highway system.

Determining the continued justification for and effectiveness of surface transportation economic regulation.

Developing economically viable urban public transit systems.

Determining the role of Amtrak's intercity rail passenger service in the U.S. transportation system.

Developing a safe, efficient and reliable air transportation system.

In selecting these areas of concern, emphasis was placed on addressing current congressional interests and concerns, and anticipating future congressional needs for GAO assistance. Over the next 2 years, we plan to concentrate most of our self-initiated audit work on the eight issues listed above. We also anticipate that most congressional requests assistance will be related to these issues.

The remainder of this study examines these major issues in more detail. Each chapter contains an analysis of a major issue and a summary of our recent work in the area. Appendix I presents an overview of the major government agencies, congressional committees, private sector lobby groups, and research organizations involved in transportation.

Other GAO work in transportation

Although most of our audit work in transportation over the next 2 years is expected to focus on the eight issues listed above, we recognize that congressional needs and our own responsibilities for audit coverage of Federal transportation programs and activities will require some audit work which falls outside these issues. We have set aside part of our planned audit time to meet these requirements.

We also conduct audit work involving other national issues which may have implications for Federal transportation agencies and transportation issues, in such areas as: energy, environmental protection programs, Federal procurement of goods and services, science and technology policies and programs, consumer and worker protection, land use planning and control, housing and community development programs, water and water-related programs, tax policy, and food.

CHAPTER 2

DEVELOPING AND COORDINATING BALANCED NATIONAL TRANSPORTATION POLICIES AND PROGRAMS

ISSUE ANALYSIS

There is a growing public awareness and concern that uncoordinated transportation policies are having counter-productive effects on the U.S. transportation system.

In a December 1977 report prepared with GAO assistance, the Senate Governmental Affairs Committee strongly criticized the fragmentation of Federal transportation policies and programs and recommended major organizational reforms aimed at developing a unified national transportation policy. The Secretary of Transportation's February 1978 policy statement called for "careful consideration" of the Committee's proposals, and recommended unification of highway and mass transit subsidy programs as well as a combined Federal transportation budget account. The 1978 National Transportation Institute of the Transportation Association of America took "Unifying Transportation Policies" as its theme, and focused specifically on the Governmental Affairs Committee and DOT policy recommendations. During the next decade, we expect that the general problem of planning and coordinating balanced national transportation policies and programs is likely to become a dominant transportation issue for the Congress.

Historically, most Federal transportation programs have been narrowly oriented, typically addressing a limited set of problems relating to a single transportation mode. As new transportation problems have arisen, new programs and agencies have been established--often with little emphasis on coordinating existing programs and agencies with the new activities. Over the years, this process of piece-meal and incremental growth has resulted in the present decentralized organization of Federal transportation programs. The Department of Transportation faces major difficulties in controlling and coordinating the plans and programs of the semi-autonomous operating administrations such as the Federal Aviation Administration and the Federal Highway Administration. At least 22 other Federal agencies with transportation-related programs are completely outside the Department's control, including the independent transportation regulatory commissions, the Maritime Administration and the Corps of Engineers.

The absence of coordination and long-range planning from the historical development of the Federal role in transportation is characteristic of many areas of the Federal Government. For most of the history of the United States, the rapid growth in national economic wealth and the abundance of natural resources made long-range planning of Government programs seem unnecessary. But many natural resources which previously seemed abundant and cheap have now become scarce and expensive--petroleum, clean air, clean water, and open land. The Nation's rapid growth in economic productivity and wealth has slowed. Meanwhile, national standards for the quality of transportation--personal mobility, speed and comfort, environmental compatibility and cleanliness, and safety--have continued to rise. Consequently, the Nation's transportation problems have become more complex, cutting across the traditional boundaries of transportation modes and Federal agency jurisdictions.

These factors have made the need for long-range planning and coordination of Federal transportation programs increasingly apparent. The public is beginning to recognize that Federal policy toward the inland waterway system may undercut Federal aid to the nation's railroads, that the Federal highway program has important effects on Federal mass transit policy, and that improvements in auto safety may affect auto energy consumption. As the problem of planning and coordinating national transportation policies and programs has become a major issue, the Congress has begun to give particular attention to the intermodal and multimodal impacts of Federal transportation policies and programs. We expect that the Congress will address the impact of organizational fragmentation on Federal transportation policy in its consideration of administration and congressional proposals for executive branch reorganization. We also expect increased congressional interest in the early identification of emerging future transportation problems, and in the effectiveness of intermodal planning and coordination by Federal, State and local transportation agencies.

GAO ACTIVITIES

Our activities relating to this issue over the past 2 years can be divided into four general areas: 1) direct assistance to the Congress in assessing national transportation policy issues, 2) evaluations of government coordination and planning of transportation programs, 3) analysis of intermodal and multimodal transportation policy problems, and 4) analysis of emerging transportation problems and issues.

Direct assistance to the Congress in assessing national transportation policy issues was provided in two assignments. In November 1976, we briefed the National Transportation Policy Study Commission on current transportation issues, alternative study plans and work schedules, at the Commission's second public meeting in Reston, Virginia. In October-December 1977, we assisted the Senate Governmental Affairs Committee in preparing a study of the fragmented Federal role in transportation. The Committee report was issued in December 1977, and recommended major Federal policy and organizational changes to achieve a unified national transportation policy. The Committee report was discussed in the Secretary of Transportation's February 1978 policy statement, and was the principal topic of discussion along with the DOT policy statement at the 1978 National Transportation Institute of the Transportation Association of America.

We conducted several evaluations of government planning and coordination of transportation programs. In October 1977, we reported on the administrative confusion and other hindrances to coordination of the 114 Federal programs that provide financial aid for the transportation of people. This report caused the Interstate Commerce Commission to administratively deregulate Federally funded interstate transportation service projects for the elderly, handicapped and poor. In March 1978, we issued a report on the need for intermodal planning by State and local transportation agencies in making future transportation decisions. This report was directly relevant to the current congressional debate over proposed highway and mass transit legislation. In May 1978, we reported on the need for a flexible and obstruction-free system of marine approaches to U.S. ports. This report highlighted the conflict between energy and maritime interests over the use of the ocean surface and the efforts of the Coast Guard and Corps of Engineers to resolve the conflict. In our current review of public ports in the United States, we are investigating the present and potential Federal role in port planning and development.

We also conducted a number of assignments involving the analysis of intermodal and multimodal transportation problems. In March 1977, we reported on the reasons why cities did not use Federal-aid urban system highway funds for mass transit projects under a 1973 amendment permitting such use. We are currently conducting a survey to develop a possible review methodology to measure the multimodal effects of economic regulation of surface transportation. We also conducted several surveys of intermodal problems which provided useful background information, but did not identify feasible audit approaches for further

review work. These included studies of transportation subsidies, the impact of multiple Federal and federally-supported rail organizations, the joint problems of the three transportation regulatory agencies (ICC, CAB and FMC), and the need for a Federal Maritime Commission.

Finally, we conducted a number of assignments which investigated emerging transportation problems and issues, primarily in the areas of maritime and inland waterway transportation. Our September 1977 report on the costs of proposed cargo preference legislation had a major impact on the congressional debate over this legislation. We issued several reports to the Department of Commerce and its Maritime Administration dealing with various aspects of the Department's maritime transportation programs. We also prepared a report for Representative Jack Brooks on the Federal ship financing program. In June 1978, we reported to the Congress on ways to more effectively implement existing cargo preference programs for government-financed ocean shipments. Our December 1977 report on the cost of little-used inland waterways is directly relevant to the current congressional debate over waterway user charges. We identified potential savings of $4 million per year in the Atlantic coast area through reductions in operating hours for infrequently used locks and drawbridges, and the Corps of Engineers is taking steps to reduce operations during low-demand periods.

Reports Issued	Date
Need for strengthening the management and control of the ship sales program (CED-06548, letter report)	1/26/77
Why urban system funds were seldom used for mass transit (CED-77-49)	3/18/77
Aspects of Marad's administration of the Federal ship financing program (CED-77-68)	5/16/77
Need for consistent policies among Federal agencies having vessel disposal programs (CED-77-80)	5/26/77
Opportunities to reduce the ocean transportation cost of P.L. 480 commodities (CED-77-127)	9/7/77

Costs of cargo preference (PAD-77-82)	9/9/77
Hindrances to coordinating transportation of people participating in Federally funded grant programs Volumes I and II (CED-77-119)	10/17/77
Opportunities for large savings by altering some inland waterway operations (CED-78-12)	12/12/77
Maritime Administration's noncompliance with the planning requirements of Section 210 of the Merchant Marine Act of 1936 (CED-78-31)	1/20/78
Making future transportation decisions: intermodal planning needed (CED-78-74)	3/16/78
Marine approaches to U.S. ports: A flexible and obstruction free system is needed (CED-78-107)	5/2/78
Cargo preference programs for Government financed ocean shipments could be improved (CED-78-116)	6/8/78

Current Assignments

Review of American ports: issues and problems

Survey to identify effects of ICC regulation of surface transportation

CHAPTER 3

RESTRUCTURING AND REHABILITATING THE RAILROAD FREIGHT TRANSPORTATION SYSTEM

SUE ANALYSIS

Railroads are the dominant intercity freight transportation mode in the United States. In 1975, the rail freight system carried 761 billion ton-miles of freight--about 37 percent of total intercity freight traffic and substantially more than was carried by truck (21 percent), pipeline (25 percent), inland waterways (17 percent) or air (4 percent). Railroads are economically and environmentally efficient. They are capable of moving large volumes of freight at low economic and social cost, and are fuel-efficient and non-polluting. But the U.S. rail freight system is also a troubled industry, whose deeply rooted economic and financial problems pose difficult policy questions for the Nation and the Congress.

The financial collapse of the Penn Central and six other northeastern and midwestern railroads in 1970 focused national attention on the problems of the rail freight system. Since the end of World War II, the railroad industry has experienced serious difficulties in adapting to changes in the market for rail freight service, and has earned an extremely low return on invested capital. In 1976, the rate of return on net worth for all U.S. railroads was 1.8 percent. This reflects a deficit by the eastern railroads, and low rates of return by the southern (6.5 percent) and western (5.5 percent) railroads.

Because of their low earnings, the railroads have found it extremely difficult to finance needed maintenance and capital improvements. In a vicious cycle, deferred maintenance has led to increased operating costs and deteriorating freight service, which has caused loss of traffic to competing transportation modes, and has decreased revenues and earnings. This process has had particularly adverse effects on the railroads in the Northeast where changes in the composition and geographic distribution of rail freight shipments have made modernization and rationalization of obsolete or duplicative physical facilities especially important. But the entire rail freight system has been characterized by extensive obsolescence and deterioration of track, facilities and equipment, and an increasing need for major rehabilitation and upgrading.

The rail freight system has also been characterized by a duplicative and overlapping route system and corporate industry structure, established during an earlier historical era and poorly suited to current patterns of traffic and demand. In some instances, competing railroads with duplicate routes must divide markets which are only large enough to profitably support a single carrier. In other instances, long-distance and cross-country shipments must be interchanged between a number of competing lines, forcing economically strong and efficient railroads to depend on the reluctant cooperation of economically weak and inefficient railroads. This presents major obstacles to the efficient handling of long-haul shipments--potentially the largest and most profitable rail freight market--and discourages needed innovations in service, pricing, marketing and technology.

The magnitude of the Penn Central bankruptcy, and the potential threat to the northeast-midwest economy forced the Federal government to actively intervene in the rail freight system's financial difficulties. After the Penn Central bankruptcy, the Congress enacted the Emergency Rail Service Act of 1970. This legislation provided Federal loan guarantees for continuation of essential transportation services by the bankrupt railroads. In 1974, the Regional Rail Reorganization Act established the United States Railway Association (USRA), a nonprofit mixed-ownership government corporation. It required USRA to design a plan for restructuring the northeast-midwest rail system.

In 1975, USRA sent the Congress its Final System Plan for reorganizing the bankrupt railroads, providing for the establishment of a for-profit corporation, the Consolidated Rail Corporation (Conrail) to operate the restructured system. In 1976, the Congress enacted the Railroad Revitalization and Regulatory Reform Act (4R Act). The 4R Act authorized $6.4 billion in Federal aid for rail transportation, including $1.75 billion for upgrading and improving rail service in the northeast corridor, $1.6 billion for improving track and facilities in other parts of the nation's rail system, and $2.1 billion to Conrail to finance the restructuring of the six bankrupt railroads. In April 1976, Conrail began operation of the restructured northeast-midwest rail system.

Recent financial and economic developments in the rail freight system have not been encouraging. In February 1978, Conrail submitted a new 5-year operating plan to the Congress which raised grave doubts as to whether Conrail will ever achieve profitability. The corporation reported

losses of more than $560 million in 2 years, and requested $1.3 billion more in Federal funds. Conrail also said that if private financing proved difficult, an additional $1 billion in Federal loan guarantees might be needed. Conrail forecast profitable operations beginning in 1980, but the assumptions underlying this forecast appear to be very questionable. In August 1978, the Interstate Commerce Commission warned that Conrail's cost estimates through 1982 were understated by at least $1.1 billion.

Elsewhere in the rail freight system, a number of railroads in the midwest are currently experiencing severe financial difficulties. Proposals have been made for Federal involvement in a restructuring and refinancing of midwest railroads in the form of a "Farmrail" corporation. But the Carter administration rejected Federal intervention in the midwest situation, arguing that restructuring through private mergers will be adequate to achieve an economically viable system.

Future prospects for the rail freight system are uncertain. The expected national shift to coal as a primary energy source may prove to be the economic salvation of the railroads. Railroads are very efficient carriers for coal traffic, and an assured expanding demand for coal transportation may provide the solid financial base needed to rehabilitate and upgrade the rail freight system. But the financial requirements for expanded coal traffic are expected to be very large and may be difficult for the railroads to manage without Federal assistance. The poor financial performance of many railroads raises doubts about their ability to obtain adequate private financial capital. These doubts are reinforced by uncertainty about the potential future role of coal slurry pipelines, which the railroads fear will capture the most profitable long-term, long-haul segments of western coal traffic.

Significant safety problems also appear to be developing throughout the rail freight system. The deferral of needed maintenance and system improvements has resulted in extensive obsolescence of track and equipment, and increased frequency of unsafe operating conditions. The Federal Railroad Administration receives only a miniscule annual budget for rail safety regulation, and appears to have very limited effectiveness in promoting rail safety. Recent rail freight accidents involving liquified energy gases and other hazardous materials, as well as recent rail commuter line accidents, have highlighted the potential seriousness of the rail safety problem. Given the extent of present rail rehabilitation needs, it is likely that rail accidents will increase over the near-term, and that public and congressional concern

over rail safety will also increase.

Except for future coal traffic, no significant increases in total demand for rail freight service can be expected. Indeed, economically declining regions such as the northeast may experience decreases in rail freight traffic in the future. Overall, the rail freight system is clearly going to continue to play a major role in the U.S. transportation system. But the present corporate industry and route structure of the rail freight system is likely to undergo significant changes during the remainder of the century, and the Federal government is likely to play a continuing role in this restructuring. We anticipate that GAO will be required to provide extensive assistance to the Congress in assessing the need for restructuring and rehabilitating the rail freight system, and evaluating Federal efforts to support and promote such restructuring and rehabilitation.

GAO ACTIVITIES

Our activities relating to this issue over the past 2 years can be divided into four main areas: 1) evaluations of the management, effectiveness and need for Federal financial assistance programs for rail freight transportation, 2) evaluations of the management and effectiveness of Conrail's operation of the restructured Northeast-Midwest rail system, 3) evaluations of the management and financial operations of the federally-owned Alaska railroad, and 4) evaluations of Federal efforts to regulate and promote railroad safety.

Evaluations of the management, effectiveness and need for Federal aid to rail freight transportation accounted for much of our work relating to this issue. We issued reports on the adequacy of financial controls over Federal aid to railroads, and on the ability of U.S. industry to produce rail and ties for track rehabilitation. We also issued a series of reports on the U.S. Railway Association's finances, operations and administrative practices. As a result of this work, the Railway Association took steps to improve its financial management system, expand the scope of its internal audit activities, and establish formal policies for financial disclosure by its employees. We are currently reviewing the Federal Railroad Administration's management of the Northeast Corridor improvement program, pursuant to a congressional request.

We have also given particular emphasis to evaluating the management and effectiveness of Conrail's operation of the reorganized Northeast-Midwest rail system. In January 1978, we reported on Conrail's freight car utilization, a

key element in Conrail's efforts to increase operating efficiency and achieve long-range profitability. Currently, we are engaged in a comprehensive review of Conrail's performance during the first 21 months of operation and prospects for profitability within the next 5 years. We are also reviewing Conrail's track abandonment program, and the Title V salary reimbursement program for establishment of Conrail, and issued a preliminary report on the Title V program in July 1978. We have also provided assistance to several congressional committees in analyzing Conrail's financial plans.

At the Alaska Railroad, we conducted a comprehensive evaluation of the Railroad's management and financial operations. We reported on improper relocation allowances paid to the Railroad's general manager in April 1978, and issued a comprehensive report on this review in July 1978. Our review has already been successful in producing financial savings for the government. The Railroad has promised to take action to correct deficiencies noted in our review, and has begun renegotiating leases to raise property rents to fair market value. We estimate increased yearly revenues for the government of at least $400,000 per year.

In the field of railroad safety, we reviewed the safety of commuter rail lines operated by Conrail in the New York City metropolitan area. In our March 1978 report to the House Interstate and Foreign Commerce Subcommittee on Transportation and Commerce, we recommended that inadequacies in Conrail's safety activities should be corrected and found that the Federal Railroad Administration had been ineffective in its safety regulatory role. Our findings provided assistance to the Subcommittee for its March 1978 hearings on railroad safety. We are also currently reviewing railroad accident investigations conducted by the National Transportation Safety Board and the Federal Railroad Administration, pursuant to a congressional request.

In addition to the assignments discussed above, a number of assignments relating to Interstate Commerce Commission economic regulation of railroads are discussed in Chapter 6, below, which discusses the problem of "Determining the continued justification for and effectiveness of surface transportation economic regulation."

Reports Issued	Date
Industry capability to produce rail and crossties for nationwide railroad track rehabilitation (CED-76-150)	9/23/76
Improved controls needed over Federal financial assistance to railroads (CED-76-161)	11/15/76
Improper relocation allowances paid to Alaska Railroad general manager (CED 34347)	4/27/77
Examination of the U.S. Railway Association's financial statements and other matters concerning its operations (CED-77-64)	7/8/77
Other matters concerning the financial operations of the U.S. Railway Association (B-164497(5))	7/11/77
U.S. Railway Association's subsidy for its executive dining room and its award of the two contracts (CED-78-2)	11/7/77
Conrail's attempts to improve its use of freight cars (CED-78-23)	1/24/78
Is the administrative flexibility originally provided to the U.S. Railway Association still needed? (CED-78-19)	2/22/78
Commuter railroad safety activities on Conrail's lines in New York should be improved (CED-78-80)	3/15/78
Information on questions about Conrail's service in the Scranton, Pennsylvania area (CED-78-82)	4/4/78
The Alaska Railroad: Its management is being improved; its future needs to be decided (CED-78-137)	7/27/78
Conrail's profitability: framework for analysis (PAD-78-52)	4/10/78

How long does it take Conrail to process protected employees' claims under the 1973 Regional Rail Reorganization Act? (CED-78-138) 7/31/78

Current Assignments

Review of railroad accident investigations conducted by the National Transportation Safety Board and the Federal Railroad Administration

Review of Conrail's prospects of achieving profitability

Review of the management of the Northeast Corridor improvement program

Review of Conrail's track abandonment program

Review of Title V reimbursement arrangement between Conrail and the Railroad Retirement Board

CHAPTER 4

DEVELOPING A SAFE MOTOR VEHICLE-HIGHWAY TRANSPORTATION SYSTEM

ISSUE ANALYSIS

Traffic accidents continue to be the leading cause of accidental death in the United States. Traffic fatalities hit a peak in 1972 when over 56,000 deaths were recorded, but a sharp decline in the number of deaths occurred after the 1973 oil embargo. In 1974, 46,700 traffic fatalities were reported and the annual death toll has currently stabilized at this level. Increasing the safety of travel on the highways--through improvements in the design and operating characteristics of vehicles and highways, and through more effective driver-oriented safety programs--is one of the Nation's most serious transportation challenges.

Traffic accidents are caused by a number of complex and interrelated factors; however, these can be grouped into three basic categories: The driver; the vehicle; and the roadway. The Department of Transportation has identified six factors which play a particularly important role in traffic safety: (1) the growing number of motor vehicles, drivers, and miles driven, (2) the growing number of young drivers, (3) higher speeds (even with the 55 mph speed limit, average vehicle speed is increasing each year), (4) the combination of drinking and driving, (5) the growing disparity in the size and weight of vehicles on the road, and (6) the interaction between pedestrians and vehicles (pedestrians account for one-sixth of the traffic fatalities).

Often the roadway environment leads the driver into error or prevents him from making the right decisions. Better engineered roadways lessen driver errors and provide a more forgiving environment when an error is made. Improved roadway environments have significant safety payoffs. For example, the accident fatality rate on Interstate highways, which are designed to very high safety standards, is 50 percent below the national average and 500 percent below the rate on nonfederal-aid rural roads.

For many years, traffic safety was considered to be the basic responsibility of the States. It was not until 1960 that Congress took initial steps to involve the Federal Government, by establishing a National Driver Register as an aid to the State licensing authorities. Six years later, Congress took a major step toward Federal involvement by

enacting the National Traffic and Motor Vehicle Safety Act of 1966 and the Highway Safety Act of 1966. This legislation called for a coordinated national effort to improve traffic safety through the reduction of traffic accidents and the resultant deaths and injuries. The overall effect of the 1966 legislation was to involve the Federal Government directly in the quality of the safety features in vehicles and in the quality and quantity of State highway safety programs.

At present, Federal responsibilities for motor vehicle and highway safety are administered by the Department of Transportation. In general, the National Highway Traffic Safety Administration is responsible for those aspects of safety dealing with the driver and the vehicle, and the Federal Highway Administration is responsible for roadway-related aspects. The Federal Highway Administration is also responsible for regulation of commercial motor carrier (truck and bus) safety.

The 1966 motor vehicle and highway safety legislation called for: (1) the establishment of Federal motor vehicle safety standards; (2) the initiation and support of necessary safety research and development at the Federal level; (3) the establishment of uniform standards for State highway safety programs; and (4) the establishment of a grant program to assist States in accelerating their own safety programs to bring them into compliance with the uniform standards. Several amendments have been made to this legislation; some called for greater emphasis on safety (e.g., requiring safety standards for school buses); while others put a check on Federal safety efforts (e.g., repeal of the seat-belt interlock system and the requirement for congressional approval of all future motor vehicle safety standards).

The Congress has also enacted several safety construction programs in order to place special emphasis on removing safety problems caused by roadway condition or engineering design, such as bridges, high-hazard locations, and rail-highway crossings. Most of these programs were started because the States were hesitant to use conventional Federal-aid highway construction funds for safety. The bridge replacement program was established because of the widespread concern over the number of structurally deficient and functionally obsolete bridges and because of the very large amount of funds needed to replace bridges.

In 1973 the Congress recognized that safety needs far exceeded available funds and required States to assign priorities to safety improvements and evaluate the costs

and benefits obtained from such improvements. The Congress also recognized the safety problems of rural and urban roads outside the Federal-aid system and for the first time provided Highway Trust Fund money to assist State and local governments in this area.

In recent years, Congress has focused increased attention on the economic impact of automobile ownership and on the protection of the consumer. In the Motor Vehicle Information and Cost Saving Act of 1972, the Congress mandated bumper standards to reduce vehicle damages, and odometer requirements to prohibit tampering with vehicle mileage figures. The 1972 law also established demonstration projects for testing the feasibility of diagnostic inspection procedures, and required a comprehensive Federal study of the damage susceptibility, degree of crashworthiness, and ease of diagnosis and repairability of damaged vehicles. A 1975 amendment to this Act added a requirement for stringent automotive fuel economy standards in order to improve the fuel efficiency of passenger cars.

In response to the 1973 Arab oil embargo, Congress enacted the national 55 mph speed limit law. Although this law was initially passed as a fuel conservation measure, the number of highway deaths dropped sharply after the law was implemented. In a recent audit, we found that many States are not enforcing the 55 mph speed limit, and average speeds are beginning to rise. As a result, the recent reduction in highway fatalities may prove to be only temporary.

During the past 2 years, several major safety issues were addressed by the Congress. One of the most important issues was the debate on whether to approve the Secretary of Transportation's passive restraint decision (commonly referred to as the airbag decision). In October 1977, both houses of Congress voted to uphold the Secretary's decision. Another issue was the proposed enactment of a national no-fault insurance bill; legislation on this subject (H.R. 13048) was rejected by the House Interstate and Foreign Commerce Committee in August 1978 but is likely to be reintroduced in the 96th Congress. In July 1977, DOT submitted its recommendations for changes to the highway safety program standards, pursuant to a congressional mandate. The Congress is currently reviewing these standards in connection with its consideration of authorizations for the Highway Safety Act (S. 2541), an administration bill.

The Congress is also currently reviewing Federal highway construction safety programs as part of its

consideration of new Federal highway legislation (S. 2440). The major focus of this review is likely to be on two issues: (1) increasing the bridge program funding level, and (2) consolidation of the other Federal safety construction programs.

The Federal role in motor vehicle and highway safety is still evolving. Because of adverse public and industry reactions to past motor vehicle safety standards, it is likely that future Federal efforts will focus primarily on refining and simplifying existing standards rather than issuing new standards. In the highway safety area, the Carter administration appears to favor a reduction in Federal involvement with a corresponding increase in State and local responsibilities, but congressional approval for such a shift appears unlikely.

Although the energy crisis will make gasoline scarcer and more expensive, most observers believe that motor vehicles will continue to be the dominant mode of urban transportation for the remainder of this century. This means that the number of highway passenger miles can be expected to increase for some years to come and that motor vehicle accidents will also increase. Moreover, the energy crisis will almost certainly result in increased highway safety problems, since the expected reductions in vehicle sizes and weights to save energy will also produce vehicles which are more susceptible to severe damage in accident situations.

A key issue will be the availability of accurate and comprehensive statistical data on motor vehicle/highway accidents. Such data is needed in order to identify specific safety problems and to analyze the effectiveness of efforts to alleviate safety problems. Obtaining better accident data will be particularly important for the Department of Transportation because 1) individuals and consumer groups are becoming more vocal in their demands to improve safety and/or reduce costs, 2) vehicle manufacturers are trying to get current and future vehicle safety standards withdrawn or down-graded in order to keep weight down to meet fuel consumption criteria, and 3) States are applying increasing pressure in the Congress to get more flexibility and less Federal oversight in handling highway safety problems.

GAO ACTIVITIES

Our activities relating to this issue over the past 2 years can be divided into three general areas: 1) evaluations of the effectiveness of motor vehicle safety standards, 2) evaluations of the effectiveness of programs to improve

highway traffic and motor carrier safety, and 3) evaluations of programs to improve safety in highway design and construction.

In the area of motor vehicle safety standards, we reported in December 1977 that DOT lacked sufficient information to determine the effectiveness of vehicle safety inspection programs. Our July 1978 report called for stricter vehicle safety standards for light trucks and multipurpose passenger. We are currently investigating the effectiveness of occupant restraint systems, with particular emphasis on passive restraint systems such as airbags and passive (automatic) seat belts. During the 1977 congressional debate on the Secretary of Transportation's "airbag" decision, we provided extensive direct assistance to interested congressional offices on this subject. Much of this assistance was provided to congressional opponents of the administration position, who sought our assistance in order to obtain an outside, non-partisan assessment of the validity of administration data.

In the area of highway traffic and motor carrier safety, our February 1977 report on the 55 mph speed limit found that the States were failing to effectively enforce this law. In April 1977, we reported on problems in funding school bus driver training programs. We issued a report on the Federal motor carrier safety program in May 1977, concluding that the program has not been effective and should be strengthened. As a result of this report, the Federal Highway Administration implemented a number of major management improvements in the motor carrier safety program that responded directly to our recommendations. In March 1978, we reported on the need for an active public education program for drinking drivers. In June 1978, we reported on the effectiveness of the federally-funded National Driver Register, used by the States to maintain information on driver licensing and accident records. Both the 55 mph and the motor carrier safety report received extensive national media publicity, and the motor carrier report was discussed on the ABC evening television news.

In the field of highway design and construction safety, we reported on the management of Federal highway safety programs in October 1976, finding that systematic procedures were needed to assure that funds are spent on projects offering the greatest safety benefits. In December 1977, we reported on highway construction zone safety, concluding that Federal and State highway officials are giving inadequate attention to safety in designing, managing and inspecting highway work sites. In April 1978, we issued

a report on the effectiveness of the Federal Highway Administration's rail-highway crossing safety program, which provides funds to improve railroad grade crossings. We concluded that the Federal Highway Administration should define the extent of safety needed at crossings and that the Congress should authorize states additional flexibility in selecting safety projects.

Reports Issued	Date
Information on motor vehicle safety standard for air brakes (CED-76-151)	9/10/76
Management action needed to improve Federal highway safety programs (CED-76-156)	10/21/76
Speed limit 55--is it achievable? (CED-77-27)	2/14/77
Problems in funding school bus driver training programs (CED-77-60)	4/26/77
The Federal motor carrier safety program--not yet achieving what Congress wanted (CED-77-62)	5/16/77
Effectiveness of vehicle safety inspections neither proven nor unproven (CED-78-18)	12/20/77
Highway construction zone safety--not yet achieved (CED-78-10)	12/23/77
NHTSA needs to establish an active public education program for drinking drivers (Letter report to National Highway Traffic Safety Administrator)	3/1/78
Rail crossing safety--at what price? (CED-78-83)	4/25/78
The National Driver Register--a valuable licensing tool that needs to be improved (CED-78-129)	6/15/78
Unwarranted delays by the Department of Transportation to improve light truck safety (CED-78-119)	7/6/78

Current Assignments

Review of the alcohol counter-measure programs in highway safety

Review of occupant restraint systems--passive and active belt systems

Survey of National Highway Traffic Safety Administration's research programs

Survey of highway safety management information systems

CHAPTER 5

DEVELOPING AND MAINTAINING AN ADEQUATE AND COST-EFFECTIVE NATIONAL HIGHWAY SYSTEM

ISSUE ANALYSIS

Highway transportation is an essential element in the U.S. transportation system. Highways carry nine-tenths of the total interstate passenger-miles and almost a fifth of the interstate freight ton-miles. Counting all urban and intercity passenger traffic, U.S. highways carry about 2.3 trillion passenger miles a year--compared with 0.1 trillion passenger miles for all other transportation modes combined. Developing and maintaining an adequate, modern and cost-effective highway system is therefore vitally important to the preservation of our personal mobility and to the economic well-being of the nation.

Spending for highways by all levels of government has grown substantially since 1956, when the Federal Highway Trust Fund was established, increasing from $8.3 billion in 1956 to an estimated $30 billion in 1977. Despite this increase in government spending, however, there is considerable evidence that actual capital investment in highway construction and improvements is declining, and that we are failing to adequately replenish our national investment in the highway transportation system. Increasing expenditures for law enforcement, safety, interest payments, maintenance and administration, have reduced the amounts available for capital improvements from 60 percent in 1956 to an estimated 46 percent in 1977. Further, inflation has more than doubled the cost of highway construction, and environmental concerns now absorb about one of every eight Federal highway dollars. A recent Department of Transportation study shows that, after adjusting for inflation, capital improvement spending for highways actually decreased between 1967 and 1975--from $9.4 billion to $6.3 billion (calculation using constant 1967 dollars). Moreover, traffic on the highways continues to increase, with large increases in the number and weight of trucks. Many roads were designed to carry 5 percent of their total traffic in trucks, but are now carrying 15 to 20 percent truck traffic.

The result of declining capital improvement spending, increasing inflation and increased vehicle usage is that our highways are wearing out faster than they are being repaired--and the Congress, highway officials, and the public are becoming increasingly concerned over the physical condition of our highways. The Federal Highway Administration has

reported that the overall condition of the Nation's highways changed from good to fair between 1970 and 1975. Further deterioration occurred during the severe winters of 1976-77 and 77-78. The Federal-Aid Highway Act of 1976 authorizes $175 million in each of fiscal years 1978 and 1979 for resurfacing, restoring, and rehabilitating highways in the Interstate System.

However, recent estimates show that these authorizations will not meet future needs. For example, the backlog of deferred major maintenance work on approximately 8,000 miles of older Interstate segments is estimated to cost $2.6 billion (in 1975 dollars). The future need for major maintenance work on the entire Interstate System is estimated to be $950 million annually. These funds are in addition to the estimated $40 billion needed to complete and bring up to full standards the Interstate Highway System (which has top priority within the Congress and the Highway Administration).

Moreover, the 1976 Federal-Aid Highway Act redefines all construction of Federal-aid highways to include resurfacing, restoration, and rehabilitation, opening the way for future maintenance appropriations like those recently made for the Interstate System. Estimates of the potential cost of restoring all currently deficient roads range as high as $329 billion.

Currently, the Congress is again considering proposed Federal highway legislation, which will eventually become the Federal-Aid Highway Act of 1978. Proposals by the Carter administration (H.R. 10578, S. 2440, and S. 2441) have emphasized the need for increased maintenance of the existing highway system and for an expanded bridge replacement and rehabilitation program, but have not recommended major increases in total highway funding. Legislation now being considered by the Congress (H.R. 11733, S. 3073), also emphasizes maintenance and bridge repairs but proposes large increases in total spending for highways. Issues which are being addressed by the Congress in their consideration of this legislation include: 1) the overall Federal spending level for highways and its effects on the national economy, 2) the need for spending on new construction, 3) the need to complete the Interstate System, 4) the need for increased spending on highway maintenance, 5) the need for increased spending on bridge replacement and rehabilitation, 6) the adequacy of current Highway Trust Fund revenues, 7) the equalization of Federal matching ratios, and 8) the consolidation of highway and mass transit grant and planning programs.

The Congress is also considering whether to extend the life of the Highway Trust Fund, which is scheduled to expire in October 1979. The Highway Trust Fund is the principal mechanism for funding Federal highway programs. The Trust Fund is supported by user charges--primarily the Federal gas tax--and provides over 90 percent of Federal highway funds. (The remainder is paid for with general tax revenues.) User charges have not kept pace with the benefits received by highway users, and the Trust Fund has grown mainly because of the increased volume of highway traffic. Two major issues before the Congress are the adequacy of current user charges to meet future highway needs, and the adequacy of the charges on different classes and types of users (such as heavy trucks) in relation to the benefits they receive. A third issue is the future effect of inflation. If inflation continues to be a major economic problem, increased highway user charges or general tax increases will be needed to meet our future highway needs.

In the immediate future, the Congress will continue to be faced with the problem of expeditiously completing the Interstate Highway System. A key question over the longer-range future, however, will be what the Federal Government should do when the Interstate System is completed--that is, what is the appropriate Federal role in managing and maintaining the existing highway system? A likely change will be to increase the States' flexibility in the use of Federal highway funds by reducing the number of program categories and the corresponding red tape. Increased flexibility will require greater planning and coordination between Federal, State, and local governments to insure the funding of cost-effective projects and to provide the most effective mix of transportation services including mass transit. In addition, the Federal government will need to streamline its present regulatory procedures, so as to simplify or eliminate duplicative or unnecessary requirements.

Because of the great demand for limited amounts of highway funds, more emphasis probably will be directed at insuring the quality of highway construction and maintenance operations. States will need to identify the causes of deterioration and try to control them. The Highway Administration and the States also will have to improve the capacity of the present highway system with operating changes which do not require major capital investments, such as computerized traffic control systems and preferential treatment for buses and car pool vehicles.

To maintain satisfactory levels of operating performance on the U.S. highway system, and to avoid wasteful

and hazardous deterioration of our bridges and highways, the United States must allocate large and continuing shares of our national economic resources for highway construction and maintenance. The challenge for the Nation is to develop and administer efficient and economical highway programs which will satisfy our immense highway needs at an acceptable and reasonable cost.

GAO ACTIVITIES

Our activities relating to this issue over the past 2 years have focused primarily on evaluations of the management and effectiveness of Federal assistance programs for highway construction and maintenance. Our most important contribution was in the area of highway maintenance, where our February 1977 report identified actions that should be taken by the Department of Transportation to insure that States properly maintain highways constructed with Federal aid. This report received extensive media coverage, and helped to focus public attention on the national problem of highway deterioration and the States' growing highway financial needs. The report was used as background for hearings by the House Ways and Means Oversight Subcommittee in October 1977 on the effect of increased truck weights on highway deterioration.

In November 1976, we reported on the Appalachian Development Highway System in West Virginia. We reported in October 1977 on management improvements needed at the Federal Highway Administration relating to the Forest Highway Program. The Department of Transportation has proposed legislation to accomplish one of our recommendations for protecting Federal interests in the National Forests. In February 1978, we reported on problems of the Darien Gap Highway--a U.S. funded segment of the Pan American Highway. In March 1978, we reported on obstacles to the Federal billboard removal program, and recommended management and legislative changes to increase this program's effectiveness. We also provided direct assistance to several congressional offices in reviewing such problems as the use of Federal highway funds in digging a canal in California, cost-overruns for a history of the Federal highway program, environmental impact procedures used in planning part of Interstate 40 in North Carolina, the cost of the proposed Crosstown Expressway in Chicago, Illinois, and the basis for funding authorizations for bridge replacement in proposed highway legislation.

In August 1978, we reported on the limited success of the Federal Highway Administration's implementation of the "certification acceptance" program--an effort to delegate

program administration responsibilities to State highway agencies, so as to reduce red tape and improve efficiency. We recently began surveys of Federal and State efforts 1) to control highway deterioration, and 2) to close essential gaps in the Interstate Highway System. As part of our highway deterioration survey, we are examining the effectiveness and need for Federally financed highway resurfacing projects. We also recently began a survey of the impact of increased coal production on Federal-aid highways.

Reports Issued	Date
Action needed to improve the administration of the States' allocations and suballocations of Urban System funds (Letter report to Federal Highway Administrator) (CED 34254)	8/11/76
The Appalachian Development Highway System in West Virginia: too little funding too late? (PSAD-76-155)	11/3/76
The Appalachian Development Highway System in West Virginia: too little funding too late? (PSAD-76-155)	11/3/76
Improving and maintaining Federal-aid roads--Department of Transportation action needed (CED-77-31)	2/2/77
Federal interests should receive more consideration under the Forest Highway Program (CED-77-130)	10/13/77
Linking the Americas--Progress and problems of the Darien Gap Highway (PSAD-78-65)	2/23/78
Interstate 5 and the Peripheral Canal in San Joaquin and Sacramento Counties, California (CED-78-65)	3/10/78
Obstacles to billboard removal (CED-78-38)	3/27/78
Information on the special bridge replacement program (CED-78-139)	6/23/78
Information on the proposed Crosstown Express way in Chicago, Illinois (CED-78-135)	6/30/78
Federal efforts to reduce red tape in highway construction have had limited success (Letter report to Federal Highway Administrator)	8/18/78

Current Assignments

Survey of Federal and State efforts to minimize highway deterioration

Survey of closing of essential Interstate Highway gaps

Survey of impact of increased coal production of Federal-aid highways

CHAPTER 6

DETERMINING THE CONTINUED JUSTIFICATION FOR AND EFFECTIVENESS OF SURFACE TRANSPORTATION ECONOMIC REGULATION

ISSUE ANALYSIS

The Interstate Commerce Commission (ICC) is an independent Federal agency with responsibility for the economic regulation of surface transportation. The ICC has broad powers and responsibilities for the economic regulation of the U.S. railroad industry and of commercial motor freight and passenger carriers (the "for-hire" interstate trucking and bus industries). The ICC also has limited regulatory responsibilities for slurry pipelines and for a small number of "for-hire" domestic water transportation carriers. There is serious public and congressional concern that: 1) some ICC regulatory activities may be unnecessary or even counterproductive, and 2) ICC's management of its regulatory responsibilities is inefficient and ineffective.

Most U.S. railroad transportation is subject to ICC economic regulation. Railroads must file tariffs with ICC which set forth just and reasonable passenger and freight rate tariffs. ICC exercises control over rates and regulates competition among railroads and between railroads and motor carriers. ICC approval must be obtained for establishing and developing new rail freight or private passenger service and for discontinuance or mergers of railroads. The National Railroad Passenger Corporation (Amtrak) is subject to some but not all ICC regulations applicable to private sector railroads.

ICC is also responsible for the economic regulation of common and contract interstate commercial motor freight carriers--the for-hire interstate trucking industry--and most of the intercity bus industry. Local (noninterstate) trucking, agricultural trucking, and privately operated trucking are excluded from ICC regulation. Consequently, ICC regulations do not apply to 58 percent of intercity motor-freight transportation in terms of ton miles or to two-thirds of all motor freight transportation in terms of dollar expenditures. Motor carriers subject to ICC jurisdiction are required to comply with detailed regulations that control entry into the interstate bus and trucking industries, the rates charged for service, and company consolidations and mergers.

ICC exercises more limited authority over slurry pipelines and certain domestic water transportation carriers which operate coastwise, intercoastally through the Panama

Canal, and on inland waters of the United States. ICC jurisdiction over domestic water carriers is extremely limited, covering only about 6 percent of all domestic water carrier traffic, and does not include such major categories as private shippers carrying proprietary cargoes, carriage of liquid bulk cargoes, and the bulk carriage of three or less commodities. Regulated pipeline and water carriers must file tariffs with ICC setting forth just and reasonable rates. ICC exercises control over minimum rates, and regulates certain types of competition between carriers.

Most criticisms of ICC are directed toward ICC regulation of the railroads and the commercial motor carriers. Many critics believe that ICC forced the railroads to continue operating passenger services at a loss during the long decline of rail passenger service after World War II--with disastrous financial losses for the railroads before the establishment of Amtrak, and some losses continuing today for private railroads which still operate passenger lines. ICC still appears to be forcing the railroads to cross-subsidize small shippers, shippers of some bulk commodities, and shippers on lightly used branch lines, by imposing uneconomic freight rate tariffs and by making it difficult or impossible to discontinue service. The railroad industry has been particularly concerned about its inability to competitively adjust freight rates without obtaining ICC approval and about the extreme slowness of ICC proceedings to set new freight rates or to approve corporate mergers.

In the motor carrier area, criticism is focused primarily on ICC's control over competition in the trucking industry--through limits on entry, and through detailed regulation of the specific routes and commodities which can be carried. Critics assert that these controls have resulted in increased freight rates compared to those which would occur if the motor carrier industry was unregulated. Estimates of this "cost of trucking regulation" range from $0.5 to $3 billion per year, although a counterestimate by the ICC has asserted that regulation produces benefits of up to $4 billion per year. Supporters of regulation, including the American Trucking Association and the Teamsters Union, argue that trucking regulation has served the Nation well by producing a high quality motor freight transportation system. They believe that deregulation would result in decreased truck service to small towns and small shippers, and would cause financial instability within the trucking industry.

Despite the widespread publicity given to these and other criticisms of ICC regulation of surface transportation, few major changes have been made in ICC regulatory policies

and procedures. The Railroad Revitalization and Regulatory Reform Act of 1976 (4R Act) attempted to give the railroads greater flexibility in setting and adjusting rail freight rates, and to streamline the very lengthy and cumbersome ICC hearing procedures. But there is evidence that the reforms intended by the 4R Act have not been fully effective.

During the 94th Congress, the Ford administration introduced motor carrier regulatory reform legislation which would have substantially reduced ICC regulation of the motor carrier industry. This legislation was not approved by the Congress. The Carter administration has not yet introduced motor carrier deregulation legislation in the 95th Congress, and short-term prospects for congressional passage of such legislation appear dim.

In recent months, the Senate Governmental Affairs Committee has issued a report (prepared with our assistance) which discusses ICC regulatory policy and organization. The Governmental Affairs Committee analysis calls for the integration of ICC regulatory policy into a unified national transportation policy, and recommends giving the Secretary of Transportation the authority to initiate policy-oriented rulemaking procedures before the ICC in order to implement national transportation goals. The ICC itself has also begun to implement a number of reform measures, including major studies of existing policies and procedures, and experiments to test the impact of changes in regulatory practices.

Overall, the limited degree of change which has occurred in ICC regulatory policy and practices reflects the strength of political support for the regulatory status quo. In the regulated industries, despite support for modernization and rationalization of ICC regulatory procedures, there is relatively little support for complete deregulation. The support of some groups for a relaxation of government controls over industry is counterbalanced by the concern of other groups about the possible adverse effects on consumers of an unregulated laissez-faire transportation industry. In the coming months, the Congress is likely to give attention to evaluating both the continued justification for ICC regulation (i.e. the costs and benefits) and the effectiveness of ICC regulation in achieving its intended goals. We anticipate that the Congress will seriously consider the need to streamline and update ICC policies and practices to meet modern needs and requirements. But it seems unlikely that the Congress will enact the sweeping reforms envisioned by some proponents of deregulation.

GAO ACTIVITIES

Our activities relating to this issue over the past 2 years can be divided into four main areas: 1) evaluations of the effectiveness of ICC's management of the motor carrier regulatory program, 2) analyses of potential economic inefficiencies caused by ICC regulation, 3) evaluations of the implications and impact of less regulation and other regulatory reforms, and 4) evaluations of ICC regulation of freight railroads.

Much of our work has focused on the effectiveness of ICC's management of motor carrier regulation. In December 1976, we reported on the need for improved service to small shippers. As a result of this report, ICC took corrective action to revise its recording and reporting procedures for consumer complaints involving small shipments. In August 1977, we reported on improvements needed in the regulation of household goods carriers. We recently began a survey of ICC's field offices in which we will examine the extent and effectiveness of ICC's compliance and enforcement activities. We have also recently begun a review for the Senate Appropriations Subcommittee on Transportation of the effectiveness of ICC actions to prevent weight falsification in the household goods moving industry.

Our reports have also addressed potential inefficiencies of regulation in areas such as energy conservation and intermodal piggyback transportation. Our July 1977 report pointed out that ICC regulatory responsibilities and objectives are somewhat incompatible with broader energy conservation goals. In February 1978, we reported on the need for reducing entry restrictions for truckers seeking temporary operating authority, pointing out that these restrictions often perpetuate inadequate service and overly protect regulated truckers. Cost-benefit studies of ICC regulation done by both ICC and other have reached widely different conclusions. As discussed previously in Chapter 2, we are trying to develop a methodology for quantitatively measuring the impact of ICC regulation on surface transportation.

To assist the Congress in considering proposed reforms of ICC motor carrier regulation, we issued a staff study in June 1978 which (1) discusses the history of ICC regulation and how conditions have changed since motor carrier regulation began in 1935, (2) explains how ICC regulates today, and (3) outlines the issues and implications of regulatory reform that should be considered before legislative changes

are made. We have recently begun a survey of ICC's regulation of the intercity bus industry.

Determining the impact of less regulation has been difficult without actual deregulation experience. ICC's April 1977 expansion of the exempt commercial zones provided the first large scale shift from regulation to deregulation. In cooperation with ICC, the Department of Transportation and the Justice Department, we studied what effects the expansion had on motor carrier rates and services, and issued a report in June 1978 finding that the expansion had little or no effect on carriers and shippers. As a result of our review, the Transportation Department cancelled a proposed study on the expanded commercial zones at a savings of $50,000. Instead, they will use the results of our review.

In the area of railroad regulation, our January 1977 report discussed the problem of freight car shortages and criticized the ineffectiveness of ICC's compliance and enforcement programs. In November 1977, we reported on the need for changes in ICC's procedures for setting freight car rental rates. We have also monitored ICC's implementation of the Railroad Revitalization and Regulatory Reform Act of 1976 (4R Act). In December 1977 we reported on ICC actions needed to increase the effectiveness of combined truck/rail piggyback transportation. We recently began a survey of ICC's implementation of regulatory reform provisions in the 4R Act. We also recently began a survey of ICC efforts to minimize freight car shortages.

Reports Issued	Date
Improved service to the small shipper is needed (CED-77-14)	12/22/76
Efficient railcar use: An update of the Interstate Commerce Commission's compliance and enforcement program (CED-77-21)	1/12/77
Energy conservation competes with regulatory objectives for truckers (CED-77-79)	7/8/77
Improvements needed in regulating household goods carriers (CED-77-104)	8/1/77
Changes needed in procedures for setting freight car rental rates (CED-77-138)	11/11/77

Combined truck/rail transportation service: Action needed to enhance effectiveness (CED-78-3)	12/2/77
New interstate truckers should be granted temporary operating authority more readily (CED-78-32)	2/24/78
Issues in regulating interstate motor carriers (CED-78-106)	6/20/78
ICC's expansion of unregulated motor carrier commercial zones has had little or no effect on carriers and shippers (CED-78-124)	6/26/78

Current Assignments

Survey to identify effects of ICC regulation of surface transportation

Survey of ICC's implementation of the 4R Act requirements

Survey of ICC's regulation of interstate bus service

Survey of extent and effectiveness of ICC's field office compliance and enforcement activities

Review of effectiveness of ICC's actions to prevent "weight bumping" in the household goods moving industry

Survey of ICC efforts to minimize freight car shortages

CHAPTER 7

DEVELOPING ECONOMICALLY VIABLE URBAN PUBLIC TRANSIT SYSTEMS

ISSUE ANALYSIS

The effectiveness of Federal aid to mass transit is the subject of considerable controversy. On the one hand, Federal aid (together with even larger amounts of State and local government aid) has successfully halted the rapid deterioration of urban public transportation services. Antiquated equipment and facilities have been replaced in many transit systems, and the decline in ridership appears to have ended. On the other hand, most efforts to promote urban mass transportation as a socially and environmentally superior alternative to the automobile have not been successful. Only about 5 percent of all metropolitan area trips are made by public transportation. Modern high-speed rail rapid transit systems, such as San Francisco's BART, have proved to be extremely costly and to be relatively ineffective at reducing automobile use. Also, the $2 billion gap between fare-box revenues and transit operating costs is achieving permanent status as a municipal and Federal budget expense.

The basic causes of the transit industry's economic problems are clear. As personal incomes have risen, automobile ownership has become increasingly widespread. In the largest cities, the transit industry has retained its traditional peak-hour travelers from the older suburbs to the urban central business district. The transit industry has also retained travelers for whom automobile travel was impractical--the poor, the old, and the handicapped. But the transit industry has lost shoppers, other off-peak travelers, and workers in the new auto-oriented suburbs.

The transit industry has faced a difficult economic dilemma during the post war era. To retain peak-hour commuter ridership, it was necessary to maintain high-capacity physical facilities and the numerous employees needed to operate them. However, during the off-peak hours, these costly facilities and employees were little used. When fares were raised, the transit industry lost more riders, but when services deteriorated because revenues were inadequate to pay for new equipment and to maintain facilities, transit lost even more riders.

Beginning in 1961 with amendments to the Housing Act authorizing loans and demonstration projects for mass transit, an extensive body of legislation has been enacted

to provide Federal financial and technical assistance to urban mass transportation. Recent legislation includes (1) amendments to the Federal-Aid Highway Act of 1973 permitting State and local governments to transfer Federal highway funds to mass transit projects and (2) the National Mass Transportation Assistance Act of 1974 authorizing Federal operating subsidies for transit systems. These programs were initially intended to aid financially distressed transit systems in the older cities. More recently, however, Federal mass transit programs have been directed at broader objectives, including 1) helping to maintain, improve and expand existing mass transit systems in order to enhance the convenience and comfort of travel for the millions of people who depend on these systems for their daily travel need; 2) using transit investment as a tool of community development and central city revitalization; 3) supporting transportation improvements that help to strengthen the economic vitality of downtown areas and the quality of urban life; 4)improving mobility in low density areas, especially for those who have no access to or cannot use an automobile, and 5) alleviating the problem of urban air pollution and reducing the consumption of scarce energy resources.

The Congress is currently considering proposed mass transit funding legislation, in conjunction with the biannual revision of Federal highway legislation. Legislation proposed by the Carter administration (H.R. 10578) calls for only slight increases in current mass transit funding levels, with annual authorizations for FY 1979 through 1982 ranging from $3.2 billion to $3.5 billion. The House Public Works and Transportation Committee has proposed substantially higher authorizations (H.R. 11733). In the Senate, mass transit programs are under the jurisdiction of the Senate Banking, Housing and Urban Affairs Committee. That Committee has recommended an annual authorization of $3.7 billion for FY 1979-82 (S.2441), and funding in that general range may have the best chance of final passage.

In its consideration of mass transit legislation, the Congress is likely to give particular attention to the following issues:

--How can the most effective use of Federal dollars be assured while still maintaining local administrative flexibility and independence?

--Fuel, equipment and labor costs are rising but fare box revenues are not: how can future increases in transit operating deficits be controlled?

--New rapid rail transit systems such as those in Washington and San Francisco have proved to be extremely costly: what should Federal aid policy be for such systems?

--What can the Federal government do, by regulation or aid policies, to assist transit systems in providing adequate cost-effective transit services to the elderly and handicapped?

--What will be the impact of the energy crisis on consumer demand for mass transit services?

--What can be done to limit the economic risks and uncertainties of manufacturing mass transit equipment, so as to encourage experienced manufacturers to remain in this industry?

Over the next decade, a number of broader policy issues are also likely to receive increasing congressional attention. First, there is growing interest in the Congress in the possibility of combining mass transit assistance with Federal aid for urban highway transportation. The intent of such a change would be to improve the control of the Federal government over resource allocation and priority setting, to facilitate congressional consideration of alternate funding priorities, and to increase the flexibility of State and local governments in using Federal aid.

A second related issue is the appropriate source of funds for Federal aid to urban transportation. At present, Federal aid for urban highways is financed through user charges paid by highway users, primarily the Federal gasoline tax. These charges are accumulated in the Highway Trust Fund and earmarked for highway use. In this way, a committed long-term source of funding for Federal highway aid is assured. In contrast, Federal mass transit aid is financed from general tax revenues, and subject to major changes each time new authorizing legislation is required. Some observers feel that multi-year authorizations for mass transit can provide sufficient assurances of long-term fund availability; others feel that a transit trust fund would be preferable--either as part of a general transportation trust fund, or as a separate mass transit fund. Some supporters of a transit trust fund would also support an earmarked source of revenue such as the Federal gas tax, rather than reliance on general tax revenues.

A third policy issue which is likely to receive increasing attention over the next few years is transit

financing at the local level. Mass transit has found it very difficult in recent years to finance costs through the fare box, that is, through direct user charges. If present consumer preference patterns continue, transit fares will probably never attain the level needed to repay operating costs. On the other hand, if rising energy costs decrease the appeal of private auto travel relative to mass transit, it may be possible to raise transit fares so they cover costs. Regional taxes dedicated to mass transit, already used in a few areas, are likely to be the approach taken to provide a stable predictable source of revenues.

Finally, it is clear that a major controversy is developing over the general issue of national urban and regional development policy. While Federal transit aid programs tend to have relatively positive impacts on the cities and older regions such as the Northeast there is concern by many observers that Federal spending for defense contracts, highway construction, water and sewer grants and housing mortgage guarantees is biased in favor of the suburbs and the newer regions of the country such as the Southwest. For these critics, Federal urban policy (or the lack thereof) is among the chief causes of urban and regional decline. In contrast, other groups argue that Federal urban and regional spending patterns are necessary responses to the dynamics of national growth and regional development. Whatever the outcome, this issue promises to be a source of increasing controversy over the next decade.

GAO ACTIVITIES

Our work relating to this issue over the past 2 years has been relatively limited. In August 1976, we reported on the purchase of a commuter ferry system for San Francisco Bay. In November 1976, we criticized the use of Federal transit funds in Chicago to buy and later replace unreliable two-way radios. As a result of our Chicago report (and our previous March 1976 report on the effectiveness of rapid transit grants), the Urban Mass Transportation Administration (UMTA) established a policy for the use of new or improved products in capital grant projects, including procedures requiring grantees to determine the reliability of new equipment before it is purchased. UMTA also began a project to specifically evaluate the reliability and effectiveness of the Chicago system's communication equipment.

In December 1976, we reported on the low priority that UMTA had given to aiding privately owned transit companies and recommended that private companies receive equal treatment with public transit systems. Our March 1977 report discussed UMTA's efforts to aid the elderly and the

handicapped in obtaining adequate transit service. Our June 1977 report discussed funding problems experienced by the Washington Metropolitan Area Transit Authority METRO rail transit system.

In April 1978, we reported on the need to develop transit performance evaluations of efficiency and effectiveness. We also responded to several congressional requests for direct asistance involving UMTA's contract and grant management policies and procedures, including requests fro the Senate Appropriations and House Government Operations Committees. In July 1978, we reported on the need for more Federal leadership in administering transit programs for small urban and rural communities. In August 1978, we issued a letter report to the Washington Metropolitan Area Transit Authority on the need to improve security over cancelled farecards.

As discussed in Chapter 2, we also conducted three assignments relating to the issue of national transportation policy which are closely related to the issue of mass transit. In October 1977, we reported on the administrative confusion and other hindrances to coordination of the 114 Federal programs that provide financial aid for the transportation of people. In March 1977, we reported on the reasons why cities have not used Federal-aid urban system highway funds for mass transit projects under a 1973 amendment permitting such use. In March 1978, we issued a report on the need for intermodal planning by State and local transportation agencies in making future transportation decisions.

Currently, we are conducting seven assignments relating to mass transit. We are reviewing 1) the effectiveness of UMTA's mass transit fixed guideway planning and grant application processes, 2) UMTA's efforts to encourage low or non-capital solutions to local transit needs, 3) the operations of the Regional Transportation Authority of Northeastern Illinois, 4) a rail industry market analysis of the international urban railcar market, 5) the bus and rail operations of the Washington Metropolitan Area Transit Authority (WMATA), 6) WMATA's rail warranties and maintenance costs, and 7) WMATA's cost estimating procedures.

Reports Issued	Date
Follow-up on status of commuter ferry system for San Francisco Bay (CED-76-131)	8/3/76

Federal funds used in Chicago to procure, and later replace, unreliable communication equipment (CED-77-5)	11/22/76
Private companies should receive more consideration in Federal mass transit programs (CED-77-8)	12/10/76
Why urban system funds were seldom used for mass transit (CED-77-49)	3/18/77
Mass transit for elderly and handicapped persons: Urban Mass Transportation Administration's actions (CED-77-37)	3/25/77
Effect of Federal mass transit formula assistance grants (CED-78-100)	4/25/78
Need to resolve METRO funding (PSAD-77-123)	6/29/77
Hindrances to coordinating transportation of people participating in Federally funded grant programs, Volumes I and II (CED-77-119)	10/17/77
Making future transportation decisions: intermodal planning needed (CED-78-74)	3/16/78
Need for more Federal leadership in administering nonurbanized area public transit activities (CED-78-134)	7/3/78
Washington Metropolitan Area Transit Authority needs to improve its security over cancelled farecards (Letter report to the Authority)	8/21/78

Current Assignments

Survey of Federal efforts to increase the efficient use of existing urban transportation resources in urbanized areas

Review of the Regional Transportation Authority of Northeastern Illinois

Review of mass transit fixed guideway planning and grant application processes

Review of an industry analysis of the international urban railcar market

Survey of Washington Metropolitan Area Transit Authority (WMATA) bus and rail operations

Review of METRO rail warranties and maintenance costs

Review of cost estimating procedures of the Washington Metropolitan Area Transit Authority (WMATA)

CHAPTER 8

DETERMINING THE ROLE OF INTERCITY RAIL PASSENGER SERVICE IN THE U.S. TRANSPORTATION SYSTEM

ISSUE ANALYSIS

The Congress decided in 1970 that a stepped-up Federal effort was needed to halt the decline of intercity passenger train service in the United States and to retain and revitalize a realistic national network of rail passenger routes. The Rail Passenger Service Act, enacted in October 1970, involved the Department of Transportation in selecting a national network of routes and created the for-profit but quasi-public National Railroad Passenger Corporation to takeover, manage and develop the routes. The corporation, known as Amtrak, was incorporated on March 30, 1971, and began operations on May 1, 1971.

Individual railroads joined Amtrak by contributing capital, transferring rail passenger equipment, or providing future service. Railroads which joined Amtrak were relieved of their own responsibility for operating intercity rail passenger service but were required to operate certain passenger service for Amtrak. Under the program authorized by the Rail Passenger Service Act, Amtrak is charged with developing, operating, and maintaining a safe, modern and efficient national rail passenger system. It operates, both directly and through contracts with operating railroads, about 1,500 trains per week over about 27,000 route miles. It also manages a capital improvement program designed to upgrade equipment and facilities.

Amtrak has received substantial Federal subsidies since its inception. From Amtrak's beginning in May 1971 through September 1977, it generated revenue of almost $1.5 billion, but incurred operating expenses of more than $3.3 billion. During the same period the Federal govenment provided operating subsidies of about $1.6 billion, loan guarantees of $900 million and grants of more than $229 million for Amtrak's capital acquisitions and improvements.

Amtrak has grown substantially since it began operations in 1971. The number of Amtrak routes has increased from 25 to 40, the number of trains per week is up 20 percent, and the train miles per week are up 40 percent. Yet, ridership has not kept pace with the system's expansion. Amtrak carried 19.2 million passengers in 1977 compared to 16.6 million in 1972, an increase of only 15.6 percent. Amtrak's load factors, expressed as passenger miles per train mile

have also gone down steadily, from 126.81 in late 1974 and early 1975, to 103.81 in fiscal year 1976. The latest data show that this statistic is now below 100.

Amtrak has identified several routes as being potential corridors which may warrant development along the same lines that the Congress authorized for the Northeast Corridor. However, as we testified before the House Interstate and Foreign Commerce Committee on March 20, 1978, Amtrak's prospects for economic success on these additional corridors appear to be bleak. Although Amtrak considers them to be some of its best routes, there simply are not enough people riding the trains to pay for the service.

Our audit work at Amtrak strongly indicates that if Amtrak's subsidy is to be reduced significantly, substantial reductions in rail passenger service will be necessary. These reductions would entail discontinuation of some of Amtrak's least-used and most heavily subsidized routes. Amtrak's 7-year experience shows conclusively that under current conditions, all but about one percent of intercity travelers in the United States prefer other modes of transportation. Air travel is much quicker and more convenient for time-sensitive travelers, smoother and more comfortable (especially considering the comparatively short time the traveler occupies the airline), and, on longer trips, air travel is in the same price range as Amtrak. Busses go more places than Amtrak, and bus travel is somewhat cheaper. Automobiles give travelers more control over where and when they go, are convenient to have at the destination points, and are perceived as being much cheaper than the train, particularly when more than one traveler is involved. Under current conditions, Amtrak cannot offer most intercity travelers a service that is as good as the available alternatives.

The exception that seems to prove the rule is the Northeast Corridor, where the train offers comparatively high speed, low fares, and where the major cities along the route have adequate public transportation minimizing the convenience value of the automobile. In 1977, Northeast Corridor operations accounted for 57 percent of Amtrak's total ridership, 31 percent of Amtrak's revenues and only 24 percent of Amtrak's costs.

Because of these factors, Amtrak's attempted revitalization of the passenger railroad system has not produced the results predicted by its early backers. More than one-half of the cost of each Amtrak ride is subsidized by the Federal Government. The quality of service still draws many complaints from the public and many of these

complaints receive widespread media attention. Most importantly, Amtrak appears to be losing larger and larger amounts of money each year, which must be paid for with Federal subsidies.

Amtrak's monthly financial losses and Federal subsidy requirements have generated substantial public and congressional concern with Amtrak and the national rail passenger system. In March 1978, we testified before both the House Interstate and Foreign Commerce Subcommittee on Transportation and Commerce, and the Senate Commerce, Science and Transportation Subcommittee on Surface Transportation, on Amtrak's costs and operating results. The House Appropriations Subcommittee on Transportation has introduced legislation (H.R. 11089) to put Amtrak under direct Federal control. Such legislation would formally recognize that Amtrak is not going to become profitable, and will require substantial Federal subsidies for the indefinite future. Congress has also directed the Department of Transportation to study rail passenger service needs throughout the country and propose a restructured route system for Congressional approval. This study is to be completed in December 1978. In May 1978, Secretary of Transportation Adams released the preliminary results of this study, recommending an 18,900 mile route system. The study estimated that the current system would require a $1 billion annual subsidy by 1984--versus an $800 million subsidy for the DOT-recommended system.

Current uncertainties about the role intercity rail passenger service will eventually play in the U.S. transportation system make it difficult to predict how much national effort and resources will be devoted to the industry in the 1980's and beyond. Some authorities have suggested that if the nation develops a system of high-speed trains that are reasonably economical and self-sufficient, rails might become a more popular mode of intercity travel. However, past experience suggests Amtrak will not make significant inroads on the intercity travel market unless one of the other modes is disrupted, and costs will continue to increase faster than revenues or ridership. Another possibility is that growing energy costs will encourage some diversion of traffic from other modes to rail passenger service--but many observers feel this may be unlikely.

A growing body of opinion is that the future role for intercity rail passenger service will be in the heavily populated areas of the Nation such as the Northeast Corridor, and that routes over long distances through rural areas can never become economically or socially justifiable. It is possible that new regional transportation agencies will

be created specifically to develop and operate passenger transportation in areas such as the Northeast Corridor.

In the immediate future, it seems likely that the Congress must decide whether to maintain the present intercity rail passenger system at its current service levels and accept the resulting requirements for Federal subsidy, or to reduce Federal subsidy requirements by reducing service in appropriate parts of the system. We expect that the Congress will look to us for much of the information it will need to decide Amtrak's future.

GAO ACTIVITIES

Our activities relating to their issue over the past 2 years have included audits of specific Amtrak management problems and broader investigations of Amtrak's overall economic situation and prospects for future profitability. During FY 1977, most of our efforts were devoted to an audit of Amtrak's incentive contract program. Under this program, Amtrak gives incentive awards to its operating railroads in order to encourage on-time performance and better maintenance. In our June 1977 report, we criticized this program as ineffective, and recommended that Amtrak tighten its incentive contracts and set higher standards for incentive eligibility. This report was our annual performance audit of Amtrak activities, as required by the Rail Passenger Service Act. Amtrak has tightened these provisions in subsequent incentive contracts.

Also during FY 1977, we provided extensive direct assistance to both the House and Senate Appropriations Subcommittees on Transportation. We prepared an oral report on Amtrak's five year financial plan for the House subcommittee, and conducted investigations of Amtrak's minority contracting, and research and development activities for the Senate subcommittee.

During the past fiscal year, our work has focused on Amtrak's overall economic situation and on Amtrak's prospects for future profitability. We have investigated the most promising area for rail passenger service--high density intercity corridors--and issued a report on this subject in April 1978 as our annual required performance audit of Amtrak. For the House Appropriations Subcommittee on Transportation and the House Interstate and Foreign Commerce Subcommittee on Transportation and Commerce, we are currently reviewing Amtrak's costs and ability to reduce costs while operating its present system. We testified on this subject before the House Interstate and Foreign

Commerce Subcommittee on Transportation and Commerce, and before the Senate Commerce, Science and Transportation Subcommittee on Surface Transportation in March 1978, and issued our report in May 1978. We prepared an analysis of Amtrak's financial plan and suggested ways to improve future plans. We are about to complete a review of Amtrak's worst routes, and the financial implications of continuing to operate them. We recently began a review of Amtrak's inventory and property control programs, as our annual required performance audit of Amtrak for FY 1979. We also began a review of the impact of Amtrak's fare structure on the intercity bus industry.

Reports Issued	Date
Amtrak's incentive contracts with railroads--considerable cost, few benefits (CED-77-67)	6/8/77
An analysis of Amtrak's five year plan (PAD-78-51)	3/6/78
Should Amtrak develop high-speed corridor service outside the Northeast? (CED-78-67)	4/5/78
Amtrak's subsidy needs cannot be reduced without reducing service (CED-78-86)	5/11/78

Current Assignments

Review of economics, services, and other implications of maintaining highly unprofitable rail passenger routes

Review of Amtrak's inventory and property control programs (Annual performance audit of Amtrak for FY 1979)

Review of the impact of Amtrak's fare structure on the intercity bus industry

CHAPTER 9

DEVELOPING A SAFE, EFFICIENT, AND RELIABLE AIR TRANSPORTATION SYSTEM

ISSUE ANALYSIS

Federal involvement in the U.S. air transportation system can be broadly divided into two major categories, 1) economic regulation of the commercial air carrier industry, and 2) the development of a safe and efficient national air transport system. Each of these areas present difficult and complex problems which require priority attention in our audit work.

Economic regulation

Economic regulation of the commercial air carrier industry--authorization to enter the industry, selection of intercity routes, and control over the establishment of passenger fares and cargo rates--is administered by the Civil Aeronautics Board pursuant to the Federal Aviation Act of 1958. By controlling entry into the industry, CAB controls the amount of competition that exists. In exchange for being allowed to operate under reduced competition, the regulated air carriers give up some control over the fares and rates they charge and the kind of service (routes) they provide. The CAB-air carrier relationship also implies some Government responsibility for the financial health of the regulated companies. Legislation deregulating domestic air cargo operations (P.L. 95-163) was enacted in November 1978, and CAB now exercises only very limited controls over the air cargo industry.

The general objectives of air carrier economic regulation are to protect the public interest by encouraging

--an adequate and financially stable industry;

--equitable distribution of service to all customers;

--service to all deserving communities or customers who would not justify service in purely economic terms;

--stable, uniform, and nondiscriminatory fares and rates; and

--a system that promotes the inherent advantages of air transportation.

Critics of CAB regulation believe that these objectives have produced increased costs for air travelers, and that air fares would decrease if competition were not regulated.

Legislation providing for regulatory reform of airline domestic passenger operations is currently being considered by the Congress. The major thrust of this legislation (S. 2493 and H.R. 12611) is to emphasize competitive market forces as the primary governing factor in the domestic air transport industry. Increased competition would be permitted within the industry by establishing pricing flexibility, reducing barriers to entry into the industry, and reducing restrictions on domestic air carrier operations. Recent CAB actions have also de facto deregulated the airlines to some extent, providing greater freedom to change fares without prior CAB approval, and a liberalized attitude toward granting new routes. CAB has recently announced plans to increase freedom of entry into the airline industry even further.

A related issue involves U.S. international aviation policy. Groups dissatisfied with the results of the recent bi-lateral air agreement between the U.S. and Great Britain have expressed concern about the goals and objectives of U.S. international aviation policy. Many groups in the aviation area have also expressed concern about the adequacy of the present Federal organizational structure through which the international aviation policy is administered, and both we and the current Secretary of Transportation have recommended changes to centralize Federal responsibilities.

Safety and efficiency

The development of a safe and efficient national air transport system is the responsibility of the Federal Aviation Administration (FAA). To accomplish this, FAA conducts research; promulgates equipment and personnel standards; inspects and certifies airports, aircraft, and pilots; and operates a national air traffic control and navigation system for the orderly, safe, and efficient movement of aircraft through the U.S. air space. In addition, FAA provides grants for airport planning and construction and partly finances air traffic and navigation facilities and equipment from aviation trust fund revenues received from taxes on passenger fares, freight bills, and fuel. These activities are authorized by the Federal Aviation Act of 1958 and the Airport and Airway Development Act of 1970.

FAA's programs cost in excess of $2 billion annually, and some critics believe that a larger share of FAA's costs should be recovered through charges on users of the national air system. At the direction of Congress, the Department of Transportation conducted a study in 1973 which showed that costs should be allocated as follows: 50 percent to air carriers, 30 percent to general aviation, and 20 percent to the public sector to support military and government flying. The present user charge structure recovers only about 55 percent of total Federal costs from nonpublic users. The DOT study concluded that a more reasonable user charge system was needed to provide stronger incentives for overall efficiency. The 1973 study recommendations were not adopted and a restudy is underway with a view toward resubmitting this matter to Congress for further consideration.

In 1976, U.S. air carriers recorded the lowest number of accidents in commercial aviation history. In comparison to other modes of domestic passenger transportation, air carriers have by far the fewest number of fatalities per passenger mile. General aviation, which historically has had a far greater number of accidents and fatalities than air carriers, also improved on its safety record in 1976. Despite these improvements, air taxi operators have an accident rate 7 times greater than air carriers. This is alarming considering that this category of general aviation includes commuter airlines that enplane more than 6 million passengers annually. Enactment of the airline regulatory reform legislation could result in a dramatic expansion of commuter airlines as a major class of U.S. air carriers.

Differences in air carrier and air taxi accident rates may be partly attributable to the differences in the safety standards and requirements FAA imposes on these categories of aviation. Generally, FAA's regulation parallels the degree of economic regulation imposed by CAB; i.e. the highly CAB-regulated trunk and local service airlines (such as American, Eastern, Alleghany and Frontier) have the most stringent safety requirements whereas the less regulated carriers, such as commuter airlines and air taxis, have fewer safety rules to meet.

Like many other businesses, the airlines continue to be plagued by rising costs, including those associated with FAA safety requirements. Many of FAA's safety and noise standards and regulations require equipment additions or modifications to the carriers' fleet which can be extremely costly. FAA is beginning to critically examine its safety requirements to determine which have overall social benefits. The objective is to achieve a program of reasonable actions in the public

interest, insuring incremental improvements in safety each year commensurate with advancing technology, improved facilities, and consideration of other Federal priorities such as energy conservation and the control of inflation. Legislation (H.R. 8729 and 11986) has been introduced which would provide airlines with financial assistance in retrofitting, re-engineering, or replacing noisy aircraft.

Delays encountered in the air traffic system are also costly to the airlines, amounting to more than $195 million in 1975. Without appropriate increases in the capacity of the air traffic system, delays are expected to increase substantially in future years. To help solve this problem, FAA has underway a research and development program for upgrading the air traffic system. FAA studies of non-technical alternatives to physically expanding the airport/airway system, such as peak-hour pricing and quotas at airports, indicate that peak-hour pricing and quotas could effectively relieve aircraft congestion and delay and improve the flow of air traffic. However, economic and institutional constraints may limit the practical value of these changes.

The FAA has forecast a substantial increase in air travel and related activities over the next 12 years. Passengers on U.S. airlines are expected to increase by 80 percent, from 232 million to over 418 million. Airline flights will increase at a somewhat slower rate as wide-body aircraft gradually replace narrow-body types and as passenger load factors increase. The highest growth rate is forecast for commuter airlines which should experience an annual passenger growth rate of 7.5 percent. Revenue passenger miles for commuters are expected to triple and operations double. The general aviation fleet is expected to increase by 65 percent and the number of hours flown will reach 60 million compared to 36 million today. The number of general aviation pilots will jump from 740,00 to 1,120,000.

The potential growth in aviation activity can be expected to result in a greater number of aircraft accidents and fatalities if no further improvements are made in reducing accident rates. Increased growth will also impact on FAA's workload. FAA has efforts underway to accomodate this growth through increased productivity; such as technological advances in air traffic control, improved operating and management procedures in regulatory activities, and improved reliability and maintenance for facilities and equipment. However, without appropriate increases in productivity, considerable staff increases could be needed. Lower or higher growth rates than considered in FAA's

forecast could affect the timing of planned technological advances and staffing needs. Increased inefficiencies in the air traffic system could occur if technological advances or nontechnological alternatives are not ready for implementation when the need arises. For example, at least a 5 year lead time is needed to obtain and train air traffic controllers.

Assuming continuing U.S. economic growth it is likely that substantial additional airport capacity will be needed, including additional airports, a fourth generation air traffic control system, larger aircraft and supporting terminal facilities, and a scheduling system that would minimize peak-hour problems at airports yet ensure high load factors. By 1985, all air carrier aircraft are to meet FAA's noise standards. Until this goal is achieved, aircraft noise will continue to constrain the growth of air transportation. Future airline profit levels are uncertain because of the likelihood of airline deregulation, and the airline industry may experience difficulties in obtaining sufficient financing to purchase sufficient financing to purchase needed capital equipment. Uncertainties about future financial support by Federal, state, and local governments will also influence the expansion of the aviation system.

Aviation is expected to continue to rely on petroleum as a fuel source over the next 25 years. Improvements in technology will make aircraft engines more efficient and the availability of alternative energy sources for nontransportation use should make petroleum more available to aviation. However, the long run prospects of adequate petroleum supplies and reasonable fuel prices for the aviation use are not clear, and a energy shortage could have significant adverse effects on the long-range demand for air transportation.

GAO ACTIVITIES

Our activities relating to this issue over the past 2 years have focused on aviation safety, economic regulation, and the long-range needs of the air transportation system. In the aviation safety area, our November 1976 report criticized FAA for lack of efforts to identify civilian pilots with medical problems. This report was followed by a January 1977 letter report to FAA recommending that physicians be given immunity so that they will report medically unfit airmen to FAA and a March 1978 report recommending stronger actions to identify and reduce alcohol use among civilian pilots. We briefed the staff of the House Government Operations Subcommittee on Government

Activities and Transportation on FAA's ability to assure air safety after regulatory reform. In another briefing, we provided a Congressman's staff with information on the safety of an airport in the Congressman's district. Currently, we are reviewing the differential safety requirements applied to some aircraft operations because of their economic regulatory status, at the request of the House Committee on Government Operations.

Also in the aviation safety area, the Federal Aviation Administration (FAA) made several major changes in response to our recommendations in earlier (pre-July 1976) reports. During FY 1976, FAA increased its participation in the certification of light aircraft safety partly in response to our June 1973 report to the House Government Operations Committee on the need for improvements in identifying and correcting light aircraft safety defects. In November 1976, FAA revised its procedures for responding to National Transportation Safety Board recommendations, including provisions for monitoring and follow-up of promised FAA actions, for reviewing responses to previous Safety Board recommendations, and for periodic meetings with the Safety Board, in response to recommendations in our March 1975 report on this subject.

Our work in the area of economic regulation received particular attention by the public, the Congress, and the news media. For the Senate Judiciary Subcommittee on Administrative Practice and Procedure, we prepared two reports (issued in February 1977) which examined airline costs and fares and the potential consequences of airline deregulation. We reported in August 1977 on the Federal airline subsidy program administered by CAB, and recommended complete revision of the program. We provided extensive direct assistance to the House Public Works and Transportation Subcommittee on Aviation, including information on the financial impact of regulatory reform proposals. Our work in this area has been recognized by the CAB as a major factor in the CAB's recent decision to relax regulatory controls over airline fare setting and route awards.

Also in the area of economic regulation, we briefed the staff of the Senate and House committees handling the economic regulatory reform legislation regarding the inclusion in pending bills of an access to airline records clause. This would provide us the authority to review airline operations as part of our review of CAB activities. We also provided the Senate Committee on Commerce, Science and Transportation's Subcommittee on Aviation with a letter analyzing Eastern Airline's testimony before the Subcommittee, regarding our February 1977 report on the lower air fares

that could result from a less regulated industry. In July 1978, we reported on ways that the CAB can increase consumer protection for airline passengers. Currently, we are studying CAB's verification of airline financial and operating data.

In the area of long-term aviation needs, we reported in August 1977 on the need for effective aviation fuel conservation programs. We also testified before the House Ways and Means Oversight Subcommittee on the Federal airport and airways trust fund. Currently, we are conducting a comprehensive review of airport problems, plans and programs, and a study of ways to increase airport/airway capacity through peak hour pricing and other non-capital alternatives. In connection with our review of airport problems, we reported in August 1978 on the need for better assessment of the environmental effects of airport development. As part of our review of airport problems, we are addressing the feasibility of using more of the airport and airways trust fund for improving safety equipment at airports. We are currently reviewing FAA's microwave landing system. We reviewed FAA's Second Career training program for disqualified air traffic controllers, issuing a letter report to FAA on management of the program in May 1978, and a report to the Congress in July 1978 recommending that the program be discontinued. We also reported on international aviation policy issues in a March 1978 report to the Congress.

Reports Issued	Date
The Federal Aviation Administration should do more to detect civilian pilots having medical problems (CED-76-154)	11/3/76
Physician immunity needed for reporting medically unfit airmen to FAA (Letter report)	1/27/77
Lower airline costs per passenger are possible in the United States and could result in lower fares (CED-77-34)	2/18/77
Comments on the study: "Consequences of Deregulation of the Scheduled Air Transportation Industry" (CED-77-38)	2/25/77

Using aviation resources in the United States more effectively (LCD-76-445)	3/31/77
Eppley Airfield, Nebraska: Problems caused in Council Bluffs, Iowa (CED-77-73)	5/27/77
Effective fuel conservation programs could have saved millions of gallons of fuel (CED-77-98)	8/15/77
Why the Federal airline subsidy program needs revision (CED-77-114)	8/19/77
The critical role of government in international air transport (ID-77-50)	3/17/78
Stronger Federal Aviation Administration requirements needed to identify and reduce alcohol use among civilian pilots (CED-78-58)	3/20/78
Navigation planning--need for a new direction (LCD-77-109)	3/21/78
FAA's management of air traffic controller activities and programs, (Letter Report to FAA Administrator)	5/11/78
Second career training for air traffic controllers should be discontinued (CED-78-131)	7/29/78
Airline passengers: are their consumer rights protected? (CED-78-143)	7/20/78
Environmental effects of airport development: better assessment needed (CED-78-156)	8/22/78

Current Assignments

Review of airport problems, plans and programs

Review of aircraft operations which do not meet appropriate FAA safety regulations

Survey of CAB's verification of airline financial and operational data

Survey of increasing airport/ airway capacity through peak hour pricing and other non-capital alternatives

Review of FAA's microwave landing system

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ORGANIZATIONS INVOLVED IN TRANSPORTATION

FEDERAL AND FEDERALLY-SUPPORTED AGENCIES

The Federal government is involved in many programs which impact on the U.S. transportation system. Some of the most important Federal transportation programs are administered by the Department of Transportation. However, at least 22 other Federal agencies also conduct transportation-related programs, ranging from the aviation and marine weather services of the Commerce Department's National Oceanic and Atmospheric Administration to the inland waterway development projects of the Army Corps of Engineers.

A detailed description of Federal transportation programs and expenditures is presented in our staff study, "U.S. Transportation System--Federal Role and Current Policy Issues" (RED-76-34). The major Federal and federally-supported agencies which administer transportation-related programs are:

Federal agency	Mode
Civil Aeronautics Board	Air
Council on Environmental Quality	All
Department of Agriculture:	
Forest Service	Highway
Department of Commerce:	
Maritime Administration	Water
National Oceanic and Atmospheric Administration	Air and water
Department of Defense:	
Military Research and Development	Air and Water
U.S. Army Corps of Engineers	Water
Panama Canal Company	Water
Department of Energy	All
Federal Energy Regulatory Commission	All
Department of Housing and Urban Development	Air, highway, and transit
Department of the Interior:	
Bureau of Indian Affairs	Highway
Bureau of Land Management	Highway and pipeline
National Park Service	Highway
Department of State	Air and water
Department of Transportation	
Office of the Secretary	All
U.S. Coast Guard	Water

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Federal Aviation Administration	Air
Federal Highway Administration	Highway and transit
Federal Railroad Administration	Rail and transit
National Highway Traffic Safety Administration	Highway and transit
Research and Special Programs Administration	All
Saint Lawrence Seaway Development Corporation	Water
Urban Mass Transportation Administration	Transit
Department of the Treasury	All
Environmental Protection Agency	All
Federal Maritime Commission	Water
Interstate Commerce Commission	Highway, slurry pipeline, rail, transit and water
National Aeronautics and Space Administration	Air
National Transportation Safety Board	All
Tennessee Valley Authority	Water
U.S. Railway Association	Rail

Federally-supported agency	Mode
National Railroad Passenger Corporation (Amtrak)	Rail
Consolidated Rail Corporation	Rail
Washington Metropolitan Area Transit Authority	Transit

CONGRESSIONAL COMMITTEES

Because of the numerous Federal programs and activities in the U.S. transportation system, many congressional committees have responsibilities relating to some aspect of transportation. A special effort has been made to brief these committees on the progress and findings of our audit work in transportation. Regular briefings are conducted for the House and Senate Appropriations Subcommittees on Transportation to discuss all of our transportation assignments. In addition, briefings are regularly held with with the appropriate subject-area committees to discuss our work on specific audit assignments and reports. As appropriate, telephone discussions and informal briefings are used to coordinate planned and ongoing assignments with pertinent subject-area specialists in the Congressional Budget Office, Congressional Research Service and Office of Technology Assessment.

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Committees with responsibilities in transportation, including committees with broad transportation-related charters or with jurisdiction over one of the major transportation agencies, are listed below.

House committees	Program category	Mode
1. Appropriations:		
a. Public Works	Facilities	Water
b. Transportation	All	All
2. Banking, Finance and Urban Affairs		
a. Housing and Community Development	Financial	Transit
3. Government Operations		
a. Government Activities and Transportation	All	All
4. Interstate and Foreign Commerce		
a. Consumer Protection and Finance	Safety	Highway
b. Transportation and Commerce	All	Rail and Water
5. Merchant Marine and Fisheries		
a. Coast Guard and Navigation	All	Water
b. Merchant Marine	All	Water
6. Public Works and Transportation		
a. Aviation	All	Air
b. Surface Transportation	All	All
c. Water Resources	All	Water
7. Science and Technology:		
a. Aviation and Transportation Research and Development	Research	All
Senate committees		
1. Aeronautical and Space Sciences	Research	Air
2. Appropriations		
a. Public Works	Facilities	Water
b. Transportation	All	All
3. Banking, Housing and Urban Affairs	Financial	Transit
4. Commerce, Science and Transportation		

a. Aviation	All	Air
b. Merchant Marine	All	Water
c. Surface Transportation	All	All (except air)
5. Environment and Public Works		
a. Transportation	All	All
b. Water Resources	Water	Water
6. Governmental Affairs	All	All
7. Judiciary:		
a. Antitrust and Monopoly	Regulation	All

Congressional commission

1. National Transportation Policy Study Commission	All	All

PRIVATE SECTOR LOBBY GROUPS

Transportation industry trade associations and consumer movement lobby groups play a major role in communicating the views of the private sector on national transportation issues to the Congress and the executive branch. Most of these lobby groups are Washington-based, and can provide background information and statistics on transportation problems as well as informed criticism of current Government programs and policies. Some of the most active private sector lobby groups are listed below.

Lobby Group	Mode
Ad Hoc Committee for Airline Regulatory Reform	Air
Aircraft Owners and Pilots Association	Air
Airport Operators Council International, Inc.	Air
Air Transport Association	Air
American Association of State Highway and Transportation Officials	All
American Automobile Association	Highway
American Bus Association	Highway
American Institute of Merchant Shipping	Water
American Public Transit Association	Transit
American Trucking Associations, Inc.	Highway
American Waterways Operators, Inc.	Water
Association of American Railroads	Rail
Association of Oil Pipe Lines	Pipeline
Center for Automotive Safety	Highway
Insurance Institute for Highway Safety	Highway
Lake Carriers' Association	Water

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Motor Vehicle Manufacturers Association	Highway
National Waterways Conference, Inc.	Water
Slurry Transport Association	Pipeline
Transportation Association of America	All
Water Transport Association	Water

PRIVATE RESEARCH ORGANIZATIONS

Private research organizations also provide an important source of independent views, expert analysis and background information on transportation problems. Many of these organizations are university research institutes, which provide laboratory facilities, computers and libraries, for professors and students to conduct academic research. Such research is funded by universities, private sector sponsors, and Government agencies. Other private research organizations include independent non-profit research institutes and profit-making research coporations. These organizations primarily perform contract research for private industry and governmental clients. Some of the most prominent private research organizations now active in the transportation area are listed below.

Organization	Type
American Enterprise Institute, Center for the Study of Government Regulation	Non-profit
Arthur D. Little, Inc.	For-profit
Batelle Memorial Institute	Nonprofit
Brookings Institution	Nonprofit
Calspan Corporation	For-profit
Johns Hopkins University, Applied Physics Laboratory	University
Massachusetts Institute of Technology, Center for Transportation Studies	University
National Academy of Sciences, Transportation Research Board	Non-profit
Northwestern University, Transportation Center	University
SRI International	Nonprofit
Rand Corporation	Nonprofit
Southwest Research Institute	Nonprofit
Texas A&M University, Transportation Institute	University
The MITRE Corporation (METREK Division)	Nonprofit
The Urban Institute	Nonprofit
University of California, Institute of Transportation and Traffic Engineering	University

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University of Michigan, Highway Safety Research Institute

University

University of North Carolina, Institute of Highway Safety

University

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