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Contents

SUMMARY

This staff paper examines the Federal Government's role in the U.S. transportation system. The study includes a description of Federal agencies and programs in transportation, an analysis of Federal transportation program expenditures, and an overview of current national transportation policy issues.

FEDERAL GOVERNMENT'S ROLE IN U.S. TRANSPORTATION SYSTEM

The U.S. transportation system is composed of many different private and public activities, including passenger and freight transportation and government programs to assist, promote, and regulate transportation. For this study, we subdivided the U.S. transportation system into six component modal systems--highway, air, rail, water, pipeline, and transit. (See p. 2.)

The Federal Government's role in transportation has developed incrementally over many years. Each Federal program is based on specific public laws enacted by the Congress in response to public concern about specific transportation problems. The resulting body of public laws is complex and is considered by many critics to be the source of conflicting goals and objectives for Federal transportation programs. (See pp. 4 to 5.)

FINANCIAL IMPACT OF FEDERAL TRANSPORTATION PROGRAMS

In 1974 total private sector and government program spending on the U.S. transportation system amounted to $295.7 billion. Federal transportation programs accounted for $11.3 billion, or 3.8 percent of this total. State and local government programs amounted to $22.8 billion (7.7 percent), and private sector spending accounted for $261.6 billion (88.5 percent). (See p. 18.)

Federal Expenditures on Transportation Modes, 1974

Modal system	Federal expenditures	Private and governmental expenditures	Federal (percent)
	(000,000 omitted)		
Highway	$ 4,893	$230,232	2
Air	2,471	18,971	13
Rail	664	16,885	4
Water	1,942	12,799	15
Pipeline	86	10,401	1
Transit	1,259	6,410	20
Total	$11,315	$295,698	4

Adjusting for inflation, total Federal spending on the U.S. transportation system increased from $9.4 billion in 1964 (1974 prices) to $11.3 billion in 1974, or 20 percent. However, Federal spending on highway programs decreased from $6.1 billion in 1964 (1974 prices) to $4.9 billion in 1974, or a 20-percent decrease. (See p. 21.)

FEDERAL AGENCIES WITH TRANSPORTATION PROGRAMS

We identified 32 Federal agencies with important functions relating to the U.S. transportation system, Eight agencies are constituent parts of the Department of Transportation. We classified Federal transportation programs into five functional groups--financial assistance, provision of facilities and supporting services, economic regulation, research and development, and safety. (See p. 3.)

Seven Federal agencies provide financial assistance for the construction and operation and maintenance of transportation systems. Expenditures for financial assistance programs amounted to $6.9 billion in 1974, or 61 percent of total Federal expenditures on the U.S. transportation system. (See p. 6.)

Twenty-two Federal agencies provide facilities and supporting services for the U.S. transportation system. Federal expenditures amounted to $2.5 billion in 1974, or 22 percent of Federal transportation program expenditures. (See pp. 8 to 10.)

Five Federal agencies have roles in economic regulation of transportation, all of which are independent of the Department of Transportation. Federal expenditures for economic regulation of transportation amounted to $67 million in 1974, or 1 percent of Federal transportation program expenditures. (See p. 11.)

Twelve Federal agencies have transportation research and development activities. Federal expenditures amounted to $1.1 billion in 1974, or 9 percent of Federal transportation program expenditures. (See pp. 14 to 15.)

Seven Federal agencies have transportation safety programs. Federal expenditures amounted to $0.8 billion in 1974, or 7 percent of Federal expenditures on the U.S. transportation system. (See p. 16.)

CONGRESSIONAL COMMITTEE JURISDICTIONS

Because of the wide variety of Federal transportation program activities and related agencies, there are 7 House

committees (including 20 subcommittees) and 5 Senate committees (including 13 subcommittees) with major responsibilities relating to Federal transportation programs. (See p. 17.)

CURRENT NATIONAL TRANSPORTATION POLICY ISSUES

We identified transportation policy issues relating to each of the Federal Government's functions in the U.S. transportation system--financial assistance, facilities and services, economic regulation, research and development, and safety. We also identified transportation policy issues relating to energy and environmental quality. (See p. 23.)

Major policy issues relating to Federal financial assistance programs include disagreements over the effectiveness of most Federal aid programs and controversies concerning the relative funding priority which should be assigned to Federal aid for different transportation modes. Criticism is directed to the excessive cost of individual Federal aid programs and to the aggregate cost of Federal involvement in transportation and its effects on the taxpayer and the economy. Another major policy issue is whether inadequate Federal investment planning and coordination are causing duplication of transportation facilities and conflicts between different transportation modes. (See pp. 23 to 24.)

The most controversial issue concerning federally provided transportation facilities involves the U.S. Army Corps of Engineers' inland waterways program. Criticism is directed to the program's high funding priority compared with Federal aid programs for other transportation modes, to the absence of waterway user charges, and to the costs of individual navigation projects relative to net benefits. In the area of Federal support services, a major policy issue is whether Federal transportation policy coordination and long-range planning lack unified and comprehensive goals and objectives. (See p. 24.)

Criticism of the adverse economic effects of Federal economic regulation is widespread, but most criticisms are matched by countercriticisms and defenses of the present regulatory system. Most policy issues involve Federal regulation of air, highway, and rail modes. Federal regulation of pipeline, transit, and water modes is less extensive and consequently is less controversial. (See pp. 25 to 26.)

Federal transportation research and development programs are not a major area of policy disagreement. Most current policy issues involve the adequacy of program planning and coordination and the cost effectiveness of individual research projects. (See p. 26.)

Federal safety standards for motor vehicles are the most controversial area of Federal involvement in transportation safety. This issue concerns the potential economic effects of motor vehicle safety standards and the adequacy of coordination between safety standards, Federal emissions standards, and Federal energy conservation goals. (See pp. 26 to 27.)

Energy problems are currently a major source of transportation policy issues. Such issues include the question of whether some Federal transportation programs (particularly in air and highway modes) encourage excessive use of energy and whether Federal programs should encourage greater use of energy-efficient transportation modes (such as rail and water). (See p. 27.)

Environmental quality problems are also a source of transportation policy issues. The most controversial of these issues involves the effectiveness and potential economic impacts of Federal air quality standards for motor vehicles and urban areas. Another major issue centers on the economic effects of Federal environmental impact assessment procedures on transportation. (See pp. 27 to 28.)

OBSERVATIONS

Public concern that Federal transportation programs are uncoordinated and counterproductive may be caused by the decentralized administrative and legislative structure--32 Federal agencies and 12 major congressional committees--which carries out Federal transportation programs. Public concern also may result from the complexity of Federal transportation laws.

We believe it is possible to modernize and unify the various public laws which authorize Federal involvement in transportation and thus move toward a unified national transportation policy. This might take the form of a National Transportation Policy Act, establishing national goals for transportation and impact assessment procedures to identify counterproductive Federal transportation programs and activities.

As an interim measure, improving the availability of budget information on the Federal Government's role in transportation could be of major value to the Congress in assessing priorities for Federal transportation programs. This might take the form of a unified transportation program budget schedule, submitted as part of the President's annual budget proposal, including estimates of Federal expenditures for all transportation-related programs.

On September 17, 1975, the Secretary of Transportation issued a Statement of National Transportation Policy which proposes a set of principles for national transportation policy and which relates the principles to existing Federal transportation programs and proposed legislation. The statement specifically recognizes the existence of inconsistencies in Federal transportation laws and programs and recommends changes to rationalize the Federal Government's role in transportation.

We believe that this is a valuable contribution to the modernization of the Federal Government's role in transportation and can serve as the basis for constructive discussions of national transportation goals and priorities. (See pp. 29 to 30.)

CHAPTER 1

INTRODUCTION

The objective of this study is to provide the Congress and GAO with background information on the scope and breadth of the Federal Government's transportation role and on current transportation policy issues.

SCOPE OF STUDY

This study examines the Federal Government's role in the U.S. transportation system. It identifies and classifies the major Federal agencies and programs involved in each mode of transportation. The study includes an analysis of 1974 Federal expenditures on transportation programs, compared with private sector and State and local government expenditures relating to transportation. The study also presents an overview of current national transportation policy issues and their relationship to the Federal Government's major functions in the U.S. transportation system.

Information on the programs and expenditures of Federal agencies involved in transportation was obtained through a review of annual agency budget justifications. Estimates of private sector and State and local government transportation program expenditures were based on our analysis of statistical reports for individual transportation modes prepared by Federal agencies and industry trade associations.

Available data for some transportation modes was not available for 1974, and estimates for these modes were extrapolated from prior year statistics with adjustments for inflation. Transportation user taxes were excluded from estimates of private sector expenditures to prevent double-counting, but this report does not contain an analysis of Federal tax revenues from transportation.

Current national transportation policy issues were identified through a series of interviews with experts on transportation problems, including current and former Federal, State, and local government officials; academic scholars; and representatives of major transportation industries. Information on transportation policy issues was also obtained from Government and academic research and from current news periodicals, including the Congressional Record.

CHAPTER 2

FEDERAL GOVERNMENT'S ROLE IN THE U.S. TRANSPORTATION SYSTEM

COMPONENTS OF U.S. TRANSPORTATION SYSTEM

The U.S. transportation system is composed of many different private and public activities relating to the transportation of passengers and freight, including Federal and State and local government programs to assist, promote, and regulate transportation. For this analysis, we subdivided the U.S. transportation system into six component modal systems: highway, air, rail, water, pipeline, and transit.

The highway system includes all private and public activities relating to motor vehicle transportation, except for urban motor transit bus and taxicab operations which are included in the transit system category. The air system includes all private and public civilian air transportation activities and military aeronautical research with potential application to civil aviation. The rail system includes all private and public activities relating to railroad transportation, except for urban commuter railroads and rail rapid transit systems which are included in the transit system category.

The water system includes all private and public civilian water transportation activities and military naval research with potential application to civilian water transportation. The pipeline system includes all private and public activities relating to long-distance commercial pipeline transportation of petroleum and natural gas. The transit system includes all private and public activities relating to the provision of urban public mass transportation by commuter railroads, rail rapid transit, streetcars, trolley coaches, motorbuses, and taxicabs.

Table 1 (see p. 3) lists the Federal agencies that have programs and activities impacting on the U.S. transportation system. In total, there are 32 Federal agencies with important functions relating to the U.S. transportation system. Eight of these agencies are constituent parts of the Department of Transportation.

A description of agency roles in transportation, key legislation establishing these roles, and agency expenditures for transportation-related programs and activities is contained in appendix II.

TABLE 1

Federal Agencies With Important Roles in the U.S. Transportation System

Federal agency	Modal system
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 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:	
General Functions	All
Materials Transportation Bureau	All
U.S. Coast Guard	Water
Federal Aviation Administration	Air
Federal Highway Administration	Highway and transit
Federal Railroad Administration	Rail and transit
National Highway Traffic Safety Administration	Highway and transit
Saint Lawrence Seaway Development Corporation	Water
Urban Mass Transportation Administration	Transit
Department of the Treasury	All
Energy Research and Development Administration	Highway, pipeline, and water
Environmental Protection Agency	All
Federal Energy Administration	All
Federal Maritime Commission	Water
Federal Power Commission	Pipeline
Interstate Commerce Commission	Highway, 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

HISTORICAL DEVELOPMENT OF FEDERAL GOVERNMENT'S ROLE IN TRANSPORTATION

The Federal Government's role in transportation has developed incrementally over many years. Historically, legislation establishing a program has been enacted to meet a pressing national need at a particular point in time and in response to public concern about specific transportation problems. In general, each new Federal program has been directed toward the problems of one particular transportation mode.

For example, Federal economic regulation of interstate petroleum pipelines began with the enactment of the Hepburn Act of 1906. This legislation was a response to public concern over the adverse economic effects of unfair competitive practices and monopolistic price setting by oil companies; it placed interstate petroleum pipelines under the jurisdiction of the Interstate Commerce Commission.

However, the Congress did not authorize Federal economic regulation of interstate natural gas pipelines until the enactment of the Natural Gas Act of 1938. This occurred during the economic depression of the 1930s and was a response to public concern over the adverse economic effects of unfair competition and monopolistic price setting by natural gas companies. In this case, the Congress placed natural gas pipelines under the jurisdiction of the Federal Power Commission instead of the Interstate Commerce Commission, treating the economic regulation of natural gas pipelines and of petroleum pipelines as separate and distinct problems.

Similarly, Federal financial assistance to the merchant marine industry had its origins in the Shipping Act of 1916 and the Merchant Marine Act of 1936. The Shipping Act of 1916 was enacted during World War I and established a federally financed merchant ship construction program, primarily for national defense reasons. The Merchant Marine Act of 1936 was enacted during the economic depression of the 1930s and established programs to provide economic assistance for U.S. merchant marine operations and for merchant ship construction.

More recently, the Federal-Aid Highway Program, one of the most important Federal transportation programs in its effects on the U.S. transportation system, was established by the Federal-Aid Highway Act of 1956. During World War II and the Korean War, construction of highways had been deferred by State and local governments. Consequently, considerable public support developed for a program of Federal financial assistance to State governments for the construction of a

modern national highway system. The resulting legislation established the Federal Highway Trust Fund, which was used only for highway-related purposes until the Federal-Aid Highway Act of 1973 permitted limited use of the Trust Fund for mass transit.

FEDERAL TRANSPORTATION PROGRAMS

For our analysis, we classified Federal transportation programs into five functional groups: financial assistance to State and local governments and privately owned companies; provision of facilities and supporting services; economic regulation; research and development; and safety programs (including safety-related regulatory, technical assistance, and financial assistance programs, but excluding safety research and development programs).

Tables 2 through 6 identify the Federal agencies, major programs, and modal systems involved in each functional group. The tables also identify key dates of legislation authorizing Federal involvement in a specific program area.

Financial assistance (See table 2, p. 6.)

Federal financial assistance programs provide funds and related technical assistance to States, local governments, and private businesses for use in constructing, operating, and maintaining transportation systems, facilities, and equipment. Transportation-related financial assistance programs are administered by seven Federal agencies, four of which are component operating administrations within the Department of Transportation. In 1974 Federal expenditures for transportation-related financial assistance programs amounted to $6.9 billion, or 61 percent of total Federal expenditures on the U.S. transportation system.

In addition, some Federal revenue-sharing payments to State and local governments are used to finance transportation-related programs. Because of the complexity of revenue-sharing fund flows, we could not readily determine the net effect of revenue-sharing payments on State and local government transportation program expenditures. However, accounting designations of fund uses by revenue-sharing recipients indicate that as much as 15 percent of total revenue-sharing payments are used to finance State and local government transportation programs. This is the equivalent of an additional $0.9 billion in Federal financial assistance for transportation-related programs in 1974.

TABLE 2

Federal Financial Assistance Programs for the U.S. Transportation System

Federal agency and program	Modal system	Key dates
Civil Aeronautics Board:		
Subsidies to air carriers	Air	1938, 1958
Department of Commerce:		
Maritime Administration:		
Ship construction subsidies	Water	1936, 1970
Operating-differential subsidies	Water	1936, 1970
Department of Transportation:		
Federal Aviation Administration:		
Aid to localities for airport construction	Air	mid-1930s, 1970
Federal Highway Administration:		
Aid to State highway construction programs	Highway	1894, 1956
Federal Railroad Administration:		
Financial aid to AMTRAK (note a)	Rail	1970, 1974
Financial aid to Northeast railroads	Rail	1973
Urban Mass Transportation Administration:		
Capital grants for mass transit (Urban Mass Transportation Act)	Transit	1964, 1974
Capital grants for mass transit (Federal-Aid Highway Act)	Transit	1973
Operating assistance for mass transit	Transit	1974
Technical studies grants for mass transit	Transit	1966
Financial contributions to Washington Metropolitan Area Transit Authority	Transit	1969
Department of the Treasury:		
Office of Revenue Sharing:		
General revenue-sharing program	All	1972

a/National Railroad Passenger Corporation

Facilities and supporting services (See table 3, pp. 8 to 10.)

Federal programs provide transportation facilities and supporting services to all six modes of the U.S. transportation system. In many of these programs, the Federal Government is directly involved with individual citizens and privately owned companies that use federally provided transportation facilities and technical services as a basic and integral part of their transportation activities. In other programs, services are provided to minimize the adverse environmental or social effects of transportation. Federal programs also provide long-range policy planning and coordination for Federal involvement in the U.S. transportation system.

Twenty-two Federal agencies provide facilities and supporting services for the U.S. transportation system. Six of these agencies are component administrations of the Department of Transportation. In 1974 Federal financial expenditures for transportation-related facilities and supporting services amounted to $2.5 billion, or 22 percent of total Federal expenditures on the U.S. transportation system.

Economic regulation (See table 4, p. 11.)

Federal economic regulation of transportation affects all modes of the U.S. transportation system. In all of these programs, except the regulation of energy prices and supplies by the Federal Energy Administration, the Federal Government regulates certain economic activities of private business firms that provide commercial transportation services.

The extent, jurisdictional coverage, and economic effect of Federal economic regulation of commercial transportation vary widely between different transportation modes. Federal economic regulations extend to such areas of business activity as price-setting, competition between business firms and between transportation modes, entry to and exit from the transportation industry, and financial organizations and mergers. Federal regulation of energy prices and supplies primarily involves the price and allocation of petroleum.

Five Federal agencies have roles in economic regulation of transportation, all of which are independent of the Department of Transportation. In 1974 Federal expenditures for economic regulation of transportation amounted to $67 million, or 1 percent of total 1974 Federal expenditures on the U.S. transportation system.

TABLE 3

Federal Facilities and Services for the U.S. Transportation System

Federal agency and program	Modal system	Key dates
Council on Environmental Quality:		
Environmental impact assessment procedures	All	1969
Department of Agriculture:		
Forest Service:		
Forest roads and trails	Highway	1891, 1913
Department of Commerce:		
Maritime Administration:		
Marine environmental protection	Water	1969, 1972
Merchant marine training	Water	1936, 1970
National Oceanic and Atmospheric Administration:		
Aeronautical chart preparation	Air	1926, 1965
Aviation weather services	Air	1926, 1965
Marine weather services	Water	1870, 1965
Nautical chart preparation	Water	1807, 1965
Department of Defense:		
U.S. Army Corps of Engineers:		
Construction, operation, and maintenance of:		
inland waterways	Water	1824, 1972
deep-draft harbors and channels	Water	1824, 1972
small-boat harbors and channels	Water	1932, 1972
Waterway environmental protection	Water	1969, 1972
Panama Canal Company:		
Operation of the Panama Canal	Water	1902, 1950
Department of Housing and Urban Development:		
Community planning procedures	Air, highway, and transit	1954
Relocation assistance procedures	Highway	1970
Department of the Interior:		
Bureau of Indian Affairs:		
Reservation roads and trails	Highway	1824, 1934

Federal agency and program	Modal system	Key dates
Department of the Interior (cont'd):		
Bureau of Land Management:		
Authorizes use of public lands	Highway and pipeline	1812, 1946
Public lands roads and trails	Highway	1812, 1946
National Park Service:		
Roads, trails and parkways	Highway	1916
Department of State:		
Negotiates international agreements	Air and water	1946, 1972
Provides international air navigation services through I.C.A.O.	Air	1946
Department of Transportation:		
Office of the Secretary:		
General functions:		
Formulates and coordinates transportation policies	All	1966
U.S. Coast Guard:		
Aids to navigation	Water	1789, 1972
Marine environmental protection	Water	1838, 1972
Federal Aviation Administration:		
Operates national air traffic control system	Air	1926, 1958
Standards for aviation noise emmissions	Air	1968, 1972
Federal Railroad Administration:		
Operation of Alaska Railroad	Rail	1914, 1966
Saint Lawrence Seaway Development Administration:		
Operation of Saint Lawrence Seaway	Water	1954, 1970
Urban Mass Transportation Administration:		
Training for transit professionals	Transit	1966
Environmental Protection Agency:		
Air quality standards for cities	All	1963, 1970
Aircraft noise emission standards	Air	1972
Aircraft pollution emission standards	Air	1970

Federal agency and program	Modal system	Key dates
Environmental Protection Agency (cont'd):		
Motor carrier noise standards	Highway	1972
Motor vehicle pollution emission standards	Highway and transit	1965, 1970
Water quality standards	Pipeline and water	1972
Federal Maritime Commission:		
Maritime environmental protection	Water	1972
Interstate Commerce Commission:		
System planning for Northeast railroads	Rail	1973
Tennessee Valley Authority:		
Operates navigation facilities	Water	1933
U.S. Railway Association:		
System planning for Northeast railroads	Rail	1973

TABLE 4

Federal Economic Regulation of the U.S. Transportation System

Federal agency and program	Modal system	Key dates
Civil Aeronautics Board:		
Regulation of air carriers	Air	1938, 1958
Federal Energy Administration:		
Regulation of energy prices and supplies (note a)	All	1972, 1974
Federal Maritime Commission:		
Regulation of domestic offshore and international water carriers	Water	1916, 1933
Federal Power Commission:		
Regulation of natural gas pipelines	Pipeline	1938, 1969
Interstate Commerce Commission:		
Regulation of commuter railroads	Transit	1887, 1958
Regulation of domestic water carriers	Water	1916, 1940
Regulation of motor carriers	Highway	1935
Regulation of petroleum pipelines	Pipeline	1906
Regulation of railroads	Rail	1887, 1958

a/Expired August 1975, but it may be reinstated by the Congress.

Research and development (See table 5, pp. 14 to 15.)

Federal research and development programs provide an important supporting service for the U.S. transportation systems. In most instances, research and development programs are conducted in conjunction with other agency responsibilities relating to transportation. For example, the Department of Transportation's Federal Highway Administration conducts research on highway transportation in connection with its administration of the Federal-Aid Highway Program. Other Federal research and development activities relating to transportation include military research programs with potential civilian application and research on transportation-related energy problems.

Twelve Federal agencies have research and development activities relating to transportation. Seven of these agencies are component administrations in the Department of Transportation. In 1974 Federal expenditures for transportation research and development amounted to $1.1 billion, or 9 percent of total 1974 Federal expenditures on the U.S. transportation system.

Safety (See table 6, p. 16.)

Federal transportation safety programs include: development and enforcement of Federal safety standards for a wide variety of transportation operations and equipment; financial and technical assistance to State and local government transportation safety programs; investigations of transportation accidents and safety problems; and search and rescue operations on U.S. waters.

Seven Federal agencies have transportation safety programs. All of the agencies, except for the National Transportation Safety Board, are component administrations in the Department of Transportation. In 1974 Federal expenditures for transportation safety programs, except for safety-related research and development, amounted to $0.8 billion, or 7 percent of total 1974 Federal expenditures on the U.S. transportation system.

CONGRESSIONAL COMMITTEE JURISDICTION

Because of the wide variety of Federal transportation programs and the number of Federal agencies with roles in transportation, many congressional committees have jurisdictions relating to some aspect of transportation. For our analysis, we identified congressional committees with broad transportation-related charters or with responsibilities for one of the following agencies: Department of Transportation;

Maritime Administration, Department of Commerce; U.S. Army Corps of Engineers (Civil Functions); Civil Aeronautics Board; Federal Maritime Commission; Interstate Commerce Commission; and National Transportation Safety Board. Within this limited category of committees with major transportation program responsibilities, we identified 7 House committees (including 20 subcommittees) and 5 Senate committees (including 13 subcommittees). Table 7 (see p. 17) shows each committee's and subcommittee's area of jurisdiction by program category and modal system.

TABLE 5

Federal Research and Development for

The U.S. Transportation System

Federal agency and program	Modal system	Key dates
Department of Commerce:		
Maritime Administration:		
Research on marine transportation	Water	1936, 1970
Department of Defense:		
U.S. Army Corps of Engineers:		
Research on navigation facility construction and operation	Water	1824, 1972
Military Research and Development:		
Aeronautical research--potential civilian use	Air	1915, 1939
Ship technology--potential civilian use	Water	1939
Department of Transportation:		
Office of the Secretary:		
Transportation research and development	All	1966
Research in pipeline technology	Pipeline	1968, 1974
U.S. Coast Guard:		
Research on marine transportation	Water	1838, 1972
Federal Aviation Administration:		
Aeronautical research	Air	1915, 1958
Federal Highway Administration:		
Research on highway transportation	Highway and transit	1894, 1956
Federal Railroad Administration:		
Research on rail transportation	Rail and transit	1965
National Highway Traffic Safety Administration:		
Research on highway and motor vehicle safety	Highway and transit	1966, 1970
Urban Mass Transportation Administration:		
Research on urban transportation	Transit	1961, 1964

Federal agency and program	Modal system	Key dates
Energy Research and Development Administration:		
Research on automotive energy efficiency	Highway and transit	1974
Research on coal gasification and liquefication	Pipeline	1974
Research on nuclear-powered ships--potential civilian use	Water	1946, 1974
National Aeronautics and Space Administration:		
Aeronautical research	Air	1915, 1958

TABLE 6

Federal Safety Programs for the U.S. Transportation System

Federal agency and program	Modal system	Key dates
Department of Transportation:		
Office of the Secretary:		
Safety regulation of gas pipelines	Pipeline	1968, 1974
Safety regulation of liquid pipelines	Pipeline	1965, 1974
Aid to State gas pipeline safety programs	Pipeline	1968, 1974
Safety regulation of hazardous materials	All	1974
U.S. Coast Guard:		
Search and rescue operations	Water	1874, 1966
Marine safety regulation	Water	1838, 1971
Federal Aviation Administration:		
Regulation of aviation safety	Air	1926, 1958
Federal Highway Administration:		
Aid to State highway safety programs	Highway and transit	1966, 1970
Regulation of motor carrier safety	Highway	1935
Federal Railroad Administration:		
Regulation of railroad safety	Rail and transit	1893, 1970
National Highway Traffic Safety Administration:		
Aid to State traffic safety programs	Highway and transit	1966, 1970
Safety standards for motor vehicles	Highway and transit	1966, 1970
National Transportation Safety Board:		
Investigates aviation accidents	Air	1938, 1974
Investigates transportation safety problems	All	1966, 1974

TABLE 7

Congressional Committees With Major Responsibilities for Federal Transportation Programs

Committees and subcommitees	Program category	Modal system
House of Representatives:		
Appropriations:		
Public Works	Facilities	Water
State, Justice, Commerce, and Judiciary	Financial and regulation	Water
Transportation	All	All
Government Operations:		
Conservation, Energy, and Natural Resources	Facilities	Water
Government Activities and Transportation	All	All
Interstate and Foreign Commerce:		
Consumer Protection and Finance	Safety	Highway
Energy and Power	Regulation	Pipeline
Transportation and Commerce	All	Rail and water
Merchant Marine and Fisheries:		
Coast Guard and Navigation	All	Water
Merchant Marine	All	Water
The Panama Canal	Facilities	Water
Public Works and Transportation:		
Aviation	All	Air
Economic Development	All	All (except rail)
Investigations and Review	All	All (except rail)
Surface Transportation	All	All (except rail)
Water Resources	All	All (except rail)
Science and Technology:		
Aviation and Transportation Research and Development	Research	All
Small Business:		
Activities of Regulatory Agencies	Regulation	All
Commodities and Services	Regulation	Air, highway, rail, and water
Energy and Environment	Regulation	Pipeline
Senate:		
Aeronautical and Space Sciences	Research	Air
Appropriations:		
Public Works	Facilities	Water
State, Justice, Commerce, and Judiciary	Financial and regulation	Water
Transportation	All	All
Commerce:		
Aviation	All	Air
Merchant Marine	All	Water
Surface Transportation	All	All (except air)
Special, Freight Car Shortage	Regulation	Rail
Special, Oil and Gas Production and Distribution	Regulation	Pipeline
Special, To Study Transportation on the Great Lakes-St. Lawrence Seaway	Financial	Water
Government Operations:		
Investigations	All	All
Public Works:		
Economic Development	All	All
Transportation	All	All
Water Resources	All	All

FINANCIAL IMPACT OF FEDERAL TRANSPORTATION PROGRAMS

Federal transportation program expenditures account for a relatively small portion (3.8 percent in 1974) of total private and public transportation expenditures (see table 8, p. 19.) State and local government transportation programs account for about twice as much (7.7 percent in 1974), and private sector expenditures account for the bulk (88.5 percent in 1974) of total transportation expenditures.

Private sector expenditures include (1) expenditures by individuals, private business concerns, and governments for the purchase of transportation services from commercial and public transportation carriers--such as airlines, railroads, and rapid transit lines--and (2) expenditures by individuals, private business concerns (except commercial and public transportation carriers), and governments for the purchase, operation, and maintenance of transportation equipment--such as automobiles and trucks. Transportation user taxes paid to Federal, State, and local governments were excluded from estimates of private sector expenditures to prevent double counting.

State and local government program expenditures include Federal revenue-sharing funds. Because of the complexity of fund flows in the revenue-sharing process, we could not determine the net effect of revenue-sharing payments on specific State and local government program expenditures. According to estimates made by revenue-sharing fund recipients, as much as 15 percent of total revenue-sharing payments may be used to finance State and local government transportation programs. This would be the equivalent of $0.9 billion in 1974.

Estimates of Federal expenditures were based on a detailed analysis of Federal budget documents, including agency budget submissions to the Congress. Estimates were made of expenditures relating to each transportation mode by individual Federal agency and by major programs. Estimates are intended to show the economic effect of Federal expenditures on the U.S. transportation system and are similar but not equivalent to the concept of budget outlays used by the Office of Management and Budget.

Estimates of private sector and State and local government program expenditures were based on our analysis of statistical reports on individual transportation modes prepared by Federal agencies and industry trade associations. Available data for some transportation modes was limited to years prior to 1974, and 1974 estimates for these modes were extrapolated from prior year statistics with adjustments for inflation.

TABLE 8

U.S. Transportation System Expenditures, 1974

Activity	Expenditures (000,000 omitted)	Percent
Private expenditures (note a):		
Passenger transportation	$168,121	56.9
Freight transportation	93,507	31.6
Total	261,628	88.5
Government:		
State and local programs (note b)	22,755	7.7
Federal programs:		
Financial assistance	6,909	2.3
Facilities and services	2,485	.8
Economic regulation	67	(c)
Research and development	1,067	.4
Transportation safety	787	.3
Total Federal programs	11,315	3.8
Total Government programs	34,070	11.5
Total	$295,698	100.0

a/Includes government expenditures for civilian transportation services. Excludes Federal, State and local government transportation user taxes.

b/Includes Federal revenue-sharing program funds.

c/Less than 0.05 percent.

FEDERAL EXPENDITURES ON TRANSPORTATION MODES

The size and importance of Federal transportation program expenditures vary greatly between different transportation modes. Table 9 (see p. 20) compares Federal expenditures for each transportation mode with total private and public expenditures. Detailed estimates of private sector, State and local government, and Federal agency program expenditures relating to individual transportation modes are presented in appendix I.

TABLE 9

Federal Expenditures on Transportation Modes, 1974

Modal system	Total Federal expenditures	Total private and governmental expenditures	Federal (percent)
	(000,000 omitted)		
Highway	$ 4,893	$230,232	2
Air	2,471	18,971	13
Rail	664	16,885	4
Water	1,942	12,799	15
Pipeline	86	10,401	1
Transit	1,259	6,410	20
Total	$11,315	$295,698	4

In 1974, the highway mode received the largest amount of Federal expenditures ($4.9 billion) and the pipeline mode received the smallest amount ($0.1 billion). Federal expenditures accounted for relatively small percentages of total private and public spending in 1974 on the highway and pipeline modes--2 percent of highway expenditures and 1 percent of pipeline expenditures. In contrast, 15 percent of the expenditures on the water mode and 20 percent of the expenditures on the transit mode were made by the Federal Government.

The distribution of Federal expenditures between transportation modes has changed in recent years. Table 10 (see p. 21) compares Federal expenditures for each modal transportation system in 1964 and in 1974. Estimated 1964 expenditures are expressed in terms of 1974 prices to put the two sets of expenditures on a comparable basis.

From 1964 to 1974, Federal spending on the highway mode decreased greatly in terms of constant dollars ($1.2 billion, or 20 percent). Federal spending on air and water modes increased greatly (47 percent for air; 19 percent for water). Federal spending on rail, transit, and pipeline modes was not important in 1964, and most of the growth in Federal expenditures for these three modes has occurred since 1970.

TABLE 10

Comparison of 1964 and 1974 Federal Expenditures on Transportation Modes

Modal system	1964 Federal expenditures, 1974 prices	1974 Federal expenditures	Percent of change 1964-74
	---------(billions)----------		
Highway	$6.1	$ 4.9	-20
Air	1.7	2.5	47
Rail	(a)	.7	-
Water	1.6	1.9	19
Pipeline	(a)	.1	-
Transit	(a)	1.3	-
Total	$9.4	b/ $11.3	20

a/Less than $50 million.

b/Because of rounding, total 1974 expenditures are less than the sum of expenditures by modes.

Table 11 (see p. 22) compares proposed 1975 and 1976 Federal transportation program expenditures with estimated 1974 expenditures. Estimates of proposed 1975 and 1976 expenditures are based on the President's 1976 published budget proposals.

The only major change in the distribution of Federal transportation program expenditures in the President's published budget proposals is the increase in expenditures for the transit mode. However, the amount shown for the rail mode reflects legislative authorizations at the time of the President's budget proposals. Actual Federal expenditures for the rail mode will probably be greater than those projected in table 11. Federal spending on the highway mode is also likely to exceed the amounts shown in table 11 because of increased expenditures for the Federal-Aid Highway Program.

TABLE 11

Comparison of 1974 Federal Expenditures With

1975 and 1976 Budget Proposals

Modal system	Federal expenditures 1974	1975	1976
	--------(billions)--------		
Highway	$ 4.9	$ 4.9	$ 5.2
Air	2.5	2.7	3.0
Rail	.7	.9	.7
Water	1.9	2.1	2.4
Pipeline	.1	.2	.2
Transit	1.3	1.9	2.1
Total a/	$11.3	$12.7	$13.6

a/Because of rounding, total 1974 expenditures are less than the sum of expenditures by modes.

CHAPTER 3

CURRENT NATIONAL TRANSPORTATION POLICY ISSUES

Our discussions with transportation experts and our review of government and academic research on transportation revealed a wide range of policy issues relating to the Federal Government's role in the U.S. transportation system. Most of these issues involved one of the five functional areas of Federal involvement in transportation--financial assistance, facilities and supporting services, economic regulation, research and development, or safety. We also identified groups of issues relating to energy conservation and environmental quality.

FEDERAL FINANCIAL ASSISTANCE

Federal financial assistance programs are the topics of a variety of current transportation policy issues. Nearly every aspect of the Federal-Aid Highway Program is controversial, ranging from the program's high priority compared with Federal aid programs for other transportation modes to the program's effects on the quality of the urban environment. Federal aid to AMTRAK (National Railroad Passenger Corporation) is criticized because of its excessive costs and ineffectiveness. In the transit mode there is disagreement over the adequacy and effectiveness of Federal financial aid to mass transit and concern that the aid program is insufficiently concerned with the needs of the urban poor. Federal assistance programs for the merchant marine and ship construction industries are criticized as excessively costly, ineffective, and overemphasized, compared with Federal aid to other transportation modes.

The most controversial policy issue involves the Federal Government's role in restructuring and rehabilitating the Northeast rail system. There are controversies and disagreements regarding almost every aspect of this program. Issues include the validity of Federal goals and objectives, the economic impact on the Northeast and Midwest regions of the United States, the program's cost effectiveness, and the effectiveness of rail system planning.

The current and long-range costs of Federal financial assistance programs are a major area of controversy. Criticism is directed to the excessive cost of individual programs and to the aggregate cost of Federal involvement and its impact on the taxpayer and the economy. The extent to which program costs are properly and fairly recovered through user fees is also a policy issue. Another major policy issue

concerns the adequacy of Federal planning and coordination of financial assistance programs to avoid duplication and counter-productive conflicts between transportation modes. We also noted criticisms of the Federal general revenue-sharing program regarding the lack of accountability for funds appropriated by the Congress but spent by State and local governments and regarding the lack of Federal leverage for reform.

In addition, there is concern that Federal procedures for citizen participation and environmental impact assessment are delaying needed public works improvements. The effect of Federal financial assistance programs in encouraging excessive use of energy is also a topic of controversy. Finally, in the highway, transit, and rail modes, there is concern as to the extent to which Federal-aid programs are sensitive to State and local needs and priorities.

FEDERAL FACILITIES AND SUPPORTING SERVICES

Federally provided transportation facilities and supporting services are the subject of several major policy issues. The most controversial issue involves the Army Corps of Engineers' work in constructing, operating, and maintaining inland waterways, harbors, and navigation channels. These Corps activities were criticized as being excessively costly in relation to program benefits and because their costs were not recovered through user charges. Other waterways program policy issues include the program's high priority relative to other Federal transportation programs, the program's environmental impacts, and the lack of coordination with other transportation modes receiving Federal financial assistance.

Federal operation of the national air traffic control and navigation system is also the topic of policy disagreement. Policy issues include the program's relatively high priority compared with that of other Federal transportation programs, the extent to which program costs are properly and fairly recovered through user charges, and the effectiveness of the air traffic control system.

We noted widespread criticism of overall long-range planning and transportation policy coordination by the Department of Transportation. This policy issue centered on the absence of comprehensive plans for Federal involvement in transportation; such plans would prevent duplications of effort and conflicts between Federal agencies and between Federal transportation programs.

FEDERAL ECONOMIC REGULATION

Federal economic regulation of transportation is currently one of the most controversial areas of Federal involvement in the U.S. transportation system. Most criticism of federal economic regulation is directed to the air, highway, and rail modes. Federal regulation of the pipeline, water, and transit modes is less extensive and consequently is less controversial.

In the air mode, controversy over federal economic regulation focused on the impact of regulation on passenger fares and system capacity and on the appropriate role of the Federal Government in promoting scheduled air service to small communities. In the highway mode, debate centered on the impact of Federal regulation on motor carrier freight rates and on the potential effects of deregulation on common carrier trucking service to small shippers.

In the rail mode, criticism was aimed at regulatory constraints on the abandonment of unprofitable rail lines and services. There was also disagreement regarding the effects of regulatory limitations on price setting by the railroads and controversy over the amount of time consumed by regulatory proceedings, particularly for financial mergers and consolidations.

There was limited criticism of Federal economic regulation of the water mode (regarding constraints on intermodal transportation services), the transit mode (constraints on the abandonment of unprofitable commuter rail service), and the pipeline mode (the effects of regulation on energy prices and supplies).

Factual disagreements about Federal economic regulation of transportation focused on the economic effects of existing regulations and on the effects which would result from removal of Federal regulations. Disagreements over basic value judgments centered on the rights of private business to make decisions without Government interference and the desirability of Federal intervention in private business activities for public purposes.

Planning and coordinating Federal economic regulatory activities was a particularly controversial policy issue. Debate centered on the lack of coordination between Federal regulatory programs and Federal aid programs and on the absence of a coordinated Federal policy for economic regulation of transportation.

Criticisms of the present Federal regulatory system were matched by a variety of countercriticisms and defenses. For example, Federal regulation of the interstate trucking industry is strongly defended by many private trucking companies, small shippers, and the Interstate Commerce Commission. Similarly, Federal regulation of commercial air transportation is defended by the airlines and by the Civil Aeronautics Board.

FEDERAL RESEARCH AND DEVELOPMENT

Federal research and development programs for the U.S. transportation system are not a major area of policy disagreement and controversy. Most current policy issues involve the adequacy of program planning and coordination and the cost effectivenss of individual research projects. There was also general concern as to whether transportation research was giving adequate weight to energy and environmental problems.

The most controversial transportation research and development program is administered by the Department of Transportation's Urban Mass Transportation Administration. Controversy over this program focused on whether the program's long-range goals and objectives were well defined, the adequacy of program planning, and the program's accomplishments and costs.

Federal aeronautical research and development was also the subject of criticism. Criticism was directed toward the relatively high priority of aeronautical research and development compared with other Federal transportation research and development, program cost effectiveness, and planning and coordination of research by the several Federal agencies involved.

FEDERAL TRANSPORTATION SAFETY

Federal transportation safety programs are the subject of several current policy issues. The most controversial issue involves the Federal role in motor vehicle safety. There is controversy over nearly every aspect of the Federal Government's role in automotive safety, including the economic impact of Federal safety standards on the automobile industry and the economy as a whole, the effect on individual civil liberties of requiring mandatory use of seatbelts, and the effectiveness of safety standards. In particular, debate centered on the extent to which Federal automotive safety standards were adequately planned and coordinated with Federal automobile emissions standards and with Federal goals for energy conservation.

Policy issues relating to other Federal transportation safety programs include the programs' effectiveness in preventing accidents and the adequacy of program planning and coordination. There was debate as to whether Federal safety programs for the air mode gave adequate attention to general aviation. There also was criticism of the costs of Coast Guard safety programs and the lack of user charges to recover some of these costs.

ENERGY ISSUES

Energy problems have recently become a major source of policy issues relating to Federal involvement in the U.S. transportation system. These include the question of whether some Federal transportation programs (particularly in the air and highway modes) encourage excessive use of energy and whether Federal transportation programs should encourage greater use of energy-efficient transportation modes (such as rail and water). A related issue is whether Federal transportation policy planning and program coordination gives adequate weight to energy considerations.

The most controversial energy-related issue involved Federal efforts to improve the efficiency of motor vehicle energy consumption. Debate focused on whether present voluntary efforts could achieve major improvements and on the adequacy of coordination with Federal motor vehicle safety and emissions standards.

Other energy-related policy issues concern the potential economic impact on transportation of Federal regulation and taxation of energy prices and supplies. In the highway mode, debate centered on the effects of deregulating domestic petroleum prices and increasing the Federal fuel tax on automobile use of gasoline. In the air mode, controversy focused on the effects of deregulating domestic petroleum prices and on whether airlines should be permitted to pass on increased fuel prices through increased fares. Federal priorities for allocating energy supplies during shortages were also a policy issue; various interest groups from different transportation modes expressed concern about the relative priority of their mode.

ENVIRONMENTAL QUALITY ISSUES

Environmental quality problems are a major source of policy disagreements and controversies relating to Federal involvement in the U.S. transportation system. These policy issues involve the development and enforcement of Federal environmental quality standards relating to air quality,

water quality, and noise; they also involve the effects of Federal environmental impact assessment procedures.

The most controversial policy issue relates to Federal air quality standards, particularly those for motor vehicles. There is controversy over the effectiveness of Federal motor vehicle emissions standards, the economic impact of emissions standards on the automobile industry and the consumer, and the effects of emissions standards on the rights of private business to operate without Government interference. There is also debate over the practicality of and potential economic effects of Federal environmental air quality standards and goals for metropolitan areas. Criticisms and counter-criticisms were identified on all sides of this issue, ranging from concerns that air quality standards were too severe to concerns that they were insufficiently stringent.

Controversy over the effects of Federal water quality standards on the water transportation system focused on their potential economic impacts on waterway improvements and on water transportation of petroleum products. Debate also centered on the adequacy of Federal controls to prevent water pollution from water transportation vehicles.

Federal noise pollution standards were also the subject of criticism, particularly those standards relating to the air mode. This policy issue involved the adequacy of Federal standards in preventing noise pollution and the potential economic effects of regulation on air transportation.

Federal procedures for environmental impact assessment were a major subject of controversy. Most policy issues involved air, highway, pipeline, and transit transportation, because these modes were particularly affected by Federal environmental impact assessment procedures. Current policy issues include the economic impact of the procedures on public works construction, the effects of the procedures on State and local control of public works projects, the adequacy of planning and coordination by Federal agencies, and the effectiveness of the procedures in preventing adverse environmental effects.

Environmental quality issues are frequently linked with energy conservation problems in controversies over transportation policy. For example, criticisms of Federal transportation programs for adverse environmental effects often are accompanied by concern that the same programs encourage excessive use of energy. Because of the close connections between the two sets of issues, a major transportation policy issue centers on the adequacy of coordination and joint planning for Federal environmental quality and energy conservation programs in the field of transportation.

CHAPTER 4

OBSERVATIONS

The Federal Government's role in the U.S. transportation system has developed incrementally over many years. This has resulted in the Federal Government's wide range of transportation-related activities and in the decentralized administrative and legislative structure--32 Federal agencies and 12 major congressional committees--which carries out Federal transportation programs. It is reflected in the complexity of the Federal transportation laws which define the basic goals and objectives of the Federal Government's role in transportation.

We believe that the decentralized structure of Federal agency and congressional committee responsibilities and the complexity of Federal transportation laws may be the basic causes of public concern that Federal transportation programs are uncoordinated and counterproductive.

The diversity of the Federal Government's interests in transportation places obvious limits on the extent to which the Federal Government's role can be simplified. We believe it is possible to modernize and unify the various public laws which authorized Federal involvement in transportation and thus move toward a unified national transportation policy. Such legislation might take the form of a National Transportation Policy Act which would establish unified national goals for transportation and impact assessment procedures to identify counterproductive Federal transportation programs and activities.

As an interim measure, improving the availability of budget information on the Federal Government's role in transportation could be of major value to the Congress in assessing priorities for Federal transportation programs. This might take the form of a unified transportation program budget schedule, submitted as part of the President's annual budget proposals, including estimates of Federal expenditures for all transportation-related programs.

On September 17, 1975, the Secretary of Transportation issued a Statement of National Transportation Policy which proposes a set of principles for national transportation policy and which relates the principles to existing Federal transportation programs and proposed legislation. The policy statement specifically recognizes the existence of inconsistencies in Federal transportation laws and programs and

recommends changes to rationalize the Federal Government's role in transportation.

We believe that this is a valuable contribution to the modernization of the Federal Government's role in transportation and can serve as the basis for constructive discussions of national transportation goals and priorities.

ESTIMATES OF TRANSPORTATION EXPENDITURES, 1974

This appendix presents estimates of 1974 expenditures for the six transportation modes which comprise the U.S. transportation system. Estimates are presented for each major Federal agency and program, State and local government transportation programs, and private sector transportation expenditures.

Estimates of Federal expenditures are based on analysis of agency budget justifications, including agency budget submissions to the Congress. Estimated Federal expenditures are for fiscal year 1974 and are intended to reflect the economic effect of Federal expenditures on the U.S. transportation system during 1974. Estimates are similar but not equivalent to the concept of budget outlays used by the Office of Management and Budget.

Estimates of private sector and State and local government expenditures were based on our analysis of statistical reports for individual transportation modes prepared by Federal agencies and industry trade associations. Available data for some transportation modes was limited to years prior to 1974, and 1974 estimates for these modes were based on prior year statistics with adjustments for inflation.

Private sector expenditures include (1) expenditures by individuals, private business concerns, and governments for purchase of transportation services from commercial and public transportation carriers--such as airlines, railroads, and rapid transit lines--and (2) expenditures by individuals, private business concerns (except commercial and public transportation carriers), and governments for the purchase, operation, and maintenance of transportation equipment--such as automobiles and trucks. Transportation user taxes paid to Federal, State, and local governments were excluded from estimates of private sector expenditures to prevent double counting.

State and local government program expenditures include an undetermined amount of funds from the Federal revenue-sharing program. Because of the complexity of fund flows in the revenue-sharing process, it is difficult to determine the net effect of revenue-sharing payments on specific State and local government program expenditures. According to estimates made by revenue-sharing fund recipients, as much as 15 percent of total revenue-sharing payments may be used to finance State and local government transportation programs. This would be the equivalent of about $916 million in 1974.

APPENDIX I

1974 AIR MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
AIR PASSENGER TRANSPORTATION:		
General aviation:		
Personal	$ 268	
Business	1,298	
Other	455	
Commercial air carriers:		
Domestic	8,877	
International	2,443	
	13,341	
AIR FREIGHT TRANSPORTATION:		
Commercial air carriers:		
Domestic	1,090	
International	703	
	1,793	
Total private		$15,134
GOVERNMENT PROGRAMS:		
STATE AND LOCAL (note b)	1,366	
FEDERAL:		
Civil Aeronautics Board:		
Administration	15	
Subsidies to air carriers	73	
Council on Environmental Quality	(c)	
Department of Commerce:		
National Oceanic and Atmospheric Administration:		
Aeronautical chart services	3	
Aviation weather services	18	
Department of Defense:		
Military aeronautical research--potential civil use	332	
Department of Housing and Urban Development	(c)	
Department of State:		
U.S. participation in International Civil Aviation Organization	5	
Department of Transportation:		
Federal Aviation Administration:		
Operate air traffic control system	1,286	
Financial assistance to local airport construction	266	
Safety	182	
Research and development	105	
Operate national capital airports	16	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Department of the Treasury	(b)	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
National Aeronautics and Space Administration:		
Aeronautical research	155	
National Transportation Safety Board	7	
Total Federal	2,471	
Total Government		3,837
TOTAL		$18,971

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Federal revenue-sharing funds are included in State and local government transportation program expenditures.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

APPENDIX I

1974 HIGHWAY MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
MOTOR VEHICLE PASSENGER TRANSPORTATION:		
Private use:		
Passenger automobiles and trucks	$144,051	
School buses	1,663	
Commercial motor carriers:		
Intercity buses	1,020	
	146,734	
MOTOR VEHICLE FREIGHT TRANSPORTATION:		
Private use:		
Trucking:		
Intercity	11,331	
Local	16,266	
Commercial motor carriers:		
Trucking:		
Intercity	21,801	
Local	9,340	
	58,738	
Total private		$205,472
GOVERNMENT PROGRAMS:		
STATE AND LOCAL (note b)	19,867	
FEDERAL:		
Council on Environmental Quality	(c)	
Department of Agriculture:		
Forest Service:		
Forest roads and trails	111	
Department of Housing and Urban Development	(c)	
Department of the Interior:		
Bureau of Indian Affairs:		
Reservation roads and trails	63	
Bureau of Land Management:		
Public lands roads and trails	21	
National Park Service:		
Roads, trails, and parkways	35	
Department of Transportation:		
Federal Highway Administration:		
Financial assistance to State highway programs	4,328	
Highway and motor carrier safety	86	
Research and development on highway transportation	33	
Direct highway construction	30	
National Highway Traffic Safety Administration:		
Financial assistance to State safety programs	93	
Motor vehicle and traffic safety	64	
Highway safety research and development	26	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Department of the Treasury	(b)	
Energy Research and Development Administration	2	
Environmental Protection Administration	(c)	
Federal Energy Administration	(c)	
Interstate Commerce Commission	19	
National Transportation Safety Board	(c)	
Total Federal	4,893	
Total Government		24,760
TOTAL		$230,232

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Federal revenue-sharing funds are included in State and local government transportation program expenditures.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

APPENDIX I

1974 PIPELINE MODE EXPENDITURES

	Expenditures (000 omitted)	
PRIVATE EXPENDITURES (note a):		
Natural gas pipelines	$ 8,395	
Petroleum pipelines	1,920	
Total private		$10,315
GOVERNMENT PROGRAMS:		
STATE AND LOCAL	(b)	
FEDERAL:		
Council on Environmental Quality	(c)	
Department of the Interior:		
Bureau of Land Management:		
Alaska pipeline inspection	7	
Other pipeline land use authorization	4	
Energy Research and Development Administration:		
Research on coal liquefication and gasification	58	
Federal Power Commission:		
Economic regulation of natural gas pipelines	8	
Department of Transportation:		
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Natural gas pipeline safety grants	1	
Department of the Treasury	(b)	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
Interstate Commerce Commission	(c)	
National Transportation Safety Board	(c)	
Total Federal	86	
Total Government		86
TOTAL		$10,401

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Data not available. Some Federal revenue-sharing funds may be used for State and local government expenditures relating to pipeline transportation.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

1974 RAIL MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
RAIL PASSENGER TRANSPORTATION:		
AMTRAK (National Railroad Passenger Corporation)	$ 257	
Auto Train Corporation	27	
Other rail passenger service (note b)	56	
	340	
RAIL FREIGHT TRANSPORTATION:		
Freight	15,784	
Mail	93	
Express	4	
	15,881	
Total private		$16,221
GOVERNMENT PROGRAMS:		
STATE AND LOCAL	(b)	
FEDERAL:		
Department of Transportation:		
Federal Railroad Administration:		
Federal aid to AMTRAK	539	
Federal aid to Northeast-Midwest railroads	23	
Federal aid for natural disaster relief	24	
Research and development	38	
Safety	7	
Administration	3	
Alaska Railroad	2	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Council on Environmental Quality	(c)	
Department of the Treasury	(b)	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
National Transportation Safety Board	(c)	
Interstate Commerce Commission	19	
U.S. Railway Association	1	
Total Federal	664	
Total Government		664
TOTAL		$16,885

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Excludes expenditures for commuter railroads and rail rapid transit. Some Federal revenue-sharing funds may be used for State and local government expenditures relating to rail transportation.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

APPENDIX I

1974 TRANSIT MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
Commuter railroads	$ 200	
Rail rapid transit	498	
Streetcars	37	
Trolley coaches	19	
Motorbus transit	1,258	
Taxicabs	2,302	
Total private		$4,314
GOVERNMENT PROGRAMS:		
STATE AND LOCAL (note b)	837	
FEDERAL:		
Council on Environmental Quality	(c)	
Department of Housing and Urban Development	(c)	
Department of Transportation:		
Federal Highway Administration	(d)	
Federal Railroad Administration	(e)	
National Highway Traffic Safety Administration	(d)	
Urban Mass Transportation Administration:		
Urban Mass Transportation Fund:		
Urban Mass Transportation Act capital grants	870	
Federal-Aid Highway Act capital grants:		
Interstate transfer	61	
Urban substitution	35	
Technical studies grants	38	
Research, development, and demonstrations	67	
Training and university research	3	
Administration	7	
Federal contribution to Washington Metropolitan Area Transit Authority	170	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Department of the Treasury	(b)	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
Interstate Commerce Commission	(c)	
National Transportation Safety Board	(c)	
Total Federal	1,259	
Total Government		2,096
TOTAL		$6,410

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Federal revenue-sharing funds are included in State and local government transportation program expenditures.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

d/Expenditures not separable from highway mode-related agency expenditures.

e/Expenditures not separable from rail mode-related agency expenditures.

APPENDIX I

1974 WATER MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
WATER PASSENGER TRANSPORTATION:		
Private use:		
Recreational boating	$ 3,081	
Commercial water carriers:		
Domestic	19	
International	292	
	3,392	
WATER FREIGHT TRANSPORTATION:		
Private use:		
Commercial fishing transportation	205	
Commercial water carriers:		
Domestic	2,149	
International	4,426	
	6,780	
Total private		$10,172
GOVERNMENT PROGRAMS:		
STATE AND LOCAL (note b)	685	
FEDERAL:		
Council on Environmental Quality	(c)	
Department of Commerce:		
Maritime Administration:		
Ship construction subsidies	211	
Operating-differential subsidies	271	
Research and development	24	
Training for merchant marine	11	
National Oceanic and Atmospheric Administration:		
Nautical chart services	20	
Marine weather services	3	
Department of Defense:		
Civil functions:		
Corps of Engineers:		
Construction of navigation projects	229	
Operation and maintenance of navigation projects	314	
Research and development	2	
Panama Canal Company	(d)	
Military research and development:		
Ship technology research--potential civil use	32	
Department of State	(c)	
Department of Transportation:		
Coast Guard:		
Search and rescue operations	308	
Navigation aids	204	
Marine safety	65	
Marine environmental protection	62	
Ocean operations--research and law enforcement	142	
Other research and development	16	
Saint Lawrence Seaway Development Corporation	(d)	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Department of the Treasury	(b)	
Energy Research and Development Administration:		
Research on nuclear powered ships--potential civil use	11	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
Federal Maritime Commission	6	
Interstate Commerce Commission	(c)	
National Transportation Safety Board	(c)	
Tennessee Valley Authority:		
Construction and operation of navigation projects	3	
Total Federal	1,942	
Total Government		2,627
TOTAL		$12,799

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Federal revenue-sharing funds are included in State and local government transportation program expenditures.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

d/Financed through tolls charged for the use of navigation facilities.

APPENDIX II

FEDERAL AGENCIES WITH IMPORTANT ROLES IN THE U.S. TRANSPORTATION SYSTEM

Thirty-two Federal agencies have important roles in the U.S. transportation system. A description of each agency's role, the historical development of its role, fiscal year 1974 expenditures, and identification of transportation modes in which the agency has a role are presented below.

The following abbreviations are used in this appendix.

CAB	Civil Aeronautics Board
DOD	Department of Defense
EPA	Environmental Protection Agency
ERDA	Energy Research and Development Administration
FAA	Federal Aviation Administration
FEA	Federal Energy Administration
FHWA	Federal Highway Administration
FMC	Federal Maritime Commission
FPC	Federal Power Commission
FRA	Federal Railroad Administration
HUD	Department of Housing and Urban Development
ICAO	International Civil Aviation Organization
ICC	Interstate Commerce Commission
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act of 1969
NHTSA	National Highway Traffic Safety Administration
NOAA	National Oceanic and Atmospheric Administration
NTSB	National Transportation Safety Board
SLS	Saint Lawrence Seaway
TVA	Tennessee Valley Authority
UMTA	Urban Mass Transportation Administration
USRA	U.S. Railway Association

CIVIL AERONAUTICS BOARD

The Civil Aeronautics Board (CAB) is an independent regulatory agency with broad responsibilities for the promotion and economic regulation of the U.S. commercial air transportation industry. CAB's regulatory authority extends to all types of commercial air transportation except for a few air carriers that provide exclusively intra-State service.

Under present CAB regulations, commercial air carriers must file tariffs with CAB which set forth just and reasonable passenger and cargo rate tariffs. CAB controls minimum rates and regulates competition between air carriers. U.S.

carriers must obtain CAB's approval to develop new domestic and international air passenger or freight service, to discontinue existing air transportation service, and for financial reorganizations and mergers. In discharging its regulatory duties, CAB is specifically required to promote and encourage the development of the U.S. air transportation system.

In addition to its regulatory activities, CAB grants subsidies to certain local service or "feeder" air carriers that provide air transportation services to small communities and in Alaska. Subsidies are provided when the volume of traffic is insufficient to meet the costs of providing air service. In 1974 Federal financial expenditures for these subsidies amounted to $73 million.

CAB's responsibility to economically regulate commercial air transportation originated during the economic depression of the 1930s. The Air Mail Act of 1934 authorized limited Federal control over the airline industry. The basic structure of CAB's present economic regulatory authority was established by the Civil Aeronautics Act of 1938 and updated by the Federal Aviation Act of 1958.

CAB's subsidies to local service air carriers are part of a long tradition of Federal financial support and promotion for air transportation. The Air Mail Act of 1925 was an early attempt to promote commercial aviation by providing Federal contracts for transporting airmail. The Civil Aeronautics Act of 1938 specifically provided that airmail rates be used as means of subsidizing air transportation. This was changed by the Federal Aviation Act of 1958 which required subsidies to be separate from and unconnected with airmail rates.

In 1974 CAB expenditures amounted to $88 million, of which $15 million was for general administration and $73 million for subsidies.

COUNCIL ON ENVIRONMENTAL QUALITY

The Council on Environmental Quality is part of the Executive Office of the President. The Council was established in 1969 to develop national policies for improving the quality of the environment and to develop guidelines for the Federal Government's implementation of the National Environmental Policy Act of 1969 (NEPA). The resulting environmental impact assessment procedures have had a major impact on all modes of U.S. transportation. Under NEPA Federal agencies are required to prepare environmental impact

statements for any major public or private action that appreciably affects the environment. In effect NEPA requires detailed public consideration of environmental implications to be incorporated into the Federal Government's decisionmaking processes. Although the Council issues guidelines to Federal agencies for implementing NEPA and reviews agency environmental impact statements, the primary administrative burden for NEPA falls on the individual Federal agencies.

Air transportation

NEPA procedures have had a major impact on air transportation, particularly on the construction of new airports and expansion of airports in urban areas. In 1974 the Department of Transportation's Federal Aviation Administration issued 32 final environmental impact statements, which was the second highest number issued by a Department of Transportation agency.

In response to NEPA, the Civil Aeronautics Board now includes environmental issues within the scope of most of its regulatory proceedings. CAB has also ordered further proceedings in some regulatory cases begun before NEPA to develop evidence on environmental impacts.

Highway transportation

NEPA procedures have had a major impact on highway transportation, particularly in the area of new highway construction in urban areas. Since NEPA's enactment, the Department of Transportation's Federal Highway Administration (FHWA) has been the most active Federal agency in preparing environmental impact statements. In 1974 FHWA submitted 272 final impact statements, or about 21 percent of the statements received by the Council on Environmental Quality in 1974. The impact statement on extending interstate highway I-66 into Washington, D.C., is an example of the statements prepared by FHWA.

The Department of Transportation's National Highway Traffic Safety Administration (NHTSA) has not been a major source of environmental impact statements. In some cases NHTSA has complied with the requirements of the law by determining that its activities do not require filing an impact statement.

Pipeline transportation

NEPA procedures have had important effects on pipeline transportation, particularly on constructing new pipelines.

One of the most important initial applications of the NEPA procedures occurred in 1970 when a court decision required the Secretary of the Interior to prepare an environmental impact assessment for the proposed Alaska oil pipeline. Subsequent litigation over the resulting environmental impact statement ended in a court decision finding that the proposed pipeline would require a right-of-way greater than that allowed by law, and in 1973 the Congress enacted legislation overriding the NEPA procedures and directing the Secretary of the Interior to authorize construction of the pipeline.

The Federal Power Commission (FPC), which is responsible for economic regulation of natural gas pipelines, has been an active participant in preparing environmental impact assessments for pipelines. In 1974 FPC issued 13 final environmental impact statements for natural gas pipelines and liquid natural gas facilities. The Department of the Interior is also an active participant in preparing environmental impact assessments as part of its responsibilities for issuing right-of-way and other land use authorizations for constructing pipelines through the federally owned public lands.

In 1974 the Department of Transportation's Office of Pipeline Safety (now part of the Materials Transportation Bureau) reviewed 18 environmental impact statements prepared by other Federal agencies on the effects of existing or proposed oil or gas pipelines and was a joint participant with the Department of the Interior in preparing an environmental impact statement for proposed pipelines for transporting gas from the Alaskan North Slope and the Canadian Arctic to the United States.

Rail transportation

NEPA requirements for environmental impact assessments have had a limited effect on rail transportation because of the absence of new railroad construction projects. The U.S. Railway Association prepared an environmental impact assessment in support of its proposals for the Northeast-Midwest rail system. The Interstate Commerce Commission (ICC) now prepares environmental impact statements as part of its regulatory proceedings, affecting such cases as proposed freight rate increases on recyclable commodites. However, the Department of Transportation's Federal Railroad Administration did not issue any final impact statements in 1974.

Transit transportation

Direct effects of the NEPA requirements on transit transportation have been relatively limited. Public mass transportation is generally believed to be less damaging to environmental quality than the private automobile, and the number of large-scale transit construction projects is relatively small. However, the indirect effect of NEPA requirements has been to increase public support for urban public transportation as an environmentally superior competitor to automobile and highway transportation. In 1974 the Department of Transportation's Urban Mass Transportation Administration submitted three final environmental impact statements to the Council on Environmental Quality.

Water transportation

NEPA procedures have had important effects on water transportation, particularly in the areas of the Corps of Engineers' inland waterway construction and maintenance and harbor maintenance.

To meet NEPA requirements, the Corps of Engineers has modified its project planning activities to include preparing environmental impact statements and has modified its operating procedures in many instances to reduce environmental effects. The Corps is the second largest Federal agency in terms of environmental impact statement preparation, accounting for about 21 percent of all new impact statements filed with the Council on Environmental Quality.

In the Department of Transportation the U.S. Coast Guard issued 14 final environmental impact statements in 1974 on water projects and programs. The Department of Commerce's Maritime Administration issued environmental impact statements on such activities as the construction and operation of bulk chemical tank vessels constructed with Maritime Administration financial assistance. Finally, the Department of State prepares environmental impact statements on such international agreements as the Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter and the 1973 Convention on the Prevention of Pollution from Ships.

NEPA procedures have served as one of the primary bases for legal proceedings by environmental conservation groups

against Federal agencies, such as the Corps of Engineers. For example, legal injunctions have prevented the Corps from proceeding with work on several major projects, including the Cross-Florida Barge Canal project, dredging in San Francisco Bay, and maintenance dredging in inland waterways.

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Expenditures by the Council on Environmental Quality and by Federal agencies in carrying out NEPA requirements are difficult to identify. Consequently, no estimate was made of Council expenditures attributable to the U.S. transportation system. The cost incurred by Federal agencies to implement NEPA is not separately identified.

DEPARTMENT OF AGRICULTURE--FOREST SERVICE

The Forest Service of the U.S. Department of Agriculture constructs and maintains roads and trails in the national forests of the United States to protect and manage the national forests and to use their resources. Funds for this purpose are obtained partly from general tax revenues and partly from revenues received annually from national forest activities, such as the sale of timber. In 1974 Forest Service expenditures for this program amounted to $111 million.

The forest reserves were established by the President from the public domain under authority of the act of March 3, 1891, and were transferred from the Department of the Interior to the Department of Agriculture in 1905. Use of revenues from national forest activities for road building was authorized by the act of March 4, 1913.

DEPARTMENT OF COMMERCE--
MARITIME ADMINISTRATION

The Maritime Administration of the U.S. Department of Commerce administers Federal programs to aid in developing, promoting, and operating the U.S. merchant marine. In terms of financial expenditures, Maritime is the third largest Federal agency involved in water transportation. In 1974 Maritime accounted for $517 million, or 27 percent, of the $1.9 billion in Federal expenditures on water transportation.

Maritime administers two major Federal financial assistance programs--subsidies to the U.S. shipbuilding industry

and subsidies to the operators of U.S. flag merchant vessels. In addition Maritime conducts research and development and training programs in support of the merchant marine.

Maritime's ship construction-differential subsidy program pays the difference between the costs of constructing ships in U.S. and foreign shipyards. The objective of this program is to develop and maintain a U.S. shipbuilding industry which is adequate for the commercial and national security needs of the United States. In 1974 the construction-differential subsidy program cost $211 million.

Maritime's operating-differential subsidy program pays the difference between certain costs of operating ships under the U.S. flag and under the flags of foreign nations. The objective of this program is to develop and maintain a U.S. merchant fleet adequate to meet the Nation's commercial and security needs. In 1974 the operating-differential subsidy program cost $271 million.

Maritime's research and development program includes research on advanced ship development and construction technologies and systems and on advanced systems and procedures for ship operations. Maritime training programs include the U.S. Merchant Marine Academy at Kings Point, New York, and financial assistance to State maritime colleges and academies. In 1974 Maritime expenditures for research and development and for maritime training amounted to $24 million and $11 million, respectively.

Maritime programs follow a long history of Federal involvement in the U.S. merchant marine industry aimed at achieving national security and economic objectives. During World War I the Congress enacted the Shipping Act of 1916 which established a federally financed merchant ship construction program primarily for national defense purposes. During the economic depression of the mid-1930s, the Merchant Marine Act of 1936 expanded the Federal role to include economic assistance to the merchant marine. The present Maritime programs grew out of programs established by the Merchant Marine Act of 1936.

The Merchant Marine Act of 1970 was enacted by the Congress in response to the continued deterioration of the U.S. merchant marine. The 1970 act considerably modified Maritime's programs to encourage increased productivity and efficiency.

DEPARTMENT OF COMMERCE--NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

The National Oceanic and Atmospheric Administration of the Department of Commerce (NOAA) administers a wide range of Federal scientific and technical programs relating to the ocean and to the atmospheric environment. NOAA is a successor agency to the Department of Commerce's Coast and Geodetic Survey and U.S. Weather Bureau. These agencies were combined in 1965 and were made an administration of the Department of Commerce by Reorganization Plan 4 of 1970.

Air transportation

NOAA is responsible for preparing aeronautical charts that describe the Federal airways, navigation facilities, airports, landing patterns, operating procedures, and air traffic rules and regulations. In 1974 NOAA expenditures for this service amounted to $3 million.

NOAA also provides the aviation community with specialized weather services, weather observations, forecasts, warnings, and advisories. In 1974 expenditures for this service amounted to $18 million.

Federal involvement in aeronautical charting and aviation weather services began with the passage of the Air Commerce Act of 1926.

Water transportation

NOAA is responsible for preparing nautical charts used in the navigation of U.S. coastal waters and the Great Lakes. This program includes conducting hydrographic surveys to provide basic data for nautical chart constuction, as well as actually compiling, reproducing, and distributing charts. In 1974 expenditures for this program amounted to $20 million.

NOAA is also responsible for providing specialized marine weather prediction services. This program provides forecasts, warnings, and other advisory information on marine weather ocean and marine ice conditions and seismic sea waves (tsunami). This program also includes research on marine weather prediction. In 1974 NOAA expenditures for the marine weather program amounted to $3 million.

Nautical chart preparation is one of the oldest areas of Federal involvement in water transportation, dating back

to legislation enacted by the Congress in 1807 to survey the U.S. coast. This legislation led to establishing the Coast Survey, which later became the Coast and Geodetic Survey. Federal involvement in Marine weather services began with a joint congressional resolution in 1870, creating a national weather service in the Signal Service of the Army. This service subsequently became the U.S. Weather Bureau.

DEPARTMENT OF DEFENSE--U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers is responsible for administering Federal water resource development programs. As part of its activities, the Corps constructs, operates, and maintains navigation improvement projects in U.S. harbors and inland waterways. In terms of expenditures, only the U.S. Coast Guard expends more than the Corps on water transportation. In 1974 Corps expenditures for navigation improvement projects amounted to $545 million, or 29 percent, of the $1.9 billion in Federal expenditures on water transportation.

Corps navigation improvement projects may be divided into three main categories according to the use of the improved waterway or harbor. Inland waterway projects include improving natural rivers for navigation by dredging open channels and by constructing locks, dams, and canals.

Deep-draft harbor and channel projects include improving natural harbors and channels and constructing new harbors and channels on the sea, the Gulf coasts, and the Great Lakes to meet the requirements of ocean-going shipping.

Small-boat harbor and channel projects include improving natural small-boat harbors and channels and constructing new harbors and channels for commercial and sport fishing, general recreational boating, and for use as harbors of refuge.

Most Corps expenditures on navigation improvements involve preserving, operating, and maintaining existing navigation channels, harbors, locks, dams, and canals. In 1974 Corps expenditures for operating and maintaining navigation projects amounted to $314 million, compared with $229 million for constructing new navigation improvements.

Federal involvement in water navigation projects has a lengthy history. The Corps' civil works responsibilities were initially established by an act of Congress in 1824, appropriating $75,000 for improving navigation over sandbars in

the Ohio River and for removing snags from the Ohio and Mississippi Rivers. More recently, Federal involvement in navigation improvements was broadened to include recreational boating by the Fletcher Act of 1932.

Over the years Congress has expanded the Corps' responsibilities but has maintained a close control over the Corps' navigation improvement projects. Typically, the Corps' navigation projects begin with congressional legislation authorizing survey investigations and other feasibility studies. On the basis of these studies, the Corps recommends projects to the Congress for implementation. In general navigation improvement projects must be approved specifically by law before they can be implemented by the Corps. Such approvals are usually contained in the periodic River and Harbor and Flood Control Acts.

Corps navigation improvement projects have been affected by congressional legislation on environmental quality and environmental protection, including the National Environmental Policy Act of 1969 (NEPA), the Federal Water Pollution Control Act Amendments of 1972, and the Marine Protection, Research and Sanctuaries Act of 1972. NEPA has influenced Corps operating procedures and has served as the basis for litigation that has delayed several major Corps projects. The 1972 acts established Federal regulations for dumping waste materials in inland and ocean waters. These regulations have had an important effect on Corps' dredging operations conducted with the Corps' construction and maintenance of navigation improvement projects.

DEPARTMENT OF DEFENSE--PANAMA CANAL COMPANY

The Panama Canal Company is a wholly owned Government corporation whose primary purpose is maintaining and operating the interoceanic canal at the Isthmus of Panama. The administration of the Company is integrated with that of the Canal Zone Government, an independent Federal agency which provides civil government services to the Canal Zone. The Governor of the Canal Zone, appointed by the Secretary of the Army, is ex-officio President of the Company.

The Panama Canal gives ocean vessels direct access between the Atlantic and Pacific Oceans, without the necessity for traveling around the South American continent. The Company is self-sustaining and is financed through tolls charged for using its facilities. The Company estimates that its 1976 revenues from operating the Canal will amount to $188 million.

Federal involvement in the Panama Canal began with the 1901 Hay-Pauncefote Treaty with Great Britain, which provided for U.S. construction and operation of a canal across the Isthmus of Panama. In 1902 Congress enacted the Spooner Act which authorized the President to proceed with development of the canal and in 1903 the United States made a treaty with the newly formed Republic of Panama for this purpose. Congressional legislation in 1950 established the present organizational structure of the Company and the Canal Zone Government.

Because the Company is financed through revenues from toll charges on canal users, the Federal Government does not make direct financial expenditures for operation of the canal, and none are included in the estimates of Federal agency expenditures presented in this report.

DEPARTMENT OF DEFENSE-- MILITARY RESEARCH AND DEVELOPMENT

Air transportation

The Department of Defense (DOD) is the primary source of Federal funding for aeronautical research and development. DOD's aeronautical research and development activities are intended to carry out military objectives for national defense. Some DOD research activities provide benefits for civilian air transportation. A joint study by the Department of Transportation and the National Aeronautics

and Space Administration has estimated that 20 percent of DOD expenditures for aeronautical research and development have potential civilian application. In 1974 this percentage of the total DOD aeronautical research and development budget amounted to $332 million. This amount was used as the estimate of DOD aeronautical research and development expenditures allocable to civilian air transportation.

Federal support for aeronautical research and development has been traditionally closely related to national defense objectives. Establishing the National Advisory Committee for Aeronautics in 1915 was encouraged primarily by concern for military preparedness. Military support for aeronautical research and development during World War II and after has been a major factor in developing the U.S. civilian air transportation system.

Water transportation

DOD is also a major source of Federal funding for research and development on ship technology. DOD ship technology research and development activities are intended to carry out military objectives for national defense. Some DOD activities provide benefits for civilian water transportation. The Commission on Amercian Shipbuilding has estimated that 5 to 10 percent of military expenditures for naval ship technology research and development have potential application to maritime shipbuilding. In 1974, 5 percent of DOD ship technology research and development expenditures amounted to $32 million (compared with $24 million in research and development expenditures by the Maritime Administration). This amount was used as the estimate of DOD expenditures allocable to civilian water transportation.

Federal support for ship technology research and development has been traditionally oriented toward national defense objectives, increasing during World Wars I and II. Unlike military aeronautical research, ship technology research and development results have not carried over extensively to civilian use. However, DOD expenditures represent a major share of Federal funding for research and development for ship technology.

APPENDIX II

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

The Department of Housing and Urban Development (HUD) is responsible for administering Federal programs to provide assistance for housing and for developing the Nation's communities and metropolitan areas. These responsibilities involve HUD in activities directly relating to air, highway, transit, and water transportation.

Under the provisions of the Housing and Urban Development Act of 1954, HUD administers a program of financial and technical assistance to State and local public agencies for comprehensive community planning. HUD guidelines and standards have had a major influence on the urban planning process and have shaped the goals and objectives of metropolitan development plans throughout the United States. As a result, HUD has played an important part in planning the environment in which urban highway transportation and public mass transportation operate and compete and in which urban airports are located.

Since 1972 HUD has participated jointly with the Federal Aviation Administration, the Federal Highway Administration, and the Urban Mass Transportation Administration in integrating and coordinating Federal involvement in community and transportation planning at the metropolitan level.

Pursuant to the Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970, HUD assists persons displaced by federally funded airport, highway, and water projects.

HUD also works jointly with the Department of Transportation in research on urban transportation. Current joint research projects include a study of transit terminal integration with the urban community, and the BART Impact Study to evaluate the impact of the Bay Area Rapid Transit System on the San Francisco area.

Expenditures for HUD transportation-related activities are difficult to separate from total HUD expenditures and are not included in the estimates of Federal agency expenditures presented in this report.

DEPARTMENT OF THE INTERIOR-- BUREAU OF INDIAN AFFAIRS

The Bureau of Indian Affairs of the Department of the Interior constructs and maintains roads for the movement of people and goods on Indian reservations. The objective of the program is to stimulate Indian reservation economies through the development and use of tribal resources and to help Indian people participate fully in the economic life of the community. In 1974 Bureau of Indian Affairs expenditures for this program amounted to $63 million.

The Bureau of Indian Affairs was created within the War Department in 1824 and transferred to the Department of the Interior in 1849. Authorizing legislation for Bureau of of Indian Affairs activities was provided by the Snyder Act of 1921 and broadened by the Indian Reorganization Act of 1934.

DEPARTMENT OF THE INTERIOR-- BUREAU OF LAND MANAGEMENT

The Bureau of Land Management is responsible for managing 450 million acres of federally owned public lands in the far West and Alaska. The Bureau was created in 1946 by Reorganization Plan No. 3 of 1946, and it consolidated the General Land Office (created in 1812) and the Grazing Service (formed in 1934).

Highway transportation

The Bureau of Land Management constructs and maintains roads and trails on the public lands in order to facilitate developing, protecting, administering, and using lands and resources. In 1974 Bureau of Land Management expenditures for these activities amounted to $21 million.

Funds for Bureau of Land Management road construction and maintenance activities are obtained partly from general tax revenues and partly from revenues received annually from the sale of timber and other products from the revested Oregon and California railroad grant lands.

Pipeline transportation

The Bureau also issues right-of-way and other land use authorizations for constructing pipelines and highways through public lands. As part of this work the Bureau reviews applications for land use leases and permits and

checks construction projects for compliance. Authorizations for oil and natural gas pipelines are of particular importance. In 1974 Bureau expenditures relating to right-of-way and other land use authorizations for oil and natural gas pipelines amounted to approximately $11 million, of which $7 million is for the Bureau's work on the Trans-Alaska Pipeline. Most of these expenditures are recovered through user charges.

Bureau expenditures for land use authorizations for highway transportation are difficult to separate from other Bureau expenditures and are not included in the estimates of Federal agency expenditures presented in this report.

DEPARTMENT OF THE INTERIOR--
NATIONAL PARK SERVICE

The National Park Service of the Department of the Interior constructs and maintains park roads, trails, and parkways as part of its responsibilities for administering the National Park System. In 1974 National Park Service expenditures for these activities amounted to $35 million.

The National Park Service was established in the Department of the Interior on August 25, 1916, to administer the National Park System of national parks, monuments, historic sites, and recreation areas.

DEPARTMENT OF STATE

The Department of State is responsible for conducting the foreign affairs of the United State. As part of its activities, the State Department negotiates international agreements and treaties with foreign governments. Some agreements and treaties have important effects on international air and water transportation.

Air transportation

The Department finances the U.S. contribution to the International Civil Aviation Organization (ICAO) which sets standards for international air operations and provides international air navigation services. In 1974 the United States contributed $5 million to ICAO.

The United States began participating in international air transportation conventions and agreements in 1929 with the Warsaw Convention (Unification of Certain Rules Relating

to International Carriage by Air, October 1929). The United States was the original sponsor of the conference on international civil aviation on November 1, 1944, which produced the Chicago Agreement (the Convention on International Civil Aviation). The Chicago Agreement led to the foundation of ICAO. The United States signed the Chicago Agreement on August 9, 1946.

Water transportation

One recent international agreement of particular importance to water transportation is the Maritime Agreement of October 14, 1972, between the United States and the U.S.S.R. This agreement provides U.S. flag merchant vessels with access to at least one-third of all waterborne cargo shipments between the two countries. The Department of State has also negotiated international agreements on marine environmental quality, such as the Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter and the 1973 Convention on the Prevention of Pollution from Ships.

Federal expenditures for these activities are difficult to separate from other Department of State expenditures and are not included in this report.

DEPARTMENT OF TRANSPORTATION--
OFFICE OF THE SECRETARY

The Department of Transportation consists of seven operating administrations (such as the Federal Highway Administration and the U.S. Coast Guard) and a separate Office of the Secretary. Each of the operating administrations is headed by an Administrator who reports directly to the Secretary of Transportation. The Office of the Secretary includes the General Counsel and five Assistant Secretaries of Transportation. The Assistant Secretaries of Transportation serve as staff advisers to the Secretary and do not exercise line authority over the operating administrations.

The Secretary of Transportation is responsible for leading the Federal Government in formulating, executing, and coordinating national transportation objectives, policies, and programs. As head of the Department of Transportation the Secretary is formally responsible for the policies and programs of the seven operating administrations. The Office of the Secretary carries out a wide range of policy formulation, planning, and research and development activities. These include analyzing U.S. transportation needs and prospects and

evaluating Federal transportation policies, programs, and budgets.

The Office of the Secretary also administers certain functions for transporting hazardous materials and pipeline safety. These functions were recently consolidated in the Materials Transportation Bureau of the Office of the Secretary.

Pursuant to the Hazardous Materials Transportation Act of 1974, the Materials Transportation Bureau is responsible for establishing standards for the safe transport of hazardous materials and for enforcing the industry's compliance with the standards.

The Materials Transportation Bureau also prescribes and enforces Federal safety regulations for safe pipeline transportation of gases or hazardous liquids. Pipeline safety regulatory programs include designing, constructing, testing, operating, and maintaining pipelines. Most of these programs are directed to natural gas pipeline safety, but increasing emphasis is being placed on pipelines used to transport liquefied natural gas, crude oil, and petroleum products.

In regulating natural gas pipeline safety, the Materials Transportation Bureau makes grants to States for use in State gas pipeline safety programs. The Bureau also administers a program of research and development for pipeline safety and technology.

Federal involvement in natural gas pipeline safety is of recent origin, beginning with the passage of the Natural Gas Pipeline Safety Act of 1968. Federal responsibilities for liquid pipelines originated in a 1965 amendment to the Transportation of Explosives Act. More recently, Federal responsibilities have been expanded by the Hazardous Materials Transportation Act of 1974, the Deep Water Port Act of 1974, and the 1973 Amendments to the Mineral Leasing Act.

The Department of Transportation budget does not allocate operating expenses for the Office of the Secretary between the seven operating administrations. For cost allocation purposes, the Office's 1974 expenditures ($48 million) were assumed to be divided equally between the six transportation modes, or $8 million for each mode. Federal grants to State natural gas pipeline safety programs accounted for an additional $1 million in expenditures by the Office of the Secretary in 1974 and were allocated to pipeline transportation.

DEPARTMENT OF TRANSPORTATION--
U.S. COAST GUARD

The U.S. Coast Guard administers a wide range of Federal programs for water transportation, including search and rescue operations, aids to navigation, marine safety, marine environmental protection, scientific research, and offshore law enforcement. The Coast Guard also has certain military preparedness functions because of its potential transfer to the Department of the Navy in wartime, which are not discussed here.

In terms of expenditures, the Coast Guard has the largest Federal role in water transportation. Its expenditures in 1974 ($0.8 billion) represented 42 percent of the total Federal expenditures ($1.9 billion).

The Coast Guard's search and rescue operations are carried out by multipurpose vessels, aircraft, and shore units located on U.S. coasts and inland waterways. These operations include a variety of activities whose objective is to rescue and aid persons and to save property placed in jeopardy because of marine and aircraft accidents, floods, and ice conditions. In financial terms search and rescue operations comprise the largest Coast Guard program, accounting for $308 million, or 39 percent of Coast Guard expenditures in 1974.

Coast Guard aids to navigation include lighthouses, floating buoys, and a variety of electronic radio-navigational communications equipment along the U.S. coast and on the inland waterways. The Coast Guard also monitors the construction, maintenance, and operation of bridges across navigable waters to insure the safe passage of navigation. In financial terms this is the second largest Coast Guard program, accounting for $204 million, or 26 percent of Coast Guard expenditures in 1974.

The Coast Guard's marine safety program includes enforcing Federal safety regulations for the merchant marine industry and recreational boating. The Coast Guard reviews plans for constructing and altering merchant vessels and makes grants to States for boating safety programs, safety patrols, classroom courses in boating safety, and voluntary boat inspections. In 1974 program expenditures amounted to $65 million.

The Coast Guard's marine environmental protection program includes enforcing Federal laws and regulations for marine environmental pollution and port and waterway safety. Pollution patrols are conducted to identify sources of water pollution and oil spills. The Coast Guard also polices harbors, inspects hazardous cargoes, and inspects marine vessels for compliance with port and waterway safety regulations. In 1974 program expenditures amounted to $62 million.

The Coast Guard's scientific research and offshore law enforcement activities include upper air meteorological observations, polar ice-breaking and oceanographic activities, and fishery laws and agreements. In 1974 program expenditures amounted to $142 million.

Research and development activities accounted for an additional $16 million of expenditures in 1974.

Coast Guard programs represent one of the oldest areas of Federal involvement in transportation. The search and rescue activities originated with the Lifesaving Service founded in 1874. The aids-to-navigation program originated with the Lighthouse Service established in 1789. The marine safety and marine environmental protection programs can be traced to the Steamboat Inspection Service begun in 1838. Offshore law enforcement began with the establishment of the Revenue Cutter Service in 1790. Over the years these programs have gradually been consolidated into the present Coast Guard program structure.

More recently, the Port and Waterways Safety Act of 1972 expanded Coast Guard responsibilities for regulating vessel traffic in ports and harbors and for setting standards for commercial vessel safety. The Federal Boat Safety Act of 1971 added new responsibilities for boating safety and authorized Federal grants to State boating safety programs. The Federal Water Pollution Control Act Amendments of 1972 expanded Coast Guard regulatory and inspection responsibilities in marine environmental pollution. The Marine Protection, Research and Sanctuaries Act of 1972 also increased Coast Guard pollution monitoring responsibilities by regulating ocean dumping of wastes.

DEPARTMENT OF TRANSPORTATION--
FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Administration (FAA) administers several Federal programs involving air transportation, including regulating and promoting aviation safety, operating and maintaining the national air traffic control and navigation system, financial assistance to localities for airport planning and construction, research and development, and Federal standards for aircraft and airport noise.

FAA's aviation safety activities extend to all areas of civilian air transportation. FAA (1) enforces safety standards for aircraft pilots and crews, aircraft, airports, and airway and ground operations and (2) administers medical standards for aircraft pilots, crews, and air traffic control personnel.

In terms of expenditures operating and maintaining the national air traffic control and navigation system is the largest FAA program. FAA monitors and controls enroute flights of civilian and military aircraft; guides air traffic movements in and out of 423 major airports; and transmits weather, navigation, and traffic information to aircraft. FAA also procures and maintains the facilities and equipment used for air traffic control and navigation. In 1974 these activities accounted for $1.3 billion, or two-thirds of FAA's expenditures. Part of this cost is financed by the Airport and Airway Trust Fund, using revenue derived from the aviation ticket tax and other taxes paid by airport and airway users.

FAA also makes grants to localities for airport planning and construction. This program is financed by the Airport and Airway Trust Fund and is the second largest FAA activity in terms of expenditures--$266 million in 1974.

FAA's research and development activities are primarily for air traffic control, navigation techniques and landing systems, and aviation safety. Most of this work is financed through the Airport and Airway Trust Fund. Other research is being done on weather information, aviation medicine, and the environmental effects of air transportation.

FAA administers Federal standards for aircraft and airport noise jointly with the Environmental Protection Agency. Current regulations establish noise standards for turbojets

and transport aircraft and prohibit supersonic flights of civilian aircraft. Additional standards including modification of older aircraft, emission levels for new aircraft, and standards for aircraft and airport operations are currently being developed.

FAA's program responsibilities developed over a long history of extensive Federal involvement in air transportation. Limited Federal control over aviation safety was authorized by the Air Commerce Act of 1926. Federal contributions became a major source of funding for airports during the economic depression of the mid-1930s, initially with funds from the Civil Works Administration and Federal Emergency Relief Administration. The basic structure of FAA's current responsibilities for regulating and promoting civil aviation was defined by the Federal Aviation Act of 1958, which established the Federal Aviation Agency. The Department of Transportation Act of 1966 made the Federal Aviation Agency an operating administration within the new Department of Transportation.

The Airport and Airway Development Act of 1970 established the Airport and Airway Trust Fund--financed by taxes paid by airport and airway users--through which Federal grants for airport planning and construction and part of the cost of the national air traffic control and navigation system are financed. FAA's role in noise regulation was authorized by the Federal Aviation Act of 1968 and was expanded by the Noise Control Act of 1972.

DEPARTMENT OF TRANSPORTATION--FEDERAL HIGHWAY ADMINISTRATION

The Federal Highway Adminstration (FHWA) is responsible for administering a wide range of Federal programs for highway construction and highway safety. FHWA activities directly affect highway transportation and components of transit transporation which operate on highways, such as motorbuses, trolley coaches (electric buses), and taxicabs. FHWA programs also indirectly affect transit transportation by facilitating the use of the private passenger automobile, which is public transit's chief economic competitor.

Highway transportation

The most important FHWA program is the Federal-aid highway program of financial and technical assistance to

State governments for constructing and improving highways. In 1974 program expenditures amounted to $4.3 billion.

FHWA provides financial and technical assistance to State and local governments for highway-related safety programs. This program is administered jointly with the Department of Transportation's National Highway Traffic Safety Administration. FHWA is also responsible for administering Federal safety standards for operating and equipping commercial motor carriers and for highway movement of hazardous cargoes.

FHWA plays a major role in urban transportation planning. One-half of 1 percent of all Federal-aid funds apportioned to the States for Federal-aid highway systems is earmarked for comprehensive transportation planning by metropolitan planning agencies.

Other FHWA activities include an extensive program of research and development for highway transportation and direct construction of certain highway facilities located on federally owned public lands.

Federal involvement in State highway construction has a lengthy history beginning with the establishment of the Office of Public Road Inquiries, pursuant to the Agricultural Appropriation Act of 1894 to investigate the need for constructing post roads. The present form and size of the Federal-aid highway program dates primarily from the Federal-Aid Highway Act of 1956. This act established the Highway Trust Fund concept in which Federal aid to State highway construction is financed through special taxes on highway users, such as the Federal motor fuel tax. In 1973 the Federal aid program was amended to authorize limited use of the fund for urban mass transit.

The commercial motor carrier safety programs were transferred to the FHWA from the Interstate Commerce Commission when the Department of Transportation was established in 1966. These programs were originally established under the motor carrier regulatory provisions of part II of the Interstate Commerce Act, enacted in 1935. FHWA's role in highway safety programs was authorized by the Highway Safety Acts of 1966 and 1970 and is shared with the National Highway Traffic Safety Administration.

Transit transportation

The Federal-Aid Highway Act of 1973 modified the highway program to permit limited use of the Highway Trust Fund for urban public mass transportation purposes. Under the act States may elect to substitute mass transit projects for certain highway projects that otherwise would be financed by the fund.

Transit projects may be substituted for sections of the Interstate Highway System in urbanized areas and for highway projects funded under the Federal-Aid Urban Highway System authorization. Primary responsibility for this program is assigned to the Urban Mass Transportation Administration. In 1974 Federal expenditures for mass transit projects funded from the Highway Trust Fund amounted to $96 million.

DEPARTMENT OF TRANSPORTATION--FEDERAL RAILROAD ADMINISTRATION

The Federal Railroad Administration (FRA) was established by the Department of Transportation Act of 1966 to consolidate Federal programs involving rail transportation in a single agency. FRA programs are primarily directed toward rail transportation, but FRA safety and research programs also affect railroad components of transit transportation such as commuter railroads, rail rapid transit, and streetcars.

FRA programs include financial assistance to the National Railroad Passenger Corporation (AMTRAK), financial assistance to the Northeast and Midwest railroads under the Regional Rail Reorganization Act of 1973, railroad safety regulation and financial assistance to State railroad safety programs, research and development in rail transportation, and operation of the Alaska railroad.

In 1970 the Congress enacted the Rail Passenger Service Act of 1970, creating AMTRAK as a private, for-profit corporation to operate and revitalize intercity rail passenger service in the United States. The act provided for Federal financial assistance to AMTRAK, which is administered by FRA.

Federal assistance to AMTRAK has been made in grants to offset operating deficits and in 100-percent loan guarantees for capital improvements. It appears doubtful that the loans which have been guaranteed under this program can be repaid from AMTRAK's operating revenues, and the loan program is

likely to be replaced by direct Federal grants for capital improvements. In 1974 total Federal financial assistance to AMTRAK including capital loan guarantees amounted to $539 million. The Congress demonstrated continuing support for the AMTRAK financial assistance program by passing the AMTRAK Improvement Act of 1974, providing additional Federal funding for AMTRAK.

FRA also administers Federal financial assistance programs for the Northeast and Midwest railroads which were authorized by the Regional Rail Reorganization Act of 1973. These programs are intended to support the reorganization of railroad service in the Northeast and Midwest region of the United States. Several programs are administered jointly with the U.S. Railway Association--a nonprofit Government corporation established by the Regional Rail Reorganization Act for the purpose of preparing and implementing a system plan to restructure rail service in the Northeast and Midwest.

Financial assistance programs authorized by this legislation include long-term federally guaranteed loans to finance the system reorganization, grants to bankrupt railroads to assist in continuing rail service and to rehabilitate their physical plants, and grants to State and local transportion authorities to help subsidize the operating costs of uneconomic branch lines that would otherwise be abandoned by the reorganized rail system. Most of these programs have not been implemented pending congressional approval of the U.S. Railway Association plan for the restructured regional rail system. This is currently an area of political controversy, and it is likely that the structure and scope of Federal financial assistance will undergo considerable modification by the Congress.

One important FRA responsibility is administering Federal railroad safety regulations. FRA sets Federal standards for all areas of railroad safety including railroad equipment, track maintenance and inspection, operating practices, accident reporting, and transportation of hazardous materials. In addition FRA administers a small ($1.5 million in 1974) grant program to pay salaries of safety inspectors employed by State rail safety programs.

FRA conducts an extensive research and development program in rail transportation. Current projects include

research on railroad vehicles and track technology and tunneling and propulsion research. FRA operates the High Speed Ground Test Center in Pueblo, Colorado, which is used by both FRA and the Urban Mass Transportation Administration for rail technology research. In 1974 FRA expenditures for research and development amounted to $38 million.

FRA is also responsible for operating the Alaska Railroad, which provides rail passenger and freight services in the State of Alaska. To the extent possible, Alaska Railroad operations are financed by revenues.

Although the Federal Government played an important role in providing rights-of-way to rail transportation during the 19th century, the current Federal role of providing financial assistance to rail transportation is of recent origin. In 1958 the Congress passed the Transportation Act of 1958 providing a limited program of loan guarantees for the railroads to finance capital investments and maintenance. This program, administered by the Interstate Commerce Commission, was a response to congressional concern over the post-World War II economic decline of the railroad industry.

The Federal role in railroad safety has a long history, beginning with legislation such as the Safety Appliance Act of 1893. In 1967 responsibility for all Federal rail safety programs was transferred to FRA from the Interstate Commerce Commission. These responsibilities were consolidated and expanded by the Railroad Safety Act of 1970 to include comprehensive safety regulation authority and financial assistance to State railroad safety programs.

Before the Railroad Safety Act of 1970, FRA rail safety activities were limited to railroads subject to Interstate Commerce Commission economic regulation and did not include any transit transportation components except commuter railroads. The 1970 act extended FRA's rail safety jurisdiction to include all types of rail transportation and is the basis for current FRA safety work in urban rail transit.

The Federal role in railroad research and development is of recent origin, dating from the High Speed Ground Transportation Act of 1965. The Washington-New York Metroliner demonstration train was an early project.

The Alaska Railroad was authorized by the act of March 12, 1914. Responsibility for operating the Alaska

Railroad was transferred from the Department of the Interior to FRA pursuant to the Department of Transportation Act of 1966.

Although some FRA expenditures are applicable to transit transportation, they are difficult to identify. Thus all FRA expenditures were allocated to rail transportation.

DEPARTMENT OF TRANSPORTATION--
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

The programs of the National Highway Traffic Safety Administration (NHTSA) affect highway transportation and motor vehicle components of transit transportation, such as buses and taxis.

NHTSA is responsible for developing and enforcing Federal Motor Vehicle Safety Standards for new and used motor vehicles, tires, and equipment. In cooperation with the Federal Highway Administration, NHTSA also makes grants to State and local governments to establish and improve highway safety programs.

Other NHTSA programs include providing program guidance to State and local government programs in highway safety and an extensive program of research in motor vehicle and highway safety.

These motor vehicle and traffic safety programs were originally established in the Department of Commerce by the National Highway Safety Act of 1966 and by the National Traffic and Motor Vehicle Safety Act of 1966. The programs were transferred to the Federal Highway Administration and in 1970 were assigned to NHTSA, which was established as an operating administration of the Department of Transportation by the Highway Safety Act of 1970.

In 1974 NHTSA expenditures totaled $157 million. Because NHTSA expenditures for transit transportation were difficult to identify, all NHTSA expenditures were allocated to highway transportation.

DEPARTMENT OF TRANSPORTATION--
SAINT LAWRENCE SEAWAY DEVELOPMENT CORPORATION

The Saint Lawrence Seaway Development Corporation (SLS) is a wholly Government-owned corporation responsible for developing, operating, and maintaining that part of the

Saint Lawrence Seaway within the territorial limits of the United States. SLS operations are financed through revenues received from toll charges.

The Saint Lawrence Seaway gives ocean vessels direct access to the Great Lakes through the Saint Lawrence River. SLS manages the U.S. section of the seaway, which includes 110 miles of the Saint Lawrence River and the Eisenhower and Snell locks.

SLS estimates that its 1976 revenues from tolls and other charges will amount to $7.1 million, of which $4.8 million will be required for operating expenses, $1.3 million for capital investments, and $1 million for the scheduled redemption of revenue bonds issued to the U.S. Treasury and originally used to construct the seaway.

U.S. participation with Canada in the joint development of the Saint Lawrence Seaway was considered as early as 1909. The SLS was established in 1954 by Public Law 358, 83d Congress, to construct and operate the seaway; construction of the seaway was completed in 1959. Funds for constructing the seaway were borrowed from the U.S. Treasury in interest-bearing revenue bonds. Revenues from toll charges later proved inadequate to cover interest payments, and the Merchant Marine Act of 1970 forgave $23 million in deferred interest payments and eliminated all future interest payments.

In recent years the Federal Government has not incurred any seaway expense. However, the Federal Government's equity in SLS currently amounts to $108 million. SLS pays no interest on this investment, which, in effect, amounts to a Federal subsidy.

DEPARTMENT OF TRANSPORTATION--URBAN MASS TRANSPORTATION ADMINISTRATION

The Urban Mass Transportation Administration (UMTA) has broad responsibilities for assisting the development and improvement of urban public mass transportation systems. These responsibilities include providing financial assistance to State and local governments for developing and operating mass transit systems, technical studies, training managers and professionals in the field of urban public transportation, and conducting research and development on urban transportation problems.

UMTA provides capital facilities grants to State and local public agencies to assist in financing the acquisition, construction, reconstruction, and improvement of physical facilities for mass transportation service in urban areas. This program was authorized by section 3 of the Urban Mass Transportation Act of 1964, as amended. In 1974 section 3 expenditures amounted to $870 million.

Another capital grants program, financed under provisions of the Federal-Aid Highway Act of 1973, allows States to substitute mass transit projects for certain highway projects that otherwise would be financed by the Federal-aid highway program. Transit projects may be substituted for sections of the Interstate Highway System in urbanized areas and for highway projects funded under the Federal-aid urban highway system authorization.

In 1974 grant expenditures under the transit substitution provisions of the Federal-Aid Highway Act of 1973 amounted to $96 million.

UMTA also makes operating assistance grants. This program was authorized by section 5 of the Urban Mass Transportation Act, as amended by the National Mass Transportation Assistance Act of 1974. Section 5 grants are for operating costs of maintaining and improving public transportation, as well as for the capital costs acquiring, constructing, and improving mass transit facilities and equipment. The grants are awarded to urbanized areas on a statutory formula apportionment basis. The 1974 amendment authorized $4 billion for section 5 grants for 6 years. The first grant was awarded in June 1975.

Under section 9 of the Urban Mass Transportation Assistance Act, UMTA provides financial assistance to State and local public agencies for technical studies of mass transportation operations, management, capital requirements, and economic feasibility. These studies are made to prepare for constructing, acquiring, or improving operation of mass transportation facilities, equipment, and services. In 1974 expenditures for technical studies grants amounted to $38 million.

UMTA's research and development program is carried out pursuant to section 6 of the Urban Mass Transportation Act. This program involves developing, testing, and demonstrating new facilities, equipment, techniques

(operational and managerial), and methods in the field of urban public mass transportation. Projects include studies of conventional rail and bus transit technology, automated personal rapid transit, and other types of new transit technology. In 1974 research and development expenditures amounted to $67 million.

Under section 10 of the Urban Mass Transportation Act, UMTA makes grants to public bodies to train managers. Under section 11 of the act, grants are made to universities for educational and research programs which provide professional training in urban transportation. In 1974 section 10 and 11 grants totaled $3 million.

The Federal Government transfers, through UMTA, financial contributions for the Washington subway system to the Washington Metropolitan Area Transit Authority. However, UMTA exercises no control over the Authority. In 1974 the Federal contribution to the Authority amounted to $170 million.

The Federal role in urban public mass transportation is of recent origin. It began in response to public concern over the post-World War II economic decline of the urban public mass transportation industry with the authorization of mass transportation demonstration projects by the Housing Act of 1961. The Urban Mass Transportation Act of 1964 continued the demonstration projects and established capital grants and research and development programs. Amendments to the act in 1966 authorized the technical studies grants, training, and university research programs.

The Federal-Aid Highway Act of 1973 authorized the transit substitution capital grants program, and the National Mass Transportation Act of 1974 amended the Urban Mass Transportation Act to establish the operating assistance grant program. The Federal contribution to the Washington Metropolition Area Transit Authority was intially authorized by the National Capital Transportation Act of 1969.

Most of the programs and functions established by the Urban Mass Transportation Act of 1964, initially assigned to the Department of Housing and Urban Development, were transferred to the newly established UMTA by Reorganization Plan No. 2 of 1968.

DEPARTMENT OF THE TREASURY--
OFFICE OF REVENUE SHARING

The Office of Revenue Sharing administers the general revenue-sharing program established by the State and Local Fiscal Assistance Act of 1972. General revenue sharing is intended to provide Federal financial assistance to State and local governments without imposing extensive procedural requirements and restrictions associated with traditional Federal categorical grant programs. The Office distributes Federal payments to State and local governments according to a funding formula defined in the authorizing legislation.

State and local governments have great flexibility in using Federal revenue-sharing funds. States may use their funds without any categorical restrictions. Local governments may use funds for capital improvements without categorical restrictions and may use funds for operating and maintenance expenses if they are included in eight broadly defined priority expenditure categories. Operating and maintenance costs for publicly owned transportation facilities are considered to be priority expenditures.

It is difficult to determine the net effect of Federal revenue-sharing payments on State and local government expenditures for transportation-related programs. Office of Revenue Sharing statistics indicate that 15 percent of all past revenue-sharing payments have been used for capital investments and operating expenses for publicly owned transportation facilities but do not identify expenditures on specific transportation modes, such as air and transit. Office of Revenue Sharing statistics do not distinguish between funds added to existing State and local spending on transportation and funds which replace State and local revenue sources. Consequently, Office of Revenue Sharing statistics may not reflect the actual effect of the revenue-sharing program on State and local expenditures for transportation programs.

Applying Office of Revenue Sharing estimates to 1974 general revenue-sharing outlays of $6.1 billion, State and local government expenditures on the U.S. transportation system may include about $916 million financed by general revenue sharing.

ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

The Energy Research and Development Administration (ERDA) was established, pursuant to the Energy Reorganization Act of 1974, to consolidate the energy research and development programs administered by the Atomic Energy Commission, National Science Foundation, Department of the Interior, and Environmental Protection Agency. ERDA is also responsible for carrying out many of the programs authorized by the Federal Nonnuclear Energy Research and Development Act of 1974, which particularly emphasizes developing substitute fuels and technologies to replace the use of petroleum.

Highway transportation

ERDA is investigating energy-efficient advanced automotive power systems. This program was inherited from the Environmental Protection Agency and originally emphasized air pollution reductions. In 1974 expenditures amounted to $2 million.

Pipeline transportation

ERDA is developing technology for converting coal to environmentally acceptable liquids and gaseous fuels which could be transported by pipelines. This work was inherited from the Bureau of Mines, Department of the Interior. In 1974 expenditures on coal liquefication and gasification research and development amounted to $58 million.

Water transportation

ERDA is developing naval nuclear reactors for use in powering naval ships. This work was inherited from the Atomic Energy Commission and is primarily military in nature. However, the Committee on American Shipbuilding has estimated that 5 to 10 percent of military expenditures for naval ship technology research and development have potential application to civilian maritime shipbuilding. In 1974, 5 percent of ERDA's naval nuclear reactor research expenditures amounted to $11 million.

ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) was established by a 1973 executive order to develop and administer Federal standards for environmental quality.

Air transportation

EPA, jointly with FAA, is responsible for developing Federal noise control regulations relating to aviation. EPA is also responsible for developing performance standards for aircraft air pollution emissions.

The Federal role in aviation noise control regulation was initially assigned to FAA by the Federal Aviation Act of 1968. EPA's role was established by the Noise Control Act of 1972. Under that legislation, EPA makes public recommendations to FAA for needed aviation noise control requirements. FAA has the final responsibility for deciding to modify or adopt new regulations.

Pursuant to the Clean Air Act Amendments of 1970, EPA established Federal emission standards for various classes of aircraft engines in July 1973. These standards cover fuel venting, smoke emissions, and gaseous emissions and are phased to take effect over a period of several years.

Highway transportation

Under the Clean Air Act Amendments of 1970, EPA establishes performance standards for air pollution emissions from motor vehicles. EPA also sets environmental standards for clean air and requires States to make plans for air pollution control that meet the Federal environmental standards. Under the Noise Control Act of 1972, EPA sets standards for motor carrier noise emissions.

EPA's motor vehicle performance standards limit the amount of hydrocarbons, carbon monoxide, and nitrogen oxides that legally can be emitted from motor vehicles. Because auto manufacturers have experienced major technical and economic difficulties in meeting these standards, EPA has extended its original deadlines from model year 1977 to model year 1978 and is proposing legislation to postpone final standards to model year 1982 motor vehicles.

EPA's standards for environmental air quality are also of major importance to highway transportation. Each State must prepare implementation plans to meet the environmental air quality standards. In some rural areas and small towns, EPA motor vehicle standards and standards for powerplant and factory emissions are adequate to meet environmental clean air standards. However, in 38 large metropolitan

areas it has been necessary to develop transportation control plans to meet EPA standards.

The transportation control plans attempt to reduce total air pollution emissions to acceptable levels by limiting motor vehicle use through controls and by providing alternate means of public transportation which are less polluting than the private passenger automobile. Because some cities face serious economic and social problems in implementing transportation control plans, EPA has proposed legislation to extend the deadline for meeting environmental air quality standards to 1982 (and in some cases to 1987).

Federal regulation of motor vehicle air pollution emissions and environmental air quality is a recent addition to the Federal Government's role in highway transportation. The first major legislation was the Clean Air Act of 1963, which gave the Department of Health, Education, and Welfare limited authority to assist State air pollution control agencies and to regulate interstate air pollution problems. Federal regulation of motor vehicle emissions was authorized in 1965.

Motor carrier noise standards were authorized by the Noise Control Act of 1972. In 1973 EPA proposed regulations to establish noise limits for medium and heavy duty trucks of over 10,000 pounds.

Water transportation

Working jointly with the Corps of Engineers, EPA administers provisions of the Federal Water Pollution Control Act Amendments of 1972 regulating the dredging of materials. Under the 1972 amendments EPA and the Corps develop guidelines for site selection to dispose of dredged or fill material. The Corps then holds public hearings and issues permits for disposal of the material. This aspect of EPA's work is of major importance in water transportation, because dredging is a primary means of constructing and maintaining water navigation facilities.

EPA also provides technical assistance to the Department of Transportation's U.S. Coast Guard, in connection with the Coast Guard's responsibilities for administering and enforcing Federal laws and regulations on marine environmental quality.

Pipeline, rail, and transit transportation

EPA programs have a limited effect on pipeline, rail, and transit transportation, because these modes are relatively nonpolluting compared to air, highway, and water transportation. However, the indirect effect of Federal environmental quality standards has been to increase public support for the pipeline, rail, and transit modes compared with other modes that are environmentally more harmful. Federal water quality standards have increased public support for pipelines over water as a means of preventing oil spills from tankers. Similarly, Federal air quality standards have increased public support for transit and rail over highway as a means of decreasing air pollution emissions.

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EPA operating costs allocable to the U.S. transportation system are difficult to identify and separate from total Agency costs. Because motor vehicle transportation acounts for at least 90 percent of transportation air pollution emissions and about half of air pollution emissions from all sources, as much as half of EPA expenditures on clean air programs could be attributable to the motor vehicle--about $68 million in 1974. However, this estimate was not considered sufficiently reliable to include in the estimates of Federal agency expenditures for the U.S. transportation system.

FEDERAL ENERGY ADMINISTRATION

The Federal Energy Administration (FEA) was established in 1974 to develop and implement a national energy policy. FEA administers Federal programs to regulate the prices and allocation of petroleum supplies and leads the Federal government in the areas of energy supply regulation and management, energy conservation, and energy resource development. Because of recent changes in the cost and availability of petroleum, FEA controls over petroleum prices and supplies are an important area of Federal involvement in all modes of U.S. transportation. FEA controls over petroleum prices expired in August 1975 but may be reinstated by the Congress.

FEA is also responsible for developing regulations which would raise airline load factors and change air and ground

operations to conserve fuel. FEA administers the President's program for improved auto fuel efficiency, which calls for voluntary action by the auto industry to increase automobile fuel efficiency by 40 percent by model year 1979.

FEA was established by the Federal Energy Administration Act of 1974 and administers a number of recent energy-related laws, including the Emergency Petroleum Allocation Act of 1972 and the Energy Supply and Environmental Coordination Act of 1974. FEA inherited the responsibilities of the Energy Policy Office (established by executive order in 1973) as well as certain activities of the Department of the Interior.

FEA expenditures allocable to the U.S. transportation system are difficult to separate from other FEA expenditures and are not included in this report.

FEDERAL MARITIME COMMISSION

The Federal Maritime Commission (FMC) is an independent Federal agency with responsibility for the economic regulation of the domestic offshore and international waterborne commerce of the United States. FMC jurisdiction over domestic offshore waterborne commerce applies to common carriers operating between the United States and domestic points beyond the continental United States, including Alaska, Hawaii, Puerto Rico, the Virgin Islands, and American Samoa. FMC jurisdiction does not extend to domestic water carriers operating along the U.S. coast intercoastally through the Panama Canal or on inland waters of the United States. These carriers are regulated by the Interstate Commerce Commission.

FMC jurisdiction is limited to for-hire common carriers and does not extend to tramp service by contract carriers and to private shippers carrying proprietary cargoes.

Under FMC regulation foreign and U.S. flag carriers engaged in the foreign commerce of the United State are required to file tariffs with FMC. These tariffs must show the rates charged for freight and passenger services as well as the rules and regulations of carriers and shipping conferences (rate-making associations of common ocean carriers). FMC has limited authority to disapprove rates

which it finds detrimental to the commerce of the United States.

Domestic offshore common carriers must file tariffs with FMC setting forth just and reasonable passenger and cargo rate tariffs. FMC exercises control over minimum rates and regulates competition between carriers.

Federal economic regulation of waterborne domestic and foreign commerce began in 1916 with the passage of the Shipping Act of 1916. This act was a response by the Congress to concern over rate discrimination against shippers and unfair competitive practices by conferences of ocean common carriers operating as cartels. Federal economic regulation of offshore domestic water common carriers was extended by the Intercoastal Shipping Act of 1933. This was one of several extensions of Federal economic regulatory authority during the 1930s and was a response by the Congress to concern over undesirable competitive practices between water carriers and between water carriers and rail and highway transportation.

FMC also administers certain provisions of the Federal Water Pollution Control Act for oil spills and discharge of other hazardous materials. The act requires owners of marine vessels over 300 gross tons to establish evidence with the FMC of their financial ability to meet possible liability resulting from the illegal discharge of oil and other hazardous substances in U.S. waters.

The present administrative stucture of FMC as an independent regulatory agency was established by Reorganization Plan 7 of 1961. In 1974 FMC operating expenses allocable to water transportation amounted to $6 million.

FEDERAL POWER COMMISSION

The Federal Power Commission (FPC) is an independent agency with responsibility for economic regulation of the interstate aspects of the electric power and natural gas industries. FPC is also responsible for the economic regulation of interstate pipelines used to transport natural gas.

Companies wishing to construct or operate interstate natural gas pipelines must obtain the FPC's permission. The applicant must show that the pipeline service is

required by public convenience and necessity. Extending existing pipelines requires FPC approval. FPC regulates wholesale rates charged by interstate natural gas pipeline companies, accounting and reporting practices, depreciation practices, and abandonment of property.

Federal economic regulation of interstate natural gas pipelines was authorized by the Natural Gas Act of 1938. This legislation was a response to congressional concern over the economic effects of unfair competition and monopolistic price setting by natural gas companies.

FPC is responsible for assessing the environmental impact of new natural gas pipelines and pipeline extensions pursuant to the procedures established by the National Environmental Policy Act of 1969. In 1974 FPC operating expenses for the economic regulation of natural gas pipelines amounted to $8 million.

INTERSTATE COMMERCE COMMISSION

The Interstate Commerce Commission (ICC) is an independent agency with broad responsibilities for the economic regulation of surface transportation. ICC activities directly affect every mode of transportation except air.

Highway transportation

ICC is 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.

For example, motor carriers wishing to provide regulated transportation services must obtain the ICC's permission to

operate. The applicant must show that the service is required by public convenience and necessity. Willingness to offer service at a lower rate is not admissable as justification. Even existing carriers must obtain permission to expand service. When obtained, operating rights are specified in detail as to the type of service or commodity permitted and the geographic route that must be followed.

Regulated motor carriers must also file tariffs with ICC which set forth just and reasonable passenger and freight rate tariffs. ICC exercises control over minimum rates and regulates competition between motor carriers (and between motor carriers and other transportation modes such as railroads, which are also under ICC jurisdiction). ICC approval must also be obtained for financial reorganization and mergers of motor carriers.

Federal economic regulation of interstate motor carries began in the mid-1930s with the passage of the Motor Carrier Act of 1935, now part II of the Interstate Commerce Act. This legislation was a congressional response to public concern over undesirable competitive practices between motor carriers and between motor carriers and the railroads.

Rail transportation

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 minimum rates and regulates competition between railroads and between railroads and motor carriers. ICC approval must be obtained for establishing and developing new rail freight or passenger service and for discontinuance or mergers of railroads.

Federal economic regulation of the railroad industry was first authorized by the Interstate Commerce Act of 1887. This act was a response by the Congress to public concern over rate discrimination against shippers and unfair competitive practices against railroads by groups of railroads and shippers operating as economic cartels. The Transportation Act of 1958 is the most recent major modification of ICC regulatory authority. This act extended ICC's authority to discontinue unprofitable rail services and was a response to public concern over the post-World War II economic decline of the railroad industry.

ICC also has been assigned, pursuant to the Regional Rail Reorganization Act of 1973, responsibilities for rail services planning for the Midwest and Northeast region, and has conducted public hearings on the U.S. Railway Association's plan.

Pipeline transportation

ICC's responsibilities include the economic regulation of interstate petroleum pipelines. ICC jurisdiction is limited to petroleum pipelines which operate for-hire common carrier services and does not extend to pipelines used exclusively for private transportation of a company's proprietary petroleum or to pipelines used for natural gas or other materials. In 1972 interstate petroleum pipelines subject to ICC jurisdiction accounted for 85 percent of the petroleum transported interstate by pipeline.

Interstate petroleum pipelines must file tariffs with ICC setting forth just and reasonable rates. ICC exercises control over minimum and maximum rates and regulates competition between pipeline companies.

ICC regulation of petroleum pipelines is not as extensive as its regulation of motor carrier and railroad industries. Petroleum pipelines are not required to obtain certificates of public convenience and necessity in order to construct or operate pipelines. Petroleum pipelines are not subject to common carrier restrictions on carrying the products of their owners. Also, ICC does not exercise jurisdiction over such aspects of pipeline operation as issuing securities; forming interlocking directorates; mergers and consolidations; and abandoning lines.

Federal involvement in the economic regulation of interstate petroleum pipelines began with the Hepburn Act of 1906. This legislation placed pipelines under the jurisdiction of the Interstate Commerce Act and was a congressional response to public concern over the economic effects of unfair competitive practices and monopolistic price setting by oil companies.

Transit transportation

Under its jurisdiction over railroad transportation, ICC plays a limited role in the economic regulation of

nongovernment-owned commuter railroads providing urban public mass transportation services. (ICC jurisdiction also extends to nongovernment-owned interstate bus lines providing urban commuter services; however, these services are not comparable in size or importance to ICC-regulated commuter rail services.) Commuter railroad services operated by public metropolitan transportation authorities are not subject to ICC economic regulation.

Regulated commuter railroads must file tariffs with ICC which set forth just and reasonable passenger fares. ICC approval must be obtained for financial reorganizations and mergers and, in particular, for discontinuing service. Because of the post-World War II economic decline of the commuter railroad industry, regulating the discontinuance of commuter rail services has been one of the primary areas of recent ICC involvement in transit transportation.

The Transportation Act of 1968 extended ICC jurisdiction to include discontinuing commuter and other passenger railroad services in response to congressional concern over the economic difficulties of the railroad industry. Previously, ICC had exercised jurisdiction over abandonments but not over discontinuance of particular passenger trains.

Water transportation

ICC's responsibilities include the economic regulation of domestic water carriers operating coastwise, intercoastally through the Panama Canal, and on inland waters of the United States. ICC jurisdiction over domestic water carriers is extremely limited 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. According to ICC estimates, ICC jurisdiction extended to only 5.6 percent of total domestic water carrier ton miles in 1973.

Under ICC regulations carriers must file tariffs with ICC setting forth just and reasonable rates. ICC exercises control over minimum rates and regulates competition between water carriers.

Federal economic regulation of domestic water carriers began with the Shipping Act of 1916. This act was a response by the Congress to concern over rate discrimination against shippers and unfair competitive practices by conferences of ocean common carriers operating as cartels. Federal

involvement in domestic water carrier regulation was extended by the Intercoastal Shipping Act of 1933 and later by the Transportation Act of 1940 which included domestic water carriers under part III of the Interstate Commerce Act.

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ICC does not allocate its operating expenses between the various transportation modes that it regulates. Most of ICC's activities relate to either motor carriers or railroads; activities for other transportation modes are a minor part of ICC's work. In this report ICC operating expenses ($38 million in 1974) were assumed to be divided equally between highway and rail transportation.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

The National Aeronautics and Space Administration (NASA) conducts an extensive program of advanced research and development in the field of aeronautical technology. NASA projects include fundamental research in aeronautical technology, research on aircraft safety, studies of aircraft energy consumption and environmental effects, and investigations of advanced air transportation technologies, such as vertical/short takeoff and landing aircraft. In 1974 NASA expenditures for aeronautical research and technology amounted to $155 million.

Federal involvement in aeronautical research and development is part of the early history of air transportation in the United States. In 1915 the Congress created the National Advisory Committee for Aeronautics to supervise and direct scientific studies, research, and experiments in aeronautics. The functions of the Committee were transferred to NASA pursuant to the National Aeronautics and Space Act of 1958.

NATIONAL TRANSPORTATION SAFETY BOARD

The National Transportation Safety Board (NTSB) is an independent agency which investigates accidents and objectively oversees Federal transportation safety programs. Most NTSB activities concern aviation safety, but NTSB also investigates accidents and safety problems for all modes of surface transportation. NTSB was established as an independent agency within the Department of Transportation by the Department of Transportation Act of 1966 and became

an independent agency in 1975 pursuant to the Transportation Safety Act of 1974.

Air transportation

In 1974 approximately 142 of NTSB's 265 employees and 86 percent of its operating expenses were for aviation safety programs. NTSB's primary aviation safety role is to investigate accidents involving civilian aircraft, determine their probable cause, and make recommendations to prevent accidents and promote safety. Most NTSB recommendations are addressed to the Department of Transportation's Federal Aviation Administration. NTSB also acts as an appeal board for licenses and certificates issued by the Department of Transportation. Nearly all these cases involve denials or suspensions of FAA certificates for safety violation or lack of safety-related qualifications.

NTSB's role in investigating aircraft accidents originated with the establishment of the Air Safety Board by the Civil Aeronautics Act of 1938. The Federal Aviation Act of 1958 authorizes NTSB's appeal board functions relating to FAA certificates and licenses.

Before the establishment of NTSB in 1966, these functions were assigned to the Civil Aeronautics Board. In 1974 NTSB expenditures for aviation safety programs amounted to $7 million.

Other transportation

NTSB's also investigates accidents in other transportation modes. This activity began in 1966. Compared to air transportation, NTSB activities in other transportation modes are relatively minor, accounting for about 14 percent of NTSB expenditures. Because the expenditures for each mode in 1974 were less than $0.5 million, no NTSB expenditures are shown in this report for any transportation mode except air transportation.

TENNESSEE VALLEY AUTHORITY

The Tennessee Valley Authority (TVA), a government corporation, was established by the Tennessee Valley Authority Act of 1933 to provide for the unified economic development of the Tennessee River Basin. As part of its responsibilities, TVA engages in a comprehensive program of water resource development, which includes constructing,

operating, and maintaining inland waterway navigation facilities. In 1974 TVA expenditures for constructing and operating navigation facilities amounted to $3 million.

U.S. RAILWAY ASSOCIATION

The U.S. Railway Association (USRA), a nonprofit Government corporation, was established by the Regional Rail Reorganization Act of 1973 to prepare and implement a system plan to restructure rail service in the Midwest and Northeast region of the United States.

USRA submitted its final system plan to the Congress in July 1975, and the plan is currently being considered by the Congress. A new private for-profit corporation, Consolidated Rail Corporation, has been established to acquire and operate the economically viable rail system designed by USRA. At that time USRA would terminate most of its activities.

USRA works with the Department of Transportation's Federal Railroad Administration to administer rail service financial assistance programs authorized by the Regional Rail Reorganization Act of 1973. These include long-term federally guaranteed loans to finance system reorganization, grants to bankrupt railroads to assist in continuing rail service, grants to bankrupt railroads to rehabilitate their physical plants, and grants to State and local transportation authorities to help subsidize the operating costs of uneconomic branch lines that would otherwise be abandoned by the reorganized rail system.

Most of these programs have not been implemented pending congressional approval of the USRA system plan. It is likely that the structure and scope of Federal financial assistance to the regional rail system will undergo considerable modification by the Congress.

In 1974 USRA's expenditures totaled $1 million.

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Contents

SUMMARY

This staff paper examines the Federal Government's role in the U.S. transportation system. The study includes a description of Federal agencies and programs in transportation, an analysis of Federal transportation program expenditures, and an overview of current national transportation policy issues.

FEDERAL GOVERNMENT'S ROLE IN U.S. TRANSPORTATION SYSTEM

The U.S. transportation system is composed of many different private and public activities, including passenger and freight transportation and government programs to assist, promote, and regulate transportation. For this study, we subdivided the U.S. transportation system into six component modal systems--highway, air, rail, water, pipeline, and transit. (See p. 2.)

The Federal Government's role in transportation has developed incrementally over many years. Each Federal program is based on specific public laws enacted by the Congress in response to public concern about specific transportation problems. The resulting body of public laws is complex and is considered by many critics to be the source of conflicting goals and objectives for Federal transportation programs. (See pp. 4 to 5.)

FINANCIAL IMPACT OF FEDERAL TRANSPORTATION PROGRAMS

In 1974 total private sector and government program spending on the U.S. transportation system amounted to $295.7 billion. Federal transportation programs accounted for $11.3 billion, or 3.8 percent of this total. State and local government programs amounted to $22.8 billion (7.7 percent), and private sector spending accounted for $261.6 billion (88.5 percent). (See p. 18.)

Federal Expenditures on Transportation Modes, 1974

Modal system	Federal expenditures	Private and governmental expenditures	Federal (percent)
	(000,000 omitted)		
Highway	$ 4,893	$230,232	2
Air	2,471	18,971	13
Rail	664	16,885	4
Water	1,942	12,799	15
Pipeline	86	10,401	1
Transit	1,259	6,410	20
Total	$11,315	$295,698	4

Adjusting for inflation, total Federal spending on the U.S. transportation system increased from $9.4 billion in 1964 (1974 prices) to $11.3 billion in 1974, or 20 percent. However, Federal spending on highway programs decreased from $6.1 billion in 1964 (1974 prices) to $4.9 billion in 1974, or a 20-percent decrease. (See p. 21.)

FEDERAL AGENCIES WITH TRANSPORTATION PROGRAMS

We identified 32 Federal agencies with important functions relating to the U.S. transportation system, Eight agencies are constituent parts of the Department of Transportation. We classified Federal transportation programs into five functional groups--financial assistance, provision of facilities and supporting services, economic regulation, research and development, and safety. (See p. 3.)

Seven Federal agencies provide financial assistance for the construction and operation and maintenance of transportation systems. Expenditures for financial assistance programs amounted to $6.9 billion in 1974, or 61 percent of total Federal expenditures on the U.S. transportation system. (See p. 6.)

Twenty-two Federal agencies provide facilities and supporting services for the U.S. transportation system. Federal expenditures amounted to $2.5 billion in 1974, or 22 percent of Federal transportation program expenditures. (See pp. 8 to 10.)

Five Federal agencies have roles in economic regulation of transportation, all of which are independent of the Department of Transportation. Federal expenditures for economic regulation of transportation amounted to $67 million in 1974, or 1 percent of Federal transportation program expenditures. (See p. 11.)

Twelve Federal agencies have transportation research and development activities. Federal expenditures amounted to $1.1 billion in 1974, or 9 percent of Federal transportation program expenditures. (See pp. 14 to 15.)

Seven Federal agencies have transportation safety programs. Federal expenditures amounted to $0.8 billion in 1974, or 7 percent of Federal expenditures on the U.S. transportation system. (See p. 16.)

CONGRESSIONAL COMMITTEE JURISDICTIONS

Because of the wide variety of Federal transportation program activities and related agencies, there are 7 House

committees (including 20 subcommittees) and 5 Senate committees (including 13 subcommittees) with major responsibilities relating to Federal transportation programs. (See p. 17.)

CURRENT NATIONAL TRANSPORTATION POLICY ISSUES

We identified transportation policy issues relating to each of the Federal Government's functions in the U.S. transportation system--financial assistance, facilities and services, economic regulation, research and development, and safety. We also identified transportation policy issues relating to energy and environmental quality. (See p. 23.)

Major policy issues relating to Federal financial assistance programs include disagreements over the effectiveness of most Federal aid programs and controversies concerning the relative funding priority which should be assigned to Federal aid for different transportation modes. Criticism is directed to the excessive cost of individual Federal aid programs and to the aggregate cost of Federal involvement in transportation and its effects on the taxpayer and the economy. Another major policy issue is whether inadequate Federal investment planning and coordination are causing duplication of transportation facilities and conflicts between different transportation modes. (See pp. 23 to 24.)

The most controversial issue concerning federally provided transportation facilities involves the U.S. Army Corps of Engineers' inland waterways program. Criticism is directed to the program's high funding priority compared with Federal aid programs for other transportation modes, to the absence of waterway user charges, and to the costs of individual navigation projects relative to net benefits. In the area of Federal support services, a major policy issue is whether Federal transportation policy coordination and long-range planning lack unified and comprehensive goals and objectives. (See p. 24.)

Criticism of the adverse economic effects of Federal economic regulation is widespread, but most criticisms are matched by countercriticisms and defenses of the present regulatory system. Most policy issues involve Federal regulation of air, highway, and rail modes. Federal regulation of pipeline, transit, and water modes is less extensive and consequently is less controversial. (See pp. 25 to 26.)

Federal transportation research and development programs are not a major area of policy disagreement. Most current policy issues involve the adequacy of program planning and coordination and the cost effectiveness of individual research projects. (See p. 26.)

Federal safety standards for motor vehicles are the most controversial area of Federal involvement in transportation safety. This issue concerns the potential economic effects of motor vehicle safety standards and the adequacy of coordination between safety standards, Federal emissions standards, and Federal energy conservation goals. (See pp. 26 to 27.)

Energy problems are currently a major source of transportation policy issues. Such issues include the question of whether some Federal transportation programs (particularly in air and highway modes) encourage excessive use of energy and whether Federal programs should encourage greater use of energy-efficient transportation modes (such as rail and water). (See p. 27.)

Environmental quality problems are also a source of transportation policy issues. The most controversial of these issues involves the effectiveness and potential economic impacts of Federal air quality standards for motor vehicles and urban areas. Another major issue centers on the economic effects of Federal environmental impact assessment procedures on transportation. (See pp. 27 to 28.)

OBSERVATIONS

Public concern that Federal transportation programs are uncoordinated and counterproductive may be caused by the decentralized administrative and legislative structure--32 Federal agencies and 12 major congressional committees--which carries out Federal transportation programs. Public concern also may result from the complexity of Federal transportation laws.

We believe it is possible to modernize and unify the various public laws which authorize Federal involvement in transportation and thus move toward a unified national transportation policy. This might take the form of a National Transportation Policy Act, establishing national goals for transportation and impact assessment procedures to identify counterproductive Federal transportation programs and activities.

As an interim measure, improving the availability of budget information on the Federal Government's role in transportation could be of major value to the Congress in assessing priorities for Federal transportation programs. This might take the form of a unified transportation program budget schedule, submitted as part of the President's annual budget proposal, including estimates of Federal expenditures for all transportation-related programs.

On September 17, 1975, the Secretary of Transportation issued a Statement of National Transportation Policy which proposes a set of principles for national transportation policy and which relates the principles to existing Federal transportation programs and proposed legislation. The statement specifically recognizes the existence of inconsistencies in Federal transportation laws and programs and recommends changes to rationalize the Federal Government's role in transportation.

We believe that this is a valuable contribution to the modernization of the Federal Government's role in transportation and can serve as the basis for constructive discussions of national transportation goals and priorities. (See pp. 29 to 30.)

CHAPTER 1

INTRODUCTION

The objective of this study is to provide the Congress and GAO with background information on the scope and breadth of the Federal Government's transportation role and on current transportation policy issues.

SCOPE OF STUDY

This study examines the Federal Government's role in the U.S. transportation system. It identifies and classifies the major Federal agencies and programs involved in each mode of transportation. The study includes an analysis of 1974 Federal expenditures on transportation programs, compared with private sector and State and local government expenditures relating to transportation. The study also presents an overview of current national transportation policy issues and their relationship to the Federal Government's major functions in the U.S. transportation system.

Information on the programs and expenditures of Federal agencies involved in transportation was obtained through a review of annual agency budget justifications. Estimates of private sector and State and local government transportation program expenditures were based on our analysis of statistical reports for individual transportation modes prepared by Federal agencies and industry trade associations.

Available data for some transportation modes was not available for 1974, and estimates for these modes were extrapolated from prior year statistics with adjustments for inflation. Transportation user taxes were excluded from estimates of private sector expenditures to prevent double-counting, but this report does not contain an analysis of Federal tax revenues from transportation.

Current national transportation policy issues were identified through a series of interviews with experts on transportation problems, including current and former Federal, State, and local government officials; academic scholars; and representatives of major transportation industries. Information on transportation policy issues was also obtained from Government and academic research and from current news periodicals, including the Congressional Record.

CHAPTER 2

FEDERAL GOVERNMENT'S ROLE IN THE U.S. TRANSPORTATION SYSTEM

COMPONENTS OF U.S. TRANSPORTATION SYSTEM

The U.S. transportation system is composed of many different private and public activities relating to the transportation of passengers and freight, including Federal and State and local government programs to assist, promote, and regulate transportation. For this analysis, we subdivided the U.S. transportation system into six component modal systems: highway, air, rail, water, pipeline, and transit.

The highway system includes all private and public activities relating to motor vehicle transportation, except for urban motor transit bus and taxicab operations which are included in the transit system category. The air system includes all private and public civilian air transportation activities and military aeronautical research with potential application to civil aviation. The rail system includes all private and public activities relating to railroad transportation, except for urban commuter railroads and rail rapid transit systems which are included in the transit system category.

The water system includes all private and public civilian water transportation activities and military naval research with potential application to civilian water transportation. The pipeline system includes all private and public activities relating to long-distance commercial pipeline transportation of petroleum and natural gas. The transit system includes all private and public activities relating to the provision of urban public mass transportation by commuter railroads, rail rapid transit, streetcars, trolley coaches, motorbuses, and taxicabs.

Table 1 (see p. 3) lists the Federal agencies that have programs and activities impacting on the U.S. transportation system. In total, there are 32 Federal agencies with important functions relating to the U.S. transportation system. Eight of these agencies are constituent parts of the Department of Transportation.

A description of agency roles in transportation, key legislation establishing these roles, and agency expenditures for transportation-related programs and activities is contained in appendix II.

TABLE 1

Federal Agencies With Important Roles in the U.S. Transportation System

Federal agency	Modal system
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 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:	
General Functions	All
Materials Transportation Bureau	All
U.S. Coast Guard	Water
Federal Aviation Administration	Air
Federal Highway Administration	Highway and transit
Federal Railroad Administration	Rail and transit
National Highway Traffic Safety Administration	Highway and transit
Saint Lawrence Seaway Development Corporation	Water
Urban Mass Transportation Administration	Transit
Department of the Treasury	All
Energy Research and Development Administration	Highway, pipeline, and water
Environmental Protection Agency	All
Federal Energy Administration	All
Federal Maritime Commission	Water
Federal Power Commission	Pipeline
Interstate Commerce Commission	Highway, 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

HISTORICAL DEVELOPMENT OF FEDERAL GOVERNMENT'S ROLE IN TRANSPORTATION

The Federal Government's role in transportation has developed incrementally over many years. Historically, legislation establishing a program has been enacted to meet a pressing national need at a particular point in time and in response to public concern about specific transportation problems. In general, each new Federal program has been directed toward the problems of one particular transportation mode.

For example, Federal economic regulation of interstate petroleum pipelines began with the enactment of the Hepburn Act of 1906. This legislation was a response to public concern over the adverse economic effects of unfair competitive practices and monopolistic price setting by oil companies; it placed interstate petroleum pipelines under the jurisdiction of the Interstate Commerce Commission.

However, the Congress did not authorize Federal economic regulation of interstate natural gas pipelines until the enactment of the Natural Gas Act of 1938. This occurred during the economic depression of the 1930s and was a response to public concern over the adverse economic effects of unfair competition and monopolistic price setting by natural gas companies. In this case, the Congress placed natural gas pipelines under the jurisdiction of the Federal Power Commission instead of the Interstate Commerce Commission, treating the economic regulation of natural gas pipelines and of petroleum pipelines as separate and distinct problems.

Similarly, Federal financial assistance to the merchant marine industry had its origins in the Shipping Act of 1916 and the Merchant Marine Act of 1936. The Shipping Act of 1916 was enacted during World War I and established a federally financed merchant ship construction program, primarily for national defense reasons. The Merchant Marine Act of 1936 was enacted during the economic depression of the 1930s and established programs to provide economic assistance for U.S. merchant marine operations and for merchant ship construction.

More recently, the Federal-Aid Highway Program, one of the most important Federal transportation programs in its effects on the U.S. transportation system, was established by the Federal-Aid Highway Act of 1956. During World War II and the Korean War, construction of highways had been deferred by State and local governments. Consequently, considerable public support developed for a program of Federal financial assistance to State governments for the construction of a

modern national highway system. The resulting legislation established the Federal Highway Trust Fund, which was used only for highway-related purposes until the Federal-Aid Highway Act of 1973 permitted limited use of the Trust Fund for mass transit.

FEDERAL TRANSPORTATION PROGRAMS

For our analysis, we classified Federal transportation programs into five functional groups: financial assistance to State and local governments and privately owned companies; provision of facilities and supporting services; economic regulation; research and development; and safety programs (including safety-related regulatory, technical assistance, and financial assistance programs, but excluding safety research and development programs).

Tables 2 through 6 identify the Federal agencies, major programs, and modal systems involved in each functional group. The tables also identify key dates of legislation authorizing Federal involvement in a specific program area.

Financial assistance (See table 2, p. 6.)

Federal financial assistance programs provide funds and related technical assistance to States, local governments, and private businesses for use in constructing, operating, and maintaining transportation systems, facilities, and equipment. Transportation-related financial assistance programs are administered by seven Federal agencies, four of which are component operating administrations within the Department of Transportation. In 1974 Federal expenditures for transportation-related financial assistance programs amounted to $6.9 billion, or 61 percent of total Federal expenditures on the U.S. transportation system.

In addition, some Federal revenue-sharing payments to State and local governments are used to finance transportation-related programs. Because of the complexity of revenue-sharing fund flows, we could not readily determine the net effect of revenue-sharing payments on State and local government transportation program expenditures. However, accounting designations of fund uses by revenue-sharing recipients indicate that as much as 15 percent of total revenue-sharing payments are used to finance State and local government transportation programs. This is the equivalent of an additional $0.9 billion in Federal financial assistance for transportation-related programs in 1974.

TABLE 2

Federal Financial Assistance Programs for the U.S. Transportation System

Federal agency and program	Modal system	Key dates
Civil Aeronautics Board:		
Subsidies to air carriers	Air	1938, 1958
Department of Commerce:		
Maritime Administration:		
Ship construction subsidies	Water	1936, 1970
Operating-differential subsidies	Water	1936, 1970
Department of Transportation:		
Federal Aviation Administration:		
Aid to localities for airport construction	Air	mid-1930s, 1970
Federal Highway Administration:		
Aid to State highway construction programs	Highway	1894, 1956
Federal Railroad Administration:		
Financial aid to AMTRAK (note a)	Rail	1970, 1974
Financial aid to Northeast railroads	Rail	1973
Urban Mass Transportation Administration:		
Capital grants for mass transit (Urban Mass Transportation Act)	Transit	1964, 1974
Capital grants for mass transit (Federal-Aid Highway Act)	Transit	1973
Operating assistance for mass transit	Transit	1974
Technical studies grants for mass transit	Transit	1966
Financial contributions to Washington Metropolitan Area Transit Authority	Transit	1969
Department of the Treasury:		
Office of Revenue Sharing:		
General revenue-sharing program	All	1972

a/National Railroad Passenger Corporation

Facilities and supporting services (See table 3, pp. 8 to 10.)

Federal programs provide transportation facilities and supporting services to all six modes of the U.S. transportation system. In many of these programs, the Federal Government is directly involved with individual citizens and privately owned companies that use federally provided transportation facilities and technical services as a basic and integral part of their transportation activities. In other programs, services are provided to minimize the adverse environmental or social effects of transportation. Federal programs also provide long-range policy planning and coordination for Federal involvement in the U.S. transportation system.

Twenty-two Federal agencies provide facilities and supporting services for the U.S. transportation system. Six of these agencies are component administrations of the Department of Transportation. In 1974 Federal financial expenditures for transportation-related facilities and supporting services amounted to $2.5 billion, or 22 percent of total Federal expenditures on the U.S. transportation system.

Economic regulation (See table 4, p. 11.)

Federal economic regulation of transportation affects all modes of the U.S. transportation system. In all of these programs, except the regulation of energy prices and supplies by the Federal Energy Administration, the Federal Government regulates certain economic activities of private business firms that provide commercial transportation services.

The extent, jurisdictional coverage, and economic effect of Federal economic regulation of commercial transportation vary widely between different transportation modes. Federal economic regulations extend to such areas of business activity as price-setting, competition between business firms and between transportation modes, entry to and exit from the transportation industry, and financial organizations and mergers. Federal regulation of energy prices and supplies primarily involves the price and allocation of petroleum.

Five Federal agencies have roles in economic regulation of transportation, all of which are independent of the Department of Transportation. In 1974 Federal expenditures for economic regulation of transportation amounted to $67 million, or 1 percent of total 1974 Federal expenditures on the U.S. transportation system.

TABLE 3

Federal Facilities and Services for the U.S. Transportation System

Federal agency and program	Modal system	Key dates
Council on Environmental Quality:		
Environmental impact assessment procedures	All	1969
Department of Agriculture:		
Forest Service:		
Forest roads and trails	Highway	1891, 1913
Department of Commerce:		
Maritime Administration:		
Marine environmental protection	Water	1969, 1972
Merchant marine training	Water	1936, 1970
National Oceanic and Atmospheric Administration:		
Aeronautical chart preparation	Air	1926, 1965
Aviation weather services	Air	1926, 1965
Marine weather services	Water	1870, 1965
Nautical chart preparation	Water	1807, 1965
Department of Defense:		
U.S. Army Corps of Engineers:		
Construction, operation, and maintenance of:		
inland waterways	Water	1824, 1972
deep-draft harbors and channels	Water	1824, 1972
small-boat harbors and channels	Water	1932, 1972
Waterway environmental protection	Water	1969, 1972
Panama Canal Company:		
Operation of the Panama Canal	Water	1902, 1950
Department of Housing and Urban Development:		
Community planning procedures	Air, highway, and transit	1954
Relocation assistance procedures	Highway	1970
Department of the Interior:		
Bureau of Indian Affairs:		
Reservation roads and trails	Highway	1824, 1934

Federal agency and program	Modal system	Key dates
Department of the Interior (cont'd):		
Bureau of Land Management:		
Authorizes use of public lands	Highway and pipeline	1812, 1946
Public lands roads and trails	Highway	1812, 1946
National Park Service:		
Roads, trails and parkways	Highway	1916
Department of State:		
Negotiates international agreements	Air and water	1946, 1972
Provides international air navigation services through I.C.A.O.	Air	1946
Department of Transportation:		
Office of the Secretary:		
General functions:		
Formulates and coordinates transportation policies	All	1966
U.S. Coast Guard:		
Aids to navigation	Water	1789, 1972
Marine environmental protection	Water	1838, 1972
Federal Aviation Administration:		
Operates national air traffic control system	Air	1926, 1958
Standards for aviation noise emmissions	Air	1968, 1972
Federal Railroad Administration:		
Operation of Alaska Railroad	Rail	1914, 1966
Saint Lawrence Seaway Development Administration:		
Operation of Saint Lawrence Seaway	Water	1954, 1970
Urban Mass Transportation Administration:		
Training for transit professionals	Transit	1966
Environmental Protection Agency:		
Air quality standards for cities	All	1963, 1970
Aircraft noise emission standards	Air	1972
Aircraft pollution emission standards	Air	1970

Federal agency and program	Modal system	Key dates
Environmental Protection Agency (cont'd):		
Motor carrier noise standards	Highway	1972
Motor vehicle pollution emission standards	Highway and transit	1965, 1970
Water quality standards	Pipeline and water	1972
Federal Maritime Commission:		
Maritime environmental protection	Water	1972
Interstate Commerce Commission:		
System planning for Northeast railroads	Rail	1973
Tennessee Valley Authority:		
Operates navigation facilities	Water	1933
U.S. Railway Association:		
System planning for Northeast railroads	Rail	1973

TABLE 4

Federal Economic Regulation of

the U.S. Transportation System

Federal agency and program	Modal system	Key dates
Civil Aeronautics Board:		
Regulation of air carriers	Air	1938, 1958
Federal Energy Administration:		
Regulation of energy prices and supplies (note a)	All	1972, 1974
Federal Maritime Commission:		
Regulation of domestic offshore and international water carriers	Water	1916, 1933
Federal Power Commission:		
Regulation of natural gas pipelines	Pipeline	1938, 1969
Interstate Commerce Commission:		
Regulation of commuter railroads	Transit	1887, 1958
Regulation of domestic water carriers	Water	1916, 1940
Regulation of motor carriers	Highway	1935
Regulation of petroleum pipelines	Pipeline	1906
Regulation of railroads	Rail	1887, 1958

a/Expired August 1975, but it may be reinstated by the Congress.

Research and development (See table 5, pp. 14 to 15.)

Federal research and development programs provide an important supporting service for the U.S. transportation systems. In most instances, research and development programs are conducted in conjunction with other agency responsibilities relating to transportation. For example, the Department of Transportation's Federal Highway Administration conducts research on highway transportation in connection with its administration of the Federal-Aid Highway Program. Other Federal research and development activities relating to transportation include military research programs with potential civilian application and research on transportation-related energy problems.

Twelve Federal agencies have research and development activities relating to transportation. Seven of these agencies are component administrations in the Department of Transportation. In 1974 Federal expenditures for transportation research and development amounted to $1.1 billion, or 9 percent of total 1974 Federal expenditures on the U.S. transportation system.

Safety (See table 6, p. 16.)

Federal transportation safety programs include: development and enforcement of Federal safety standards for a wide variety of transportation operations and equipment; financial and technical assistance to State and local government transportation safety programs; investigations of transportation accidents and safety problems; and search and rescue operations on U.S. waters.

Seven Federal agencies have transportation safety programs. All of the agencies, except for the National Transportation Safety Board, are component administrations in the Department of Transportation. In 1974 Federal expenditures for transportation safety programs, except for safety-related research and development, amounted to $0.8 billion, or 7 percent of total 1974 Federal expenditures on the U.S. transportation system.

CONGRESSIONAL COMMITTEE JURISDICTION

Because of the wide variety of Federal transportation programs and the number of Federal agencies with roles in transportation, many congressional committees have jurisdictions relating to some aspect of transportation. For our analysis, we identified congressional committees with broad transportation-related charters or with responsibilities for one of the following agencies: Department of Transportation;

Maritime Administration, Department of Commerce; U.S. Army Corps of Engineers (Civil Functions); Civil Aeronautics Board; Federal Maritime Commission; Interstate Commerce Commission; and National Transportation Safety Board. Within this limited category of committees with major transportation program responsibilities, we identified 7 House committees (including 20 subcommittees) and 5 Senate committees (including 13 subcommittees). Table 7 (see p. 17) shows each committee's and subcommittee's area of jurisdiction by program category and modal system.

TABLE 5

Federal Research and Development for

The U.S. Transportation System

Federal agency and program	Modal system	Key dates
Department of Commerce:		
Maritime Administration:		
Research on marine transportation	Water	1936, 1970
Department of Defense:		
U.S. Army Corps of Engineers:		
Research on navigation facility construction and operation	Water	1824, 1972
Military Research and Development:		
Aeronautical research--potential civilian use	Air	1915, 1939
Ship technology--potential civilian use	Water	1939
Department of Transportation:		
Office of the Secretary:		
Transportation research and development	All	1966
Research in pipeline technology	Pipeline	1968, 1974
U.S. Coast Guard:		
Research on marine transportation	Water	1838, 1972
Federal Aviation Administration:		
Aeronautical research	Air	1915, 1958
Federal Highway Administration:		
Research on highway transportation	Highway and transit	1894, 1956
Federal Railroad Administration:		
Research on rail transportation	Rail and transit	1965
National Highway Traffic Safety Administration:		
Research on highway and motor vehicle safety	Highway and transit	1966, 1970
Urban Mass Transportation Administration:		
Research on urban transportation	Transit	1961, 1964

Federal agency and program	Modal system	Key dates
Energy Research and Development Administration:		
Research on automotive energy efficiency	Highway and transit	1974
Research on coal gasification and liquefication	Pipeline	1974
Research on nuclear-powered ships--potential civilian use	Water	1946, 1974
National Aeronautics and Space Administration:		
Aeronautical research	Air	1915, 1958

TABLE 6

Federal Safety Programs for the U.S. Transportation System

Federal agency and program	Modal system	Key dates
Department of Transportation:		
Office of the Secretary:		
Safety regulation of gas pipelines	Pipeline	1968, 1974
Safety regulation of liquid pipelines	Pipeline	1965, 1974
Aid to State gas pipeline safety programs	Pipeline	1968, 1974
Safety regulation of hazardous materials	All	1974
U.S. Coast Guard:		
Search and rescue operations	Water	1874, 1966
Marine safety regulation	Water	1838, 1971
Federal Aviation Administration:		
Regulation of aviation safety	Air	1926, 1958
Federal Highway Administration:		
Aid to State highway safety programs	Highway and transit	1966, 1970
Regulation of motor carrier safety	Highway	1935
Federal Railroad Administration:		
Regulation of railroad safety	Rail and transit	1893, 1970
National Highway Traffic Safety Administration:		
Aid to State traffic safety programs	Highway and transit	1966, 1970
Safety standards for motor vehicles	Highway and transit	1966, 1970
National Transportation Safety Board:		
Investigates aviation accidents	Air	1938, 1974
Investigates transportation safety problems	All	1966, 1974

TABLE 7

Congressional Committees With Major Responsibilities

for Federal Transportation Programs

Committees and subcommitees	Program category	Modal system
House of Representatives:		
Appropriations:		
Public Works	Facilities	Water
State, Justice, Commerce, and Judiciary	Financial and regulation	Water
Transportation	All	All
Government Operations:		
Conservation, Energy, and Natural Resources	Facilities	Water
Government Activities and Transportation	All	All
Interstate and Foreign Commerce:		
Consumer Protection and Finance	Safety	Highway
Energy and Power	Regulation	Pipeline
Transportation and Commerce	All	Rail and water
Merchant Marine and Fisheries:		
Coast Guard and Navigation	All	Water
Merchant Marine	All	Water
The Panama Canal	Facilities	Water
Public Works and Transportation:		
Aviation	All	Air
Economic Development	All	All (except rail)
Investigations and Review	All	All (except rail)
Surface Transportation	All	All (except rail)
Water Resources	All	All (except rail)
Science and Technology:		
Aviation and Transportation Research and Development	Research	All
Small Business:		
Activities of Regulatory Agencies	Regulation	All
Commodities and Services	Regulation	Air, highway, rail, and water
Energy and Environment	Regulation	Pipeline
Senate:		
Aeronautical and Space Sciences	Research	Air
Appropriations:		
Public Works	Facilities	Water
State, Justice, Commerce, and Judiciary	Financial and regulation	Water
Transportation	All	All
Commerce:		
Aviation	All	Air
Merchant Marine	All	Water
Surface Transportation	All	All (except air)
Special, Freight Car Shortage	Regulation	Rail
Special, Oil and Gas Production and Distribution	Regulation	Pipeline
Special, To Study Transportation on the Great Lakes-St. Lawrence Seaway	Financial	Water
Government Operations:		
Investigations	All	All
Public Works:		
Economic Development	All	All
Transportation	All	All
Water Resources	All	All

FINANCIAL IMPACT OF FEDERAL TRANSPORTATION PROGRAMS

Federal transportation program expenditures account for a relatively small portion (3.8 percent in 1974) of total private and public transportation expenditures (see table 8, p. 19.) State and local government transportation programs account for about twice as much (7.7 percent in 1974), and private sector expenditures account for the bulk (88.5 percent in 1974) of total transportation expenditures.

Private sector expenditures include (1) expenditures by individuals, private business concerns, and governments for the purchase of transportation services from commercial and public transportation carriers--such as airlines, railroads, and rapid transit lines--and (2) expenditures by individuals, private business concerns (except commercial and public transportation carriers), and governments for the purchase, operation, and maintenance of transportation equipment--such as automobiles and trucks. Transportation user taxes paid to Federal, State, and local governments were excluded from estimates of private sector expenditures to prevent double counting.

State and local government program expenditures include Federal revenue-sharing funds. Because of the complexity of fund flows in the revenue-sharing process, we could not determine the net effect of revenue-sharing payments on specific State and local government program expenditures. According to estimates made by revenue-sharing fund recipients, as much as 15 percent of total revenue-sharing payments may be used to finance State and local government transportation programs. This would be the equivalent of $0.9 billion in 1974.

Estimates of Federal expenditures were based on a detailed analysis of Federal budget documents, including agency budget submissions to the Congress. Estimates were made of expenditures relating to each transportation mode by individual Federal agency and by major programs. Estimates are intended to show the economic effect of Federal expenditures on the U.S. transportation system and are similar but not equivalent to the concept of budget outlays used by the Office of Management and Budget.

Estimates of private sector and State and local government program expenditures were based on our analysis of statistical reports on individual transportation modes prepared by Federal agencies and industry trade associations. Available data for some transportation modes was limited to years prior to 1974, and 1974 estimates for these modes were extrapolated from prior year statistics with adjustments for inflation.

TABLE 8

U.S. Transportation System Expenditures, 1974

Activity	Expenditures (000,000 omitted)	Percent
Private expenditures (note a):		
Passenger transportation	$168,121	56.9
Freight transportation	93,507	31.6
Total	261,628	88.5
Government:		
State and local programs (note b)	22,755	7.7
Federal programs:		
Financial assistance	6,909	2.3
Facilities and services	2,485	.8
Economic regulation	67	(c)
Research and development	1,067	.4
Transportation safety	787	.3
Total Federal programs	11,315	3.8
Total Government programs	34,070	11.5
Total	$295,698	100.0

a/Includes government expenditures for civilian transportation services. Excludes Federal, State and local government transportation user taxes.

b/Includes Federal revenue-sharing program funds.

c/Less than 0.05 percent.

FEDERAL EXPENDITURES ON TRANSPORTATION MODES

The size and importance of Federal transportation program expenditures vary greatly between different transportation modes. Table 9 (see p. 20) compares Federal expenditures for each transportation mode with total private and public expenditures. Detailed estimates of private sector, State and local government, and Federal agency program expenditures relating to individual transportation modes are presented in appendix I.

TABLE 9

Federal Expenditures on Transportation Modes, 1974

Modal system	Total Federal expenditures	Total private and governmental expenditures	Federal (percent)
	(000,000 omitted)		
Highway	$ 4,893	$230,232	2
Air	2,471	18,971	13
Rail	664	16,885	4
Water	1,942	12,799	15
Pipeline	86	10,401	1
Transit	1,259	6,410	20
Total	$11,315	$295,698	4

In 1974, the highway mode received the largest amount of Federal expenditures ($4.9 billion) and the pipeline mode received the smallest amount ($0.1 billion). Federal expenditures accounted for relatively small percentages of total private and public spending in 1974 on the highway and pipeline modes--2 percent of highway expenditures and 1 percent of pipeline expenditures. In contrast, 15 percent of the expenditures on the water mode and 20 percent of the expenditures on the transit mode were made by the Federal Government.

The distribution of Federal expenditures between transportation modes has changed in recent years. Table 10 (see p. 21) compares Federal expenditures for each modal transportation system in 1964 and in 1974. Estimated 1964 expenditures are expressed in terms of 1974 prices to put the two sets of expenditures on a comparable basis.

From 1964 to 1974, Federal spending on the highway mode decreased greatly in terms of constant dollars ($1.2 billion, or 20 percent). Federal spending on air and water modes increased greatly (47 percent for air; 19 percent for water). Federal spending on rail, transit, and pipeline modes was not important in 1964, and most of the growth in Federal expenditures for these three modes has occurred since 1970.

TABLE 10

Comparison of 1964 and 1974 Federal Expenditures on Transportation Modes

Modal system	1964 Federal expenditures, 1974 prices	1974 Federal expenditures	Percent of change 1964-74
	---------(billions)----------		
Highway	$6.1	$ 4.9	-20
Air	1.7	2.5	47
Rail	(a)	.7	-
Water	1.6	1.9	19
Pipeline	(a)	.1	-
Transit	(a)	1.3	-
Total	$9.4	b/ $11.3	20

a/Less than $50 million.

b/Because of rounding, total 1974 expenditures are less than the sum of expenditures by modes.

Table 11 (see p. 22) compares proposed 1975 and 1976 Federal transportation program expenditures with estimated 1974 expenditures. Estimates of proposed 1975 and 1976 expenditures are based on the President's 1976 published budget proposals.

The only major change in the distribution of Federal transportation program expenditures in the President's published budget proposals is the increase in expenditures for the transit mode. However, the amount shown for the rail mode reflects legislative authorizations at the time of the President's budget proposals. Actual Federal expenditures for the rail mode will probably be greater than those projected in table 11. Federal spending on the highway mode is also likely to exceed the amounts shown in table 11 because of increased expenditures for the Federal-Aid Highway Program.

TABLE 11

Comparison of 1974 Federal Expenditures With

1975 and 1976 Budget Proposals

Modal system	Federal expenditures 1974	1975	1976
	--------(billions)--------		
Highway	$ 4.9	$ 4.9	$ 5.2
Air	2.5	2.7	3.0
Rail	.7	.9	.7
Water	1.9	2.1	2.4
Pipeline	.1	.2	.2
Transit	1.3	1.9	2.1
Total a/	$11.3	$12.7	$13.6

a/Because of rounding, total 1974 expenditures are less than the sum of expenditures by modes.

CHAPTER 3

CURRENT NATIONAL TRANSPORTATION POLICY ISSUES

Our discussions with transportation experts and our review of government and academic research on transportation revealed a wide range of policy issues relating to the Federal Government's role in the U.S. transportation system. Most of these issues involved one of the five functional areas of Federal involvement in transportation--financial assistance, facilities and supporting services, economic regulation, research and development, or safety. We also identified groups of issues relating to energy conservation and environmental quality.

FEDERAL FINANCIAL ASSISTANCE

Federal financial assistance programs are the topics of a variety of current transportation policy issues. Nearly every aspect of the Federal-Aid Highway Program is controversial, ranging from the program's high priority compared with Federal aid programs for other transportation modes to the program's effects on the quality of the urban environment. Federal aid to AMTRAK (National Railroad Passenger Corporation) is criticized because of its excessive costs and ineffectiveness. In the transit mode there is disagreement over the adequacy and effectiveness of Federal financial aid to mass transit and concern that the aid program is insufficiently concerned with the needs of the urban poor. Federal assistance programs for the merchant marine and ship construction industries are criticized as excessively costly, ineffective, and overemphasized, compared with Federal aid to other transportation modes.

The most controversial policy issue involves the Federal Government's role in restructuring and rehabilitating the Northeast rail system. There are controversies and disagreements regarding almost every aspect of this program. Issues include the validity of Federal goals and objectives, the economic impact on the Northeast and Midwest regions of the United States, the program's cost effectiveness, and the effectiveness of rail system planning.

The current and long-range costs of Federal financial assistance programs are a major area of controversy. Criticism is directed to the excessive cost of individual programs and to the aggregate cost of Federal involvement and its impact on the taxpayer and the economy. The extent to which program costs are properly and fairly recovered through user fees is also a policy issue. Another major policy issue

concerns the adequacy of Federal planning and coordination of financial assistance programs to avoid duplication and counterproductive conflicts between transportation modes. We also noted criticisms of the Federal general revenue-sharing program regarding the lack of accountability for funds appropriated by the Congress but spent by State and local governments and regarding the lack of Federal leverage for reform.

In addition, there is concern that Federal procedures for citizen participation and environmental impact assessment are delaying needed public works improvements. The effect of Federal financial assistance programs in encouraging excessive use of energy is also a topic of controversy. Finally, in the highway, transit, and rail modes, there is concern as to the extent to which Federal-aid programs are sensitive to State and local needs and priorities.

FEDERAL FACILITIES AND SUPPORTING SERVICES

Federally provided transportation facilities and supporting services are the subject of several major policy issues. The most controversial issue involves the Army Corps of Engineers' work in constructing, operating, and maintaining inland waterways, harbors, and navigation channels. These Corps activities were criticized as being excessively costly in relation to program benefits and because their costs were not recovered through user charges. Other waterways program policy issues include the program's high priority relative to other Federal transportation programs, the program's environmental impacts, and the lack of coordination with other transportation modes receiving Federal financial assistance.

Federal operation of the national air traffic control and navigation system is also the topic of policy disagreement. Policy issues include the program's relatively high priority compared with that of other Federal transportation programs, the extent to which program costs are properly and fairly recovered through user charges, and the effectiveness of the air traffic control system.

We noted widespread criticism of overall long-range planning and transportation policy coordination by the Department of Transportation. This policy issue centered on the absence of comprehensive plans for Federal involvement in transportation; such plans would prevent duplications of effort and conflicts between Federal agencies and between Federal transportation programs.

FEDERAL ECONOMIC REGULATION

Federal economic regulation of transportation is currently one of the most controversial areas of Federal involvement in the U.S. transportation system. Most criticism of federal economic regulation is directed to the air, highway, and rail modes. Federal regulation of the pipeline, water, and transit modes is less extensive and consequently is less controversial.

In the air mode, controversy over federal economic regulation focused on the impact of regulation on passenger fares and system capacity and on the appropriate role of the Federal Government in promoting scheduled air service to small communities. In the highway mode, debate centered on the impact of Federal regulation on motor carrier freight rates and on the potential effects of deregulation on common carrier trucking service to small shippers.

In the rail mode, criticism was aimed at regulatory constraints on the abandonment of unprofitable rail lines and services. There was also disagreement regarding the effects of regulatory limitations on price setting by the railroads and controversy over the amount of time consumed by regulatory proceedings, particularly for financial mergers and consolidations.

There was limited criticism of Federal economic regulation of the water mode (regarding constraints on intermodal transportation services), the transit mode (constraints on the abandonment of unprofitable commuter rail service), and the pipeline mode (the effects of regulation on energy prices and supplies).

Factual disagreements about Federal economic regulation of transportation focused on the economic effects of existing regulations and on the effects which would result from removal of Federal regulations. Disagreements over basic value judgments centered on the rights of private business to make decisions without Government interference and the desirability of Federal intervention in private business activities for public purposes.

Planning and coordinating Federal economic regulatory activities was a particularly controversial policy issue. Debate centered on the lack of coordination between Federal regulatory programs and Federal aid programs and on the absence of a coordinated Federal policy for economic regulation of transportation.

Criticisms of the present Federal regulatory system were matched by a variety of countercriticisms and defenses. For example, Federal regulation of the interstate trucking industry is strongly defended by many private trucking companies, small shippers, and the Interstate Commerce Commission. Similarly, Federal regulation of commercial air transportation is defended by the airlines and by the Civil Aeronautics Board.

FEDERAL RESEARCH AND DEVELOPMENT

Federal research and development programs for the U.S. transportation system are not a major area of policy disagreement and controversy. Most current policy issues involve the adequacy of program planning and coordination and the cost effectivenss of individual research projects. There was also general concern as to whether transportation research was giving adequate weight to energy and environmental problems.

The most controversial transportation research and development program is administered by the Department of Transportation's Urban Mass Transportation Administration. Controversy over this program focused on whether the program's long-range goals and objectives were well defined, the adequacy of program planning, and the program's accomplishments and costs.

Federal aeronautical research and development was also the subject of criticism. Criticism was directed toward the relatively high priority of aeronautical research and development compared with other Federal transportation research and development, program cost effectiveness, and planning and coordination of research by the several Federal agencies involved.

FEDERAL TRANSPORTATION SAFETY

Federal transportation safety programs are the subject of several current policy issues. The most controversial issue involves the Federal role in motor vehicle safety. There is controversy over nearly every aspect of the Federal Government's role in automotive safety, including the economic impact of Federal safety standards on the automobile industry and the economy as a whole, the effect on individual civil liberties of requiring mandatory use of seatbelts, and the effectiveness of safety standards. In particular, debate centered on the extent to which Federal automotive safety standards were adequately planned and coordinated with Federal automobile emissions standards and with Federal goals for energy conservation.

Policy issues relating to other Federal transportation safety programs include the programs' effectiveness in preventing accidents and the adequacy of program planning and coordination. There was debate as to whether Federal safety programs for the air mode gave adequate attention to general aviation. There also was criticism of the costs of Coast Guard safety programs and the lack of user charges to recover some of these costs.

ENERGY ISSUES

Energy problems have recently become a major source of policy issues relating to Federal involvement in the U.S. transportation system. These include the question of whether some Federal transportation programs (particularly in the air and highway modes) encourage excessive use of energy and whether Federal transportation programs should encourage greater use of energy-efficient transportation modes (such as rail and water). A related issue is whether Federal transportation policy planning and program coordination gives adequate weight to energy considerations.

The most controversial energy-related issue involved Federal efforts to improve the efficiency of motor vehicle energy consumption. Debate focused on whether present voluntary efforts could achieve major improvements and on the adequacy of coordination with Federal motor vehicle safety and emissions standards.

Other energy-related policy issues concern the potential economic impact on transportation of Federal regulation and taxation of energy prices and supplies. In the highway mode, debate centered on the effects of deregulating domestic petroleum prices and increasing the Federal fuel tax on automobile use of gasoline. In the air mode, controversy focused on the effects of deregulating domestic petroleum prices and on whether airlines should be permitted to pass on increased fuel prices through increased fares. Federal priorities for allocating energy supplies during shortages were also a policy issue; various interest groups from different transportation modes expressed concern about the relative priority of their mode.

ENVIRONMENTAL QUALITY ISSUES

Environmental quality problems are a major source of policy disagreements and controversies relating to Federal involvement in the U.S. transportation system. These policy issues involve the development and enforcement of Federal environmental quality standards relating to air quality,

water quality, and noise; they also involve the effects of Federal environmental impact assessment procedures.

The most controversial policy issue relates to Federal air quality standards, particularly those for motor vehicles. There is controversy over the effectiveness of Federal motor vehicle emissions standards, the economic impact of emissions standards on the automobile industry and the consumer, and the effects of emissions standards on the rights of private business to operate without Government interference. There is also debate over the practicality of and potential economic effects of Federal environmental air quality standards and goals for metropolitan areas. Criticisms and counter-criticisms were identified on all sides of this issue, ranging from concerns that air quality standards were too severe to concerns that they were insufficiently stringent.

Controversy over the effects of Federal water quality standards on the water transportation system focused on their potential economic impacts on waterway improvements and on water transportation of petroleum products. Debate also centered on the adequacy of Federal controls to prevent water pollution from water transportation vehicles.

Federal noise pollution standards were also the subject of criticism, particularly those standards relating to the air mode. This policy issue involved the adequacy of Federal standards in preventing noise pollution and the potential economic effects of regulation on air transportation.

Federal procedures for environmental impact assessment were a major subject of controversy. Most policy issues involved air, highway, pipeline, and transit transportation, because these modes were particularly affected by Federal environmental impact assessment procedures. Current policy issues include the economic impact of the procedures on public works construction, the effects of the procedures on State and local control of public works projects, the adequacy of planning and coordination by Federal agencies, and the effectiveness of the procedures in preventing adverse environmental effects.

Environmental quality issues are frequently linked with energy conservation problems in controversies over transportation policy. For example, criticisms of Federal transportation programs for adverse environmental effects often are accompanied by concern that the same programs encourage excessive use of energy. Because of the close connections between the two sets of issues, a major transportation policy issue centers on the adequacy of coordination and joint planning for Federal environmental quality and energy conservation programs in the field of transportation.

CHAPTER 4

OBSERVATIONS

The Federal Government's role in the U.S. transportation system has developed incrementally over many years. This has resulted in the Federal Government's wide range of transportation-related activities and in the decentralized administrative and legislative structure--32 Federal agencies and 12 major congressional committees--which carries out Federal transportation programs. It is reflected in the complexity of the Federal transportation laws which define the basic goals and objectives of the Federal Government's role in transportation.

We believe that the decentralized structure of Federal agency and congressional committee responsibilities and the complexity of Federal transportation laws may be the basic causes of public concern that Federal transportation programs are uncoordinated and counterproductive.

The diversity of the Federal Government's interests in transportation places obvious limits on the extent to which the Federal Government's role can be simplified. We believe it is possible to modernize and unify the various public laws which authorized Federal involvement in transportation and thus move toward a unified national transportation policy. Such legislation might take the form of a National Transportation Policy Act which would establish unified national goals for transportation and impact assessment procedures to identify counterproductive Federal transportation programs and activities.

As an interim measure, improving the availability of budget information on the Federal Government's role in transportation could be of major value to the Congress in assessing priorities for Federal transportation programs. This might take the form of a unified transportation program budget schedule, submitted as part of the President's annual budget proposals, including estimates of Federal expenditures for all transportation-related programs.

On September 17, 1975, the Secretary of Transportation issued a Statement of National Transportation Policy which proposes a set of principles for national transportation policy and which relates the principles to existing Federal transportation programs and proposed legislation. The policy statement specifically recognizes the existence of inconsistencies in Federal transportation laws and programs and

recommends changes to rationalize the Federal Government's role in transportation.

We believe that this is a valuable contribution to the modernization of the Federal Government's role in transportation and can serve as the basis for constructive discussions of national transportation goals and priorities.

ESTIMATES OF TRANSPORTATION EXPENDITURES, 1974

This appendix presents estimates of 1974 expenditures for the six transportation modes which comprise the U.S. transportation system. Estimates are presented for each major Federal agency and program, State and local government transportation programs, and private sector transportation expenditures.

Estimates of Federal expenditures are based on analysis of agency budget justifications, including agency budget submissions to the Congress. Estimated Federal expenditures are for fiscal year 1974 and are intended to reflect the economic effect of Federal expenditures on the U.S. transportation system during 1974. Estimates are similar but not equivalent to the concept of budget outlays used by the Office of Management and Budget.

Estimates of private sector and State and local government expenditures were based on our analysis of statistical reports for individual transportation modes prepared by Federal agencies and industry trade associations. Available data for some transportation modes was limited to years prior to 1974, and 1974 estimates for these modes were based on prior year statistics with adjustments for inflation.

Private sector expenditures include (1) expenditures by individuals, private business concerns, and governments for purchase of transportation services from commercial and public transportation carriers--such as airlines, railroads, and rapid transit lines--and (2) expenditures by individuals, private business concerns (except commercial and public transportation carriers), and governments for the purchase, operation, and maintenance of transportation equipment--such as automobiles and trucks. Transportation user taxes paid to Federal, State, and local governments were excluded from estimates of private sector expenditures to prevent double counting.

State and local government program expenditures include an undetermined amount of funds from the Federal revenue-sharing program. Because of the complexity of fund flows in the revenue-sharing process, it is difficult to determine the net effect of revenue-sharing payments on specific State and local government program expenditures. According to estimates made by revenue-sharing fund recipients, as much as 15 percent of total revenue-sharing payments may be used to finance State and local government transportation programs. This would be the equivalent of about $916 million in 1974.

APPENDIX I

1974 AIR MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
AIR PASSENGER TRANSPORTATION:		
General aviation:		
Personal	$ 268	
Business	1,298	
Other	455	
Commercial air carriers:		
Domestic	8,877	
International	2,443	
	13,341	
AIR FREIGHT TRANSPORTATION:		
Commercial air carriers:		
Domestic	1,090	
International	703	
	1,793	
Total private		$15,134
GOVERNMENT PROGRAMS:		
STATE AND LOCAL (note b)	1,366	
FEDERAL:		
Civil Aeronautics Board:		
Administration	15	
Subsidies to air carriers	73	
Council on Environmental Quality	(c)	
Department of Commerce:		
National Oceanic and Atmospheric Administration:		
Aeronautical chart services	3	
Aviation weather services	18	
Department of Defense:		
Military aeronautical research--potential civil use	332	
Department of Housing and Urban Development	(c)	
Department of State:		
U.S. participation in International Civil Aviation Organization	5	
Department of Transportation:		
Federal Aviation Administration:		
Operate air traffic control system	1,286	
Financial assistance to local airport construction	266	
Safety	182	
Research and development	105	
Operate national capital airports	16	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Department of the Treasury	(b)	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
National Aeronautics and Space Administration:		
Aeronautical research	155	
National Transportation Safety Board	7	
Total Federal	2,471	
Total Government		3,837
TOTAL		$18,971

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Federal revenue-sharing funds are included in State and local government transportation program expenditures.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

1974 HIGHWAY MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
MOTOR VEHICLE PASSENGER TRANSPORTATION:		
Private use:		
Passenger automobiles and trucks	$144,051	
School buses	1,663	
Commercial motor carriers:		
Intercity buses	1,020	
	146,734	
MOTOR VEHICLE FREIGHT TRANSPORTATION:		
Private use:		
Trucking:		
Intercity	11,331	
Local	16,266	
Commercial motor carriers:		
Trucking:		
Intercity	21,801	
Local	9,340	
	58,738	
Total private		$205,472
GOVERNMENT PROGRAMS:		
STATE AND LOCAL (note b)	19,867	
FEDERAL:		
Council on Environmental Quality	(c)	
Department of Agriculture:		
Forest Service:		
Forest roads and trails	111	
Department of Housing and Urban Development	(c)	
Department of the Interior:		
Bureau of Indian Affairs:		
Reservation roads and trails	63	
Bureau of Land Management:		
Public lands roads and trails	21	
National Park Service:		
Roads, trails, and parkways	35	
Department of Transportation:		
Federal Highway Administration:		
Financial assistance to State highway programs	4,328	
Highway and motor carrier safety	86	
Research and development on highway transportation	33	
Direct highway construction	30	
National Highway Traffic Safety Administration:		
Financial assistance to State safety programs	93	
Motor vehicle and traffic safety	64	
Highway safety research and development	26	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Department of the Treasury	(b)	
Energy Research and Development Administration	2	
Environmental Protection Administration	(c)	
Federal Energy Administration	(c)	
Interstate Commerce Commission	19	
National Transportation Safety Board	(c)	
Total Federal	4,893	
Total Government		24,760
TOTAL		$230,232

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Federal revenue-sharing funds are included in State and local government transportation program expenditures.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

APPENDIX I

1974 PIPELINE MODE EXPENDITURES

	Expenditures (000 omitted)	
PRIVATE EXPENDITURES (note a):		
Natural gas pipelines	$ 8,395	
Petroleum pipelines	1,920	
Total private		$10,315
GOVERNMENT PROGRAMS:		
STATE AND LOCAL	(b)	
FEDERAL:		
Council on Environmental Quality	(c)	
Department of the Interior:		
Bureau of Land Management:		
Alaska pipeline inspection	7	
Other pipeline land use authorization	4	
Energy Research and Development Administration:		
Research on coal liquefication and gasification	58	
Federal Power Commission:		
Economic regulation of natural gas pipelines	8	
Department of Transportation:		
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Natural gas pipeline safety grants	1	
Department of the Treasury	(b)	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
Interstate Commerce Commission	(c)	
National Transportation Safety Board	(c)	
Total Federal	86	
Total Government		86
TOTAL		$10,401

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Data not available. Some Federal revenue-sharing funds may be used for State and local government expenditures relating to pipeline transportation.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

1974 RAIL MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
RAIL PASSENGER TRANSPORTATION:		
AMTRAK (National Railroad Passenger Corporation)	$ 257	
Auto Train Corporation	27	
Other rail passenger service (note b)	56	
	340	
RAIL FREIGHT TRANSPORTATION:		
Freight	15,784	
Mail	93	
Express	4	
	15,881	
Total private		$16,221
GOVERNMENT PROGRAMS:		
STATE AND LOCAL	(b)	
FEDERAL:		
Department of Transportation:		
Federal Railroad Administration:		
Federal aid to AMTRAK	539	
Federal aid to Northeast-Midwest railroads	23	
Federal aid for natural disaster relief	24	
Research and development	38	
Safety	7	
Administration	3	
Alaska Railroad	2	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Council on Environmental Quality	(c)	
Department of the Treasury	(b)	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
National Transportation Safety Board	(c)	
Interstate Commerce Commission	19	
U.S. Railway Association	1	
Total Federal	664	
Total Government		664
TOTAL		$16,885

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Excludes expenditures for commuter railroads and rail rapid transit. Some Federal revenue-sharing funds may be used for State and local government expenditures relating to rail transportation.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

1974 TRANSIT MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
Commuter railroads	$ 200	
Rail rapid transit	498	
Streetcars	37	
Trolley coaches	19	
Motorbus transit	1,258	
Taxicabs	2,302	
Total private		$4,314
GOVERNMENT PROGRAMS:		
STATE AND LOCAL (note b)	837	
FEDERAL:		
Council on Environmental Quality	(c)	
Department of Housing and Urban Development	(c)	
Department of Transportation:		
Federal Highway Administration	(d)	
Federal Railroad Administration	(e)	
National Highway Traffic Safety Administration	(d)	
Urban Mass Transportation Administration:		
Urban Mass Transportation Fund:		
Urban Mass Transportation Act capital grants	870	
Federal-Aid Highway Act capital grants:		
Interstate transfer	61	
Urban substitution	35	
Technical studies grants	38	
Research, development, and demonstrations	67	
Training and university research	3	
Administration	7	
Federal contribution to Washington Metropolitan Area Transit Authority	170	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Department of the Treasury	(b)	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
Interstate Commerce Commission	(c)	
National Transportation Safety Board	(c)	
Total Federal	1,259	
Total Government		2,096
TOTAL		$6,410

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Federal revenue-sharing funds are included in State and local government transportation program expenditures.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

d/Expenditures not separable from highway mode-related agency expenditures.

e/Expenditures not separable from rail mode-related agency expenditures.

APPENDIX I

1974 WATER MODE EXPENDITURES

	Expenditures (000,000 omitted)	
PRIVATE EXPENDITURES (note a):		
WATER PASSENGER TRANSPORTATION:		
Private use:		
Recreational boating	$ 3,081	
Commercial water carriers:		
Domestic	19	
International	292	
	3,392	
WATER FREIGHT TRANSPORTATION:		
Private use:		
Commercial fishing transportation	205	
Commercial water carriers:		
Domestic	2,149	
International	4,426	
	6,780	
Total private		$10,172
GOVERNMENT PROGRAMS:		
STATE AND LOCAL (note b)	685	
FEDERAL:		
Council on Environmental Quality	(c)	
Department of Commerce:		
Maritime Administration:		
Ship construction subsidies	211	
Operating-differential subsidies	271	
Research and development	24	
Training for merchant marine	11	
National Oceanic and Atmospheric Administration:		
Nautical chart services	20	
Marine weather services	3	
Department of Defense:		
Civil functions:		
Corps of Engineers:		
Construction of navigation projects	229	
Operation and maintenance of navigation projects	314	
Research and development	2	
Panama Canal Company	(d)	
Military research and development:		
Ship technology research--potential civil use	32	
Department of State	(c)	
Department of Transportation:		
Coast Guard:		
Search and rescue operations	308	
Navigation aids	204	
Marine safety	65	
Marine environmental protection	62	
Ocean operations--research and law enforcement	142	
Other research and development	16	
Saint Lawrence Seaway Development Corporation	(d)	
Office of the Secretary:		
Administration	4	
Transportation planning, research, and development	4	
Department of the Treasury	(b)	
Energy Research and Development Administration:		
Research on nuclear powered ships--potential civil use	11	
Environmental Protection Agency	(c)	
Federal Energy Administration	(c)	
Federal Maritime Commission	6	
Interstate Commerce Commission	(c)	
National Transportation Safety Board	(c)	
Tennessee Valley Authority:		
Construction and operation of navigation projects	3	
Total Federal	1,942	
Total Government		2,627
TOTAL		$12,799

a/Includes government expenditures for civilian transportation services. Excludes Federal, State, and local government transportation user taxes.

b/Federal revenue-sharing funds are included in State and local government transportation program expenditures.

c/Expenditures not separable from nontransportation-related agency expenditures or less than $0.5 million.

d/Financed through tolls charged for the use of navigation facilities.

APPENDIX II

FEDERAL AGENCIES WITH IMPORTANT ROLES IN THE U.S. TRANSPORTATION SYSTEM

Thirty-two Federal agencies have important roles in the U.S. transportation system. A description of each agency's role, the historical development of its role, fiscal year 1974 expenditures, and identification of transportation modes in which the agency has a role are presented below.

The following abbreviations are used in this appendix.

CAB	Civil Aeronautics Board
DOD	Department of Defense
EPA	Environmental Protection Agency
ERDA	Energy Research and Development Administration
FAA	Federal Aviation Administration
FEA	Federal Energy Administration
FHWA	Federal Highway Administration
FMC	Federal Maritime Commission
FPC	Federal Power Commission
FRA	Federal Railroad Administration
HUD	Department of Housing and Urban Development
ICAO	International Civil Aviation Organization
ICC	Interstate Commerce Commission
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act of 1969
NHTSA	National Highway Traffic Safety Administration
NOAA	National Oceanic and Atmospheric Administration
NTSB	National Transportation Safety Board
SLS	Saint Lawrence Seaway
TVA	Tennessee Valley Authority
UMTA	Urban Mass Transportation Administration
USRA	U.S. Railway Association

CIVIL AERONAUTICS BOARD

The Civil Aeronautics Board (CAB) is an independent regulatory agency with broad responsibilities for the promotion and economic regulation of the U.S. commercial air transportation industry. CAB's regulatory authority extends to all types of commercial air transportation except for a few air carriers that provide exclusively intra-State service.

Under present CAB regulations, commercial air carriers must file tariffs with CAB which set forth just and reasonable passenger and cargo rate tariffs. CAB controls minimum rates and regulates competition between air carriers. U.S.

carriers must obtain CAB's approval to develop new domestic and international air passenger or freight service, to discontinue existing air transportation service, and for financial reorganizations and mergers. In discharging its regulatory duties, CAB is specifically required to promote and encourage the development of the U.S. air transportation system.

In addition to its regulatory activities, CAB grants subsidies to certain local service or "feeder" air carriers that provide air transportation services to small communities and in Alaska. Subsidies are provided when the volume of traffic is insufficient to meet the costs of providing air service. In 1974 Federal financial expenditures for these subsidies amounted to $73 million.

CAB's responsibility to economically regulate commercial air transportation originated during the economic depression of the 1930s. The Air Mail Act of 1934 authorized limited Federal control over the airline industry. The basic structure of CAB's present economic regulatory authority was established by the Civil Aeronautics Act of 1938 and updated by the Federal Aviation Act of 1958.

CAB's subsidies to local service air carriers are part of a long tradition of Federal financial support and promotion for air transportation. The Air Mail Act of 1925 was an early attempt to promote commercial aviation by providing Federal contracts for transporting airmail. The Civil Aeronautics Act of 1938 specifically provided that airmail rates be used as means of subsidizing air transportation. This was changed by the Federal Aviation Act of 1958 which required subsidies to be separate from and unconnected with airmail rates.

In 1974 CAB expenditures amounted to $88 million, of which $15 million was for general administration and $73 million for subsidies.

COUNCIL ON ENVIRONMENTAL QUALITY

The Council on Environmental Quality is part of the Executive Office of the President. The Council was established in 1969 to develop national policies for improving the quality of the environment and to develop guidelines for the Federal Government's implementation of the National Environmental Policy Act of 1969 (NEPA). The resulting environmental impact assessment procedures have had a major impact on all modes of U.S. transportation. Under NEPA Federal agencies are required to prepare environmental impact

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statements for any major public or private action that appreciably affects the environment. In effect NEPA requires detailed public consideration of environmental implications to be incorporated into the Federal Government's decisionmaking processes. Although the Council issues guidelines to Federal agencies for implementing NEPA and reviews agency environmental impact statements, the primary administrative burden for NEPA falls on the individual Federal agencies.

Air transportation

NEPA procedures have had a major impact on air transportation, particularly on the construction of new airports and expansion of airports in urban areas. In 1974 the Department of Transportation's Federal Aviation Administration issued 32 final environmental impact statements, which was the second highest number issued by a Department of Transportation agency.

In response to NEPA, the Civil Aeronautics Board now includes environmental issues within the scope of most of its regulatory proceedings. CAB has also ordered further proceedings in some regulatory cases begun before NEPA to develop evidence on environmental impacts.

Highway transportation

NEPA procedures have had a major impact on highway transportation, particularly in the area of new highway construction in urban areas. Since NEPA's enactment, the Department of Transportation's Federal Highway Administration (FHWA) has been the most active Federal agency in preparing environmental impact statements. In 1974 FHWA submitted 272 final impact statements, or about 21 percent of the statements received by the Council on Environmental Quality in 1974. The impact statement on extending interstate highway I-66 into Washington, D.C., is an example of the statements prepared by FHWA.

The Department of Transportation's National Highway Traffic Safety Administration (NHTSA) has not been a major source of environmental impact statements. In some cases NHTSA has complied with the requirements of the law by determining that its activities do not require filing an impact statement.

Pipeline transportation

NEPA procedures have had important effects on pipeline transportation, particularly on constructing new pipelines.

One of the most important initial applications of the NEPA procedures occurred in 1970 when a court decision required the Secretary of the Interior to prepare an environmental impact assessment for the proposed Alaska oil pipeline. Subsequent litigation over the resulting environmental impact statement ended in a court decision finding that the proposed pipeline would require a right-of-way greater than that allowed by law, and in 1973 the Congress enacted legislation overriding the NEPA procedures and directing the Secretary of the Interior to authorize construction of the pipeline.

The Federal Power Commission (FPC), which is responsible for economic regulation of natural gas pipelines, has been an active participant in preparing environmental impact assessments for pipelines. In 1974 FPC issued 13 final environmental impact statements for natural gas pipelines and liquid natural gas facilities. The Department of the Interior is also an active participant in preparing environmental impact assessments as part of its responsibilities for issuing right-of-way and other land use authorizations for constructing pipelines through the federally owned public lands.

In 1974 the Department of Transportation's Office of Pipeline Safety (now part of the Materials Transportation Bureau) reviewed 18 environmental impact statements prepared by other Federal agencies on the effects of existing or proposed oil or gas pipelines and was a joint participant with the Department of the Interior in preparing an environmental impact statement for proposed pipelines for transporting gas from the Alaskan North Slope and the Canadian Arctic to the United States.

Rail transportation

NEPA requirements for environmental impact assessments have had a limited effect on rail transportation because of the absence of new railroad construction projects. The U.S. Railway Association prepared an environmental impact assessment in support of its proposals for the Northeast-Midwest rail system. The Interstate Commerce Commission (ICC) now prepares environmental impact statements as part of its regulatory proceedings, affecting such cases as proposed freight rate increases on recyclable commodites. However, the Department of Transportation's Federal Railroad Administration did not issue any final impact statements in 1974.

Transit transportation

Direct effects of the NEPA requirements on transit transportation have been relatively limited. Public mass transportation is generally believed to be less damaging to environmental quality than the private automobile, and the number of large-scale transit construction projects is relatively small. However, the indirect effect of NEPA requirements has been to increase public support for urban public transportation as an environmentally superior competitor to automobile and highway transportation. In 1974 the Department of Transportation's Urban Mass Transportation Administration submitted three final environmental impact statements to the Council on Environmental Quality.

Water transportation

NEPA procedures have had important effects on water transportation, particularly in the areas of the Corps of Engineers' inland waterway construction and maintenance and harbor maintenance.

To meet NEPA requirements, the Corps of Engineers has modified its project planning activities to include preparing environmental impact statements and has modified its operating procedures in many instances to reduce environmental effects. The Corps is the second largest Federal agency in terms of environmental impact statement preparation, accounting for about 21 percent of all new impact statements filed with the Council on Environmental Quality.

In the Department of Transportation the U.S. Coast Guard issued 14 final environmental impact statements in 1974 on water projects and programs. The Department of Commerce's Maritime Administration issued environmental impact statements on such activities as the construction and operation of bulk chemical tank vessels constructed with Maritime Administration financial assistance. Finally, the Department of State prepares environmental impact statements on such international agreements as the Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter and the 1973 Convention on the Prevention of Pollution from Ships.

NEPA procedures have served as one of the primary bases for legal proceedings by environmental conservation groups

against Federal agencies, such as the Corps of Engineers. For example, legal injunctions have prevented the Corps from proceeding with work on several major projects, including the Cross-Florida Barge Canal project, dredging in San Francisco Bay, and maintenance dredging in inland waterways.

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Expenditures by the Council on Environmental Quality and by Federal agencies in carrying out NEPA requirements are difficult to identify. Consequently, no estimate was made of Council expenditures attributable to the U.S. transportation system. The cost incurred by Federal agencies to implement NEPA is not separately identified.

DEPARTMENT OF AGRICULTURE--FOREST SERVICE

The Forest Service of the U.S. Department of Agriculture constructs and maintains roads and trails in the national forests of the United States to protect and manage the national forests and to use their resources. Funds for this purpose are obtained partly from general tax revenues and partly from revenues received annually from national forest activities, such as the sale of timber. In 1974 Forest Service expenditures for this program amounted to $111 million.

The forest reserves were established by the President from the public domain under authority of the act of March 3, 1891, and were transferred from the Department of the Interior to the Department of Agriculture in 1905. Use of revenues from national forest activities for road building was authorized by the act of March 4, 1913.

DEPARTMENT OF COMMERCE--
MARITIME ADMINISTRATION

The Maritime Administration of the U.S. Department of Commerce administers Federal programs to aid in developing, promoting, and operating the U.S. merchant marine. In terms of financial expenditures, Maritime is the third largest Federal agency involved in water transportation. In 1974 Maritime accounted for $517 million, or 27 percent, of the $1.9 billion in Federal expenditures on water transportation.

Maritime administers two major Federal financial assistance programs--subsidies to the U.S. shipbuilding industry

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and subsidies to the operators of U.S. flag merchant vessels. In addition Maritime conducts research and development and training programs in support of the merchant marine.

Maritime's ship construction-differential subsidy program pays the difference between the costs of constructing ships in U.S. and foreign shipyards. The objective of this program is to develop and maintain a U.S. shipbuilding industry which is adequate for the commercial and national security needs of the United States. In 1974 the construction-differential subsidy program cost $211 million.

Maritime's operating-differential subsidy program pays the difference between certain costs of operating ships under the U.S. flag and under the flags of foreign nations. The objective of this program is to develop and maintain a U.S. merchant fleet adequate to meet the Nation's commercial and security needs. In 1974 the operating-differential subsidy program cost $271 million.

Maritime's research and development program includes research on advanced ship development and construction technologies and systems and on advanced systems and procedures for ship operations. Maritime training programs include the U.S. Merchant Marine Academy at Kings Point, New York, and financial assistance to State maritime colleges and academies. In 1974 Maritime expenditures for research and development and for maritime training amounted to $24 million and $11 million, respectively.

Maritime programs follow a long history of Federal involvement in the U.S. merchant marine industry aimed at achieving national security and economic objectives. During World War I the Congress enacted the Shipping Act of 1916 which established a federally financed merchant ship construction program primarily for national defense purposes. During the economic depression of the mid-1930s, the Merchant Marine Act of 1936 expanded the Federal role to include economic assistance to the merchant marine. The present Maritime programs grew out of programs established by the Merchant Marine Act of 1936.

The Merchant Marine Act of 1970 was enacted by the Congress in response to the continued deterioration of the U.S. merchant marine. The 1970 act considerably modified Maritime's programs to encourage increased productivity and efficiency.

DEPARTMENT OF COMMERCE--NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

The National Oceanic and Atmospheric Administration of the Department of Commerce (NOAA) administers a wide range of Federal scientific and technical programs relating to the ocean and to the atmospheric environment. NOAA is a successor agency to the Department of Commerce's Coast and Geodetic Survey and U.S. Weather Bureau. These agencies were combined in 1965 and were made an administration of the Department of Commerce by Reorganization Plan 4 of 1970.

Air transportation

NOAA is responsible for preparing aeronautical charts that describe the Federal airways, navigation facilities, airports, landing patterns, operating procedures, and air traffic rules and regulations. In 1974 NOAA expenditures for this service amounted to $3 million.

NOAA also provides the aviation community with specialized weather services, weather observations, forecasts, warnings, and advisories. In 1974 expenditures for this service amounted to $18 million.

Federal involvement in aeronautical charting and aviation weather services began with the passage of the Air Commerce Act of 1926.

Water transportation

NOAA is responsible for preparing nautical charts used in the navigation of U.S. coastal waters and the Great Lakes. This program includes conducting hydrographic surveys to provide basic data for nautical chart constuction, as well as actually compiling, reproducing, and distributing charts. In 1974 expenditures for this program amounted to $20 million.

NOAA is also responsible for providing specialized marine weather prediction services. This program provides forecasts, warnings, and other advisory information on marine weather ocean and marine ice conditions and seismic sea waves (tsunami). This program also includes research on marine weather prediction. In 1974 NOAA expenditures for the marine weather program amounted to $3 million.

Nautical chart preparation is one of the oldest areas of Federal involvement in water transportation, dating back

to legislation enacted by the Congress in 1807 to survey the U.S. coast. This legislation led to establishing the Coast Survey, which later became the Coast and Geodetic Survey. Federal involvement in Marine weather services began with a joint congressional resolution in 1870, creating a national weather service in the Signal Service of the Army. This service subsequently became the U.S. Weather Bureau.

DEPARTMENT OF DEFENSE--U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers is responsible for administering Federal water resource development programs. As part of its activities, the Corps constructs, operates, and maintains navigation improvement projects in U.S. harbors and inland waterways. In terms of expenditures, only the U.S. Coast Guard expends more than the Corps on water transportation. In 1974 Corps expenditures for navigation improvement projects amounted to $545 million, or 29 percent, of the $1.9 billion in Federal expenditures on water transportation.

Corps navigation improvement projects may be divided into three main categories according to the use of the improved waterway or harbor. Inland waterway projects include improving natural rivers for navigation by dredging open channels and by constructing locks, dams, and canals.

Deep-draft harbor and channel projects include improving natural harbors and channels and constructing new harbors and channels on the sea, the Gulf coasts, and the Great Lakes to meet the requirements of ocean-going shipping.

Small-boat harbor and channel projects include improving natural small-boat harbors and channels and constructing new harbors and channels for commercial and sport fishing, general recreational boating, and for use as harbors of refuge.

Most Corps expenditures on navigation improvements involve preserving, operating, and maintaining existing navigation channels, harbors, locks, dams, and canals. In 1974 Corps expenditures for operating and maintaining navigation projects amounted to $314 million, compared with $229 million for constructing new navigation improvements.

Federal involvement in water navigation projects has a lengthy history. The Corps' civil works responsibilities were initially established by an act of Congress in 1824, appropriating $75,000 for improving navigation over sandbars in

the Ohio River and for removing snags from the Ohio and Mississippi Rivers. More recently, Federal involvement in navigation improvements was broadened to include recreational boating by the Fletcher Act of 1932.

Over the years Congress has expanded the Corps' responsibilities but has maintained a close control over the Corps' navigation improvement projects. Typically, the Corps' navigation projects begin with congressional legislation authorizing survey investigations and other feasibility studies. On the basis of these studies, the Corps recommends projects to the Congress for implementation. In general navigation improvement projects must be approved specifically by law before they can be implemented by the Corps. Such approvals are usually contained in the periodic River and Harbor and Flood Control Acts.

Corps navigation improvement projects have been affected by congressional legislation on environmental quality and environmental protection, including the National Environmental Policy Act of 1969 (NEPA), the Federal Water Pollution Control Act Amendments of 1972, and the Marine Protection, Research and Sanctuaries Act of 1972. NEPA has influenced Corps operating procedures and has served as the basis for litigation that has delayed several major Corps projects. The 1972 acts established Federal regulations for dumping waste materials in inland and ocean waters. These regulations have had an important effect on Corps' dredging operations conducted with the Corps' construction and maintenance of navigation improvement projects.

DEPARTMENT OF DEFENSE--PANAMA CANAL COMPANY

The Panama Canal Company is a wholly owned Government corporation whose primary purpose is maintaining and operating the interoceanic canal at the Isthmus of Panama. The administration of the Company is integrated with that of the Canal Zone Government, an independent Federal agency which provides civil government services to the Canal Zone. The Governor of the Canal Zone, appointed by the Secretary of the Army, is ex-officio President of the Company.

The Panama Canal gives ocean vessels direct access between the Atlantic and Pacific Oceans, without the necessity for traveling around the South American continent. The Company is self-sustaining and is financed through tolls charged for using its facilities. The Company estimates that its 1976 revenues from operating the Canal will amount to $188 million.

Federal involvement in the Panama Canal began with the 1901 Hay-Pauncefote Treaty with Great Britain, which provided for U.S. construction and operation of a canal across the Isthmus of Panama. In 1902 Congress enacted the Spooner Act which authorized the President to proceed with development of the canal and in 1903 the United States made a treaty with the newly formed Republic of Panama for this purpose. Congressional legislation in 1950 established the present organizational structure of the Company and the Canal Zone Government.

Because the Company is financed through revenues from toll charges on canal users, the Federal Government does not make direct financial expenditures for operation of the canal, and none are included in the estimates of Federal agency expenditures presented in this report.

DEPARTMENT OF DEFENSE-- MILITARY RESEARCH AND DEVELOPMENT

Air transportation

The Department of Defense (DOD) is the primary source of Federal funding for aeronautical research and development. DOD's aeronautical research and development activities are intended to carry out military objectives for national defense. Some DOD research activities provide benefits for civilian air transportation. A joint study by the Department of Transportation and the National Aeronautics

and Space Administration has estimated that 20 percent of DOD expenditures for aeronautical research and development have potential civilian application. In 1974 this percentage of the total DOD aeronautical research and development budget amounted to $332 million. This amount was used as the estimate of DOD aeronautical research and development expenditures allocable to civilian air transportation.

Federal support for aeronautical research and development has been traditionally closely related to national defense objectives. Establishing the National Advisory Committee for Aeronautics in 1915 was encouraged primarily by concern for military preparedness. Military support for aeronautical research and development during World War II and after has been a major factor in developing the U.S. civilian air transportation system.

Water transportation

DOD is also a major source of Federal funding for research and development on ship technology. DOD ship technology research and development activities are intended to carry out military objectives for national defense. Some DOD activities provide benefits for civilian water transportation. The Commission on Amercian Shipbuilding has estimated that 5 to 10 percent of military expenditures for naval ship technology research and development have potential application to maritime shipbuilding. In 1974, 5 percent of DOD ship technology research and development expenditures amounted to $32 million (compared with $24 million in research and development expenditures by the Maritime Administration). This amount was used as the estimate of DOD expenditures allocable to civilian water transportation.

Federal support for ship technology research and development has been traditionally oriented toward national defense objectives, increasing during World Wars I and II. Unlike military aeronautical research, ship technology research and development results have not carried over extensively to civilian use. However, DOD expenditures represent a major share of Federal funding for research and development for ship technology.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

The Department of Housing and Urban Development (HUD) is responsible for administering Federal programs to provide assistance for housing and for developing the Nation's communities and metropolitan areas. These responsibilities involve HUD in activities directly relating to air, highway, transit, and water transportation.

Under the provisions of the Housing and Urban Development Act of 1954, HUD administers a program of financial and technical assistance to State and local public agencies for comprehensive community planning. HUD guidelines and standards have had a major influence on the urban planning process and have shaped the goals and objectives of metropolitan development plans throughout the United States. As a result, HUD has played an important part in planning the environment in which urban highway transportation and public mass transportation operate and compete and in which urban airports are located.

Since 1972 HUD has participated jointly with the Federal Aviation Administration, the Federal Highway Administration, and the Urban Mass Transportation Administration in integrating and coordinating Federal involvement in community and transportation planning at the metropolitan level.

Pursuant to the Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970, HUD assists persons displaced by federally funded airport, highway, and water projects.

HUD also works jointly with the Department of Transportation in research on urban transportation. Current joint research projects include a study of transit terminal integration with the urban community, and the BART Impact Study to evaluate the impact of the Bay Area Rapid Transit System on the San Francisco area.

Expenditures for HUD transportation-related activities are difficult to separate from total HUD expenditures and are not included in the estimates of Federal agency expenditures presented in this report.

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DEPARTMENT OF THE INTERIOR--BUREAU OF INDIAN AFFAIRS

The Bureau of Indian Affairs of the Department of the Interior constructs and maintains roads for the movement of people and goods on Indian reservations. The objective of the program is to stimulate Indian reservation economies through the development and use of tribal resources and to help Indian people participate fully in the economic life of the community. In 1974 Bureau of Indian Affairs expenditures for this program amounted to $63 million.

The Bureau of Indian Affairs was created within the War Department in 1824 and transferred to the Department of the Interior in 1849. Authorizing legislation for Bureau of of Indian Affairs activities was provided by the Snyder Act of 1921 and broadened by the Indian Reorganization Act of 1934.

DEPARTMENT OF THE INTERIOR--BUREAU OF LAND MANAGEMENT

The Bureau of Land Management is responsible for managing 450 million acres of federally owned public lands in the far West and Alaska. The Bureau was created in 1946 by Reorganization Plan No. 3 of 1946, and it consolidated the General Land Office (created in 1812) and the Grazing Service (formed in 1934).

Highway transportation

The Bureau of Land Management constructs and maintains roads and trails on the public lands in order to facilitate developing, protecting, administering, and using lands and resources. In 1974 Bureau of Land Management expenditures for these activities amounted to $21 million.

Funds for Bureau of Land Management road construction and maintenance activities are obtained partly from general tax revenues and partly from revenues received annually from the sale of timber and other products from the revested Oregon and California railroad grant lands.

Pipeline transportation

The Bureau also issues right-of-way and other land use authorizations for constructing pipelines and highways through public lands. As part of this work the Bureau reviews applications for land use leases and permits and

checks construction projects for compliance. Authorizations for oil and natural gas pipelines are of particular importance. In 1974 Bureau expenditures relating to right-of-way and other land use authorizations for oil and natural gas pipelines amounted to approximately $11 million, of which $7 million is for the Bureau's work on the Trans-Alaska Pipeline. Most of these expenditures are recovered through user charges.

Bureau expenditures for land use authorizations for highway transportation are difficult to separate from other Bureau expenditures and are not included in the estimates of Federal agency expenditures presented in this report.

DEPARTMENT OF THE INTERIOR--
NATIONAL PARK SERVICE

The National Park Service of the Department of the Interior constructs and maintains park roads, trails, and parkways as part of its responsibilities for administering the National Park System. In 1974 National Park Service expenditures for these activities amounted to $35 million.

The National Park Service was established in the Department of the Interior on August 25, 1916, to administer the National Park System of national parks, monuments, historic sites, and recreation areas.

DEPARTMENT OF STATE

The Department of State is responsible for conducting the foreign affairs of the United State. As part of its activities, the State Department negotiates international agreements and treaties with foreign governments. Some agreements and treaties have important effects on international air and water transportation.

Air transportation

The Department finances the U.S. contribution to the International Civil Aviation Organization (ICAO) which sets standards for international air operations and provides international air navigation services. In 1974 the United States contributed $5 million to ICAO.

The United States began participating in international air transportation conventions and agreements in 1929 with the Warsaw Convention (Unification of Certain Rules Relating

to International Carriage by Air, October 1929). The United States was the original sponsor of the conference on international civil aviation on November 1, 1944, which produced the Chicago Agreement (the Convention on International Civil Aviation). The Chicago Agreement led to the foundation of ICAO. The United States signed the Chicago Agreement on August 9, 1946.

Water transportation

One recent international agreement of particular importance to water transportation is the Maritime Agreement of October 14, 1972, between the United States and the U.S.S.R. This agreement provides U.S. flag merchant vessels with access to at least one-third of all waterborne cargo shipments between the two countries. The Department of State has also negotiated international agreements on marine environmental quality, such as the Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter and the 1973 Convention on the Prevention of Pollution from Ships.

Federal expenditures for these activities are difficult to separate from other Department of State expenditures and are not included in this report.

DEPARTMENT OF TRANSPORTATION--
OFFICE OF THE SECRETARY

The Department of Transportation consists of seven operating administrations (such as the Federal Highway Administration and the U.S. Coast Guard) and a separate Office of the Secretary. Each of the operating administrations is headed by an Administrator who reports directly to the Secretary of Transportation. The Office of the Secretary includes the General Counsel and five Assistant Secretaries of Transportation. The Assistant Secretaries of Transportation serve as staff advisers to the Secretary and do not exercise line authority over the operating administrations.

The Secretary of Transportation is responsible for leading the Federal Government in formulating, executing, and coordinating national transportation objectives, policies, and programs. As head of the Department of Transportation the Secretary is formally responsible for the policies and programs of the seven operating administrations. The Office of the Secretary carries out a wide range of policy formulation, planning, and research and development activities. These include analyzing U.S. transportation needs and prospects and

evaluating Federal transportation policies, programs, and budgets.

The Office of the Secretary also administers certain functions for transporting hazardous materials and pipeline safety. These functions were recently consolidated in the Materials Transportation Bureau of the Office of the Secretary.

Pursuant to the Hazardous Materials Transportation Act of 1974, the Materials Transportation Bureau is responsible for establishing standards for the safe transport of hazardous materials and for enforcing the industry's compliance with the standards.

The Materials Transportation Bureau also prescribes and enforces Federal safety regulations for safe pipeline transportation of gases or hazardous liquids. Pipeline safety regulatory programs include designing, constructing, testing, operating, and maintaining pipelines. Most of these programs are directed to natural gas pipeline safety, but increasing emphasis is being placed on pipelines used to transport liquefied natural gas, crude oil, and petroleum products.

In regulating natural gas pipeline safety, the Materials Transportation Bureau makes grants to States for use in State gas pipeline safety programs. The Bureau also administers a program of research and development for pipeline safety and technology.

Federal involvement in natural gas pipeline safety is of recent origin, beginning with the passage of the Natural Gas Pipeline Safety Act of 1968. Federal responsibilities for liquid pipelines originated in a 1965 amendment to the Transportation of Explosives Act. More recently, Federal responsibilities have been expanded by the Hazardous Materials Transportation Act of 1974, the Deep Water Port Act of 1974, and the 1973 Amendments to the Mineral Leasing Act.

The Department of Transportation budget does not allocate operating expenses for the Office of the Secretary between the seven operating administrations. For cost allocation purposes, the Office's 1974 expenditures ($48 million) were assumed to be divided equally between the six transportation modes, or $8 million for each mode. Federal grants to State natural gas pipeline safety programs accounted for an additional $1 million in expenditures by the Office of the Secretary in 1974 and were allocated to pipeline transportation.

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DEPARTMENT OF TRANSPORTATION--
U.S. COAST GUARD

The U.S. Coast Guard administers a wide range of Federal programs for water transportation, including search and rescue operations, aids to navigation, marine safety, marine environmental protection, scientific research, and offshore law enforcement. The Coast Guard also has certain military preparedness functions because of its potential transfer to the Department of the Navy in wartime, which are not discussed here.

In terms of expenditures, the Coast Guard has the largest Federal role in water transportation. Its expenditures in 1974 ($0.8 billion) represented 42 percent of the total Federal expenditures ($1.9 billion).

The Coast Guard's search and rescue operations are carried out by multipurpose vessels, aircraft, and shore units located on U.S. coasts and inland waterways. These operations include a variety of activities whose objective is to rescue and aid persons and to save property placed in jeopardy because of marine and aircraft accidents, floods, and ice conditions. In financial terms search and rescue operations comprise the largest Coast Guard program, accounting for $308 million, or 39 percent of Coast Guard expenditures in 1974.

Coast Guard aids to navigation include lighthouses, floating buoys, and a variety of electronic radio-navigational communications equipment along the U.S. coast and on the inland waterways. The Coast Guard also monitors the construction, maintenance, and operation of bridges across navigable waters to insure the safe passage of navigation. In financial terms this is the second largest Coast Guard program, accounting for $204 million, or 26 percent of Coast Guard expenditures in 1974.

The Coast Guard's marine safety program includes enforcing Federal safety regulations for the merchant marine industry and recreational boating. The Coast Guard reviews plans for constructing and altering merchant vessels and makes grants to States for boating safety programs, safety patrols, classroom courses in boating safety, and voluntary boat inspections. In 1974 program expenditures amounted to $65 million.

The Coast Guard's marine environmental protection program includes enforcing Federal laws and regulations for marine environmental pollution and port and waterway safety. Pollution patrols are conducted to identify sources of water pollution and oil spills. The Coast Guard also polices harbors, inspects hazardous cargoes, and inspects marine vessels for compliance with port and waterway safety regulations. In 1974 program expenditures amounted to $62 million.

The Coast Guard's scientific research and offshore law enforcement activities include upper air meteorological observations, polar ice-breaking and oceanographic activities, and fishery laws and agreements. In 1974 program expenditures amounted to $142 million.

Research and development activities accounted for an additional $16 million of expenditures in 1974.

Coast Guard programs represent one of the oldest areas of Federal involvement in transportation. The search and rescue activities originated with the Lifesaving Service founded in 1874. The aids-to-navigation program originated with the Lighthouse Service established in 1789. The marine safety and marine environmental protection programs can be traced to the Steamboat Inspection Service begun in 1838. Offshore law enforcement began with the establishment of the Revenue Cutter Service in 1790. Over the years these programs have gradually been consolidated into the present Coast Guard program structure.

More recently, the Port and Waterways Safety Act of 1972 expanded Coast Guard responsibilities for regulating vessel traffic in ports and harbors and for setting standards for commercial vessel safety. The Federal Boat Safety Act of 1971 added new responsibilities for boating safety and authorized Federal grants to State boating safety programs. The Federal Water Pollution Control Act Amendments of 1972 expanded Coast Guard regulatory and inspection responsibilities in marine environmental pollution. The Marine Protection, Research and Sanctuaries Act of 1972 also increased Coast Guard pollution monitoring responsibilities by regulating ocean dumping of wastes.

DEPARTMENT OF TRANSPORTATION-- FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Administration (FAA) administers several Federal programs involving air transportation, including regulating and promoting aviation safety, operating and maintaining the national air traffic control and navigation system, financial assistance to localities for airport planning and construction, research and development, and Federal standards for aircraft and airport noise.

FAA's aviation safety activities extend to all areas of civilian air transportation. FAA (1) enforces safety standards for aircraft pilots and crews, aircraft, airports, and airway and ground operations and (2) administers medical standards for aircraft pilots, crews, and air traffic control personnel.

In terms of expenditures operating and maintaining the national air traffic control and navigation system is the largest FAA program. FAA monitors and controls enroute flights of civilian and military aircraft; guides air traffic movements in and out of 423 major airports; and transmits weather, navigation, and traffic information to aircraft. FAA also procures and maintains the facilities and equipment used for air traffic control and navigation. In 1974 these activities accounted for $1.3 billion, or two-thirds of FAA's expenditures. Part of this cost is financed by the Airport and Airway Trust Fund, using revenue derived from the aviation ticket tax and other taxes paid by airport and airway users.

FAA also makes grants to localities for airport planning and construction. This program is financed by the Airport and Airway Trust Fund and is the second largest FAA activity in terms of expenditures--$266 million in 1974.

FAA's research and development activities are primarily for air traffic control, navigation techniques and landing systems, and aviation safety. Most of this work is financed through the Airport and Airway Trust Fund. Other research is being done on weather information, aviation medicine, and the environmental effects of air transportation.

FAA administers Federal standards for aircraft and airport noise jointly with the Environmental Protection Agency. Current regulations establish noise standards for turbojets

and transport aircraft and prohibit supersonic flights of civilian aircraft. Additional standards including modification of older aircraft, emission levels for new aircraft, and standards for aircraft and airport operations are currently being developed.

FAA's program responsibilities developed over a long history of extensive Federal involvement in air transportation. Limited Federal control over aviation safety was authorized by the Air Commerce Act of 1926. Federal contributions became a major source of funding for airports during the economic depression of the mid-1930s, initially with funds from the Civil Works Administration and Federal Emergency Relief Administration. The basic structure of FAA's current responsibilities for regulating and promoting civil aviation was defined by the Federal Aviation Act of 1958, which established the Federal Aviation Agency. The Department of Transportation Act of 1966 made the Federal Aviation Agency an operating administration within the new Department of Transportation.

The Airport and Airway Development Act of 1970 established the Airport and Airway Trust Fund--financed by taxes paid by airport and airway users--through which Federal grants for airport planning and construction and part of the cost of the national air traffic control and navigation system are financed. FAA's role in noise regulation was authorized by the Federal Aviation Act of 1968 and was expanded by the Noise Control Act of 1972.

DEPARTMENT OF TRANSPORTATION--FEDERAL HIGHWAY ADMINISTRATION

The Federal Highway Adminstration (FHWA) is responsible for administering a wide range of Federal programs for highway construction and highway safety. FHWA activities directly affect highway transportation and components of transit transporation which operate on highways, such as motorbuses, trolley coaches (electric buses), and taxicabs. FHWA programs also indirectly affect transit transportation by facilitating the use of the private passenger automobile, which is public transit's chief economic competitor.

Highway transportation

The most important FHWA program is the Federal-aid highway program of financial and technical assistance to

State governments for constructing and improving highways. In 1974 program expenditures amounted to $4.3 billion.

FHWA provides financial and technical assistance to State and local governments for highway-related safety programs. This program is administered jointly with the Department of Transportation's National Highway Traffic Safety Administration. FHWA is also responsible for administering Federal safety standards for operating and equipping commercial motor carriers and for highway movement of hazardous cargoes.

FHWA plays a major role in urban transportation planning. One-half of 1 percent of all Federal-aid funds apportioned to the States for Federal-aid highway systems is earmarked for comprehensive transportation planning by metropolitan planning agencies.

Other FHWA activities include an extensive program of research and development for highway transportation and direct construction of certain highway facilities located on federally owned public lands.

Federal involvement in State highway construction has a lengthy history beginning with the establishment of the Office of Public Road Inquiries, pursuant to the Agricultural Appropriation Act of 1894 to investigate the need for constructing post roads. The present form and size of the Federal-aid highway program dates primarily from the Federal-Aid Highway Act of 1956. This act established the Highway Trust Fund concept in which Federal aid to State highway construction is financed through special taxes on highway users, such as the Federal motor fuel tax. In 1973 the Federal aid program was amended to authorize limited use of the fund for urban mass transit.

The commercial motor carrier safety programs were transferred to the FHWA from the Interstate Commerce Commission when the Department of Transportation was established in 1966. These programs were originally established under the motor carrier regulatory provisions of part II of the Interstate Commerce Act, enacted in 1935. FHWA's role in highway safety programs was authorized by the Highway Safety Acts of 1966 and 1970 and is shared with the National Highway Traffic Safety Administration.

Transit transportation

The Federal-Aid Highway Act of 1973 modified the highway program to permit limited use of the Highway Trust Fund for urban public mass transportation purposes. Under the act States may elect to substitute mass transit projects for certain highway projects that otherwise would be financed by the fund.

Transit projects may be substituted for sections of the Interstate Highway System in urbanized areas and for highway projects funded under the Federal-Aid Urban Highway System authorization. Primary responsibility for this program is assigned to the Urban Mass Transportation Administration. In 1974 Federal expenditures for mass transit projects funded from the Highway Trust Fund amounted to $96 million.

DEPARTMENT OF TRANSPORTATION--FEDERAL RAILROAD ADMINISTRATION

The Federal Railroad Administration (FRA) was established by the Department of Transportation Act of 1966 to consolidate Federal programs involving rail transportation in a single agency. FRA programs are primarily directed toward rail transportation, but FRA safety and research programs also affect railroad components of transit transportation such as commuter railroads, rail rapid transit, and streetcars.

FRA programs include financial assistance to the National Railroad Passenger Corporation (AMTRAK), financial assistance to the Northeast and Midwest railroads under the Regional Rail Reorganization Act of 1973, railroad safety regulation and financial assistance to State railroad safety programs, research and development in rail transportation, and operation of the Alaska railroad.

In 1970 the Congress enacted the Rail Passenger Service Act of 1970, creating AMTRAK as a private, for-profit corporation to operate and revitalize intercity rail passenger service in the United States. The act provided for Federal financial assistance to AMTRAK, which is administered by FRA.

Federal assistance to AMTRAK has been made in grants to offset operating deficits and in 100-percent loan guarantees for capital improvements. It appears doubtful that the loans which have been guaranteed under this program can be repaid from AMTRAK's operating revenues, and the loan program is

likely to be replaced by direct Federal grants for capital improvements. In 1974 total Federal financial assistance to AMTRAK including capital loan guarantees amounted to $539 million. The Congress demonstrated continuing support for the AMTRAK financial assistance program by passing the AMTRAK Improvement Act of 1974, providing additional Federal funding for AMTRAK.

FRA also administers Federal financial assistance programs for the Northeast and Midwest railroads which were authorized by the Regional Rail Reorganization Act of 1973. These programs are intended to support the reorganization of railroad service in the Northeast and Midwest region of the United States. Several programs are administered jointly with the U.S. Railway Association--a nonprofit Government corporation established by the Regional Rail Reorganization Act for the purpose of preparing and implementing a system plan to restructure rail service in the Northeast and Midwest.

Financial assistance programs authorized by this legislation include long-term federally guaranteed loans to finance the system reorganization, grants to bankrupt railroads to assist in continuing rail service and to rehabilitate their physical plants, and grants to State and local transportion authorities to help subsidize the operating costs of uneconomic branch lines that would otherwise be abandoned by the reorganized rail system. Most of these programs have not been implemented pending congressional approval of the U.S. Railway Association plan for the restructured regional rail system. This is currently an area of political controversy, and it is likely that the structure and scope of Federal financial assistance will undergo considerable modification by the Congress.

One important FRA responsibility is administering Federal railroad safety regulations. FRA sets Federal standards for all areas of railroad safety including railroad equipment, track maintenance and inspection, operating practices, accident reporting, and transportation of hazardous materials. In addition FRA administers a small ($1.5 million in 1974) grant program to pay salaries of safety inspectors employed by State rail safety programs.

FRA conducts an extensive research and development program in rail transportation. Current projects include

research on railroad vehicles and track technology and tunneling and propulsion research. FRA operates the High Speed Ground Test Center in Pueblo, Colorado, which is used by both FRA and the Urban Mass Transportation Administration for rail technology research. In 1974 FRA expenditures for research and development amounted to $38 million.

FRA is also responsible for operating the Alaska Railroad, which provides rail passenger and freight services in the State of Alaska. To the extent possible, Alaska Railroad operations are financed by revenues.

Although the Federal Government played an important role in providing rights-of-way to rail transportation during the 19th century, the current Federal role of providing financial assistance to rail transportation is of recent origin. In 1958 the Congress passed the Transportation Act of 1958 providing a limited program of loan guarantees for the railroads to finance capital investments and maintenance. This program, administered by the Interstate Commerce Commission, was a response to congressional concern over the post-World War II economic decline of the railroad industry.

The Federal role in railroad safety has a long history, beginning with legislation such as the Safety Appliance Act of 1893. In 1967 responsibility for all Federal rail safety programs was transferred to FRA from the Interstate Commerce Commission. These responsibilities were consolidated and expanded by the Railroad Safety Act of 1970 to include comprehensive safety regulation authority and financial assistance to State railroad safety programs.

Before the Railroad Safety Act of 1970, FRA rail safety activities were limited to railroads subject to Interstate Commerce Commission economic regulation and did not include any transit transportation components except commuter railroads. The 1970 act extended FRA's rail safety jurisdiction to include all types of rail transportation and is the basis for current FRA safety work in urban rail transit.

The Federal role in railroad research and development is of recent origin, dating from the High Speed Ground Transportation Act of 1965. The Washington-New York Metroliner demonstration train was an early project.

The Alaska Railroad was authorized by the act of March 12, 1914. Responsibility for operating the Alaska

Railroad was transferred from the Department of the Interior to FRA pursuant to the Department of Transportation Act of 1966.

Although some FRA expenditures are applicable to transit transportation, they are difficult to identify. Thus all FRA expenditures were allocated to rail transportation.

DEPARTMENT OF TRANSPORTATION--
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

The programs of the National Highway Traffic Safety Administration (NHTSA) affect highway transportation and motor vehicle components of transit transportation, such as buses and taxis.

NHTSA is responsible for developing and enforcing Federal Motor Vehicle Safety Standards for new and used motor vehicles, tires, and equipment. In cooperation with the Federal Highway Administration, NHTSA also makes grants to State and local governments to establish and improve highway safety programs.

Other NHTSA programs include providing program guidance to State and local government programs in highway safety and an extensive program of research in motor vehicle and highway safety.

These motor vehicle and traffic safety programs were originally established in the Department of Commerce by the National Highway Safety Act of 1966 and by the National Traffic and Motor Vehicle Safety Act of 1966. The programs were transferred to the Federal Highway Administration and in 1970 were assigned to NHTSA, which was established as an operating administration of the Department of Transportation by the Highway Safety Act of 1970.

In 1974 NHTSA expenditures totaled $157 million. Because NHTSA expenditures for transit transportation were difficult to identify, all NHTSA expenditures were allocated to highway transportation.

DEPARTMENT OF TRANSPORTATION--
SAINT LAWRENCE SEAWAY DEVELOPMENT CORPORATION

The Saint Lawrence Seaway Development Corporation (SLS) is a wholly Government-owned corporation responsible for developing, operating, and maintaining that part of the

Saint Lawrence Seaway within the territorial limits of the United States. SLS operations are financed through revenues received from toll charges.

The Saint Lawrence Seaway gives ocean vessels direct access to the Great Lakes through the Saint Lawrence River. SLS manages the U.S. section of the seaway, which includes 110 miles of the Saint Lawrence River and the Eisenhower and Snell locks.

SLS estimates that its 1976 revenues from tolls and other charges will amount to $7.1 million, of which $4.8 million will be required for operating expenses, $1.3 million for capital investments, and $1 million for the scheduled redemption of revenue bonds issued to the U.S. Treasury and originally used to construct the seaway.

U.S. participation with Canada in the joint development of the Saint Lawrence Seaway was considered as early as 1909. The SLS was established in 1954 by Public Law 358, 83d Congress, to construct and operate the seaway; construction of the seaway was completed in 1959. Funds for constructing the seaway were borrowed from the U.S. Treasury in interest-bearing revenue bonds. Revenues from toll charges later proved inadequate to cover interest payments, and the Merchant Marine Act of 1970 forgave $23 million in deferred interest payments and eliminated all future interest payments.

In recent years the Federal Government has not incurred any seaway expense. However, the Federal Government's equity in SLS currently amounts to $108 million. SLS pays no interest on this investment, which, in effect, amounts to a Federal subsidy.

DEPARTMENT OF TRANSPORTATION--URBAN MASS TRANSPORTATION ADMINISTRATION

The Urban Mass Transportation Administration (UMTA) has broad responsibilities for assisting the development and improvement of urban public mass transportation systems. These responsibilities include providing financial assistance to State and local governments for developing and operating mass transit systems, technical studies, training managers and professionals in the field of urban public transportation, and conducting research and development on urban transportation problems.

UMTA provides capital facilities grants to State and local public agencies to assist in financing the acquisition, construction, reconstruction, and improvement of physical facilities for mass transportation service in urban areas. This program was authorized by section 3 of the Urban Mass Transportation Act of 1964, as amended. In 1974 section 3 expenditures amounted to $870 million.

Another capital grants program, financed under provisions of the Federal-Aid Highway Act of 1973, allows States to substitute mass transit projects for certain highway projects that otherwise would be financed by the Federal-aid highway program. Transit projects may be substituted for sections of the Interstate Highway System in urbanized areas and for highway projects funded under the Federal-aid urban highway system authorization.

In 1974 grant expenditures under the transit substitution provisions of the Federal-Aid Highway Act of 1973 amounted to $96 million.

UMTA also makes operating assistance grants. This program was authorized by section 5 of the Urban Mass Transportation Act, as amended by the National Mass Transportation Assistance Act of 1974. Section 5 grants are for operating costs of maintaining and improving public transportation, as well as for the capital costs acquiring, constructing, and improving mass transit facilities and equipment. The grants are awarded to urbanized areas on a statutory formula apportionment basis. The 1974 amendment authorized $4 billion for section 5 grants for 6 years. The first grant was awarded in June 1975.

Under section 9 of the Urban Mass Transportation Assistance Act, UMTA provides financial assistance to State and local public agencies for technical studies of mass transportation operations, management, capital requirements, and economic feasibility. These studies are made to prepare for constructing, acquiring, or improving operation of mass transportation facilities, equipment, and services. In 1974 expenditures for technical studies grants amounted to $38 million.

UMTA's research and development program is carried out pursuant to section 6 of the Urban Mass Transportation Act. This program involves developing, testing, and demonstrating new facilities, equipment, techniques

(operational and managerial), and methods in the field of urban public mass transportation. Projects include studies of conventional rail and bus transit technology, automated personal rapid transit, and other types of new transit technology. In 1974 research and development expenditures amounted to $67 million.

Under section 10 of the Urban Mass Transportation Act, UMTA makes grants to public bodies to train managers. Under section 11 of the act, grants are made to universities for educational and research programs which provide professional training in urban transportation. In 1974 section 10 and 11 grants totaled $3 million.

The Federal Government transfers, through UMTA, financial contributions for the Washington subway system to the Washington Metropolitan Area Transit Authority. However, UMTA exercises no control over the Authority. In 1974 the Federal contribution to the Authority amounted to $170 million.

The Federal role in urban public mass transportation is of recent origin. It began in response to public concern over the post-World War II economic decline of the urban public mass transportation industry with the authorization of mass transportation demonstration projects by the Housing Act of 1961. The Urban Mass Transportation Act of 1964 continued the demonstration projects and established capital grants and research and development programs. Amendments to the act in 1966 authorized the technical studies grants, training, and university research programs.

The Federal-Aid Highway Act of 1973 authorized the transit substitution capital grants program, and the National Mass Transportation Act of 1974 amended the Urban Mass Transportation Act to establish the operating assistance grant program. The Federal contribution to the Washington Metropolition Area Transit Authority was intially authorized by the National Capital Transportation Act of 1969.

Most of the programs and functions established by the Urban Mass Transportation Act of 1964, initially assigned to the Department of Housing and Urban Development, were transferred to the newly established UMTA by Reorganization Plan No. 2 of 1968.

DEPARTMENT OF THE TREASURY--
OFFICE OF REVENUE SHARING

The Office of Revenue Sharing administers the general revenue-sharing program established by the State and Local Fiscal Assistance Act of 1972. General revenue sharing is intended to provide Federal financial assistance to State and local governments without imposing extensive procedural requirements and restrictions associated with traditional Federal categorical grant programs. The Office distributes Federal payments to State and local governments according to a funding formula defined in the authorizing legislation.

State and local governments have great flexibility in using Federal revenue-sharing funds. States may use their funds without any categorical restrictions. Local governments may use funds for capital improvements without categorical restrictions and may use funds for operating and maintenance expenses if they are included in eight broadly defined priority expenditure categories. Operating and maintenance costs for publicly owned transportation facilities are considered to be priority expenditures.

It is difficult to determine the net effect of Federal revenue-sharing payments on State and local government expenditures for transportation-related programs. Office of Revenue Sharing statistics indicate that 15 percent of all past revenue-sharing payments have been used for capital investments and operating expenses for publicly owned transportation facilities but do not identify expenditures on specific transportation modes, such as air and transit. Office of Revenue Sharing statistics do not distinguish between funds added to existing State and local spending on transportation and funds which replace State and local revenue sources. Consequently, Office of Revenue Sharing statistics may not reflect the actual effect of the revenue-sharing program on State and local expenditures for transportation programs.

Applying Office of Revenue Sharing estimates to 1974 general revenue-sharing outlays of $6.1 billion, State and local government expenditures on the U.S. transportation system may include about $916 million financed by general revenue sharing.

ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

The Energy Research and Development Administration (ERDA) was established, pursuant to the Energy Reorganization Act of 1974, to consolidate the energy research and development programs administered by the Atomic Energy Commission, National Science Foundation, Department of the Interior, and Environmental Protection Agency. ERDA is also responsible for carrying out many of the programs authorized by the Federal Nonnuclear Energy Research and Development Act of 1974, which particularly emphasizes developing substitute fuels and technologies to replace the use of petroleum.

Highway transportation

ERDA is investigating energy-efficient advanced automotive power systems. This program was inherited from the Environmental Protection Agency and originally emphasized air pollution reductions. In 1974 expenditures amounted to $2 million.

Pipeline transportation

ERDA is developing technology for converting coal to environmentally acceptable liquids and gaseous fuels which could be transported by pipelines. This work was inherited from the Bureau of Mines, Department of the Interior. In 1974 expenditures on coal liquefication and gasification research and development amounted to $58 million.

Water transportation

ERDA is developing naval nuclear reactors for use in powering naval ships. This work was inherited from the Atomic Energy Commission and is primarily military in nature. However, the Committee on American Shipbuilding has estimated that 5 to 10 percent of military expenditures for naval ship technology research and development have potential application to civilian maritime shipbuilding. In 1974, 5 percent of ERDA's naval nuclear reactor research expenditures amounted to $11 million.

ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) was established by a 1973 executive order to develop and administer Federal standards for environmental quality.

Air transportation

EPA, jointly with FAA, is responsible for developing Federal noise control regulations relating to aviation. EPA is also responsible for developing performance standards for aircraft air pollution emissions.

The Federal role in aviation noise control regulation was initially assigned to FAA by the Federal Aviation Act of 1968. EPA's role was established by the Noise Control Act of 1972. Under that legislation, EPA makes public recommendations to FAA for needed aviation noise control requirements. FAA has the final responsibility for deciding to modify or adopt new regulations.

Pursuant to the Clean Air Act Amendments of 1970, EPA established Federal emission standards for various classes of aircraft engines in July 1973. These standards cover fuel venting, smoke emissions, and gaseous emissions and are phased to take effect over a period of several years.

Highway transportation

Under the Clean Air Act Amendments of 1970, EPA establishes performance standards for air pollution emissions from motor vehicles. EPA also sets environmental standards for clean air and requires States to make plans for air pollution control that meet the Federal environmental standards. Under the Noise Control Act of 1972, EPA sets standards for motor carrier noise emissions.

EPA's motor vehicle performance standards limit the amount of hydrocarbons, carbon monoxide, and nitrogen oxides that legally can be emitted from motor vehicles. Because auto manufacturers have experienced major technical and economic difficulties in meeting these standards, EPA has extended its original deadlines from model year 1977 to model year 1978 and is proposing legislation to postpone final standards to model year 1982 motor vehicles.

EPA's standards for environmental air quality are also of major importance to highway transportation. Each State must prepare implementation plans to meet the environmental air quality standards. In some rural areas and small towns, EPA motor vehicle standards and standards for powerplant and factory emissions are adequate to meet environmental clean air standards. However, in 38 large metropolitan

areas it has been necessary to develop transportation control plans to meet EPA standards.

The transportation control plans attempt to reduce total air pollution emissions to acceptable levels by limiting motor vehicle use through controls and by providing alternate means of public transportation which are less polluting than the private passenger automobile. Because some cities face serious economic and social problems in implementing transportation control plans, EPA has proposed legislation to extend the deadline for meeting environmental air quality standards to 1982 (and in some cases to 1987).

Federal regulation of motor vehicle air pollution emissions and environmental air quality is a recent addition to the Federal Government's role in highway transportation. The first major legislation was the Clean Air Act of 1963, which gave the Department of Health, Education, and Welfare limited authority to assist State air pollution control agencies and to regulate interstate air pollution problems. Federal regulation of motor vehicle emissions was authorized in 1965.

Motor carrier noise standards were authorized by the Noise Control Act of 1972. In 1973 EPA proposed regulations to establish noise limits for medium and heavy duty trucks of over 10,000 pounds.

Water transportation

Working jointly with the Corps of Engineers, EPA administers provisions of the Federal Water Pollution Control Act Amendments of 1972 regulating the dredging of materials. Under the 1972 amendments EPA and the Corps develop guidelines for site selection to dispose of dredged or fill material. The Corps then holds public hearings and issues permits for disposal of the material. This aspect of EPA's work is of major importance in water transportation, because dredging is a primary means of constructing and maintaining water navigation facilities.

EPA also provides technical assistance to the Department of Transportation's U.S. Coast Guard, in connection with the Coast Guard's responsibilities for administering and enforcing Federal laws and regulations on marine environmental quality.

Pipeline, rail, and transit transportation

EPA programs have a limited effect on pipeline, rail, and transit transportation, because these modes are relatively nonpolluting compared to air, highway, and water transportation. However, the indirect effect of Federal environmental quality standards has been to increase public support for the pipeline, rail, and transit modes compared with other modes that are environmentally more harmful. Federal water quality standards have increased public support for pipelines over water as a means of preventing oil spills from tankers. Similarly, Federal air quality standards have increased public support for transit and rail over highway as a means of decreasing air pollution emissions.

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EPA operating costs allocable to the U.S. transportation system are difficult to identify and separate from total Agency costs. Because motor vehicle transportation acounts for at least 90 percent of transportation air pollution emissions and about half of air pollution emissions from all sources, as much as half of EPA expenditures on clean air programs could be attributable to the motor vehicle--about $68 million in 1974. However, this estimate was not considered sufficiently reliable to include in the estimates of Federal agency expenditures for the U.S. transportation system.

FEDERAL ENERGY ADMINISTRATION

The Federal Energy Administration (FEA) was established in 1974 to develop and implement a national energy policy. FEA administers Federal programs to regulate the prices and allocation of petroleum supplies and leads the Federal government in the areas of energy supply regulation and management, energy conservation, and energy resource development. Because of recent changes in the cost and availability of petroleum, FEA controls over petroleum prices and supplies are an important area of Federal involvement in all modes of U.S. transportation. FEA controls over petroleum prices expired in August 1975 but may be reinstated by the Congress.

FEA is also responsible for developing regulations which would raise airline load factors and change air and ground

operations to conserve fuel. FEA administers the President's program for improved auto fuel efficiency, which calls for voluntary action by the auto industry to increase automobile fuel efficiency by 40 percent by model year 1979.

FEA was established by the Federal Energy Administration Act of 1974 and administers a number of recent energy-related laws, including the Emergency Petroleum Allocation Act of 1972 and the Energy Supply and Environmental Coordination Act of 1974. FEA inherited the responsibilities of the Energy Policy Office (established by executive order in 1973) as well as certain activities of the Department of the Interior.

FEA expenditures allocable to the U.S. transportation system are difficult to separate from other FEA expenditures and are not included in this report.

FEDERAL MARITIME COMMISSION

The Federal Maritime Commission (FMC) is an independent Federal agency with responsibility for the economic regulation of the domestic offshore and international waterborne commerce of the United States. FMC jurisdiction over domestic offshore waterborne commerce applies to common carriers operating between the United States and domestic points beyond the continental United States, including Alaska, Hawaii, Puerto Rico, the Virgin Islands, and American Samoa. FMC jurisdiction does not extend to domestic water carriers operating along the U.S. coast intercoastally through the Panama Canal or on inland waters of the United States. These carriers are regulated by the Interstate Commerce Commission.

FMC jurisdiction is limited to for-hire common carriers and does not extend to tramp service by contract carriers and to private shippers carrying proprietary cargoes.

Under FMC regulation foreign and U.S. flag carriers engaged in the foreign commerce of the United State are required to file tariffs with FMC. These tariffs must show the rates charged for freight and passenger services as well as the rules and regulations of carriers and shipping conferences (rate-making associations of common ocean carriers). FMC has limited authority to disapprove rates

which it finds detrimental to the commerce of the United States.

Domestic offshore common carriers must file tariffs with FMC setting forth just and reasonable passenger and cargo rate tariffs. FMC exercises control over minimum rates and regulates competition between carriers.

Federal economic regulation of waterborne domestic and foreign commerce began in 1916 with the passage of the Shipping Act of 1916. This act was a response by the Congress to concern over rate discrimination against shippers and unfair competitive practices by conferences of ocean common carriers operating as cartels. Federal economic regulation of offshore domestic water common carriers was extended by the Intercoastal Shipping Act of 1933. This was one of several extensions of Federal economic regulatory authority during the 1930s and was a response by the Congress to concern over undesirable competitive practices between water carriers and between water carriers and rail and highway transportation.

FMC also administers certain provisions of the Federal Water Pollution Control Act for oil spills and discharge of other hazardous materials. The act requires owners of marine vessels over 300 gross tons to establish evidence with the FMC of their financial ability to meet possible liability resulting from the illegal discharge of oil and other hazardous substances in U.S. waters.

The present administrative stucture of FMC as an independent regulatory agency was established by Reorganization Plan 7 of 1961. In 1974 FMC operating expenses allocable to water transportation amounted to $6 million.

FEDERAL POWER COMMISSION

The Federal Power Commission (FPC) is an independent agency with responsibility for economic regulation of the interstate aspects of the electric power and natural gas industries. FPC is also responsible for the economic regulation of interstate pipelines used to transport natural gas.

Companies wishing to construct or operate interstate natural gas pipelines must obtain the FPC's permission. The applicant must show that the pipeline service is

required by public convenience and necessity. Extending existing pipelines requires FPC approval. FPC regulates wholesale rates charged by interstate natural gas pipeline companies, accounting and reporting practices, depreciation practices, and abandonment of property.

Federal economic regulation of interstate natural gas pipelines was authorized by the Natural Gas Act of 1938. This legislation was a response to congressional concern over the economic effects of unfair competition and monopolistic price setting by natural gas companies.

FPC is responsible for assessing the environmental impact of new natural gas pipelines and pipeline extensions pursuant to the procedures established by the National Environmental Policy Act of 1969. In 1974 FPC operating expenses for the economic regulation of natural gas pipelines amounted to $8 million.

INTERSTATE COMMERCE COMMISSION

The Interstate Commerce Commission (ICC) is an independent agency with broad responsibilities for the economic regulation of surface transportation. ICC activities directly affect every mode of transportation except air.

Highway transportation

ICC is 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.

For example, motor carriers wishing to provide regulated transportation services must obtain the ICC's permission to

operate. The applicant must show that the service is required by public convenience and necessity. Willingness to offer service at a lower rate is not admissable as justification. Even existing carriers must obtain permission to expand service. When obtained, operating rights are specified in detail as to the type of service or commodity permitted and the geographic route that must be followed.

Regulated motor carriers must also file tariffs with ICC which set forth just and reasonable passenger and freight rate tariffs. ICC exercises control over minimum rates and regulates competition between motor carriers (and between motor carriers and other transportation modes such as railroads, which are also under ICC jurisdiction). ICC approval must also be obtained for financial reorganization and mergers of motor carriers.

Federal economic regulation of interstate motor carries began in the mid-1930s with the passage of the Motor Carrier Act of 1935, now part II of the Interstate Commerce Act. This legislation was a congressional response to public concern over undesirable competitive practices between motor carriers and between motor carriers and the railroads.

Rail transportation

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 minimum rates and regulates competition between railroads and between railroads and motor carriers. ICC approval must be obtained for establishing and developing new rail freight or passenger service and for discontinuance or mergers of railroads.

Federal economic regulation of the railroad industry was first authorized by the Interstate Commerce Act of 1887. This act was a response by the Congress to public concern over rate discrimination against shippers and unfair competitive practices against railroads by groups of railroads and shippers operating as economic cartels. The Transportation Act of 1958 is the most recent major modification of ICC regulatory authority. This act extended ICC's authority to discontinue unprofitable rail services and was a response to public concern over the post-World War II economic decline of the railroad industry.

ICC also has been assigned, pursuant to the Regional Rail Reorganization Act of 1973, responsibilities for rail services planning for the Midwest and Northeast region, and has conducted public hearings on the U.S. Railway Association's plan.

Pipeline transportation

ICC's responsibilities include the economic regulation of interstate petroleum pipelines. ICC jurisdiction is limited to petroleum pipelines which operate for-hire common carrier services and does not extend to pipelines used exclusively for private transportation of a company's proprietary petroleum or to pipelines used for natural gas or other materials. In 1972 interstate petroleum pipelines subject to ICC jurisdiction accounted for 85 percent of the petroleum transported interstate by pipeline.

Interstate petroleum pipelines must file tariffs with ICC setting forth just and reasonable rates. ICC exercises control over minimum and maximum rates and regulates competition between pipeline companies.

ICC regulation of petroleum pipelines is not as extensive as its regulation of motor carrier and railroad industries. Petroleum pipelines are not required to obtain certificates of public convenience and necessity in order to construct or operate pipelines. Petroleum pipelines are not subject to common carrier restrictions on carrying the products of their owners. Also, ICC does not exercise jurisdiction over such aspects of pipeline operation as issuing securities; forming interlocking directorates; mergers and consolidations; and abandoning lines.

Federal involvement in the economic regulation of interstate petroleum pipelines began with the Hepburn Act of 1906. This legislation placed pipelines under the jurisdiction of the Interstate Commerce Act and was a congressional response to public concern over the economic effects of unfair competitive practices and monopolistic price setting by oil companies.

Transit transportation

Under its jurisdiction over railroad transportation, ICC plays a limited role in the economic regulation of

nongovernment-owned commuter railroads providing urban public mass transportation services. (ICC jurisdiction also extends to nongovernment-owned interstate bus lines providing urban commuter services; however, these services are not comparable in size or importance to ICC-regulated commuter rail services.) Commuter railroad services operated by public metropolitan transportation authorities are not subject to ICC economic regulation.

Regulated commuter railroads must file tariffs with ICC which set forth just and reasonable passenger fares. ICC approval must be obtained for financial reorganizations and mergers and, in particular, for discontinuing service. Because of the post-World War II economic decline of the commuter railroad industry, regulating the discontinuance of commuter rail services has been one of the primary areas of recent ICC involvement in transit transportation.

The Transportation Act of 1968 extended ICC jurisdiction to include discontinuing commuter and other passenger railroad services in response to congressional concern over the economic difficulties of the railroad industry. Previously, ICC had exercised jurisdiction over abandonments but not over discontinuance of particular passenger trains.

Water transportation

ICC's responsibilities include the economic regulation of domestic water carriers operating coastwise, intercoastally through the Panama Canal, and on inland waters of the United States. ICC jurisdiction over domestic water carriers is extremely limited 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. According to ICC estimates, ICC jurisdiction extended to only 5.6 percent of total domestic water carrier ton miles in 1973.

Under ICC regulations carriers must file tariffs with ICC setting forth just and reasonable rates. ICC exercises control over minimum rates and regulates competition between water carriers.

Federal economic regulation of domestic water carriers began with the Shipping Act of 1916. This act was a response by the Congress to concern over rate discrimination against shippers and unfair competitive practices by conferences of ocean common carriers operating as cartels. Federal

involvement in domestic water carrier regulation was extended by the Intercoastal Shipping Act of 1933 and later by the Transportation Act of 1940 which included domestic water carriers under part III of the Interstate Commerce Act.

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ICC does not allocate its operating expenses between the various transportation modes that it regulates. Most of ICC's activities relate to either motor carriers or railroads; activities for other transportation modes are a minor part of ICC's work. In this report ICC operating expenses ($38 million in 1974) were assumed to be divided equally between highway and rail transportation.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

The National Aeronautics and Space Administration (NASA) conducts an extensive program of advanced research and development in the field of aeronautical technology. NASA projects include fundamental research in aeronautical technology, research on aircraft safety, studies of aircraft energy consumption and environmental effects, and investigations of advanced air transportation technologies, such as vertical/short takeoff and landing aircraft. In 1974 NASA expenditures for aeronautical research and technology amounted to $155 million.

Federal involvement in aeronautical research and development is part of the early history of air transportation in the United States. In 1915 the Congress created the National Advisory Committee for Aeronautics to supervise and direct scientific studies, research, and experiments in aeronautics. The functions of the Committee were transferred to NASA pursuant to the National Aeronautics and Space Act of 1958.

NATIONAL TRANSPORTATION SAFETY BOARD

The National Transportation Safety Board (NTSB) is an independent agency which investigates accidents and objectively oversees Federal transportation safety programs. Most NTSB activities concern aviation safety, but NTSB also investigates accidents and safety problems for all modes of surface transportation. NTSB was established as an independent agency within the Department of Transportation by the Department of Transportation Act of 1966 and became

an independent agency in 1975 pursuant to the Transportation Safety Act of 1974.

Air transportation

In 1974 approximately 142 of NTSB's 265 employees and 86 percent of its operating expenses were for aviation safety programs. NTSB's primary aviation safety role is to investigate accidents involving civilian aircraft, determine their probable cause, and make recommendations to prevent accidents and promote safety. Most NTSB recommendations are addressed to the Department of Transportation's Federal Aviation Administration. NTSB also acts as an appeal board for licenses and certificates issued by the Department of Transportation. Nearly all these cases involve denials or suspensions of FAA certificates for safety violation or lack of safety-related qualifications.

NTSB's role in investigating aircraft accidents originated with the establishment of the Air Safety Board by the Civil Aeronautics Act of 1938. The Federal Aviation Act of 1958 authorizes NTSB's appeal board functions relating to FAA certificates and licenses.

Before the establishment of NTSB in 1966, these functions were assigned to the Civil Aeronautics Board. In 1974 NTSB expenditures for aviation safety programs amounted to $7 million.

Other transportation

NTSB's also investigates accidents in other transportation modes. This activity began in 1966. Compared to air transportation, NTSB activities in other transportation modes are relatively minor, accounting for about 14 percent of NTSB expenditures. Because the expenditures for each mode in 1974 were less than $0.5 million, no NTSB expenditures are shown in this report for any transportation mode except air transportation.

TENNESSEE VALLEY AUTHORITY

The Tennessee Valley Authority (TVA), a government corporation, was established by the Tennessee Valley Authority Act of 1933 to provide for the unified economic development of the Tennessee River Basin. As part of its responsibilities, TVA engages in a comprehensive program of water resource development, which includes constructing,

operating, and maintaining inland waterway navigation facilities. In 1974 TVA expenditures for constructing and operating navigation facilities amounted to $3 million.

U.S. RAILWAY ASSOCIATION

The U.S. Railway Association (USRA), a nonprofit Government corporation, was established by the Regional Rail Reorganization Act of 1973 to prepare and implement a system plan to restructure rail service in the Midwest and Northeast region of the United States.

USRA submitted its final system plan to the Congress in July 1975, and the plan is currently being considered by the Congress. A new private for-profit corporation, Consolidated Rail Corporation, has been established to acquire and operate the economically viable rail system designed by USRA. At that time USRA would terminate most of its activities.

USRA works with the Department of Transportation's Federal Railroad Administration to administer rail service financial assistance programs authorized by the Regional Rail Reorganization Act of 1973. These include long-term federally guaranteed loans to finance system reorganization, grants to bankrupt railroads to assist in continuing rail service, grants to bankrupt railroads to rehabilitate their physical plants, and grants to State and local transportation authorities to help subsidize the operating costs of uneconomic branch lines that would otherwise be abandoned by the reorganized rail system.

Most of these programs have not been implemented pending congressional approval of the USRA system plan. It is likely that the structure and scope of Federal financial assistance to the regional rail system will undergo considerable modification by the Congress.

In 1974 USRA's expenditures totaled $1 million.