

NINETEENTH ANNUAL REPORT

Fiscal Year 1985

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

**U.S.
DEPARTMENT
OF
TRANSPORTATION**

**19th Annual Report
Fiscal Year 1985**

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Summary

Summary

The U.S. Department of Transportation (DOT) establishes overall national transportation policy. DOT encompasses nine administrations whose jurisdictions include highway planning, development and construction; railroads; aviation; urban public transportation; and the safekeeping of waterways, ports, highways, and oil and gas pipelines. The Department develops policies and programs to provide safe, rapid, secure, and accessible transportation.

The Department's most significant activities of 1985 are summarized below. More detailed descriptions of these and other Departmental activities appear in the **Progress Reports** section.

Aviation

During calendar year (CY) 1984, the National Transportation Safety Board (NTSB) recorded 12 U.S. airline accidents, one of which was fatal, taking 4 lives. An increase in the number of commuter air carrier accidents (from 18 to 22), however, produced a clear rise in commuter air crash fatalities (from 11 to 48).

During 1985, passenger enplanements reached a new peak, with U.S. airlines in scheduled domestic service carrying 355,186,000 revenue passengers over a record 270 billion passenger miles.

The Federal Aviation Administration (FAA) implemented 2 emergency rules to deal with the increased level of terrorism in aviation. The first rule requires airlines to transport Civil Aviation Security Special Agents on certain flights. The second increases training for airline crew members.

Railroads

The Federal Railroad Administration (FRA) continues its effort to return Conrail to the private sector. FRA also completed the transfer of the Alaska Railroad to the State of Alaska.

FRA continues to favor allowing railroads to compete better, using reforms instituted by the Staggers Rail Act. FRA also continues its goal of increased safety on the nation's railroads. FRA turned over to Amtrak most of the remaining features of the Northeast Corridor Improvement Project (NECIP). The year 1985 was one of the most successful in Amtrak's history, as both financial and traffic indicators continue to improve. FRA worked with Amtrak to continue to take steps to strengthen its operations and financial outlook. Amtrak carried 20.8 million passengers in 1985, a near record level and a 4.5 percent increase over 1984. Passenger-miles increased 6 percent to 4.8 billion and operating revenues were up 9 percent to \$862 million, an all-time high. Federal funding totaled \$684 million, down 4.5 percent from the previous year, and down 19.1 percent from 1981. On-time performance improved from 80 to 81 percent.

The needs of secondary or regionally important lines, essential to continuing rail service and which feed the national rail system, received priority attention in FRA's funding of railroad rehabilitation projects under Title V of the Railroad Revitalization and Regulatory Reform Act of 1976.

Marine Transportation

The Saint Lawrence Seaway Development Corporation (SLSDC) expanded procedures started in 1984, and resumed a series of trade and traffic development programs directed at increasing Seaway commerce for the economic benefit of the entire Great Lakes region.

Industrial exports from U.S. Seaway ports increased 52 percent. However, overall traffic continues to decline due to a conspicuous decrease in agricultural shipments through Seaway ports. The increase in industrial exports was propelled by a 51 percent gain in bulk commodities such as coal, coke, salt and scrap iron. Total Seaway tonnage through the Montreal to Lake Ontario section declined from 47.5 to 37.3 metric million tons, largely caused by a 7 million ton decrease in grain exports.

At the end of the fiscal year, the privately-owned, ocean-going, U.S.-flag merchant fleet included 611 ships with a total cargo-carrying capacity of 22.9 million deadweight tons (dwt.). Measured against the previous year, the number of ships declined by 29, and the fleet's carrying capacity by 26,135 dwt. There were 13,095 shipboard billets in the privately-owned, ocean-going, U.S.-flag merchant fleet, down from 13,648 the year before. Privately operated American shipyards delivered 3 commercial vessels totaling 63,549 dwt. in 1985, compared with 8 new ships of 243,180 dwt. the previous year.

In selected program sectors and administrative endeavors, the Maritime Administration (MARAD) recounted outlays of some \$351.7 million in operating-differential subsidies to U.S.-flag owners operating 95 liner vessels and 23 bulk vessels in the U.S. waterborne export-import trade in 1985, restricted endorsement of financial certification of about \$20.2 million for 2 vessels, financial guarantees to 264 others, deposited \$229 million in tax-deferrable Capital Construction Fund accounts, moored 300 ships at National Defense Reserve Fleet anchorages and 65 in a Ready Reserve Force sustained jointly by MARAD and the U.S. Navy, and awarded 233 degrees at the U.S. Merchant Marine Academy at Kings Point, New York.

The Coast Guard commandeered 184 vessels for narcotics trafficking, and seized over 1.9 million pounds of marijuana and 5,890 pounds of cocaine. Several productive multi-agency, international operations, coordinated by the National Narcotics Border Interdiction System (NNBIS), demonstrated increased international understanding of this worldwide predicament.

Materials Transportation

Gas pipeline failures declined from 1,580 in CY 1983 to 1,002 in 1984. Fatalities, however, increased from 12 to 35 during the fiscal year. Reported liquid pipeline accidents increased from 161 to 203, but fatalities from these events decreased from 6 to zero. There were 5,773 hazardous materials incidents which resulted in 197 deaths and injuries, down from 264 the previous year.

Urban Mass Transportation

The Urban Mass Transportation Administration (UMTA) obligated \$3.6 billion for 1985. This constituted a decrease of approximately \$100 million from the previous year.

UMTA allocated \$250 million for transit projects under the interstate transfer program. These funds derived from federally-assisted highway projects that were withdrawn and replaced by mass transit projects.

Other 1985 appropriations included \$50 million for planning assistance grants, \$71.8 million for transit assistance to rural areas, \$25 million for aid to elderly and handicapped citizens, and \$250 million for construction of the Washington, D.C. Metro-Rail line.

Transportation Safety

Highway accidents resulted in the death of 43,795 persons, a slight decrease from the previous year. Of greater import was that the fatality rate, 2.47 per hundred million vehicle miles of travel, was significantly lower than the rate for 1984, 2.58. Rail related accidents produced 1,247 fatalities, a 16.2 increase over the preceding year.

Highways

This year saw a continued increase in highway program obligations, resulting from passage of the Surface Transportation Assistance Act (STAA) of 1982, with \$14.2 billion obligated in 1985 compared with \$8.5 billion in 1982 (pre-STAA). The increase resulted from higher authorizations made possible by enhanced revenue levels established by the STAA of 1982. The Act also increased federal emphasis for resurfacing, restoration, rehabilitation, and reconstruction (4R) projects.

The Federal Highway Administration (FHWA) worked closely with New York state and local government officials to help develop and expedite approval of the Westway withdrawal and related substitute project concepts. This was the largest single withdrawal action since the program was initiated in 1973.

Progress Reports

Office of the Secretary

The Secretary of Transportation is the principal advisor to the President on all issues connected with federal transportation programs. The Office of the Secretary (OST) provides staff and advisory support to the Secretary and coordinates the activity of the various Administrations within the Department.

Regulatory Reform

The Department continues to implement and analyze the economic regulatory reform of the airline, truck, rail, and bus industries. DOT reported to Congress in oversight hearings on the success of reform to date. Building on this achievement, the Department submitted legislation to Congress that would complete the economic deregulation of motor carriers, domestic water carriers, and freight forwarders.

The Department also supported elimination of regulatory barriers to intermodal mergers, recommended procompetitive decisions on other issues, such as commercial space transport, and guaranteed that new departmental regulations would be developed with the least burden on industry or the consumer.

CAB Sunset

The Department transferred aviation economic regulatory procedures, regulations, and responsibilities from the Civil Aeronautics Board (CAB) to existing organizations at DOT. The transfer was effected smoothly and without interruption of vital functions. Transferred operations include: the Aviation Economic Fitness Program, the Essential Air Service Program, the Employee Protection Program, airline consumer protection oversight, and specific airline antitrust functions such as airline licensing, airline data collection, international aviation negotiations, international tariff administration, and international route cases.

Maritime Policy

On May 7, 1985, the Secretary issued a final rule that allowed, for a period of one year, any owner of a tanker built with construction differential subsidies to repay the

subsidy with interest, and operate in domestic trade. This proposal is meant to allow newer, more efficient tankers in the Alaska crude oil trade.

Office of Small and Disadvantaged Business Utilization

The Office of Small and Disadvantaged Business Utilization (OSDBU) issued Requests for Proposals (RFPs) and conducted a nationwide competition of Small Business Administration (SBA) 8(a) firms to operate the Program Management Centers (PMCs) for 1986.

Through a contract with a woman-owned firm, OSDBU held 2 conferences designed to increase participation of women-owned businesses in the direct contracting and financial aid procedures of the Department.

OSDBU developed and began implementing a program designed primarily to aid minority and women-owned firms, located outside the Washington Metropolitan area, which have limited time during their marketing visits to the Department.

In cooperation with the operating Administrations, OSDBU started a DOT Minority Enterprise Development (MED) Week Awards Program to recognize noteworthy contributions and achievements of minority and women business owners in the Department's program. Eight minority firms and 7 women-owned firms were presented awards at the ceremony on October 11, 1985. In addition, 2 state officials and 8 DOT employees received awards for outstanding contributions to the DOT Minority and Women-owned Programs.

Office of the Inspector General

The Office of Inspector General (OIG), during 1985, made significant progress in the areas of audits, investigations, fraud prevention and detection, management advisory services, and legislative and regulatory review.

Detecting and preventing bid-rigging in DOT-funded construction programs remains the OIG's highest priority investigative effort. On September 30, 1985, investigations in various stages of progress were active in 28 states and Puerto Rico. Other endeavors to promote awareness of and to detect and prevent fraud included completion of fraud prevention and detection surveys on the U.S. Coast Guard Rent-Plus Housing Program; and the Life Cycle Costing evaluation concluded by the City of San Francisco Municipal Railway for acquisition of articulated buses.

Internal workshops for OIG auditors were conducted to heighten awareness of fraud and sophisticated white collar crime schemes, and a program was introduced to disseminate fraud awareness bulletins periodically to all DOT supervisors.

Progress Reports/Office of the Secretary

OFFICE OF THE ASSISTANT SECRETARY FOR ADMINISTRATION

The OIG provided useful counsel on existing and proposed legislation and regulations. Examples included H.R. 5479, an Enrolled Bill to Expand and Permanently Authorize the Equal Access to Justice Act; FHWA's Railroad-Highway Crossings Demonstration Program; and H.R. 2522, to Allow Grants to be Used for Overhaul and Reconstruction of Rolling Stock.

Commercial Space Transportation

Executive Order 12465 (February 1984) and the Commercial Space Launch Act of 1984 designated DOT the lead agency to promote the commercial expendable launch vehicle (ELV) industry. They also granted the Department regulatory, licensing, and coordinating custody for this new industry. The Office of Commercial Space Transportation (OCST) reviewed government policies affecting the commercial space industry, a vital step in designing regulations regarding commercial firms sending payloads to orbit.

The Secretary's Commercial Space Transportation Advisory Committee, established in 1984, represents a broad view of commercial space interests: small and large launch firms; the satellite, finance, and insurance communities; and other organizations with an interest in private-sector space transport. The Advisory Committee met twice in 1985 to discuss issues of promotion and support of commercial space instruction.

Regulatory Activities. In February, the Department published, for public comment, its initial major policy statement which outlined the history and rationale of OCST, supporting forthcoming launch regulations as well as administrative policies for the licensing process. Also in February, OCST issued its first approval for a commercial space launch to Space Services, Inc. (SSI) of Houston, Texas. SSI is the kind of new entrepreneurial firm which the Commercial Space Launch Act seeks to foster. Unlike prior cases, when the International Traffic in Arms Regulation required up to half a year for review, approval and agency coordination, OCST issued its decision in less than 7 weeks.

Promotional Activities. Since a predictable, supportive government policy is crucial to developing any new industry, OCST took part in numerous interagency deliberations expected to yield advances for the new industry.

In sum, 1985 set the stage for a space-based freight service. As with many new private-sector initiatives, regulatory policy is sought in a way that will encourage expansion. Likewise, uniform, government-wide policies that reflect this same goal are needed. OCST took the lead role in both areas, initiating a series of steps that would result in a domestic industry capable of competing in an international market.

The Assistant Secretary for Administration is the principal advisor to the Secretary on matters relating to the organization and management of the Department. These responsibilities include executive direction of the Offices of Personnel, Management Planning, Information Resource Management, Administrative Services and Property Management, Acquisition and Grants Management, Hearings, Financial Management, and Security.

All operating Administrations continue to implement the mandate to delete unnecessary requirements, eliminate duplicative recordkeeping burdens, and increase the alternatives of the states in complying with program directives where appropriate.

Financial Management

Department-wide Accounting and Financial Information System (DAFIS). The Office of the Assistant Secretary for Administration conducted an extensive analysis of DOT's accounting and financial management system during 1985 and recorded it in a logical model. This model identified 73 generic accounting events with attendant mini specifications, 82 data stores and over 700 data elements. All DOT operating Administrations reviewed and accepted this document as portraying a composite of the Department's high-level accounting requirements.

Travel Management. The Department reviewed existing travel and relocation policies, and issued all-encompassing regulations for all personnel. This effort was aimed at reducing travel administrative costs while guaranteeing uniform application of entitlement laws. The Department ruling included policies on such travel and travel-related subjects as contract air travel requirements, meeting participation, assignment to foreign areas, and shipment of household goods and mobile homes.

A Travel Management Center (TMC) was established at DOT Headquarters to furnish comprehensive services for its employees. The TMC is expected to give management improved control of travel assignments and travel dollars. DOT provides travel services in agreement with government-wide policies to assure compliance with both entitlement directives and cost savings campaigns begun by the General Services Administration (GSA).

Departmental Women's Program. The Department made important progress improving opportunities for women in DOT, with special emphasis on the DOT Professional Exchange Program. The Department held 6 sessions of its "Seminar for Prospective Women Managers." The number of women in the permanent work force increased from 18.9 percent in 1983 to 23.9 percent in 1985.

Progress Reports/Office of the Secretary

OFFICE OF THE ASSISTANT SECRETARY FOR POLICY AND INTERNATIONAL AFFAIRS

The Assistant Secretary for Policy and International Affairs is the principal advisor in the development, review, and coordination of policies for domestic and international transportation.

Transportation Safety

Responding to guidance from the NTSB, the Policy Office established a Secretarial Working Group to examine conceivable safety problems caused by transportation operators using drugs. Represented by all the Administrations, the Group began an investigation to learn about drug use among transportation employees and the degree of impairment to be expected from the use or abuse of such substances.

International Affairs

Transportation Security. As transportation security became an issue of critical attention, the Policy Office took the lead in coordinating efforts of the FAA to improve airport and aviation security, both at home and abroad.

Attempts to improve safety and security and to ratify policies promoting international trade dominated the international transport scene. DOT's achievements in these areas were immeasurably enhanced by association with foreign counterparts developed through international cooperation. DOT had formal and informal bilateral accords for technical exchange with 25 countries, par-

ticipated in some 2 dozen international organizations, and was involved in providing cost-reimbursable technical assistance to approximately 60 countries.

International Maritime Negotiations. The Office of Policy and International Affairs took part in developing and reviewing a wide range of maritime policy initiatives, including modification of the Title XI Ship Financing Loan Guarantee and the Maritime Operating Differential Subsidy Program. These were intended to increase the operating flexibility of maritime companies receiving federal aid.

DOT chaired bilateral maritime negotiations with Japan to consider U.S.-flag carriage of tobacco and automobiles, movement of high cube containers on Japanese roads, port, and intermodal issues, and Japan's proposed Fidelity Commission System (FCS). There was some progress on all these issues, except the FCS, on which the United States offered to help with options.

International Aviation. On January 1, 1985, DOT assumed responsibility for all international civil aviation functions previously handled by the CAB, including licensing, tariffs, negotiations, carrier selection, and consumer affairs. DOT delegates joined representatives of the State Department in several negotiations during 1985 to open U.S. airline prospects in international air transportation. A major achievement of the talks was an agreement providing expanded access to U.S. airlines in the U.S.-Japan market. U.S. airline service to Europe also grew significantly. During 1985, the Department settled several major international carrier selection cases and one major route transfer case.

United States Coast Guard

The mission of the United States Coast Guard (USCG) is to enforce or help execute federal law on the high seas and waters subject to U.S. jurisdiction. These laws govern navigation, shipping, and other maritime operations and the related protection of life and property. The Coast Guard also carries out maritime search and rescue operations. Other responsibilities include promoting the safety of commercial and recreational vessels; providing ice-breaking services; conducting oceanographic research in support of other Coast Guard missions; developing, installing, and operating maritime aids-to-navigation; and marine environmental protection and response. A further responsibility involves functioning as a specialized part of the Navy in time of war or national emergency.

The Coast Guard operates a fleet of 214 cutters, 162 aircraft, and more than 2,145 boats. It also maintains more than 47,447 aids-to-navigation. Coast Guard missions are carried out by 38,595 military and 5,937 civilian personnel. They are supported by the 12,590 member Coast Guard Reserve and by 38,752 civilian volunteers in the Coast Guard Auxiliary.

International Affairs

The Coast Guard trained approximately 150 students from 44 countries at its training centers and operating units in the U.S. Two international cadets, one each from the Philippines and Ghana, graduated from the Coast Guard Academy, while 16 cadets from 8 countries continue their studies there. Coast Guard Mobile Training Teams (MTTs) went on temporary duty to Grenada, the Solomon Islands, and Southeast Asia to train and advise local maritime forces in Coast Guard related activities. Technical Assistance Field Teams assisted the 4 island nations of Antigua, Barbados, Grenada, and St. Christopher/Nevis with development of their own coast guard forces. One team was sent to the Ivory Coast to help develop a maritime pollution course at its regional Maritime Academy.

In February 1985, the United Nations Commission on Narcotic Drugs adopted a resolution calling for a new convention on drug trafficking. The Coast Guard worked closely with the State Department and other U.S. agen-

cies to frame the U.S. response to the resolution. The Coast Guard drafted a proposal to assume broad jurisdiction over drug trafficking on the high seas, with specific provisions dealing with international collaboration in suppressing the maritime drug trade.

Search and Rescue

Search and Rescue (SAR) remains a major Coast Guard mission and is the function most commonly associated with the public with the Coast Guard. The goals of SAR are to save lives and to limit personal injury and property damage in the maritime regions of the U.S. This program uses nearly one-fourth of Coast Guard operating funds, and, as a result of SAR readiness needs, demands an even greater share of the time of its multi-mission personnel. In 1985, the Coast Guard responded to over 60,000 calls for help. Over 6,400 lives were saved, 200 with the aid of SARSAT, an international search and rescue satellite, and an additional 138,000 persons received aid.

Drug Interdiction

The Coast Guard seized 184 vessels trafficking in narcotics, along with 1.9 million pounds of marijuana and 5,890 pounds of cocaine. The National Narcotics Border Interdiction System (NNBIS) conceived of a number of worthwhile multi-agency, international operations with Colombia, Venezuela, Panama, Jamaica, and the Bahamas during the year, showing an increased international awareness of this worldwide emergency. NNBIS first response, "Operation Hat Trick," was the largest operation of its kind and concentrated forces off the north coast of South America to disrupt the fall marijuana harvest. The Coast Guard was a key participant and led the maritime forces in all these operations. Besides active participation in NNBIS, the Coast Guard continues to take part in the Organized Crime Drug Enforcement Task Force and the National Drug Enforcement Policy Board under the Attorney General.

Aliens and Refugees

In cooperation with the Immigration and Naturalization Service (INS), the Coast Guard blocked entry into the United States by illegal aliens. The INS calculates that the Coast Guard program saves the U.S. Government \$100 million annually in detention costs alone. In 1985, of 3,971 illegal aliens denied admission (including Haitian), 3,393 were repatriated. The rest were remanded to the INS for processing.

Fisheries Law Enforcement

In addition to its fisheries management obligations under the Magnuson Fishery Conservation Management Act, the Coast Guard enforces the Lacey Act and other law

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regarding marine mammals, endangered species, and marine sanctuaries. Coast Guard fishery enforcement during the year included: conducting 3,033 boardings (2,410 domestic, 623 foreign); issuing 268 written warnings (122 domestic, 146 foreign); and starting 324 civil actions (243 domestic, 81 foreign). Two foreign vessels were seized. Assessed civil penalties totaled \$649,762 for the year.

Aids to Navigation

The Office of Navigation continues a program to increase navigational safety and to realize managerial improvements in both its Short Range Aids-to-Navigation (SRAN) and radionavigation programs. The Office continues to implement the Waterways Analysis and Management System (WAMS) and to provide tools for positive and logical evaluation of the SRAN program and its resources. A major feature of WAMS, which began in 1985, is the periodic analysis of each of the nation's waterways to verify its aid-to-navigation requirements in light of changing traffic and environmental conditions.

Bridge Administration

The Coast Guard framed a national General Bridge Permit regulation for bridges having no significant impact on navigation or the environment. The Coast Guard also began to develop legislation to remove jurisdiction over bridge projects where there is no federal navigation interest to protect.

The Coast Guard issued 108 bridge permits and 91 drawbridge operation regulations. One bridge permit was issued pursuant to the International Bridge Act of 1927.

Commercial Vessel Safety

In keeping with the 1981 amendments to the International Convention for the Safety of Life at Sea of 1974 (SOLAS '74), the Navigation Safety Regulations were revised. The new regulations required a variety of navigation safety supplies, including automatic radar plotting aids, speed and distance indicators, and rate of turn indicators.

The Coast Guard succeeded in getting the International Maritime Organization (IMO) to adopt international design and operating standards for improved navigation visibility aboard ocean-going vessels. Suitable U.S. navigation safety standards are being developed which set precise visibility safety standards for foreign and domestic ships operating in U.S. waters.

Recreational Boating Safety

The Coast Guard continues its efforts to reduce the fatality, injury, and property damage rate among the estimated 16.1 million boats and 68 million people who go boating annually. The calculated recreational boating

fatality rate rose slightly from 6.8 to 6.9 fatalities per 100,000 boats in 1985.

The Coast Guard continues to stress its established policy of noncompetition with free enterprise, in cases where no threat to life or property exists. Increased public awareness of this policy has provided incentive to the private sector to take a percentage of such cases, usually towing and simple repairs, and has fostered a greater safety consciousness among recreational boaters.

Marine Environmental Safety

The Coast Guard has been busily involved with the IMO in working toward an internationally acceptable standard for surveys required under the SOLAS, MARPOL, and Load Line Conventions. A conference to conclude this work is scheduled for the fall of 1988.

The Coast Guard conducted several thorough technical studies in the following safety areas:

- Roll-On/Roll-Off Automobile Transport Ships, an Assessment of Carbon Dioxide Requirements for Fire Safety,
- Fire Resistance Testing of Bulkhead and Deck Penetrations,
- Smoke/Gas Hazards of Furnishings,
- Design Reliability of Tension Leg Platform Elements, and
- Climatic Summaries of Wave Spectral Density Measurements or the National Oceanic and Atmospheric Administration Data Buoys.

The Coast Guard continues to explore further areas of the inspection program that can be delegated to the American Bureau of Shipping (ABS). Delegation for new construction plan review and inspection areas is being concluded. Added delegation was made to the ABS in areas of structural fire protection plan review, heating boiler automation systems, and installation and inspection of pollution prevention equipment. An ongoing rulemaking project to define "similar U.S. classification societies" may extend delegation to other classification societies.

Waterways Management

On January 1, 1985, the Coast Guard, in a major safety initiative, activated Vessel Traffic Service (VTS) New York. Located on Governors Island, the VTS uses radar, low-light-level television, and radio communications to monitor ship movements in New York Harbor. It supplies critical safety and navigation information on a 24-hour basis to vessels operating in this heavily congested area, with the main focus on the ferry routes between Manhattan and Staten Island.

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Ice Operations

Polar Ice Operations. The usual Polar Ice operations took place, including 2 Arctic East Summer deployments, AES 85 (NORTHWIND) and AES 85 (POLAR SEA), 2 Deep Freeze deployments, DF 85 (GLACIER) and DF 85 (POLAR STAR), and one Arctic West Winter deployment, AWW 85 (POLAR SEA). An unusual distinction of these deployments was POLAR SEA's involvement in both AES 85 and AWW 85. When neither WIND-Class vessel could be readied in time to meet the annual Greenland resupply mission, it became imperative that POLAR SEA meet promises in both the Eastern and Western Arctic operating areas. Since Panama Canal transit time was too long to meet both obligations, a Northwest Passage transit was needed. This transit was the first solo circumnavigation of the North American continent by any U.S. vessel.

Domestic Ice Operations. Ice Operations were approximately 25 percent lower than the domestic 7-year average. This can be attributed to a relatively mild winter. Domestic icebreaking resources assisted 240 commercial vessels and 80 fishing vessels.

International Ice Patrol. The International Ice Patrol season ran from March 14 to August 29, 1985. A total of 1,063 icebergs was sighted south of 48 degrees North latitude by aircraft and ships transiting the area, considerably higher than the 1946-1984 average of 347 icebergs and followed the record season (2,202) of 1984. The AN/APS-135 Side-looking Airborne Radar aboard Coast Guard HC-130 aircraft flying out of Gander, Newfoundland, during the Ice Patrol season, remains the principal means of iceberg reconnaissance.

Cutter Construction, Design, and Maintenance

The WHEC 378 (HAMILTON Class) Fleet Renovation and Modernization Program (FRAM) began with a split contract awarded to Bath Iron Works, of Bath, Maine, and Todd Pacific Shipyards, of Seattle, Washington. The first 2 Cutters, HAMILTON on the East Coast, and MELLON on the West, entered their respective shipyards in October 1985. The remaining 10 cutters are entering on a staggered basis, with the final ships completing FRAM in 1990.

Construction of the 270-foot Famous Class cutters continues. The Tacoma Boatbuilding Co. completed delivery of the first 4 ships of the class. R.E. Derecktor, of Newport, Rhode Island, is building the last 9 ships of this class.

Research and Development

Coast Guard research and development projects examined a variety of concerns for the benefit of the Coast Guard, commercial vessel crews, and the American public. Ef-

forts to improve safety at sea progressed in several areas. Live fire tests were held at the Coast Guard's Fire and Safety Test Detachment to identify the best way to facilitate leaving a boat or ship in an emergency.

Plans to discover effective ways to reduce deaths, injuries, and property damage from alcohol-related boating accidents were completed and set into motion. Methods designed and produced by the Coast Guard R&D Center to develop safe-powering guidelines for recreational boats were being used in field experiments engaging 12 different boat hulls with various power levels.

Military Readiness

The Coast Guard continues to take part in the Joint Chiefs of Staff (JCS) Command Post Exercise (CPX) program as a way to test various Coast Guard plans, policies, and procedures for their usefulness in crisis situations. Forty-six commands participated in 2 JCS-sponsored CPXs and 6 JCS-arranged CPXs. In the U.S. strategic ports, 70 Coast Guard units took part in 29 Field Training Exercises (FTXs), including joint exercises like REFORGER 85, BRIM FROST 85, and SOLID SHIELD 85. These FTXs provide training and correlation with other agencies and services, an occasion to test plans, policies, and training of Coast Guard personnel in their wartime port security and safety roles. At the fleet level, 22 Coast Guard cutters took part in 14 Fleet Exercises. The greatest fleet participation was during OCEAN SAFARI 85, a total of 240 cutter days with the Navy.

Operational Intelligence. Possible terrorist threats in U.S. ports have been a point of increasing concern. Expanded intelligence is essential to counter these threats. Several projects have been established to acquire intelligence support systems crucial to meet this need. The Coast Guard Intelligence Coordination Center keeps an all-source 24-hour watch to organize vital and useful knowledge within the Coast Guard and between the Coast Guard and national information and law enforcement personnel.

Aircraft. Renewal and expansion of aircraft fleet assets continued in 1985. The Coast Guard concluded the multi-year procurement of 41 HU-25A Medium range Search (MRS) aircraft. The multi-year procurement of the HH-65A Short Range Recovery (SRR) helicopter began in November 1984, with the approval of the first of 96 aircraft. By the end of 1985, HH-65A aircraft were operational at Aviation Training Center Mobile and Air Station New Orleans. Renewal of the HC-130 fleet continues through the Procurement in Lieu of Conversion (PILOC) Program with the delivery of 4 new replacement aircraft. When completed in 1986, all 16 of the Coast Guard's worn out B, E, and 1400 series H model C-130 aircraft will be replaced.

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Coast Guard Reserve

The Selected Reserve increased in size to over 12,590, a 2 percent increase over 1984. Three new Reserve units were established, and 2 were merged, improving program management and enhancing augmentation training and mobilization readiness.

The Coast Guard Reserve participated in JCS, DOD, and MDZ exercises to test how well reservists are trained for their wartime mission and to provide specialized training aptitude. Over 2,870 reservists took part in exercises in the U.S., Europe, Jordan, Egypt, and Iceland.

All of these operations revealed a high level of readiness, and further illustrated the direct relationship between the Coast Guard Reserve's augmentation mission and mobilization training. For instance, harbor patrols and search and rescue missions enhance small boat handling skills; law enforcement missions provide enhance weapons training and boarding and inspection experience; and responses to fire and flood emergencies build a mutual trust and confidence between active duty and reserve personnel.

Command, Control, and Communication

The mission of the Command, Control, and Communication (C3) program is to increase the utility of the Coast Guard in performing its missions by the aggressive application of information resource management principles and C3 resources. Now 5 years old, the program has integrated Coast Guard electronics, telecommunications, and ADP procedures to manage the Coast Guard's information resources more capably. Operationally, C3 gives the Coast Guard, OST, and other departmental modes a wide variety of centralized communications, transportation accident reporting, and 24-hour-watch standing relay services.

Minority Officer Recruiting

Despite efforts to improve the success of the Coast Guard in minority officer recruitment, the program continues to fall short of desired objectives. A constant problem is the lack of awareness of the Coast Guard in the academic community. The Coast Guard Campus Liaison Officer (CLO) Program continues to offer commissions in the inactive Coast Guard Reserve to tenured faculty members, providing high student visibility at colleges with notable minority populations.

Federal Aviation Administration

The mission of the Federal Aviation Administration (FAA) is to regulate the positive and efficient use of the nation's airspace and to encourage civil aeronautics and air commerce at home and abroad. These responsibilities require carrying out a variety of enterprises, such as safety regulation, operation of common civil-military air navigation and air traffic control systems, research and development, and promotion of a national airport system.

Aviation Safety

The Safety Record. The 1985 safety record compares unfavorably with that of the previous year. Scheduled domestic and international service involving U.S. airlines saw a higher number of accidents, including fatal accidents, and higher fatality rates. All told, 197 people perished in 4 airline accidents during 1985, compared with only 4 people in one accident in 1984. The accident rates for commuter air carriers were about the same as 1984, although the number of fatalities decreased from 48 to 37. On-demand air taxis experienced a rise in most rates, while general aviation improved in nearly all safety categories.

Safety Rulemaking. Among the more important operations the FAA addressed in 1985 was long-awaited safety rulemaking. The most significant rules deal with the problem of in-flight cabin safety and the phenomenon of "flashover." Between October 1984 and March 1985, the FAA adopted new regulations that had the promise of increasing passengers' chances of surviving airline accidents involving fire and smoke. Airlines with 30 or more seats were required to install slow-burning seat coverings, delaying the onset of flashover by as much as 40 seconds. As smoke can totally obscure overhead emergency visibility, the FAA required new emergency path marking or lighting on or near the floor to guide passengers to safety. The FAA had air carriers install fire extinguishers and smoke detectors in the galleys and lavatories of large passenger-carrying aircraft. Lavatory trash receptacles were to be equipped with automatically-discharging fire extinguishers. Also, the FAA increased the number of hand-held extinguishers in the cabins of aircraft capable

of seating more than 60 passengers. After April 1985, the Administration went further, recommending more stringent fire tests for interior materials used in the ceilings, walls, and partitions of aircraft cabins.

In other rulemaking actions:

- The FAA reduced from 200 to 124 the total number of flight hours required for pilots to be eligible to obtain an instrument rating. With the new requirement, pilots could qualify for an instrument rating within 2 years of obtaining a private license, rather than the 3 or 4 years formerly needed.

- The FAA approved a simplified set of flight and rest time requirements for domestic airline, commuter, and air taxi pilots, to take effect October 1, 1986. The new regulation provided for a 9-hour rest period for pilots scheduled to fly 8 hours or less in 24 hours, increasing to 10 hours for scheduled flight times of between 8 and 9 hours, and 11 hours when flight time exceeds 9 hours. The new rule set an 8 hour limit on flight time for commuter pilots and long term limits of 34 hours serving any 7 consecutive days, 120 hours a month, and 1,200 hours a year.

- The FAA adopted new criteria that allowed U.S.-flag carriers to operate some 2-engine airplanes on most North Atlantic routes. The Federal Aviation Regulation (FAR) governing extended flights stated that, unless authorized by the FAA Administrator, 2-engine airplanes may not fly on a route that at any point is more than 60 minutes flying time from an airport where it can land. However, under the new criteria, FAA may permit airlines to fly routes up to 120 minutes of single-engine flying time from a suitable airport. At least half of each extended-range route segment must be less than 90 minutes flying time on one engine from the airport. North Atlantic routes, customarily limited to 3- and 4-engine airliners, can now be flown by 2-engine airliners. Before any aircraft and engine combination is approved for extended-range routes, it must meet certain reliability standards. By the end of the year, only one 2-engine airliner, the Boeing 767 ER, had been granted approval to fly under the new criteria.

- The FAA proposed to require airlines to carry upgraded medical equipment and drugs for treating passengers who may suffer heart attacks or face other emergencies in flight. Rules currently in effect require airlines to be equipped with only basic first-aid equipment.

- The agency tightened the rules governing the use of alcohol and drugs before flights by pilots, flight engineers, and cabin attendants, establishing for the first time a blood/alcohol standard for determining objectively when drinking impairs the ability of pilots and other crew members to perform their flight duties safely. Under the

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new standard, pilots will be considered under the influence of alcohol if they have a blood alcohol level of 0.04 percent or higher, a standard considerably tougher than that used by all states for motorists. The new rule amended the longstanding regulation that prohibited anyone from acting as a crew member of a civil aircraft within 8 hours after consuming alcohol, while under the influence of alcohol, or while using any drug that adversely affected performance.

Enforcement. Under the Federal Aviation Act, FAA may impose a fine of no greater than \$1,000 for each violation of Federal Aviation Regulations. Written in 1938, before inflation had eroded the purchasing power of the dollar, the fine had lost much of its original value as a deterrent, and the Secretary sent proposals to Congress to raise the civil penalty limit for each safety violation by airlines and other commercial aircraft operators to \$10,000. The proposed higher penalties would not apply to private and business aircraft.

In August 1985, FAA issued the first interim report on its General Aviation Safety Audit. The audit, begun in the summer of 1984 and concluded at the end of calendar 1985, showed a high compliance with FAA safety regulations by holders of Part 125 operating certificates—corporate executive fleets, contract cargo operators, and travel clubs. FAA regional and district offices inspected 61 commercial operators of large aircraft, looking into areas such as operations, maintenance, and record keeping. They evaluated a total of 281 inspections, resulting in 2,913 findings. Approximately 87 percent of the findings were satisfactory.

In another enforcement action, the FAA ruled, after a six-week investigation, that Continental Airlines was operating in basic compliance with federal safety regulations. The federal inquiry, however, uncovered some deficiencies in the airline's operational and maintenance practices and procedures—e.g., in recordkeeping, pilot training, and maintenance. FAA devoted nearly 10,000 hours to the project, the scope of which included 100 airplanes, 1,370 pilots, 1,875 attendants, and 1,800 maintenance personnel. This is FAA's second in-depth study of Continental since the company's reorganization in September 1983.

In June 1985, FAA began a toll-free Safety Hotline to foster aviation safety. The Hotline is meant first for use by those in the aviation industry who know of alleged violations of the Federal Aviation Regulations, but are reluctant to report because they fear being identified. Names of callers are kept confidential by FAA and are protected from disclosure under the Freedom of Information Act (FOIA).

Aviation Safety Research. In 1984, after 5 years of planning, FAA and NASA conducted a "Controlled Impact Demonstration," designed to simulate a survivable takeoff

or landing accident by intentionally flying a 4-engine Boeing 720 into the ground. FAA was able to collect data on the effectiveness of antimisting kerosene (AMK) and on how various aircraft components and equipment behave under the heavy stresses of a survivable accident. The post-crash fire, larger than expected, raised questions about the effectiveness of antimisting kerosene, which had been advised in 1980 by the Special Aviation Fire and Explosion Reduction (SAFER) Advisory Committee. In light of this result and the technical issues that remain to be resolved, the Administrator of FAA concluded that AMK was not practical for day-to-day airline operations in the foreseeable future.

The impact demonstration yielded other useful results: the test aircraft carried instrumented dummies, high-speed cameras, and more than 350 sensing devices. Aircraft and performance data from various crashworthiness experiments on board the airplane, transmitted by linkage to ground recorders, were expected to prove immensely useful in improving future aircraft design, structures, and safety systems. Instrumentation in the B-720 continued to transmit data for 10 minutes after impact. Review of the films of the interior indicated that all seats and simulated occupants remained in place, and the impact was judged survivable.

Aviation Security. FAA continues to evaluate the degree of safety at foreign airports served by U.S.-flag carriers. Congress passed amendments to the foreign aid bill, enhancing the FAA's ability to suspend service to airports failing to maintain and administer effective security measures.

At the same time, the FAA expanded efforts to develop better systems for detecting explosives concealed on passengers, in baggage, or in cargo. FAA continues to emphasize seeking new approaches to detection. The agency requested industry and academia to forward proposals to meet the FAA's explosive detection needs. Five proposed new technologies resulting from this request were funded in a preliminary feasibility study.

The FAA also accelerated its activities in more established fields of weapon and explosive detection research. One such area is Thermal Neutron Activation, a technique in which bombardment by neutrons triggers a reaction that permits identification of the target material. In previous years, this system was tested at Pittsburgh, Boston, and Chicago airports, and showed promise in detecting explosives in checked baggage and air cargo. In the spring of 1985, tests using a prototype system were conducted at the Philadelphia airport.

Aviation Medicine. Aviation statistics indicate that 52 percent of fatal accidents and 35 percent of non-fatal accidents involve pilot judgment errors. FAA research

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suggests that a possible explanation for this was that traditional aviation training and certification procedures stressed acquisition of knowledge and skill development, regarding judgment solely as a by-product of experience. The FAA Office of Aviation Medicine evaluated material systematically developing judgment as part of the flight training process. These materials included training manuals and low cost audio-visual aids that revealed the risks related to various flying activities, underlying behavioral causes of typical accidents, and the effects of stress on pilot decision making.

These concepts were jointly tested by FAA and the Canadian Air Transportation Administration in 5 independent studies. Results indicate that pilots receiving judgment training materials out-performed their contemporaries during in-flight tests. The differences were statistically significant and ranged from about 10 to 40 percent fewer judgment errors.

Air Navigation and Air Traffic Control

Air Traffic Activity. Total aircraft activity, as measured by FAA activities at terminals and in en route operations, reached new highs during 1985. FAA air traffic control towers (ATCTs) handled 58 million aircraft operations, surpassing 1984 totals by 2 percent. At the same time, FAA air route traffic control centers (ARTCCs) managed 32.7 million aircraft flying under instrument flight rules, topping the 1984 figure by 4 percent. One measure of air traffic activity, however, continues to decline. Reflecting the reduction in general aviation flying, flight service stations performed 52.9 million flight service operations, or 4 percent less than in 1984.

The National Airspace System Plan. The National Airspace System (NAS) Plan, issued in December 1981 and updated annually, outlines the means for increasing safety, capacity, productivity, and economy in operating the nation's air traffic control (ATC) and air navigation systems through capital investments. These goals are being achieved through higher levels of automation, facility consolidation, and the use of new telecommunications technology. FAA continues to implement various components of the NAS Plan.

VORTAC Replacement Program. VORTAC is an acronym for very-high-frequency omni-directional range with tactical air navigation equipment. Second generation solid-state VORTAC programs replaced existing units with solid-state programs able to monitor and control remote equipment. Wilcox Electronics and the International Telephone and Telegraph corporations have furnished 950 second generation navigational aids and installed 800. The remaining 150 units are being installed by FAA technicians. These new navigational aids are the

first systems to have a Remote Maintenance Monitoring (RMM) feature, an innovation that enables technicians to complete ground checks in less than 5 minutes from a remote telephone. With RMM, site visits need be performed only tri-monthly rather than weekly.

Advanced Automation Program. The ongoing Advanced Automation Program, initiated in 1982, is central to reconstructing en route and terminal ATC functions. It is directly related to a number of other NAS Plan programs, and supplies increased computer capacity to perform new ATC functions required during the 1990s and beyond. The program is composed of 2 major elements, the Host Computer System (HCS) and the Advanced Automation System (AAS). The Host Computer System contract was awarded to IBM on July 26, 1985. The contract involves replacing the present IBM 9020 computers in 20 Air Route Traffic Control Centers (ARTCCs) and their support facilities. Meanwhile, AAS development is proceeding under 2 competitive design contracts, totaling nearly \$247 million, awarded to IBM and Hughes Aircraft in August 1984.

Microwave Landing System (MLS). MLS is the precision landing system endorsed by the International Civil Aviation Organization (ICAO) as the world-wide standard replacement for the present Instrument Landing System (ILS). MLS overcomes many technical and operational limitations inherent in ILS. In many locations, it will give air traffic controllers the ability to eliminate traffic flow conflicts, allowing virtually independent operations at neighboring airports. Unlike the ILS, MLS will allow multiple precision approach paths, providing added feasibility in overcoming terrain restrictions and avoiding heavily populated areas. The MLS signal is also less sensitive to weather, terrain, or structures around the airport, making the system more dependable and easier to site. The NAS Plan calls for installation of 1,250 MLS systems. User evaluation procedures were launched with the commissioning of MLS at Richmond, Virginia, in September 1985. These will help show the benefits of MLS to the user community.

Airport Radar Service Areas (ARSAs). In August 1985, the FAA issued a proposal to establish a new air traffic control concept—Airport Radar Service Areas—at 36 locations around the country. An ARSA is a 2-tiered block of airspace, generally circular, with a radius of 10 miles at the top. Pilots operating in an ARSA must establish communications with the airport radar approach control facility and comply with all instructions. This gives air traffic controllers data on all aircraft operating in these areas, avoiding the kind of airspace conflicts that can result when there is a mix of known and unknown traffic. Requiring all aircraft in the area to communicate with ATC should increase operational efficiency and decrease the risk of midair collision.

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Aviation Weather Programs. The FAA conducted technical and operational investigations using a Doppler weather radar support facility. The Massachusetts Institute of Technology's Lincoln Laboratory carried out operations at Olive Branch, Mississippi, approximately 12 miles southeast of Memphis International Airport. The facility used an S-band (Airport Surveillance Radar) ASR-8 transmitter/receiver with Doppler processing capability added by Lincoln Laboratory. The other principal weather measurement sensors incorporated in the support facility included a 30 unit network of reporting stations, the Memphis Airport's Low Level Wind Shear Alert System (LLWAS), and the University of North Dakota's C-Band Doppler weather radar. The facility also utilized input from the National Weather Service's WSR-57 radar at Memphis, and aircraft tracking information from the Memphis Air Route Traffic Control Center. The University of North Dakota operated test aircraft in support of the facility.

The primary objectives of this program were resolving the main doubts about computer processing to detect and display en route and terminal hazardous weather; obtaining feedback from system users on the practicality of proposed data products for improving safety and efficiency; analyzing issues involving the link between Doppler weather radar and the Central Weather Processor (CWP); and providing a database for FAA designation of the terminal Doppler weather radar and CWP/Next Generation Weather Radar (NEXRAD) interfaces.

Test-bed radar is used in the following ways: as terminal Doppler weather radar to discover low altitude wind shear; as a NEXRAD network sponsor, with the primary spotlight on products of specific concern to FAA, such as information on turbulence and layered reflectivity; and for scientific data acquisition characterized by scientist-controlled scan patterns, as in the Joint Airport Weather Studies (JAWS) and Northern Illinois Meteorological Research on Downbursts (NIMROD) projects.

A report by the National Research Council, "Low Altitude Wind Shear and Its Hazard to Aviation," recommended wind shear training for pilots. The Council found that "the education and training of most pilots with respect to wind shear and its hazards are inadequate and that the risk posed by wind shear can be reduced very soon by an education campaign directed at all classes of pilots." Persuaded by this study, the Boeing Aircraft Company, in collaboration with McDonnell Douglas, Lockheed, and United Airlines, submitted to FAA a thorough strategy for definitive wind shear training.

Installation of LLWAS, the Low Level Wind Shear Alert System, continued in 1985. LLWAS furnishes pilots and controllers with information on wind shear that could result in unsafe landing or departure conditions. The

system compares wind speed and direction from sensors on the airport periphery with centerfield wind data. When the system issues an alarm, air traffic controllers supply wind shear advisories to all departing and arriving aircraft. At first, systems were located at major airports that experienced a high incidence of thunderstorms with their attendant gust fronts. Twenty-one supplementary systems, installed during 1985, brought the total number of airports with LLWAS to eighty. At the same time, the LLWAS at Denver-Stapleton Airport and New Orleans-Moisant Airport were augmented to include additional periphery sensors. Testing and evaluation proceeded at both airports, the objective being to test the capability of expanded systems in detecting microburst-generated wind shears.

Airport Programs

Airport Improvement Program. FAA obligated \$848.6 million for new development grants under the Airport Improvement Program for 1,112 development projects and 48 system planning projects in the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands.

Of the total obligated, \$516.2 million went for 390 development projects at primary airports. (According to the Airport Improvement Act, an airport is classified primary when it accounts for 0.01 percent or more of the total annual enplaned passengers in the United States.) About \$158.3 million went for 422 development projects at general aviation airports. Reliever airports received \$114.1 million for 145 projects.

FAA published the first National Plan of Integrated Airport Systems (NPIAS), required by the Airport and Airway Improvement Act of 1982. A successor to the National Airport System Plan that had been required by the now-lapsed Airport and Airways Development Act, NPIAS sets forth the developmental requirements for a basic U.S. airport system that can meet the anticipated demands of civil aviation. The 1985 plan lists a need for \$18.3 billion for development of 3,668 airports through the year 1993.

Airport Pavement Research. The FAA pressed its effort to establish a pavement maintenance management system (PMMS), based on the automation of records storage and analysis. The PMMS would give managers timely information that would let them select the most suitable strategies for maintaining and rehabilitating pavement.

The FAA also continues to work with the U.S. Army Cold Regions Research and Engineering Laboratory studying the special problems of pavements in cold climates to improve pavement resistance to the harmful effects of severe weather conditions.

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Through contracts with the private sector, the FAA funded research to develop materials criteria and improve construction techniques for the purpose of enhancing the durability of pavements and dererring capital outlay. These criteria allow for the effective use of geotextiles to inhibit pavement cracking. This effort will continue to include all material specifications that have a major impact on the cost of constructing, rehabilitating, and repairing pavements.

The FAA continues to determine the feasibility of developing soft-ground aircraft arresting systems at the end of runways. This study includes the suitability of various materials for use as soft-ground, and the length of soft-ground that aircraft would need for safe deceleration.

Airport Visual Aids and Lights. FAA evaluated newly-developed runway lighting systems including tritium-powered, self-contained radioluminescent (RL) lights. Such systems require no external power source. FAA conducted a preliminary evaluation of a system including runway edge lighting units, threshold lighting units, an airport identification beacon, and a lighted wind direction indicator. The outcome demonstrated that the system was satisfactory, under favorable climatic conditions. FAA also examined a simple and inexpensive means of improving safety at airports, especially during low visibility conditions, using color coding of taxiway centerline lights and taxiway edge lights.

Metropolitan Washington Airports. In April 1985, the Secretary submitted to Congress legislation proposing to transfer FAA-owned airports in the Washington metropolitan area, Washington National and Dulles International, to a new regional airport authority. The Senate held hearings on this legislation during June and July and reported a bill out of committee in September. Meanwhile, both Virginia and the District of Columbia, represented on the regional authority, enacted the necessary local legislation.

Administration, Organization, and Personnel

Human Resource Management. In March, FAA placed the Washington Headquarters Offices of Personnel and Training, Labor Relations, and Human Relations under an Associate Administrator for Human Resource Management. At the same time, it created a new office responsible for human resource planning, evaluation, and research. Establishment of this new organizational structure is a vital step in institutionalizing within FAA the philosophy that people are the agency's most important resource.

The agency announced a new drug testing program covering FAA employees working as pilots, safety inspectors, air traffic controllers, police officers, or fire fighters, which subjects employees in safety-related jobs to urinalysis on their entry into FAA and annually thereafter. Once an employee is discovered to have a drug-related problem, he or she would be relieved at once of all safety-related duties and assigned to other tasks pending final determination. Employees completing a drug or alcohol treatment program could return to their original positions; however, a second offense would result in their removal from FAA.

Civil Rights and Equal Employment Opportunity

FAA continues to hire greater numbers of minority and women employees. At the end of 1985, 18 percent of FAA's employees were women and 13.7 percent were minorities. The air traffic controller workforce included 10.1 percent women and 9.4 percent minorities.

FAA took part in the Minority Business Enterprise (MBE) Program. During 1985, FAA awarded contracts amounting to more than \$114 million to business concerns owned and managed by minorities. This surpassed FAA's 1985 goal by \$15 million.

Federal Highway Administration

The Federal Highway Administration (FHWA) is responsible for administering the Federal-aid highway program with the states and assisting them in coordinating the construction of primary, secondary, urban, and Interstate system roads. FHWA also regulates and enforces federal requirements for the safety of trucks and buses engaged in interstate or foreign commerce and governs the safety in movement over the nation's highways of such commerce as explosives and flammable materials.

In addition, FHWA participates, with the U.S. Forest Service, the National Park Service, and other federal agencies, in designing and building primary roads in national forests, parks and Indian reservations, and assists foreign governments with various phases of highway engineering and administration.

1985 witnessed a continued increase in highway program obligations, since the enactment of the Surface Transportation Assistance Act (STAA) of 1982, with \$14.2 billion obligated in 1985, compared with \$8.5 billion in 1982 (pre-STAA). The increase resulted from higher authorizations made possible by enhanced revenue levels set by the STAA of 1982. The Act also increased federal emphasis among the various programs for resurfacing, restoration, rehabilitation, and reconstruction activities.

Cost Avoidance, Reduction, and Efficiency (CARE) Program

The FHWA CARE Program includes activities designed to decrease internal administrative support costs and to foster federal and state activities that result in cost efficiency and improvements. While saved funds represent an objective measure of improvement, a number of reported results do not reflect immediate dollar savings but rather management policy improvements, contributing substantially to FHWA's overall efficiency improvement objective.

Providing maximum flexibility to program offices carrying out CARE activities results in a wide variety of initiated and reported cost reductions. For example, important cost avoidance results are reported because FHWA suggestions to mill and recycle existing pavement rather than buy more expensive new surfaces follow.

Other frequently disclosed cost avoidance measures include reuse of bridge steel, use of newly developed materials, and proposals for improved state design and construction practices. The concepts of value engineering and alternate design, which reduce project costs and allow for maximum use of Federal-aid funds, continue to make up a major element of FHWA's cost avoidance activities. On 16 major bridge projects bid in 1985, use of alternative design netted an estimated savings of \$80.49 million. This represents an average savings of \$5.03 million per project.

Regulatory Reform

Consistent with Administration and Departmental goals, FHWA is actively committed to regulatory reform. By deleting unnecessary requirements, eliminating duplicative reporting and recordkeeping burdens, and increasing the alternatives for states to comply with program directives when appropriate, the FHWA attempted to curtail construction costs and improve the efficiency and effectiveness of program management. During 1985, FHWA announced 15 final rules amending extant restrictions or implementing statutory provisions. FHWA revised 21 draft regulations which are expected to be issued when the clearance and review processes are completed. Twelve regulations are under active review and 2 regulations were rescinded.

The FHWA revised the 1978 regulation regarding repayment of federal funds for property acquired but no longer needed for its original highway purpose. The change was made to incorporate the provisions of the 1979 Amendments and to return to FHWA's ad hoc policy which required repayment in situations other than Interstate withdrawals.

Legislative Initiatives

Since the STAA of 1982 carried authorizations through 1986, FHWA officials were involved in legislative initiatives. Congress had to approve the Interstate Cost Estimate (ICE) and the Interstate Substitute Cost Estimate (ISCE) and to apportion \$7 billion in Interstate, Interstate substitution, and minimum allocation funds. Congress finally passed an 18-month approval of the ICE/ISCE on March 13, 1985.

The Tandem Truck Safety Act of 1984 and the Motor Carrier Safety Act of 1984 (P.L. 98-554) were signed on October 30, 1984, providing DOT with increased flexibility in truck route designation and profoundly amending the federal motor carrier safety program. On September 30, 1985, enactment of P.L. 99-104 permitted timely apportionment of the Interstate and Interstate substitute funds the following day.

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Program Accomplishments

Interstate. At the end of 1985, the total Interstate mileage (including the Howard-Cramer additions to the 42,500-mile System) open to traffic was 41,429, including 322 miles opened during the year. The total open to traffic represented 97 percent of the Interstate System. The remaining mileage is under construction (737 miles) or design development (512 miles).

Interstate Withdrawal and Substitution. The FHWA worked closely with New York state and local government officials to develop and expedite approval of the Westway withdrawal and related alternate project concepts. The largest single withdrawal action since the program began in 1973, it decreased the cost to complete the Interstate System by nearly \$1.8 billion while increasing the cost for substitute projects by \$1.7 billion. During 1985, nearly \$900 million was obligated on substitute highway projects serving important local and regional transportation needs.

Right-of-Way and Environment. On March 15, 1985, FHWA issued a national noise review report on the management of the highway traffic noise program to its field offices. Because of the commentary and suggestions received from regional and division offices and state highway agencies, the report includes new technical information.

The FHWA worked closely with the American Association of State Highway and Transportation Officials (AASHTO) to update the 1974 AASHTO "Guide on the Evaluation and Attenuation of Traffic Noise." The revised guide includes new state-of-the-art noise analysis, modeling, and abatement techniques. The updated guide is intended to furnish more efficient management of the noise program and costs savings through more efficient maintenance practices and possible structural design changes.

The FHWA worked with other federal agencies to streamline the "one-stop environmental processing" concept. This concept provides for a single environmental document and public hearing under a unified process, and integrates the environmental requirements into mainstream project development activities. Work also continues on changes to the FHWA/UMTA environmental regulation to reduce unwieldy procedural criteria.

Pavement Management. The year 1985 saw successful completion of the National Initiatives on Pavement Rehabilitation (NIPR). FHWA finished a Pavement Rehabilitation Manual and issued it to state highway agencies and FHWA field offices. FHWA drafted a report endorsing improvements to its pavement data collection systems. Experimental Project No. 9 obtained performance data on pavement rehabilitation procedures. The experimen-

tal design plan, data management plan, organizational plan, and cost estimates were all begun in 1985, for the Strategic Highway Research Program (SHRP) study on Long Term Pavement Performance (LTPP).

Value Engineering. Value Engineering (VE) is a highly effective way of improving products and reducing costs. FHWA's primary goal is to promote VE to the state highway agencies through training and technical assistance to state and local governments. The National Highway Institute (NHI) sponsored seven 40-hour VE workshops to 269 participants from federal, state, and local governments in 6 states. During the workshops, 27 active projects with an estimated initial cost of over \$250 million were probed using VE techniques. Trained teams recommended VE improvements worth an estimated reduction of nearly \$38 million, or approximately 15 percent.

Highway Bridge Replacement and Rehabilitation Program (HBRRP). In 1985, more than 3,100 HBRRP projects began to reconstruct or replace deficient bridges. Of these, 4 were new high-cost major projects under the Discretionary Bridge Program (DBP). The DBP also funded 19 other major bridge projects.

The FHWA developed and presented the Soils and Foundation and the Highway Drainage core curriculum courses which gave FHWA engineers opportunities to use innovative design and construction techniques.

An FHWA mini-training course for producing pile foundations and inspecting permanent anchor wall construction to complement Demonstration Project 68, Permanent Ground Anchors, was useful in convincing 36 states to use permanent anchors to secure more efficient geotechnical designs in highway construction.

International Highway Programs. International programs underwent significant growth and diversification during 1985. In addition to the traditional long-term technical assistance programs in Kuwait, Saudi Arabia, and Costa Rica, FHWA got involved in many short-term aid projects, international meetings and conferences, cooperative activities at the request of other governmental agencies and international lending institutions, and new initiatives with foreign governments.

At the request of foreign governments, teams of FHWA experts visited different countries to analyze specific problems and develop solutions to them. A 2-man team went to Uruguay to examine pavement failure and study the properties of local aggregates used in highway construction. The Arab Republic of Yemen invited FHWA to dispatch a team of planning engineers to evaluate their long-term transportation improvement plan and to suggest improvement. The International Programs Office helped the United Nations find a qualified

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highway engineer to inspect the highway maintenance system for the city of Baghdad, Iraq.

The famine on the African continent led Chad to request aid from the U.S. for reconstruction of its transportation infrastructure to expedite food distribution within the country. In concert with the Agency for International Development (AID), FHWA arranged for a highway engineer to visit Chad to assist with its transport needs.

A major initiative in international cooperation emerged from a request for technical assistance from the People's Republic of China, in conjunction with the expansion and modernization of its highway system. Partially funded through a loan from the World Bank, China embarked on a multi-year program to improve its road system and asked that the FHWA help plan and start the program. This project held the promise of fostering better relations between the U.S. and China, providing opportunity to exchange technical knowledge among highway professionals, and opening Chinese markets to American manufacturers of highway construction equipment.

Highway Safety. Highway safety-related activities of FHWA include a wide range of educational, promotional, and regulatory activities, as well as programs providing funds to the states for highway safety improvements. Indicative of the achievements in these areas was the initiation of nearly 1,500 hazard-elimination projects and around 2,100 rail-highway crossing projects for a total of \$339 million. In addition, the states obligated \$440.5 million in Interstate and \$1,167.0 million in non-Interstate Federal-aid highway program funds for record highway safety obligations of \$1,946.5 million.

Under the Secretary's Initiatives on Highway Safety Delineation and Pavement Markings, approximately \$16 million of 100 percent Federal-aid highway program (G) funds were authorized for pavement marking and signing projects. These include: replacing worn-out pavement markings, upgrading and installing new pavement marking systems, and using post-mounted signs to enhance the effect of pavement marking in particularly hazardous areas.

Motor Carrier Safety. The FHWA Task Force to Review the Organizational Structure of the Motor Carrier Safety Program submitted its conclusions and recommendations. Pursuant to the findings and advice of this Task Force on March 22, 1985, the Administrator announced an overhaul of the motor carrier safety program within FHWA. The reorganization established a new Associate Administrator for Motor Carriers, transferred intact the existing Bureau of Motor Carrier Safety (BMCS) from the Associate Administrator for Safety, Traffic Engineering, and Motor Carriers to the new Associate Administrator for Motor Carriers, and

established line authority from the new Associate Administrator through the Director, BMCS, to the Regional Directors of Motor Carrier Safety.

The Associate Administrator for Motor Carriers, as part of the Administrator's immediate office, serves as major advisor on all motor carrier safety and other truck-related issues as they relate to FHWA missions, programs, and objectives—and as FHWA's main link with the motor carrier industry.

The STAA of 1982 provided for establishing the Motor Carrier Safety Assistance Program (MCSAP). Under this program, states that agreed to adopt and enforce the federal or compatible state motor carrier and hazardous materials regulations applicable to commercial motor vehicles, could be reimbursed by the federal government for up to 80 percent of the cost of establishing new or enhancing existing procedures. Congress appropriated \$14 million for the second year of the program in which 48 states participated, 28 in the implementation phase and 20 in the development stage. During this fiscal year, the participating states conducted more than 300,000 roadside driver-vehicle inspections which led to the removal of approximately 30,000 unsafe drivers and some 100,000 imminently hazardous vehicles from the nation's highways. By the end of 1985, the BMCS Management Information System contained the identities of some 212,000 motor carriers and approximately 22,000 shippers of hazardous materials subject to its jurisdiction.

Research, Development, and Technology

The Office of Research, Development, and Technology (RD&T) has as its aims to discover improved methods of meeting the challenge to reduce costs, to contribute the needed insight for addressing policy decisions, to survey the technology needed to suit future highway systems, and to deliver this knowledge as effectively as possible to the user. RD&T continues to make the best use of its assets and focus on current problems associated with maintenance, construction, and operation of the national highway system.

Major advances occurred in automated truck weighing. A concept using existing bridge structures as a scale and computer-controlled instruments was expanded to acquire structural measurements and the usual truck information. The new technology will yield bridge response data such as peak stresses, stress ranges, and strain rates, practical for evaluating design condition and performance. The speed of trucks, axle weights, and gross vehicle weights will be obtained automatically.

Important progress has been made in preventing corrosion in reinforcing steel in concrete bridges. Methods were developed for unique application of the technology

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of using protection and is being applied on an experimental basis to a number of bridge decks. FHWA improved variations of this method for use in substructure concrete. The method stops corrosion by reversing electrochemical corrosion that typically occurs due to the presence of deicing salts.

This year saw completion of a major earthquake study considering the seismic design of highway bridge foundations. The study offered a state-of-the-art appraisal of the resistance of bridge substructures to earthquake forces and added existing guide specifications for seismic design of highway bridges.

Economic analyses of expected benefits and costs play an important role in selecting effective safety measures. The value used for accident costs influences which safety measures are chosen. Recent research developed the following appraisals of traffic accident costs expressed in 1984 dollars: \$1,156,000 per fatality; \$7,100 per injury; and \$1,100 per property-damaged-only vehicle. These costs are compatible with those in current academic literature, and other organizations are employing them.

The NHI led 213 short session presentations to 7,017 students. Approximately 9 percent of the participants were FHWA employees, 77 percent state personnel, and 14 percent local or others. In addition, during 1985, the FHWA, through NHI, awarded 27 research fellowships to students from 20 universities across the nation. This program, begun in 1984, is designed to give undergraduate and graduate students a chance to sample highway-related research, development, or technology transfer study at the Turner-Fairbank Highway Research Center in McLean, Virginia.

Since 1981, NHI has taken part in the Technology Transfer Center Program aimed at local transportation agencies. Under this program, state highway agencies and universities, working as teams, form centers to transfer new technology to the local level. FHWA began agreements with 30 states to establish centers. In 1985,

FHWA completed an evaluation of the program which established both its cost-effectiveness and success. It also helped focus common needs and concerns of local transportation agencies.

Highway Information Management. The FHWA understood the need for comprehensive statistical data regarding the nation's highway system in analyzing and effecting legislative and policy issues. The Office of Highway Information Management used ongoing procedures to collect, analyze, and publish findings regarding the nation's highway system, vehicle use of that system, and the economics of the system. This office worked in tandem with various state highway agencies to collect the statistics.

Disadvantaged Business Enterprise

Under DOT's program to expand participation of minority, disadvantaged, and women-owned businesses (M/D/WBE) in federally-funded transportation projects, the FHWA is the lead agency for approving state departments of transportation M/D/WBE programs. A December 14, 1984 memorandum to Regional Federal Highway Administrators clarified this role as lead agency, directing that each modal administration be responsible for processing its overall annual goals. The notice also expanded the role of regional administrators in coordinating program approval updates between field office representatives of the other modal administrations and their recipients.

To measure compliance with Section 105(f), FHWA implemented a new reporting format on October 1, 1984, which showed the Federal-aid share of all DBE prime contract awards, plus DBE subcontract commitments by prime contractors. For 1985, the total amount was \$1,419.9 million, which represents 12.7 percent of the Federal-aid share for all prime contracts awarded during the year.

Federal Railroad Administration

The Federal Railroad Administration (FRA) is responsible for ensuring a safe, efficient, and dependable railroad system. FRA provides policy guidance regarding legislative matters affecting rail transportation, along with issues, standards, and regulations to enhance railroad safety. In addition, FRA fosters growth of an efficient and economically viable system for moving freight and passengers throughout the country.

FRA continues its efforts to reinstate Conrail to the private sector; to transfer the Alaska Railroad back to the state; to provide Amtrak most of the remaining features of the Northeast Corridor Improvement Project (NECIP); and to pursue vigorously reforms instituted by the Staggers Rail Act of 1980 that would make railroads more competitive. Through its safety enforcement work, continued use of system-wide safety appraisal, and research and development, FRA continues its pursuit of increased safety on America's railroads.

Safety

The FRA continues efforts to make the nation's railroads a safer place to work. An analysis of the year's accident/incident statistics shows that 1985 was the best year to date for railroad safety.

Much of the decrease in accidents can be attributed to the cut in rail operations in recent years. However, when normalized by indices of rail activity, such as train-miles and employee-hours worked, 1985 numbers were still impressive. For example, the frequency of train accidents per million train-miles was reduced by 60 percent during the period from 1978 through 1985.

Total rail-related fatalities fell to an 11-year low of 1,036 in 1985, which is a 16.9 percent decrease from the preceding year and a 37.1 percent decrease from 1978, when the most deaths took place. Employee fatalities dropped to 46 in 1985, a decrease of 22 percent from 1984 and 62.3 percent from 1978. There were 582 fatalities at rail-highway crossings, down 10.3 percent from the previous year and 47.8 percent from 1976, the worst year. Train accidents totaled 3,712, an 11.8 percent decrease from 1984, and a 70 percent reduction from 1978 levels.

Additional FRA safety achievements during 1985 include a Special Safety Inquiry held in Washington, D.C., to obtain data for evaluating future courses of action regarding safety at rail-highway crossings. As a result of this inquiry and a similar one held in 1984, FRA published the "Rail-Highway Crossing Safety Report."

FRA also changed railroad locomotive safety standards to eliminate or reduce reporting and recordkeeping requirements no longer necessary for safety; amended Railroad Operating Rules to eliminate the annual report for railroads with fewer than 400,000 annual person hours, reducing the burden of federal regulation on small railroads; modified Freight Car Safety Standards to remove confusion over the proper evaluation of discoloration on freight car wheels after being subjected to thermal abuse; and won a key appellate court case in which the court upheld FRA's exercise of prosecutorial discretion in safety enforcement.

Alcohol and Drug Abuse

The FRA issued comprehensive regulations controlling alcohol and drug use in railroad operations. They prohibit on-the-job possession and use of alcohol and drugs, or impairment by alcohol or drugs, and require blood and urine tests after major accidents, and reasonable cause breath and urine tests, pre-employment drug screens, and treatment programs for employees with drug or alcohol-related problems.

Conrail

In February, the Secretary chose the Norfolk Southern Corporation to acquire Conrail and sent the proposal to Congress. In May, Morgan Stanley and Company, a New York investment banking firm, announced a public bid for Conrail stock on behalf of a group of investors.

Conrail had a strong financial performance in 1985, but below the record profit level of 1984. Despite a 5.2 percent decline in traffic and a 1.1 percent deterioration in its operating ratio, because of a very aggressive cost-cutting program, Conrail recorded its second best net income, which totaled \$442 million.

Rail Service Structure and Regulatory Initiatives

FRA continues to encourage the rail industry to take advantage of Staggers Act regulatory reforms which improve the health and safety of the industry. FRA monitored and participated in, when required, discussions that dealt with several areas of dispute arising from the Staggers Act reforms.

In testimony before the Interstate Commerce Commission (ICC), FRA urged that the Commission adopt proposed negotiated guidelines for the treatment of joint rate

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cancellations that maintained competition, yet allowed railroads to rationalize route structures. The agency also supported procedures for considering evidence on product and geographic competition in market dominance cases that changed the burden of proof from the shipper to the railroad. In other major proceedings, FRA continued to support deregulation of boxcar traffic, and also recommended that Norfolk Southern be allowed to acquire North American Van Lines.

FRA analyzed the proposed merger of the Southern Pacific Transportation Company and the Atchison, Topeka and Santa Fe Railway Company, and testified for the Department before the ICC in support of consolidation. FRA recommended a unique free market approach to remedy the relatively moderate adverse effects of the merger on competition. FRA urged the ICC to allow applicants to negotiate agreements that would create new rivals for the affected traffic rather than impose specific conditions upon the merger. Conditions such as trackage rights imposed in past mergers have tended to cover more than the traffic adversely affected by the consolidation.

The needs of secondary or regionally important lines vital to continuity of rail service and which feed the national rail system received a major share, \$19 million, in funding of railroad rehabilitation and improvement projects under Title V of the Railroad Revitalization and Regulatory Reform Act of 1976. Previous funding effectively aided reduction of deferred maintenance on high-density main lines of the national network. Since 1976, FRA's total funding of railroad projects under Title V totaled \$795 million.

FRA greatly enhanced its understanding of local rail service improvement needs as the emphasis of the Local Rail Service Assistance Program grants to states shifted from an entitlement basis to discretionary project allocation. Use of available funding for specific rail service increased notably, although the total level of appropriated funds for the program declined.

Labor-Management Cooperative Program

The labor-management cooperative program, established to improve rail functions through FRA-encouraged volunteer programs, entered its tenth year. The method involves labor and management discussing and implementing creative changes in operations and customs. Upon completing the procedure, the option exists to incorporate changes into the railroads' operations. The program dealt with railroad operations, promotion of open alcohol and drug programs, and support for safety training. Chicago's METRA and the Soo Line/Milwaukee Road started operative programs in 1985.

Washington, D.C.'s Union Station

The Union Station Redevelopment Corporation (USRC) signed a contract with Gilbane/Smoot Joint Venture to manage the Union Station project. USRC chose Gilbane/Smoot after extensive competition and negotiation with 16 firms.

Northeast Corridor Improvement Project

1985 marked a significant milestone in the history of rail passenger service in the Northeast Corridor Improvement Project (NECIP). The objective of safe, regularly scheduled, and dependable intercity rail service has been achieved, and the responsibility for completing most of what remains of the project moves from the Department to Amtrak.

Accomplishments included:

Track Work: Twenty-two curves were realigned, 59 interlockings (crossover points) replaced or rehabilitated, 440 track-miles of concrete ties and 650 track-miles of wooden ties have been installed, and drainage conditions were improved throughout the Corridor.

Tunnels: The Baltimore and Potomac Tunnel was completely renovated; and in New York City, tunnels and tracks have been rehabilitated, fire lanes located, fans and drain pumps replaced, and drainage renewed.

Bridges: Ten bridges were replaced, including 2 moveable bridges, and 202 were rehabilitated.

Electrification: The entire catenary system was rehabilitated from New Rochelle, New York to Washington, D.C.

Signaling: Fifty-nine of 64 mechanical interlockings were converted to electric operation, most signals were bi-directional to allow will trains to use tracks in both directions, and a Centralized Electrification and Traffic Control System was put into service between Washington, D.C. and Wilmington, Delaware, and in the Boston area.

Fencing and Grade Crossings: All grade crossings were removed between Washington, D.C., and New Haven, Connecticut. Only 17 remain on the rest of the Corridor. A total of 22.2 miles of fencing was installed at critical locations.

Service Facilities: Four new maintenance-of-way bases were built and now serve the Corridor at Providence, Rhode Island; Adams, New Jersey; and Perryville and Odenton, Maryland.

Stations: Two of the 3 planned new stations were completed and put into service and 10 stations had major rehabilitation. Commuter facilities at 12 stations were upgraded, while 6 stations had their parking facilities expanded.

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National Railroad Passenger Corporation (AMTRAK)

Fiscal year 1985 was one of the most productive in Amtrak's history, as financial and traffic indicators remained positive. FRA worked scrupulously with Amtrak to improve the system and financial outlook.

Amtrak carried 20.8 million passengers in 1985, a near-record level and a 4.5 percent increase over 1984. Passenger miles rose 6 percent to 4.8 million and operating revenues were up 9 percent to \$862 million, an all-time high. Federal funding totaled \$684 million, down 16.4 percent from the previous year, and down 22 percent from 1981. On-time performance improved from 80 to 81 percent.

Amtrak, with the aid of the Department, took steps to see that these improvements would continue. NECIP, which renovated and rebuilt track, facilities, and stations between Boston and Washington, neared completion and remaining work was transferred to Amtrak.

Amtrak is involved in redeveloping, improving, and constructing numerous rail stations both inside and outside the Northeast Corridor. The West Side Connection project will merge all Amtrak operations in New York City into one station (Penn Station). Reservation system improvements include better connections to TWA and American Airlines, and membership in the Airline Reporting Corporation, which processes travel agency sales of airline tickets.

Finally, Amtrak began negotiating to obtain train and engine service on routes where other carriers now contribute crews, saving money and extending the innovative labor agreements negotiated for the Northeast Corridor and Auto Train to other routes.

Research and Development

The FRA research and development program had 3 major ends: to develop an independent, factual, and objective information base, on which to build timely and appropriate safety regulations and standards; to be alert and responsive to the possibility of emerging safety initiatives from either developing statistical trends, new technologies and operating practices, or field safety inspection operations; and to cooperate with industry to develop safer equipment, physical plant and operating practices by promoting voluntary initiation of improved safety measures.

Contemporary improvements in the railroad industry represent creative approaches to new generations of equipment design, radical departures from traditional service offerings, and lure of traffic with characteristics and commodities heretofore rare in rail movement. It is important that changes of the magnitude now under way be fully analyzed and possible safety effects investigated

prior to widespread implementation. Ideally, research, development, design, and testing of next generation systems should coincide with safety assurance proofs. Recent examples of joint industry-FRA involvement include monitoring the trend to increased hazardous materials traffic in intermodal service and the rapid growth of the double-stacked container-carrying car fleet.

In the interest of organizing a competent hazardous materials training program for railroad employees and other public service organizations, FRA helped the Association of American Railroads establish a training facility at the Transportation Test Center (TTC). This facility provides simulated derailment accident situations involving hazardous materials and the countermeasures needed to minimize the impact of the conceivable danger to the surrounding community.

Other R&D achievements in 1985 include:

- Completing a 3-year research project, combined with carriers, a car manufacturer and equipment suppliers, studying axle/bearing failures on commuter cars equipped with tubular axles and recommended remedial action;
- Encouraging initiative in the private sector by awarding, under the aegis of the Small Business Innovation Development Act of 1982, 7 contracts to meet safety device requirements for measuring longitudinal rail stress, keeping locomotive engineers alert, and identifying hazardous materials spills;
- Initiating experiments on the newly constructed 2.7 mile High Tonnage Loop (HTL) of the Facility for Accelerated Service Testing (FAST) to further expedite defect occurrence and growth determinations;
- Completing tests of acceptable alternate insulation systems for chlorine tank cars that will maintain safe internal temperatures when the trains are engulfed in a potentially dangerous fire;
- Identifying the multiple hazard aspects of 100 hazardous materials moved by rail;
- Leading an industry workshop focused on preventing critical and unsafe track buckling occurrences; and
- Completing a series of wheel cutting evaluations to determine residual stress levels and as a means to better understand the effect of thermal abuse on wheels due to braking.

Civil Rights

FRA continues to recruit minorities actively for positions within the agency, continues to work with industry to assist in minority business programs on various railroads, and aggressively pursues discrimination complaints.

FRA developed an Affirmative Action Plan for Hispanic hiring to ensure that Hispanic employees and applicants

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for jobs would have an equal opportunity to participate in FRA employment programs.

The Minority Business Office helped the Union Station Redevelopment Corporation certify minority firms, and refer eligible minority and women entrepreneurs to bid on leasing concession space in Union Station.

Although the remainder of the Northeast Corridor Improvement Project has been transferred to Amtrak, the Civil Rights Office continues to monitor Amtrak's minority business program. Furthermore, the Civil Rights Office monitored Conrail and other railroads contracting activities. In that regard, 8 on-site MBE program reviews were managed at Amtrak, Conrail, Illinois Central, and Chicago and North Western Railroad sites. There were also 5 Civil Rights Office on-site MBE certification reviews.

The agency exceeded its 1985 goal of \$150 million for minority contracts by 20 percent.

Alaska Railroad

The Department transferred the Alaska Railroad to the state for \$22.3 million—the “fair market value” placed on the railroad and all of its properties within the 2-year time frame set by Congress. The transfer was completed with no interruption of labor and no decline in the quality of service. In accordance with the transfer legislation, 449 permanent employees were shifted from Federal employment to a State-owned corporation, the Alaska Railroad Corporation, with wage and job protective benefits for 2 years.

National Highway Traffic Safety Administration

The National Highway Traffic Safety Administration (NHTSA), established by the Highway Safety Act of 1970 to execute safety programs mandated by the National Traffic and Motor Vehicle Safety Act of 1966 and the Highway Safety Act of 1966, also implements consumer programs established by the Motor Vehicle Information and Cost Savings Act, as amended.

NHTSA's mandate is to reduce the fatalities, injuries, and economic loss resulting from motor vehicle accidents by setting and enforcing safety performance standards for motor vehicles and giving state and local governments the means to organize, develop, and implement their own highway safety programs more effectively. NHTSA also investigates safety defects in motor vehicles, sets and enforces fuel economy standards, contributes leadership to the states and local communities in programs to reduce the threat of drunk driving, promotes the use of safety belts, child safety seats, and automatic restraints, investigates odometer fraud, sets and enforces vehicle theft regulations, and issues consumer information on motor vehicle safety and the crashworthiness of new cars.

The Traffic Safety Problem and Current Trends

Traffic accidents cost 43,795 persons their lives in 1985, a one percent decrease from the preceding year. This total represents an average of about 120 fatalities every day.

The fatality rate, or number of deaths per 100 hundred million vehicle miles of travel, a measure of the risk of death to which a person is exposed when traveling by motor vehicle, also declined between 1984 and 1985 from 2.58 to 2.47—the lowest in history.

Alcohol abuse remains the number one highway safety problem in this nation. Failure to use safety belts on the road resulted in nearly twice as many fatalities and injuries as would otherwise have occurred.

The cost of motor vehicle accidents is estimated to be nearly \$70 billion each year, including property damage, lost productivity, medical costs, and legal and insurance expenses.

Program Emphasis

NHTSA continues its policy of addressing highway safety through a "balanced approach," concentrating on solutions involving both vehicle and driver. This approach provides a careful balance of highway safety and motor vehicle safety programs.

NHTSA's long-term national safety belt campaign involves all levels of the public and private sector persuading, informing, and educating American consumers about the benefits of wearing safety belts. More states passed safety belt laws, and NHTSA helped many of them expand their occupant protection education and awareness programs, which not only address safety belt and child safety seat use, but also go on to increase the public's awareness of automatic restraints (air bags and automatic safety belts).

NHTSA continues to mobilize public support for reducing drunk driving. The agency emphasizes promoting community-based alcohol programs, which includes public education activities to sharpen a driver's understanding of the risks of driving under the influence and of being apprehended by enforcement officials.

NHTSA considered other technological means to improve motor vehicle safety, including improved side impact and frontal protection.

Enforcement emphasized improving the capability of the agency to identify accurately safety-related defects in motor vehicles and to guarantee that they are corrected in the shortest possible time.

Regulatory Reform Actions

Child Passenger Safety. NHTSA issued a Notice of Proposed Rulemaking (NPRM) amending the requirements of Standard No. 213, "Child Restraint Systems." It would require child safety seats, equipped with a tether (anchorage) strap, to pass a 30 mph test without attaching the tether. The amendment would ensure that children riding in child safety seats without the tether have the same crash protection as other passengers automobile seats.

NHTSA issued a final rule changing the strength needed to operate child safety seat buckle release mechanisms from the previous minimum of 12 pounds to a range between 9 and 14 pounds. The maximum release force in the post-impact was reduced from the previous level of 20 to 16 pounds.

Lighting. NHTSA issued 3 final rules and 2 NPRMs to improve vehicle lighting. Headlamps with twin light sources (bulbs) and headlamp systems with 4 lamps, each using one standardized replaceable light source, were added as optional systems for all motor vehicles. Modulated headlamps during daylight hours improve motorcycle

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safety by making motorcycles more easily visible to other motorists, and a new location was permitted for front identification lamps on multipurpose passenger vehicles, trucks, and buses with widths exceeding 80 inches.

Controls and Displays. NHTSA amended Standard No. 101, "Controls and Displays," to rescind requirements that the horn symbol be perceptually upright and to allow use of the words "Fasten Seat Belt" as an alternative to the seat belt symbol.

NHTSA issued an NPRM which would remove certain restrictions and permit greater flexibility in illuminating and identifying controls and displays.

Splash and Spray. NHTSA announced an NPRM to improve visibility on wet roadways by requiring particular equipment for truck tractors, trailers, and semi-trailers. The proposal, part of the implementation of Section 414 of the Surface Transportation Assistance Act of 1982, suggested that flaps and skirts be installed in specific locations on these vehicles and that the flaps be designed to achieve specified levels of spray suppression.

Brakes. NHTSA issued NPRMs on 2 matters dealing with brakes on heavy trucks. The first would change the part of the test process dealing with breaking in the brakes to accommodate disc brake designs. Disc brakes offer several performance advantages over drum brakes, and the proposed amendment encourages the use of disc brakes on trucks.

The other proposals would change the brake application and release timing guidelines for air-braked trucks to effect better compatibility between tractors and trailers, particularly in multiple-trailer combinations. The trailer timing test device would also be changed to simulate more closely the performance of current tractors.

Helmets. NHTSA developed an NPRM to extend the test procedures in Standard No. 218, "Motorcycle Helmets," to cover all helmet sizes.

Harmonization of Safety Regulations. NHTSA is taking an active part in efforts to harmonize brake safety standards for passenger cars in Europe, North America, and Japan. Following extensive review and testing of U.S. and the Economic Commission for Europe (ECE) test procedures, NHTSA issued an NPRM to harmonize worldwide standards for passenger car brakes.

Motor Vehicle Safety Crashworthiness. NHTSA continues testing vehicle design characteristics to reduce the number and degree of human injuries, emphasizing these crashworthiness priorities: driver and front seat passenger protection, improved frontal structures, side impact protection, motorcycle rider and pedestrian protection, and preventing occupant ejection in rollover accidents.

Side-impact accidents are a leading cause of fatalities and injuries to motor vehicle occupants. Research includes crash tests of passenger cars evaluating their safety performance, completion of side-impact tests, computer model analyses of accidents to assess injury effects of conceivable countermeasures, and development of procedures to evaluate techniques for improving head protection during vehicle interior impacts.

Air Bag Retrofit Demonstration Program. NHTSA and the General Services Administration (GSA) joined the Ford Motor Company in purchasing approximately 5,000 Model Year 1985 cars equipped with driver's side air bags. The vehicles were part of GSA's interagency motor pool fleet.

In addition, 550 driver's side air bag retrofit kits were supplied to police fleets of 7 states and 2 cities; Arizona, California, Ohio, Mississippi, Maryland, New York, Wisconsin, New York City, and River Vale, New Jersey. This retrofit system is supplemental and must be used in conjunction with existing automobile safety belts.

Heavy Vehicles. Heavy vehicle research seeks to improve truck and bus safety by improving their crash avoidance and crashworthiness capabilities.

NHTSA prepared 3 Congressional studies in response to Sections 216 (Heavy Truck Safety), 217 (Truck Occupant Protection), and 219 (Safety-Related Devices) of the Motor Carrier Safety Act of 1984.

In addition, NHTSA published a series of reports promoting its brake research program and a driver's manual on the safe operation of retarder-equipped trucks. NHTSA also initiated an evaluation comparing the braking performance of vehicles built to European and U.S. qualifications; continued the fleet evaluation of automatic brake adjusters; revised a computerized database of the producers of heavy trucks and trailers and the attributes of their products; and continued developing a dynamic performance handbook and component performance fact book for medium/heavy trucks.

Highway Safety

Occupant Protection. NHTSA is continuing its programs to increase safety belt and child safety seat usage and to give states and communities the authority and technical assistance essential to address the drunk driving problem. NHTSA also emphasizes traffic records, police traffic services, and emergency medical services.

Safety belts hold the greatest promise for an immediate, dramatic reduction in deaths and injuries resulting from automobile accidents. According to NHTSA's 19-city safety belt use survey, usage rates increased from 15 percent during the latter part of 1984 to 23 percent during

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the similar 1985 period. This improvement can be attributed to the federal, state, and community partnership begun in 1982 to make Americans more aware of safety belts and their practicality in preventing deaths and injuries.

Following DOT's July 1984 decision setting a timetable for introducing automatic crash protection and encouraging state safety belt laws, a dramatic surge of legislative action resulted in 7 states with belt laws in effect and 6 others with laws enacted but not yet in effect by the end of September 1985.

NHTSA made great headway in 1985 by encouraging more than 50 national organizations to conduct safety belt education programs, among them the American Red Cross, the PTA, the Girl Scouts of America, medical and health groups, driver educators, and police organizations.

Most states are actively encouraging community-based programs for safety belt use. More than 70 communities have programs in place, and more are being planned.

All 50 states and the District of Columbia have child passenger protection laws. Eight child safety seat workshops were conducted to assist states enforce recently-passed child passenger protection laws.

Alcohol. Drunk driving continues to be the number one killer on America's highways. NHTSA made a 1985 priority supervision of Alcohol Traffic Safety Incentive Grants (known as Section 408 funds) to 16 states. Congress established these grants to deal directly with the drunk driving problem. By 1985, 10 states had experienced 2 years of activity with Section 408 funding, and 6 states less than 2 year's experience with 408 funding. The other 34, not receiving Section 408 funds, had implemented many components of an effective alcohol abuse control program.

A survey of drivers involved in fatal accidents from 1982 through 1985 for these state groups reveal that: in the 10-state group, impaired drivers involved in fatal accidents declined from 30 percent in 1982 to 22 percent in 1985. This same group saw the largest percentage increase in drivers involved in fatal accidents with no alcohol impairment. The 6-state group getting 408 funds for the second year and the 34 states receiving no Section 408 funds revealed declines, but not of the same magnitude as the originally funded 408 states.

A coalition formed to convince public facility managers to work within their facilities and communities to promote techniques of effective alcohol management (T.E.A.M.). T.E.A.M., a program to make sports events safer and more enjoyable for fans, taught stadium employees to be conscientious servers of alcoholic beverages and to remind their patrons of the hazard of drinking and driving, and the benefit of safety belts and child safety seats.

Traffic Records. NHTSA aided the states in developing and setting in motion the Accident Data Improvement Plan to bolster the quality of information contained in accident record systems. By 1985, the number of states collecting alcohol findings on their accident report forms had increased from 23 to 44, and states collecting data on safety belt use increased from 41 to 46.

In 1984, Congress set aside 10 percent of Section 402 funds to improve state traffic records systems during 1985-86. About \$26 million was used to develop comprehensive computerized safety recordkeeping systems to improve state linkage with the National Driver Register (NDR), to assess state records systems, to update state accident report forms, and to combine files within a state system.

National Driver Register. NDR is a central, computerized index of state reports on drivers whose driving privileges had been denied, suspended, or revoked. Applications for driver licenses are routinely checked against the Register to learn the applicant's driving history in other areas, and to prevent unsafe drivers from getting a license from another state. The new system uses on-line computer access capabilities to enable state licensing agencies to exchange information on problem drivers in a matter of minutes.

NHTSA completed and issued the final rule on "Procedures for Transition to the New National Driver Register." RFPs were sent to all states, asking them to bid on being a pilot state to test the new Problem Driver Pointer System design.

Police Traffic Services. Ninety percent of motor vehicle accidents involve traffic law violations. Efforts to help law enforcement agencies manage beneficial traffic safety procedures continue, elevating plans that focus on serious offenses, such as driving while intoxicated (DWI).

Emergency Medical Services. NHTSA Emergency Medical Services (EMS) pre-hospital systems complement the resources of a sophisticated trauma center.

EMS activities and achievements in 1985 included developing a pediatric trauma training program for pre-hospital providers, and forming the Military Assistance to Safety and Traffic (MAST) program. MAST provides U.S. military aeromedical assistance to transport civilian emergency patients in need of medical care.

Motorcycle Safety. Motorcycle accidents accounted for 4,570 deaths in 1985, a slight decrease from the 4,608 deaths in 1984. Factors contributing to motorcyclist fatalities include motorists violating the motorcyclist's right of way, the failure of riders to wear safety helmets, a lack of safe riding skills, and alcohol use by motorcyclists and other motorists.

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An educational unit "Riding Straight," which focuses on alcohol use by motorcycle riders, was devised for use in the Motorcycle Safety Foundation's motorcycle rider course. The materials are also available at state highway coordinators and the American Motorcyclist Association.

Under a contract with NHTSA, Tulane University completed a study of the effect of helmet law re-adoption in Louisiana. There was a 30 percent drop in fatalities during the year following helmet law re-adoption, while motorcycle registrations increased 5.9 percent during the same period.

55 MPH Speed Limit. All states continue to enforce the 55 mph national maximum speed limit, but with varying penalties. There were many futile attempts in 1985 by state legislators to raise the speed limit in their states. However, several state legislatures changed the punishment for breaking the 55 mph speed limit by reducing fines and deleting assessment of "points" on driving records for lower speed violations of the law.

Four states, Arizona, New Hampshire, Rhode Island, and Vermont, submitted speed certification data for 1985 which showed likely noncompliance with the 55 mph law. In addition, changes made to speed certification data by Maryland are under review.

Biomechanics. Biomechanics is the field of study that applies engineering principles and techniques to understand and control impact trauma in humans.

Injury to the head is one of the leading causes of death and disability from motor vehicle accidents. Analysis of human head impacts that occurred in accidents indicates the potential for linking test measurements and human injury. This approach is being complemented by detailed tissue studies and mechanical models of the brain which together may provide the basis for establishing a more definitive description of head trauma.

Consumer Activities

Bumpers. NHTSA designed a test in 1984 to evaluate the utility of bumper systems in eliminating or reducing vehicle damage in low-speed laboratory accidents. The test involves impacting the 4 corners of the test vehicle, each at a different speed, and using the damage repair costs as a measure of the bumper's performance.

Fifteen model year 1984 vehicles were tested in 1985. The damage repair costs from the 1983 and 1984 tests were compared with 2 sets of actual accident information (overall insurance claims data and repair costs data for low-speed, bumper-involved front and rear accidents). Neither analysis showed clear evidence of a connection between laboratory tests and actual accidents.

New Car Assessment Program. The New Car Assessment Program (NCAP), created under Title II of the Motor Vehicle Information and Cost Savings Act, requires

DOT to furnish comparative data on new cars by make and model in 3 areas: crashworthiness, damageability, and ease of discerning and repairing electrical and mechanical systems. This experimental program not only increased consumer awareness of differences in new car crashworthiness, but also encouraged some manufacturers to improve the crash performance of their cars.

Cars were crashed in frontal tests at 35 mph into a fixed rigid barrier. Each vehicle carried 2 instrumented adult dummies in the front seating positions, wearing both lap and shoulder belts. During the test, measurements are made of the severity of impact to the head, chest, and thighs of each dummy.

NHTSA announced in 1985 that 10 additional vehicles would be tested, using a deformable moving barrier instead of the fixed ones used in standard tests. These tests were designed to assess the role of vehicle weight and structure in occupant crash protection.

Vehicle Theft. The Motor Vehicle Theft Law Enforcement Act of 1984 created a new Title VI of the Motor Vehicle Information and Cost Savings Act to reduce and deter motor vehicle theft. Major parts on high-theft car lines and their major replacement parts must be marked with an indelible identifying number or symbol, and criminal penalties for trafficking in stolen vehicle parts increased.

Fuel Economy. The average fuel economy of the new passenger car fleet increased from 26.8 mpg in 1984 to 27.3 mpg in 1985. The average fuel economy of the new light truck fleet for 1985 remained unchanged from the 20.6 mpg average of 1984. The average fuel economy of the new passenger car was below the 1985 corporate average fuel economy standard of 27.5 mpg because Ford and General Motors domestic passenger car fleets did not meet the standard. In mid-model year reports to NHTSA, Ford projected 1985 domestic passenger car fleet fuel economy would be 26.3 mpg (a 1.2 mpg shortfall); Chrysler 27.9 mpg (exceeding the requirement); and General Motors 25.5 mpg (a 2 mpg shortfall). General Motors and Ford were able to avoid violating the standard by using a blend of carryback and carryforward credits under the law to cover their expected shortfalls. Most import manufacturers exceeded the fuel economy standards.

Auto Safety Hotline. NHTSA's toll-free Auto Safety Hotline operators provide recall information, receive motor vehicle safety defect complaints, and furnish consumers with news of enforcement actions, fuel economy ratings, crash test results, tire safety and care, child safety seats, drunk driving, the federal odometer law, motor vehicle safety standards, and other safety topics.

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Defect Investigations/Recalls

Enforcement. There were 164 safety recall campaigns involving 8.3 million vehicles in 1985. NHTSA influenced 20 of the campaigns comprising nearly 6.6 million motor vehicles. Also, 1.1 million units of motor vehicle equipment and 78,000 tires were recalled.

Major Recall Campaigns. Major recalls involved: Dodge Caravan and Mini-Van/Plymouth Voyager rear brake proportioning valves; Ford Escort/Mercury Lynx safety belt retractors; General Motors Chevrolet Malibu, Monte Carlo, and El Camino; Pontiac LeMans and Grand Prix; Oldsmobile Cutlass and Cutlass Supreme; Buick Century and Regal; and GMC Caballero rear axle shafts; Nissan Pulsar secondary hood latch systems; and Plymouth Horizon, Turismo, and Reliant/Dodge Omni, 600, Charger, Aries, and Rampage/Chrysler LeBaron engine compartment fuel leaks.

Compliance Testing. NHTSA tested 130 vehicles for 229 performance requirements relating to 14 federal motor vehicle safety standards. In addition, NHTSA subjected 1,520 tires and 1,334 equipment items, including brake hoses, safety belts, child restraints, and motorcycle helmets, to performance tests relating to 8 safety standards. The 1985 testing program resulted in 9.4 percent failures for motor vehicles and 7 percent failures for motor vehicle equipment items. There were no tire failures.

Some of the major vehicle and equipment recalls included: 7,137 vehicles to replace safety belt assemblies; 8,085 vehicles for failing to meet the requirements of Standard No. 210, "Seat Belt Assembly Anchorages;" 5,155 slide-in camper units which failed to meet the requirements of Standard No. 126, "Truck-Camper Loading;" 2,419,593 flashers for failing to meet the requirements of Standard No. 108, "Lamps, Reflective Devices and Associated Equipment"; 20,000 stop lamps for failing to meet the same Standard; 522,573 headlamps that failed to meet the photometric requirements of Standard No. 108; 1,209,852 cans of brake fluid for not meeting the requirements of Standard No. 116, "Hydraulic Brake Fluids;" and 13,307 helmets for failing to meet the requirements of Standard No. 218, "Motorcycle Helmets."

Odometer Tampering. NHTSA continues its odometer enforcement program, discovering 43 cases of odometer fraud in 17 states. The investigations established that the mileage had been turned back on 146 vehicles. Large-scale odometer tampering cases were turned over to the U.S. Department of Justice for criminal prosecution. Eleven cases were referred to state enforcement agencies, and the results of 26 inquiries were given consumers so that they might take civil action to recover damages.

Litigation

Bumper Standard. On January 8, 1985, the D.C. Circuit Court of Appeals issued a decision in *Center for Auto Safety v. Steed and State Farm v. DOT*, consolidated cases seeking review of NHTSA's May 1982 amendment of the bumper standard, and its October 1982 denial of petitions for reconsideration. The challenged amendment reduced the test speed requirement of the standard from 5 mph to 2.5 mph. The Court upheld the amendment as a rational exercise of agency discretion.

Automatic Restraints (Standard No. 208). On March 11, 1985, the D.C. Circuit Court of Appeals heard oral arguments in *State Farm v. Dole*; *New York State v. Dole*; and the *National Association of Insurance Commissioners v. Dole*. These consolidated cases sought judicial review of the Secretary's July 11, 1984 decision to require installation of automatic restraints on Model Year 1990 vehicles unless states with two-thirds of the nation's population passed approved mandatory safety belt use laws prior to that time. By the end of 1984, all parties filed their briefs. At the end of 1985, the cases were awaiting judgment by the Court.

21 Year Old Drinking Age. On May 3, 1985, the District Court for South Dakota dismissed the complaint of South Dakota in *South Dakota v. Dole*. The state had contested legislation, passed by Congress in June 1984, that provided for retaining a percentage of Federal-aid highway funds from states that failed, by October 1, 1986, to enact legislation establishing 21 years of age as the minimum drinking age for all alcoholic beverages, alleging that the legislation violated the 10th and 21st amendments to the U.S. Constitution. The Government moved to dismiss on grounds that the action was premature, and on grounds that the legislation was constitutional. The Court upheld the constitutionality of the Federal legislation. On June 26, South Dakota filed an appeal of the dismissal in the Court of Appeals for the 8th Circuit. Many other states and administrative bodies joined in South Dakota's appeal as *amici curiae*. South Dakota filed its brief September 20, with the Federal Government's brief due in October.

In *Ohio Retail Permit Holders Association v. Dole*, an association of liquor license holders filed a complaint in the District Court for Southern Ohio, raising the same issues as the South Dakota case. The government moved to dismiss on the same grounds, but the case was dropped by plaintiffs before the Court had ruled on the motion.

Light Truck Fuel Economy Standards (1987 and later model years). In *Center for Auto Safety v. NHTSA* and in re *Center for Auto Safety*, the Center for Auto Safety challenged NHTSA's failure to issue model year 1987 light

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truck fuel economy standards and petitioned the D.C. Circuit Court of Appeals for a writ compelling NHTSA to comply with the statutory deadlines for setting light truck standards for 1987 and subsequent model years. By September 1985, all parties and interveners had filed their briefs. At the close of the fiscal year, the case was awaiting oral argument. On September 30, 1985, NHTSA issued a rule setting the fuel economy standard for model year 1987 light trucks at 20.5 miles per gallon.

Traffic Safety Statistics

NHTSA's National Center for Statistics and Analysis developed and implemented data collection and analysis procedures to support its motor vehicle and highway safety activities. Representative and reliable accident databases are essential to identify and analyze traffic safety problems and to assess the effectiveness of procedures dealing with them. The Center conducted major studies of accident and accident exposure statistics and gave information on traffic safety to other parts of the federal government, state, and local governments, citizens, industry, researchers, and the international safety community.

The Center's National Accident Sampling System (NASS) provides detailed and nationally representative measurements on a sample of all police-reported traffic accidents. Each year, NASS analyzes about 13,000 accidents at 50 sites across the country.

The Fatal Accident Reporting System (FARS) contributes data from police reports and other official sources on all fatal traffic accidents.

Significant 1985 accomplishments included: establishment of a mathematical model to assess alcohol use in fatal accidents; evaluation of the effects of increased state minimum drinking ages on traffic fatalities; analysis of the effect of state safety belt laws on traffic fatalities; more than 200 special inquiries about fatal accidents involving school buses, cars with air bags, vehicles with other special safety equipment, and vehicles with professed safety defects; studies of head and neck injuries in 40 accidents to learn correlations among crash forces, occupant motion, and injuries; monthly and bi-monthly fatality trend reports; semi-annual comprehensive fatal accident reports; FARS and NASS annual reports; and responses to more than 3,000 requests for data measurements and distribution of agency information files.

Administration

Equal Employment Opportunity. Total employment increased from 587 full-time permanent positions at the end of 1984 to 600 at the end of 1985. Minority representation in the NHTSA workforce continues at 26 percent; female representation increased by 2 percent to 36 percent. The number of female employees in both professional and technical categories increased by 2.7 percent, while minority employment in the same categories increased by 8 percent.

Urban Mass Transportation Administration

The Urban Mass Transportation Administration (UMTA) coordinates public mass transportation undertakings for the Department. UMTA programs constitute the principal source of Federal financial aid to design, develop, and improve public transportation systems.

Policy Guidance

Rulemaking Activities. UMTA continues rulemaking for charter bus operations, compliance with Section 15 uniform reporting needs, "Buy American" provisions, and jointly, with other agencies, air quality, environmental, and handicapped accessibility regulations. The purpose is to simplify and to reduce the burden of existing regulations. Drafts of proposed rulemaking in these areas were circulated among UMTA headquarters and regional offices with plans for publication in early 1986.

Private Sector Initiatives. In January 1985, UMTA established the Office of Private Sector Initiatives to provide a focal point within the agency to address concerns regarding private sector participation in public transportation. The Office has the responsibility for review and coordination of UMTA program resources; and to maximize private sector involvement in those areas where it will help local transit decision makers reduce costs and improve local mobility. The Office stresses competition in public transportation through contracting services; attracts private investment in public transportation; and increases business involvement in planning and managing the demand and supply of transportation services through such policies as ridesharing, changing work schedules, parking regulations, and fully-funded private shuttle services.

Public-Private Partnerships for Major Capital Investments. UMTA developed a way of evaluating the feasibility of major capital projects financed by cooperative ventures between local governments and the private sector with no direct federal support, and those funded only by designated tax revenues. UMTA applied

this methodology to a congressionally mandated study of the feasibility of a rail rapid transit line between Washington D.C.'s Dulles International Airport and the Metrorail at West Falls Church, Virginia. The study concluded that while the project was feasible using either alternative, the partnership approach saved significant amounts of tax revenues for local governments. The study recognized the singular role of local government in assuming the lead, for example, in system specification, selection of value capture mechanisms, and the competitive procurement process.

Capital Assistance Programs

The total appropriated funding for UMTA's various transit assistance programs was slightly over \$4 billion for 1985, a decrease of about \$100 million from the previous year.

Major Capital Investment. In February 1985, UMTA and the Jacksonville (Florida) Transit Authority agreed to build the .7 mile starter line of the Jacksonville Automated Skyway Express. The full funding contract called for \$15.5 million to be furnished from discretionary funds, \$7.6 million from formula funds, and the remaining \$7 million from non-federal sources.

Urban Discretionary Grants. UMTA makes urban discretionary grants primarily for rail modernization projects, new rail systems and extensions, and for capital improvements to bus transit systems. Discretionary grant funding in 1985 was \$1.1 billion or nearly 25 percent of the total federal transit program. This included \$50 million for planning grants and \$25 million in aid for seniors and the handicapped.

Urban Formula Grants. Urban formula grants contribute both capital and operating assistance to the nation's transit systems. UMTA's formula grants in 1985 totaled more than \$2.4 billion, of which \$870 million was for operating assistance and \$71.8 million for rural areas. This category of grants was the primary source of federal funding for new bus purchases.

Interstate Transfer Grants. UMTA appropriated \$250 million for transit projects under the interstate transfer program. These funds derive from Federal-aid highway projects withdrawn and replaced by mass transit projects.

Washington Metro. This program furnished \$250 million for construction of the Washington, D.C. METRO subway system.

Transportation Assistance Programs

University Research and Training Program. Over 500 students in the University Research and Training program have careers in urban transportation. Of the 84 applications received in 1985, 13 received awards.

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The National Technical Information Service identified 20 documents for a best seller list, 3 of which were produced by this program. The 3 reports deal with bus maintenance, management performance, and the use of microcomputers.

Private Sector Workshops and Conferences. UMTA arranged a number of symposia and workshops to provide forums for transportation experts, public and private transportation providers, and local officials to identify the unique contributions of both public and private providers. These conferences also explored alternatives for improving public/private partnerships to contribute efficient and cost-effective urban mobility.

Section 15. Pursuant to Section 15 of the Urban Mass Transportation Act of 1964, as amended, operating and financial statistics are collected and reported for all recipients and beneficiaries of Section 5 or Section 9 funds. The purpose is to provide a national database to comply with the budget and planning needs of local transit systems and federal, state, and local governments involved in funding support for transit.

Civil Rights

Of the 487 full-time UMTA employees at the end of 1985, 255, or 52.3 percent, were women; 148, or 30.3 percent, were minority women; and 58, or 12 percent, were minority males. The Upward Mobility Program remains an essential part of the UMTA career development activity. During 1985, 8 employees participated in the program of whom 7 were women and 6 minorities. During the year, 58 employees were promoted; 75 percent were women; and 37, or 48 percent, were minorities.

Furthering the Secretary's commitment to increase contracting opportunities for disadvantaged and women-owned businesses, UMTA awarded \$9.3 million in direct contracts, of which about \$3 million went to disadvantaged business enterprises (DBEs). This represented a 5 percent increase over the past fiscal year.

UMTA grantees awarded \$262 million, or 14.2 percent of total UMTA funding, to DBEs. While the level of contracting with DBEs/WBEs was slightly less than in 1984, the total amount contracted for in 1985 was also down.

Maritime Administration

The Maritime Administration (MARAD) manages programs which develop, promote, and operate the U.S. merchant marine. It also organizes and directs emergency merchant ship operations.

To achieve these goals, MARAD manages financial assistance and other programs helping the American maritime industry; sponsors research and development projects to enhance the productivity and competitiveness of American shipbuilders and ship operators; maintains promotional and marketing programs to increase shipper support for U.S.-flag vessels in their foreign trade; encourages domestic shipping and port and intermodal growth in the maritime industry; operates the U.S. Merchant Marine Academy at Kings Point, New York, and further supports 6 state maritime academies; negotiates bilateral maritime agreements and participates in international maritime conferences; and maintains a National Defense Reserve Fleet (NDRF) for timely deployment in national emergencies.

Administrative Initiatives

The Secretary announced a new rule which permits, for one year, owners of tankers built with construction subsidies to repay the unamortized principal plus compound interest, thereby becoming permanently eligible to operate in the domestic trade. This action increased competition, reduced shipping costs, and minimized government obstacles in the marketplace. By the end of the fiscal year, one owner had repaid \$86.5 million covering 2 very large crude carriers.

In addition, the Secretary announced a final rule and took other action to establish more stringent regulation of the Ship Financing Guarantee Program under Title XI of the Merchant Marine Act of 1936, as amended.

MARAD worked closely with the U.S. Navy in purchasing and maintaining cargo vessels and in establishing special reserves for logistics support of the Armed Forces. The Navy continues new construction in the nation's commercial shipyards.

The Department continues to support the Cargo Preference laws of the United States which provide that

a minimum of a half of all ocean cargos developed by the federal government be transported aboard privately owned U.S.-flag vessels. These and other steps were taken to achieve a single goal—the revival of the American maritime industry.

Shipbuilding Research and Development

MARAD has requested no construction differential subsidy funds since 1981, and no contracts were awarded in 1985. Nevertheless, work in U.S. shipyards continues on the largest peacetime combatant program in the history of the U.S. Navy. The Navy committed \$55.5 billion to this program over the past 5 years. Moreover, the Navy awarded 13 U.S. commercial shipyards in the Navy's non-combatant T-Ship Program more than \$3.6 billion to build 29 new vessels and to reconstruct 23 existing merchant ships. Included in this procurement program are maritime repositioning ships, fast-sealift ships, fleet oilers, auxiliary crane ships, ocean-surveillance vessels, aviation logistics support and surveying ships, a cable repair ship, and a fleet ballistic-missile resupply vessel.

MARAD awarded a \$180 million contract to construct 3 container ships for domestic trade. American shipbuilding and ship repair sites invested over \$250 million in facilities renovation and expansion during the year, bringing the total investment since passage of the Merchant Marine Act of 1970 to approximately \$3.7 billion.

The National Shipbuilding Research Program continues technical research encompassing all ship construction processes. The government authorized cost-sharing support for 47 research projects, with a high level of involvement by the American shipbuilding industry.

Other Maritime Research and Development. MARAD continues research, cost-shared by and in cooperation with the U.S. maritime industry, covering a wide range of projects. These efforts include:

- Research in advanced propulsion machinery and equipment which reduces installation person hours, fuel costs, manning, and maintenance;
- The application of computers and communications technology to the operations and management of U.S. shipping companies;
- Modernization of technology to enable ships to obtain timely and accurate measurements of fuel consumption attributable to a variety of seagoing incidents;
- Improvements in cargo-handling productivity;
- Tests to analyze Arctic shipping conditions and to develop design and operating criteria for ships operating in the Arctic; and
- Extensive use of ship simulations for a wide variety of safety-related problems.

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International Maritime Activities

A MARAD official co-chaired an interagency fact-finding mission to Brazil to discuss bilateral maritime issues. MARAD chaired negotiations in Washington and Rio de Janeiro leading to renewal and liberalization of the U.S./Brazil Equal Access Agreement, scheduled to expire December 31, 1985.

MARAD officials joined in interagency maritime meetings with Japan in Washington. These sessions continue the dialogue on multilateral and bilateral shipping issues, including Japan's position on the U.N. Code of Conduct for Liner Conferences and access of U.S. cross traders to its non-U.S. liner trade. The conferees also discussed constraints on U.S. carriers' operations in Japan.

MARAD also participated in talks with Iceland on bilateral shipping issues arising from the transport of military cargo by a U.S.-flag carrier between the 2 nations.

MARAD joined in a variety of multinational conferences during the year, and continues to aid American maritime and trade interests abroad through its spokesmen in London, Athens, Rio de Janeiro, and Tokyo.

Emergency Operations

MARAD published a new rule which applied priority and allocation authority under Title I of the Defense Production Act of 1950 to emergency defense specifications for port facilities, shipping services, and containers. The new policy guarantees prompt response to defense needs in crises and war, with the least possible interference with commercial transportation operations.

MARAD joined other federal agencies in preparing a Memorandum of Understanding (MOU) on Emergency Port Operations. The objective is to facilitate the coordination of emergency activities in ocean ports on the basis of mutual understanding among the agencies which have emergency functions and responsibilities in those ports.

The MARAD Advisory System successfully brought the plight of the "boat people" to the attention of U.S.-flag ship operators and masters of U.S.-flag vessels. The U.S. State Department and the United Nations High Command attributed a significant increase in the number of rescues to this effort.

This system also warned U.S.-flag vessels of the increase of hostilities in the Persian Gulf, when the Iranian Navy began to stop and board merchant vessels at the Strait of Hormuz, and issued procedures for reaching U.S. Naval Forces, if necessary.

MARAD Statistical Update

In selected program areas and administrative actions, MARAD also reported that:

- Net outlays totaled some \$351.7 million in operating differential subsidies to American-flag owners using 95

liner vessels and 23 bulk vessels in U.S. waterborne export-import trade in 1985.

- MARAD tentatively approved finance guarantees totaling about \$20.2 million covering 2 vessels under Title XI of the Merchant Marine Act of 1936, as amended. Based on prior Title XI commitments, MARAD placed guarantees on 264 vessels during this period.

- As of September 30, 1985, guarantees-in-force under the MARAD Title XI Program were valued at about \$6.5 billion.

- In 1985, U.S.-flag ship owners banked \$229 million in tax-deferrable Capital Construction Fund accounts.

- At the end of the reporting period, 300 ships were moored at NDRF anchorages maintained by MARAD at James River, Virginia; Beaumont, Texas; and Suisun Bay, California.

- Sixty-five NDRF vessels in a Ready Reserve Force are preserved by the U.S. Navy and MARAD in a high state, of readiness, and can be mobilized on 5 to 10 days notice.

- The U.S. Merchant Marine Academy supplied licensed deck and engineering officers for the U.S. Merchant Marines, awarding degrees to 233 graduates at its June 1985 commencement. About 85 percent of the Class of '85 found employment in the maritime industry, aboard ship or ashore, or went on active duty in the U.S. military.

U.S. Fleet, Industry Status

On September 30, 1985, the privately owned, ocean-going, U.S.-flag merchant fleet:

- Comprised 611 ships with a total cargo-carrying capacity of 22.9 million dwt., down by 29 ships compared with 1984, and by 26,135 dwt. in carrying capacity;

- Carried 4.3 percent of the 677.3 million long tons of commercial cargos moved in the nation's ocean-going foreign trade in CY 1984, compared with a 5.8 percent share of some 630.4 million tons in U.S. export-import cargos transported by sea in 1983;

- Delivered, through privately operated American shipyards, 3 commercial vessels totaling 63,549 dwt. in 1985, compared with 8 new ships of 243,180 dwt. the previous year;

- Generated 13,095 shipboard billets in the privately owned, ocean-going, U.S.-flag merchant fleet, down from 13,648 a year earlier;

- Employed workers at commercial yards in the active U.S. shipbuilding base averaging 76,699 in July 1985, compared with 79,721 in July 1984;

- Employed an estimated 29,623 in the U.S. longshoremen's industry, down from 30,623 in 1984; and

- Ranked 8th in the world in carrying capacity and 14th in the number of ships.

Saint Lawrence Seaway Development Corporation

Established in 1954 to construct facilities for the St. Lawrence Seaway navigation project, the Saint Lawrence Seaway Development Corporation (SLSDC) is authorized to take charge of maintaining that part of the Seaway between Montreal and Lake Erie which lies within the territorial limits of the United States.

Unlike most government agencies, SLSDC is self-sustaining. All operation, maintenance, administrative, and capital improvement costs are paid for with revenues obtained from tolls charged to vessels which transit the system. In mid-December, the Secretary declared that United States tolls in 1986 would be frozen for the third consecutive year.

Seaway Trade and Traffic

SLSDC expanded procedures begun the previous year, establishing a series of trade and traffic development programs aimed at increasing the Seaway's commerce for the economic benefit of the entire Great Lakes region. At the same time, the Corporation asked leaders in the region for cooperation in achieving their common goal of boosting the Seaway's shipping.

Examples of some of the innovations are sponsoring the first joint American-Canadian trade venture to counsel the Seaway's European trade partners in Great Britain, France, West Germany, Belgium, and the Netherlands about these markets; opening 2 Midwest trade and traffic development offices, the first in Toledo, Ohio, serving the Eastern Great Lakes Region, the second in Deerfield, Illinois, in suburban Chicago, serving the Western Great Lakes Region; and releasing the results of a transportation cost study comparing the Seaway's competitive position with coastal ports for the movement of major commodities.

Analysis by the firm of Booz Allen and Hamilton documented that the Seaway had a substantial transpor-

tation cost advantage over coastal ports for handling iron ore, iron and steel, and heavy machinery; the Seaway also had a cost advantage for grain exports from Ohio, Illinois, Wisconsin, and Minnesota; and the Seaway's competitive advantages were largely due to its proximity to major Midwest markets and the excellent cost characteristics of the Great Lakes ports. This study supplied a framework for a marketing program targeted to competitive cargos in the Great Lakes industrial and agricultural rim.

Industrial exports from United States Seaway ports increased by 52 percent. This gain in industrial exports was driven by a 51 percent gain in bulk commodities. For example, coal exports were up 44 percent to 600,000 metric tons; coke was up 8 percent to 790,000 tons; salt was up 200 percent to 200,000 tons; and scrap iron was up 120 percent to 523,000 tons. Container and general cargo exports from U.S. ports also increased, and P.L. 480 Title II "Food for Peace" shipments rose 13 percent to 261,000 tons.

However, total Seaway tonnage through the Montreal to Lake Ontario section declined from 47.5 to 37.3 million tons. Seventy percent of the drop was caused by a 7 million ton decrease in grain exports. Canadian grain declined 4.5 million tons and U.S. grain dropped 2.5 million tons.

Activities and Accomplishments

The Corporation reintroduced the successful "Seaway Nightcast" service, launched in 1984 on an experimental basis. By the end of 1985, over 50 subscribers signed up for the new service which matches Great Lakes cargos with outgoing Seaway ocean vessels that are empty or only partially loaded. The service consists of nightly telex messages from the SLSDC to subscribers listing westbound ocean ships that transit the U.S. locks at Massena, New York, during the previous 24-hour period. Each message includes vessel name, first port of call, vessel agent by coded number, and available information on cargo needs and eastbound destination, plus extra space for subscribers to exchange additional vessel information with other subscribers.

SLSDC subscribed to a computerized trade data bank listing all imports and exports from the 8-state Great Lakes region. The Corporation's initial information package included 1984 export and import statistics for each Great Lakes state, with details on Midwest companies, describing who shipped what to whom, how, where, and when. The Corporation shared applicable portions with all U.S. Great Lakes ports, Great Lakes members of the Congress and Great Lakes states. Recipients of the information began putting it to work in their local marketing efforts in 1985.

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In early September, the Corporation sponsored Legislative Port Days in Erie, Pennsylvania, and Milwaukee, Wisconsin. These events were designed to acquaint state legislators with the Seaway's economic importance; to apprise them better of the limits of their ports; and to demonstrate the importance of marketing support from the Great Lakes Seaway states. Each event featured remarks by the Administrator, the presentation of a new Seaway film, and a tour of local facilities.

On September 10, in Washington, D.C., the SLSDC organized a new Seaway Grain Export Task Force and endorsed the group's first meeting. The aim of the group is to search for ways for the Corporation to increase U.S. grain exports through the Seaway. Participants in the first meeting were representatives of the National Sunflower Association, the Minnesota Wheat Growers Association, the Agriculture Departments of Illinois and North Dakota, the U.S. Department of Agriculture, the U.S. Feed Grains Council, the Minneapolis Grain Exchange, the Louis Dreyfus Corporation, and L.S. Reimers, owner of a large North Dakota grain farm and chairman of the SLSDC Advisory Board.

Also in September, the Seaway Corporation arranged with the U.S. Department of Energy to piggyback on the Washington visit of an Italian delegation, which was touring American sites with a special interest in U.S. coal exports. SLSDC assembled several Great Lakes port representatives to make a presentation of the Seaway's coal movement capabilities.

The Corporation made a concerted effort throughout 1985 to spur the movement of Department of Defense (DOD) cargoes such as tanks, vehicles and household goods, on U.S.-flag vessels through the Seaway. This movement was made possible by introducing a new roll-on, roll-off U.S.-flag service between the Seaway and Europe by Fednav Great Lakes Services, Inc.

Notable improvements were made in 1985 in the promotional tools used by the Trade and Traffic Development staff, including upgrading show displays, publishing marketing folders focusing on Seaway advantages for

moving coal and grain, and co-sponsoring the production of a new Seaway marketing film with the Canadian provincial governments of Quebec and Ontario.

Lock Rehabilitation

The Administrator announced in early December 1985 that SLSDC had budgeted nearly \$4 million on a program to achieve the initial stage of lock rehabilitation and stability work recommended by the Army Corps of Engineers. Scheduled work includes concrete repair on 6 lock wall sections at Eisenhower Lock, completion of a stability analysis for Eisenhower and Snell Locks by outside consultants, and regular maintenance such as sand-blasting, repairing, and repainting the upstream vertical lift gate at Eisenhower Lock.

To address the lock stability issue raised by the Corps, the Corporation contracted with an engineering team from the highly respected Clarkson School of Engineering in Potsdam, New York, to determine exactly what needed to be done.

Safety Improvements

SLSDC took decisive navigation safety measures in the middle of the shipping season by increasing speed limit enforcement for commercial vessels on the St. Lawrence River between Massena, New York, and Lake Ontario.

Under these stricter procedures, 521 vessels were monitored by the SLSDC speed surveillance team. Of the total, 10 were issued warning letters and 11 were fined a total of \$20,400.

A second important navigation safety measure taken by the SLSDC during the year was to convert a U.S. Coast Guard station at Cape Vincent, New York, to an up-river operations base, equipped with special radio communication and a work boat. Renovation was completed by the middle of the navigation season, and the SLSDC has a base from which to work in the Thousand Islands area, rapidly responding to ship problems, monitoring ship speeds, and lodging navigation aid personnel. The base is also being used by the Corporation as a conference center and training facility.

Research and Special Programs Administration

The Research and Special Programs Administration (RSPA) has broad responsibilities to improve safety and efficiency in all modes of transportation. RSPA's responsibilities include: supporting a national safety strategy to protect life and property against risks intrinsic to conveying hazardous materials in commerce; developing and enforcing regulations necessary to ensure safe transportation of hazardous liquids and natural gas by pipeline; providing research and analytical support to all DOT modal administrations, the Office of the Secretary (OST), and other federal agencies; providing economic aviation statistics to support essential DOT program offices in both OST and the FAA; conducting comprehensive training courses in transportation safety and security; ensuring civil transportation preparedness in the event of national emergencies; coordinating DOT policy and research and development of civil and military radionavigation systems for land, air, and marine use; and developing, coordinating, and planning thorough transportation statistics and information programs.

Hazardous Materials

The Office of Hazardous Materials Transportation is the national focal point for safeguarding the public and the environment from dangers involved with transporting hazardous materials. To address this purpose, RSPA:

- Proposed a worldwide harmonization of hazardous materials transportation requirements by designating the first RSPA-approved U.S. independent third-party testing agency for certifying conformity of U.S. packaging designs with United Nations criteria;
- Executed a Memorandum of Understanding (MOU) with the Department of Energy (DOE) stating the commitments that DOT and DOE have in realizing transportation guidelines under the Nuclear Waste Policy Act;
- Enhanced DOT's control and safety oversight of cylinder retesting by instituting an identification system for cylinder retesters, which will authorize only those holding current RSPA-issued identification numbers to

perform the required retest and reinspection of DOT specification cylinders and will enable DOT to identify and hold such persons accountable;

- Sought to secure the movement of nuclear waste and other radioactive material and ease public concern by:
 - (a) participating actively in Nuclear Regulatory Commission (NRC)-DOE regional conferences with representatives of communities concerned with the routing of such movements, and
 - (b) ensuring that safety regulations were being complied with through pre-trip inspections of spent nuclear fuel shipments;
- Established more stringent description, arrangement, packaging, and information guidelines for certain toxic liquids based on their likely severe inhalation hazards, action RSPA took to foster the level of safety and defense for the public, based on its appraisal of existing regulations and a resolve that progress was essential to reduce the danger of an event similar to the Bhopal, India, incident of 1984;
- Proposed sweeping standards for the manufacture, operation, maintenance, repair, and qualification of cargo tanks used to transport hazardous materials; and
- Increased surveillance of the movement of hazardous materials, radioactive materials, and nuclear waste in joint efforts with other modal administrations and other federal agencies, which broadened RSPA's scrutiny to freight facilities at airports, marine facilities, and motor carrier freight docks that do not fall under Coast Guard jurisdiction.

Pipeline Safety

The Office of Pipeline Safety (OPS) is responsible for ensuring safe pipeline transportation of natural gas and hazardous liquids and the safety of liquefied natural gas facilities. It manages a safety regulatory program which is continuously reviewed and updated to address changes in the state of the art and to improve safety. OPS manages a thorough enforcement program throughout the 50 states, the District of Columbia, and Puerto Rico, with field responsibilities centered at 5 regional headquarters located in Washington, D.C.; Atlanta, Georgia; Houston, Texas; Kansas City, Missouri; and Lakewood, Colorado.

RSPA also conducts a research program which enhances rulemaking and enforcement procedures. Some of the achievements of the Pipeline Safety Program in 1985 include:

- Amending the regulations 4 times during the year, most significantly to extend to intrastate pipelines the existing federal safety standards for pipelines in interstate or foreign commerce;

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- Conducting ongoing enforcement procedures by inspecting 3,998 gas pipeline operators, initiating 4,066 enforcement actions, and issuing 2 hazardous facility orders;
- Completing review of the safety of natural gas pipeline facilities constructed before January 1, 1940, and reporting to Congress these findings; and
- Expanding the use of the gas and hazardous liquid pipeline technical committees into areas beyond their statutory role by requesting their review and advice on Congressionally-mandated reports developed by RSPA.

RSPA wrote a report containing views and recommendations on the Pipeline Safety Program and extending its research functions by starting a cooperative research program with a number of private and public organizations.

Safety and Security Training

Operating within RSPA, the Transportation Safety Institute (TSI) concluded another highly successful year, conducting extensive training procedures supporting the Secretary's mission to improve safety and security in the nation's transportation systems. The Institute conducted 297 classes/seminars in 65 different training courses for federal, state, and local officials in addition to industry and international representatives. TSI staff completely developed 9 new training courses at the request of modal sponsors and began development of 17 additional courses. There were 14,082 students at TSI, a 21 percent increase over the 11,612 persons trained in 1984.

1985 was a productive year for the Institute; 4 of the 10 program areas (Motor Carrier Safety, Railroad Safety, Highway Traffic Safety, and Transportation Security) exceeded all previous student attendance levels.

A major expansion in activity occurred in the Highway Traffic Safety Program during this year. The program which had been a one-person activity at TSI for the past 10 years now has a staff of 3 and it appears the program will evolve into 3 distinct interest areas—Alcohol Programs, Occupant Protection, and the National Accident Sampling System.

The National Transportation Safety Board School initiated its training program at TSI during 1985 by conducting 3 classes in Aircraft Accident Investigation and training 58 investigators.

In April 1985, after months of arrangements, negotiations, and preparations, TSI inaugurated the Coast Guard Safety Program. A Division Manager and Training Technician joined the staff at the Institute and promptly began course development and identification of likely associate staff instructors.

Aviation Information Management

The remaining necessary functions of the former Civil Aeronautics Board (CAB) were transferred to DOT on January 1, 1985.

RSPA is responsible for providing economic aviation news of air carrier operations in the air transportation industry. The program furnishes a centralized data source for DOT, other federal agencies, state and local governments, industry, and the public. Activities of the Aviation Information Management Program include identifying DOT program information requirements; analyzing alternatives; developing and maintaining air carrier accounting, reporting, and recordkeeping policies; enforcement; and data collection, processing, dissemination, and user servicing.

Notable 1985 achievements included: the smooth transfer of aviation information staff and computer resources from the CAB to DOT, while continuing to supply needed information services; study of 2 major information collection systems, which identify major, feasible reductions that could be made in view of DOT's duty to the deregulated air transportation industry, and issue of applicable Notices of Proposed Rulemaking (NPRMs); and implementation of major data collection changes required by rules passed by CAB at its "sunset," including major changes to ADP processing systems.

Emergency Transportation

RSPA manages a Departmental civil emergency transportation program that furnishes guidance for continuity in government contingency planning and handles crises of a national and regional nature, including those affecting national defense. The office is the principal point of contact with the Federal Emergency Management Agency (FEMA) and other federal, state, local, and private sector emergency preparedness organizations.

The Office of Emergency Transportation:

- Increased DOT's readiness by enhanced training of emergency staff, emergency executive teams, and DOT Emergency Organization personnel, including the National Defense Executive Reserve (NDER);
- Developed and conducted emergency preparedness training for more than 400 NDERs and Mobilization Designees in all 10 regions and Alaska;
- Carried on development and initiated a series of intense orientation and training exercises to satisfy increased demands of Federal requirements in the continuity of government programs;
- Fully participated, at both headquarters and field levels, in about 40 federally-sponsored Radiological Emergency Preparedness Exercises and the Catastrophic Earthquake Exercise Response 85;
- Characterized DOT membership, special expertise, and guidance on the Emergency Mobilization Preparedness Board, chaired by the National Security Council (NSC);

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- Continued to assure that U.S. emergency transportation interests were enunciated and defended in the International Emergency Preparedness area, for example, in the North Atlantic Treaty Organization (NATO), by attending Civil Aviation Planning Committee (CAPC) meetings and participating actively and effectively in the study and working groups of CAPC;
- Gave special emphasis to developing automated procedures for air fleet management in time of war;
- Enhanced the efficiency of DOT emergency preparedness by persistent advancement of emergency communications skills, including training headquarters and regional personnel responsible for high frequency radio (HF) use and upkeep, developing a program to maintain the DOT HF emergency radio system, and adding HF capability at selected critical headquarters locations; and
- Improved the capability of the DOT-automated emergency preparedness information program by expanding its compatibility with other major systems, enhancing and refining modeling techniques for sectorial demand forecasting, improving systems documentation, and developing a sophisticated concept for database management.

Navigation

Communications and radionavigation are major factors in transportation system safety and efficiency. The Secretary is the principal Federal official providing navigation support to the civilian sector of the United States. Operation of navigation systems are the joint responsibility of the FAA and the Coast Guard. RSPA is responsible for coordinating long-range plans. It also acts as the principal executive agent for the Secretary in preparing the Federal Radionavigation Plan.

Key accomplishments in radionavigation during 1985 included developing an algorithm for differential Global Positioning System (GPS) reference stations, and completing a terrestrial evaluation of the GPS and Standard Positioning Services (SPS).

Transportation Information

RSPA provides Department-wide coordination of transportation data. The continuing objective is to reduce costs by minimizing resources the Department requires, maximizing the use of existing data, and reducing the burden on the public to provide information. In 1985, RSPA completed a thorough survey of the Department's requirements for aviation economic statistics formerly produced by the CAB.

In addition, RSPA supplied technical assistance to the U.S. Census Bureau in developing the 1987 Commodity Transportation Survey and in determining DOT criteria for census transportation data.

Transportation Systems Center

The Transportation Systems Center (TSC) provides the know-how to set program criteria and options on major DOT programs such as modernization of the FAA National Airspace System (NAS) Plan and revision of the Coast Guard Command, Control, and Communication (C3) program; develops and oversees federal databases vital for transportation safety regulation; and presents analyses of crucial transportation issues requiring immediate Departmental response.

The Transportation Systems Center (TSC), located in Cambridge, Massachusetts, is funded through negotiated agreements with OST, DOT's modal administrations, and other federal agencies. These agreements also define the programmatic activities undertaken at TSC in support of each funding organization, which include, but are not limited to: 1) providing government expertise to establish program requirements and priorities, prepare work statements, issue and monitor contracts, and make objective evaluation of contractor performance on major DOT operational procedures like revising the FAA NAS Plan and modernizing the Coast Guard C3 program; 2) developing and overseeing federal data essential for transportation safety regulation, international negotiation of airline landing rights, and policy development and analysis; and 3) assessing fairly and independently critical transportation issues requiring immediate Departmental response. Highlights of the TSC program in 1985 include:

Rail Transit Emergency Preparedness Guidelines. These guidelines enhance the ability of various rail transit operators to deal with conceivable emergency situations which may arise. At UMTA's request, TSC assembled the best features of existing rail transit emergency plans, expanded and incorporated them into a draft of "Emergency Preparedness Guidelines for Rail Transit."

Rail Safety. Railroad accidents and derailments are of vital concern. TSC helped the FRA Rail Safety Program analyze and predict dynamic and structural limits of track structures, which would reduce the extent of current regulations, yet simultaneously diminish track-related accidents. In cooperation with several railroad companies, TSC conducted vast experimental work on revenue track. Additional testing took place at the Center for Accelerated Service Testing and the Transportation Test Center (TTC). TSC also developed analysis and test procedures to evaluate vehicle track interaction assessment techniques. These procedures will be used to test and improve safety performance of U.S. manufactured railroad rolling stock. About 17 percent of train accidents are related to railroad equipment failures, most of which can be prevented or mitigated by application of appropriate remedial actions. TSC completed scale model testing of

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railroad tank cars to determine puncture resistance of various configurations.

Operations Information Systems Development and Communications Security. TSC conducted a study of the U.S. Coast Guard's Communication Security needs through 1995, stressing security related to law enforcement procedure and to operations with the U.S. Navy in event of war. TSC completed design of the Coast Guard's Summary Enforcement Event Reporting System. This became part of the message-based Telecommunication Interface Subsystem.

Vehicle/Track Interaction and Noise. TSC supported UMTA's efforts aimed at providing solutions to problems experienced by transit authorities of unacceptable maintenance costs, equipment failures, noise and vibration. In 1985, TSC conducted tests at 3 rail properties to validate the predictions of rail-vehicle wheel and track forces during vehicle operation resulting in transit wheel and rail wear and derailment phenomena. Based on these tests, recommendations were provided to transit properties regarding softening truck suspension systems, widening rail gauges, and the proper use of restraining rail and lubrication on curves to reduce system noise and derailment.

Technical Assessment to Buffalo Transit Construction. At the request of the Office of Inspector General, TSC conducted a technical assessment of likely construction-related problems at the Niagara Frontier Transit Authority (NFTA). A task force assessed the solidity of backfill material, the structural integrity of the tunnel liner, and surface track settlement. As a result of the TSC assessment, NFTA contracted with 2 engineering societies to perform detailed studies on the deficiencies noted in the report.

Axle/Bearing Failure Support. TSC completed a series of tests to verify the safety of the solid axle retrofit and improved maintenance and inspection procedures that had been recommended by TSC's Task Force on the M-2 Commuter Rail Car Axle/Bearing Failure Investigation. The TSC-led task force analyzed the problem, developed a diagnostic inspection program, and made recommendations identifying both the immediate operation and the long-term fixes necessary for safe operation. These recom-

mendations were implemented by Metro-North on the M-2 commuter rail cars. The import of these tests was sharpened because of several incidents of axle/bearing overheat and/or failure that occurred on the New Jersey Commuter Railroad. New Jersey Arrow Cars had been identified in TSC's report as having characteristics similar to those of the M-2 cars. These tests supplied the FRA Office of Safety information to give assurance that proper safety procedures had been implemented on the New Jersey Commuter Railroad.

Civil-Military Traffic Planning System. TSC completed the Automated Air Space Reservation System in 1985. This computerized planning system supports FAA's Central Altitude Reservation Function in determining availability of civilian airspace for the safe conduct of military exercises, and in assisting Air Force mission planners in the design, evaluation, scheduling, and dissemination of exercise plans.

Airport Capacity Plan. In September 1985, TSC delivered to FAA the Airport Capacity Enhancement Plan, which combines all elements of FAA procedures that bear on airport capacity and delay. TSC helped the FAA Associate Administrator for Airports in this effort by knowing and evaluating management techniques that could be planned and implemented to alleviate capacity-related delays.

Federal Radionavigation Plan. In December 1984, TSC prepared and published the third edition of the Federal Radionavigation Plan (FRP), the official source of navigation policy and planning of the U.S. Departments of Defense and Transportation. As DOT's Center for Navigation, TSC supplied the technical support for the RSPA-chaired DOT Navigation Working Group and took part in meetings of the DOT/DOD Working Group to coordinate all input to the plan.

"Back-to-Basics" Air Safety Program. "Back-to-Basics" is an education program to reinforce good safety practices among pilots, air traffic controllers, and aviation maintenance personnel. TSC coordinated the substantive input to "Back-to-Basics" from the aviation community, developed a training and evaluation plan, and furnished federal oversight of contractor-supplied courses and education materials.

Appendix

TABLE I. U.S. Department of Transportation Budget Authority, Obligations and Outlays, Fiscal Year 1985.

(in millions of dollars)

<i>Organization</i>	<i>Budget Authority</i>	<i>Obligations</i>	<i>Outlays</i>
Office of the Secretary	\$ 98	\$ 102	\$ 98
United States Coast Guard	2,592	2,690	2,566
Federal Aviation Administration	5,369	5,184	4,267
Federal Highway Administration	15,029	14,189	12,883
Federal Railroad Administration	815	1,079	1,032
National Railroad Passenger Co.	(684)	(744)	(764)
National Highway Traffic Safety Administration	259	219	203
Urban Mass Transportation Administration	4,132	3,560	3,356
Saint Lawrence Seaway Development Corporation		10	0
Maritime Administration	549	683	686
Research and Special Programs Administration	20	25	23
Office of the Inspector General	28	27	27
SUBTOTAL	28,892	27,767	25,142
Proprietary Receipts from the Public	(122)		(122)
TOTALS	28,770	27,767	25,020

NOTE: 1—Columns may not add due to rounding.

2—NRPC is part of FRA amount, and is not additive to totals.

TABLE II. U.S. Department of Transportation Employment in Authorized Full-Time Permanent Positions, Fiscal Year 1985.

<i>Organization</i>	<i>Employment</i>
Office of the Secretary	1,087
United States Coast Guard	43,553
Federal Aviation Administration	46,348
Federal Highway Administration	3,476
Federal Railroad Administration	656
National Highway Traffic Safety Administration	624
Urban Mass Transportation Administration	487
Saint Lawrence Seaway Development Corporation	187
Maritime Administration	1,023
Research and Special Programs Administration	693
Office of the Inspector General	456
TOTAL	98,590

¹ Includes 5,787 civilian and 37,766 military positions.

TABLE III. U.S. Department of Transportation Employment Full-Time Civilian Minority and Female, 1975 thru 1985.

<i>Year</i>	<i>Total</i> ¹	<i>Minority</i> ¹	<i>Percent</i>	<i>Total</i> ²	<i>Female</i> ²	<i>Percent</i>
1975	68,241	7,647	11	64,588	11,373	18
1976	71,679	8,989	13	65,758	11,745	18
1977	72,809	9,573	13	74,289	12,833	17
1978	71,972	9,623	13	73,471	12,752	17
1979	71,040	9,807	14	72,139	12,650	18
1980	69,998	10,169	15	71,092	13,166	19
1981	58,018	9,325	16	58,220	12,093	21
1982	58,357	8,967	15	59,138	11,160	19
1983	58,984	9,272	16	59,684	11,435	19
1984	60,226	9,688	16	60,226	12,245	20
1985	59,486	9,653	16	59,486	12,508	21

¹ Minority employment figures and related totals exclude employees in Hawaii and Guam.

² Female employment figures and related totals cover white collar positions only for the year 1975, general schedule positions only for 1976, and all employees for the years 1977–1985.

NOTES:

1. Minority data are as of May 31 for 1975–76 and September 30 for all other years.
2. Female data are as of October 31 for 1975; May 31 for 1976; and September 30 for all other years.
3. Source of the data for 1975 was the Civil Service Commission.
4. Source of the data for 1982–85, *DOT Employment Facts (OST)*.

TABLE IV. United States Coast Guard Financial Statement, Fiscal Year 1985.

<i>Appropriated Funds</i>	<i>Funds Available</i> ¹	<i>Total Obligations</i>	<i>Unobligated Balance</i> ²
Operating Expenses	\$1,753,572,139	\$1,738,442,674	\$ 15,129,465
Acquisition, Construction, and Improvements	909,985,769	498,873,038	411,112,731
Alteration of Bridges	17,317,550	0	17,317,550
Retired Pay	330,800,000	326,787,751	4,012,249
Reserve Training	59,858,000	59,812,373	45,627
Research, Development, Test, and Evaluation	26,041,447	18,542,152	8,399,295
National Recreational Boating Safety	—	—	—
Pollution Fund	29,212,457	447,173	24,765,284
Offshore Oil Pollution Compensation Fund	2,805,411	379,326	2,426,115
Deepwater Ports	4,651,322	804	4,650,518
TOTAL	3,135,144,125	2,647,285,291	487,858,834
<i>Reimbursements</i>			
Operating Expense	60,465,710	60,465,710	0
Acquisition, Construction, and Improvements	10,719,312	10,559,872	159,440
Reserve Training	44,388	44,388	0
Research, Development, Test, and Evaluation	1,065,910	719,971	345,939
TOTAL	72,295,320	71,789,941	505,379
<i>Trust Funds</i>			
Boat Safety Account	28,915,406	28,749,998	165,408
Coast Guard General Gift Fund	178,411	25,510	152,901
Surcharge Collection, Sale of Commissary Stores	488,960	236,691	252,269
Coast Guard Cadet Fund	4,191,915	4,191,915	0
TOTAL	33,774,692	33,204,114	570,578
<i>Intra Governmental Revolving Funds</i>			
Coast Guard Supply Fund	84,430,763	84,059,347	371,356
Coast Guard Yard Fund	84,758,161	39,594,501	45,163,660
TOTAL	169,188,861	123,653,848	45,535,016
<i>Accrued Gross Expenditures—All Years</i>			
	<i>Total</i>	<i>Direct</i>	<i>Reimbursable</i>
Operating Expenses	\$1,744,862,974	1,682,998,342	61,864,632
Acquisition, Construction and Improvements	429,339,681	420,110,130	9,229,551
Alteration of Bridges	4,242,420	4,242,420	0
Retired Pay	323,244,073	323,244,073	0
Reserve Training	57,736,099	57,685,868	50,231
Research, Development, Test, and Evaluation	18,766,021	18,063,903	702,118
National Recreational Boating Safety	27,003,026	27,003,026	0
Pollution Fund	4,011,137	4,011,137	0
Coast Guard General Gift Fund	21,729	21,729	0
Surcharge Collections, Sale of Commissary Stores	236,691	0	236,691
Coast Guard Cadet Fund	4,191,915	0	4,191,915
Coast Guard Supply Fund	85,650,673	0	85,650,673
Coast Guard Yard Fund	45,173,952	0	45,173,952
Offshore Oil Pollution Compensation Fund	392,683	392,683	0
Deepwater Ports Liability Fund	504	504	0
TOTAL	2,774,873,578	2,537,773,815	207,099,763

TABLE IV. U.S. Coast Guard Financial Statement, Fiscal Year 1985—(Continued).

¹ Funds available include unobligated balances brought forward from prior year appropriations as follows:

Alteration of Bridges	3,712,289
Acquisition, Construction, and Improvements	
Appropriated Funds	530,045,769
Reimbursements	1,611,728
Research, Development, Test, and Evaluation	
Appropriated Funds	1,076,447
Reimbursements	312,475
Deepwater Ports Liability Fund	3,651,322
Pollution Fund	21,822,501
Coast Guard General Gift Fund	155,936
Surcharge Collections, Sale of Commissary Stores	200,533
Coast Guard Supply Fund	439,972
Coast Guard Yard Fund	51,370,596
Offshore Oil Compensation Fund	1,805,441
National Recreational Boating Safety	250,000
TOTAL	619,455,009

² Unobligated balances remain available for obligation in fiscal year 1986 as follows:

Operating Expenses	15,000,000
Acquisition, Construction and Improvements	411,024,029
Research, Development, Test, and Evaluation	8,745,234
Alteration of Bridges	17,317,550
Pollution Fund	24,765,284
Coast Guard General Gift Fund	152,091
Surcharge Collections, Sale of Commissary Stores	252,269
Coast Guard Supply Fund	371,356
Coast Guard Yard Fund	45,163,660
Offshore Oil Pollution Compensation Fund	2,426,115
Deepwater Ports Liability Fund	4,650,518
National Recreational Boating Safety	165,408
TOTAL	530,034,324

TABLE V. Hijacking Attempts on U.S. and Foreign Aircraft, Including General Aviation Aircraft, Fiscal Year 1985.

<i>Aircraft Category</i>	<i>Year</i>										
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
United States	7	12	4	6	13	13	22	8	10	19	7
Foreign	19	13	14	26	14	14	19	24	22	15	21
TOTAL	26	25	18	32	27	27	41	32	32	34	28

TABLE VI. U.S. Airline Accidents, Fatalities, Aircraft Hours Flown, and Accident Rates, Calendar Years 1974—1984.¹

<i>Year</i>	<i>Accidents</i>			<i>Aircraft Hours Flown</i>	<i>Accident Rates²</i>	
	<i>Total</i>	<i>Fatal</i>	<i>Fatalities</i>		<i>Total</i>	<i>Fatal</i>
1974	43	7	460	5,474,495	0.767	0.110
1975	31	2	122	5,422,665	0.472	0.037
1976	22	2	38	5,587,601	0.394	0.036
1977	21	3	78	5,800,843	0.362	0.052
1978	21	5	160	6,031,743	0.348	0.083
1979	24	4	351	6,700,322	0.358	0.060
1980	15	0	0	6,797,578	0.221	0.000
1981	25	4	4	6,571,288	0.380	0.061
1982	15	3	233	6,440,163	0.233	0.047
1983	22	4	15	6,649,009	0.331	0.060
1984	12	1	4	7,438,497	0.161	0.013

¹ Includes accidents involving deregulated all cargo air carriers and commercial operators of large aircraft when those accidents occurred during scheduled operations.

² Per 100,000 aircraft hours flown.

NOTE: Beginning in 1981 the National Transportation Safety Board discontinued the practice of citing passenger fatality rates.

TABLE VII. U.S. Commuter Air Carrier Accidents Fatalities, Aircraft Hours Flown, and Accident Rates, Calendar Years 1980—1984.¹

<i>Year</i>	<i>Accidents</i>		<i>Fatalities</i>	<i>Aircraft Hours Flown</i>	<i>Accident Rates</i> ²	
	<i>Total</i>	<i>Fatal</i>			<i>Total</i>	<i>Fatal</i>
1980	38	8	37	1,175,588	3.230	0.680
1981	31	9	34	1,240,764	2.500	0.730
1982	26	5	14	1,299,748	2.080	0.380
1983	18	2	11	1,510,908	1.190	0.130
1984	22	7	48	1,745,762	1.260	0.400

¹ Includes accidents of all cargo air carriers when those accidents occurred during scheduled commuter operations. All-cargo air carriers no longer meet the definition for "Commuters".

² Per 100,000 aircraft hours flown.

TABLE VIII. U.S. Air Taxi Accidents, Fatalities, Aircraft Hours Flown, and Accident Rates, Calendar Years 1980—1984.

<i>Year</i>	<i>Accidents</i>		<i>Fatalities</i>	<i>Aircraft Hours Flown</i>	<i>Accident Rates</i> ¹	
	<i>Total</i>	<i>Fatal</i>			<i>Total</i>	<i>Fatal</i>
1980	170	45	103	3,617,724	4.700	1.240
1981	157	40	94	2,895,827	5.420	1.380
1982	135	31	72	3,256,763	4.150	0.950
1983	140	27	62	2,574,883	5.440	1.050
1984	146	23	52	3,079,007	4.740	0.750

¹ Per 100,000 aircraft hours flown.

TABLE IX. U.S. General Aviation Accidents, Fatalities, Aircraft Hours Flown, and Accident Rates, Calendar Years 1975—1984.¹

Year	Accidents			Aircraft Hours Flown	Accident Rates ²	
	Total	Fatal	Fatalities		Total	Fatal
1975	4,001	636	1,258	28,799,000	13.890	2.200
1976	4,023	662	1,226	30,476,000	13.190	2.170
1977	4,083	663	1,280	31,577,508	12.930	2.100
1978	4,218	721	1,558	34,887,178	12.080	2.060
1979	3,825	638	1,237	38,641,268	9.900	1.650
1980	3,597	622	1,252	36,401,663	9.880	1.710
1981	3,502	654	1,282	36,803,200	9.520	1.780
1982	3,231	589	1,182	32,094,623	10.070	1.840
1983	3,075	555	1,064	31,048,000	9.900	1.790
1984	3,010	543	1,039	31,510,000	9.540	1.720

¹ All operations other than those operated by commuter air carrier and air taxi aircraft under 14 CFR 121 and 14 CFR 135.

² Per 100,000 aircraft hours flown.

NOTE:

1. Suicide and sabotage accidents excluded from rates as follows:

Total—1976 (4), 1977 (1), 1978 (2), 1980 (1), 1982 (3), 1983 (1), 1984 (3)

Fatal—1976 (1), 1977 (1), 1978 (2), 1980 (1) 1984 (2)

2. Includes air carrier fatalities when in collision with General Aviation aircraft.

TABLE X. Federal-Aid Highway Obligations, Fiscal Years 1975—1985.¹

(dollars in millions)

Funding Category	Year											Total
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
Interstate ¹	4,015	2,616	3,298	3,191	4,442	3,380	3,926	3,659	6,061	4,777	5,763	45,128
ABC ²	425	194	46	17	7							689
Primary ³	1,266	725	1,174	1,320	1,440	1,605	1,752	1,489	2,052	2,365	2,168	17,356
Secondary ⁴	483	332	287	364	360	395	456	387	602	612	534	4,812
Urban	368	564	657	854	739	774	892	732	878	892	701	8,051
Bridge	181	116	196	171	611	770	983	979	1,389	1,512	1,382	8,290
Safety Construction	263	368	326	332	338	344	338	318	362	483	339	3,811
Emergency Relief	144	115	85	105	135	280	122	120	66	61	72	1,305
Other [†]	599	1,127	896	781	552	529	551	505	1,417	927	2,810	10,694
TOTAL [†]	7,744	6,157	6,965	7,135	8,624	8,077	8,975	8,189	12,825	11,629	13,769	100,089

¹ After 1983 Interstate includes Interstate construction and Interstate 4R.

² ABC figures include urban extension, primary and secondary funds.

³ Primary figures include rural primary, priority primary, discretionary priority primary, and consolidated primary funds.

⁴ Secondary figures include only rural interstate funds.

[†] Revised

**TABLE XI. Federal Highway Administration Motor Carrier Safety Inspection Activity
Calendar Years 1976—1984.**

<i>Year</i>	<i>Inspections Performed</i>	<i>Vehicles Taken Out of Service</i>	<i>Drivers Taken Out of Service</i>
1976	16,907	5,574	456
1977	18,730	6,985	558
1978	25,695	9,978	597
1979	26,127	10,779	1,980
1980	29,110	9,600	3,000
1981	40,747	13,143	4,184
1982	35,825	11,489	3,160
1983	24,721	5,547	1,260
1984	18,966	4,438	1,667

NOTE: In 1982 and prior years, each defect found was reported as a separate vehicle when, in fact, some vehicles had more than one defect. Starting with 1983, only the actual number of vehicles taken out of service were counted.

TABLE XII. Summary of U.S. Train Accidents and Casualties Calendar Years 1975—1984.

Category	Year										% Change	
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1983-84	1975-84
Number of Train Accidents¹												
Collisions	1,002	1,370	1,363	1,476	1,425	1,201	776	572	418	419	0.24	-58.18
Derailments	6,328	7,934	8,075	8,763	7,482	6,442	4,366	3,383	3,004	2,915	-2.96	-53.93
Other	711	944	926	1,038	833	808	639	634	484	566	16.94	-20.39
TOTAL	8,041	10,248	10,362	11,277	9,740	8,451	5,781	4,589	3,906	3,900	-0.15	-51.50
Number of Casualties in Accidents of all Types												
Trespassers Killed ..	524	457	458	492	516	566	582	501	472	588	24.58	12.21
Trespassers Injured .	703	766	689	746	805	728	761	671	683	773	13.18	9.96
Passengers Killed...	8	5	4	13	6	4	4	9	4	12	200.00	50.00
Passengers Injured .	1,307	998	503	1,252	1,001	593	409	387	502	1,000	99.20	-23.49
Employees on Duty Killed	110	100	114	122	101	97	65	78	61	59	-3.28	46.36
Employees on Duty Injured ²	47,318	57,889	61,028	65,071	66,924	56,331	47,836	36,032	30,416	33,364	9.69	-29.49
All Other Persons Killed	918	1,068	954	1,019	806	750	633	531	536	588	9.70	-35.95
All Other Persons Injured	4,978	5,678	5,647	5,476	5,396	4,594	3,995	3,185	3,218	3,433	6.68	-31.04
TOTAL NUMBER OF PERSONS KILLED	1,560	1,630	1,530	1,646	1,429	1,417	1,284	1,119	1,073	1,247	16.22	-20.06
TOTAL NUMBER OF PERSONS INJURED³	54,306	65,331	67,867	72,545	74,126	62,246	53,003	40,275	34,819	38,750	11.29	-28.65

¹ Monetary reporting threshold in 1975 was \$1,750, in 1977 it was increased to \$2,300, 1979 to \$2,900, and 1981 to \$3,700.

² Reporting requirements were changed in 1975 to be comparable to OSHA reporting requirements, including cases with lost or restricted time, those requiring medical treatment beyond first aid; termination of employment; transfer to another job; loss of consciousness; and occupational illnesses.

³ Includes occupational illnesses.

TABLE XIII. Summary of Accidents and Casualties at Public Rail-Highway Crossings, Calendar Years 1975—1984.

<i>Accidents and Casualties</i>	<i>Year</i>										<i>% Change</i>	
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1983-84	1975-84
Accidents at Highway Grade Crossings Involving Motor Vehicles												
Total Accidents	10,925	11,700	11,849	11,999	11,108	9,422	8,232	6,882	6,272	6,370	1.56	-41.69
Number of Persons Killed	788	978	846	929	727	708	623	526	483	543	12.42	-31.09
Number of Persons Injured	3,600	4,343	4,455	4,120	4,019	3,534	3,020	2,417	2,372	2,597	9.49	-27.86
Total Rail-Highway Grade Crossing Accidents and Resulting Casualties												
Total Accidents	11,354	12,144	12,299	12,435	11,552	9,763	8,546	7,158	6,562	6,633	1.08	-41.58
Number of Persons Killed	978	1,114	944	1,021	834	788	697	580	542	610	12.55	-37.63
Number of Persons Injured	4,168	4,831	4,649	4,256	4,172	3,662	3,121	2,508	2,467	2,723	10.38	-34.67
Railroad Casualties												
Passengers on Trains												
Number of Persons Killed	1	0	0	0	0	0	0	0	0	0	—	-100.00
Number of Persons Injured	96	57	25	18	2	24	4	1	45	35	-22.22	-63.54
Employees on Duty												
Number of Persons Killed	5	5	11	2	7	0	1	3	1	3	200.00	-40.00
Number of Persons Injured	117	195	202	180	160	122	110	116	99	152	53.54	29.91
Total Railroad Casualties												
Number of Persons Killed	6	5	11	2	7	0	1	3	1	3	200.00	-50.00
Number of Persons Injured	213	252	227	198	162	146	114	117	144	187	29.86	-12.21

¹ All impacts between on-track equipment and highway users were reported beginning in 1975.

² Reporting requirements were changed in 1975 to be comparable to OSHA reporting requirements—including cases with lost or restricted time; those requiring medical treatment beyond first-aid; termination of employment; transfer to another job; loss of consciousness; and occupational illness.

TABLE XIV. Amtrak Passengers, Passenger Miles, Daily Train Miles Revenues, Costs, Deficit and Ratios, Fiscal Years 1975—1985.

Category	Year											% Change	
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1983-85	1975-84
Passenger (millions)	15.8	16.9	19.2	18.9	21.4	21.2	20.2	19.0	19.0	19.9	20.8	4.52	31.65
Passenger Miles (billions)	3.7	3.8	4.3	4.0	4.9	4.6	4.8	4.2	4.2	4.6	4.8	4.35	29.73
Daily Train Miles	80.8	85.7	86.7	86.4	86.5	81.1	84.1	78.5	79.8	79.4	82.2	3.53	1.73
Operating Revenue	246.5	277.8	311.2	313.0	381.3	436.8	612.2	630.7	664.4	758.8	825.8	8.83	235.01
Corporate Costs	35.6	56.4	56.8	60.2	45.3	50.5	84.1	145.2	120.0	36.9	34.0	-7.86	-4.49
Operating Costs	524.2	665.8	784.2	830.1	952.8	1,102.8	1,252.5	1,280.6	1,349.4	1,485.2	1,566.1	5.45	198.76
Total Costs	559.8	715.5	842.4	890.3	998.1	1,153.3	1,336.6	1,425.8	1,469.4	1,522.1	1,600.1	5.12	185.83
Deficit ¹	313.3	437.7	531.2	577.3	616.8	716.5	724.4	795.1	804.9	763.3	774.3	1.44	147.14
Revenue/Costs Ratio ² . .	0.456	0.405	0.386	0.365	0.415	0.431	0.421	0.5	0.54	0.56	0.58	3.57	27.19

¹ Deficit before federal operating payments, but after state subsidies.

² Interest and depreciation removed from Total Costs before calculating the ratio.

TABLE XV. Summary of U.S. Motor Vehicle Activities and Fatalities, Calendar Years 1974—84.

Year	Licensed Drivers (millions)	Registered Vehicles (millions)	Vehicle Miles Traveled (billions)	Traffic Fatalities (1)	Fatality Rate (2)
1974	125.6	134.9	1,281	45,196	3.53
1975	129.8	137.9	1,328	44,525	3.35
1976	134.0	143.5	1,402	45,523	3.25
1977	138.1	147.3	1,467	47,878	3.26
1978	140.8	153.6	1,545	50,331	3.26
1979	143.3	157.3	1,529	51,093	3.34
1980	145.3	161.6	1,528	51,091	3.34
1981	147.1	164.1	1,556	49,301	3.17
1982	150.3	165.2	1,592	43,945	2.76
1983	154.2	169.4	1,658	42,589	2.57
1984*	155.4	172.0	1,717	44,241	2.58
% Change 1974-84	19.18	21.57	25.39	-2.16	-36.82
% Change 1983-84	0.78	1.53	3.56	3.88	0.39

¹ Based on 30 day definition.

² Fatalities per 100 million vehicle miles.

* Provisional

TABLE XVI. Summary of U.S. Monthly Traffic Fatalities Motor Vehicle Mileage, and Fatality Rate, Calendar Years 1979—1984.

Category and Year	Month											
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Fatalities ¹												
1979	3,075	3,116	4,072	4,123	4,376	4,505	4,663	4,706	4,698	4,665	4,373	4,721
1980	3,432	3,271	3,645	3,731	4,482	4,935	4,848	5,401	4,498	4,350	4,257	4,241
1981	3,579	3,383	3,654	3,959	4,210	4,343	4,815	4,924	4,252	4,258	3,966	3,958
1982	2,888	2,768	3,305	3,523	3,886	3,826	4,293	4,220	3,947	4,094	3,520	3,675
1983	2,875	2,695	3,079	3,257	3,669	3,703	4,146	4,155	3,987	3,970	3,552	3,501
1984	2,830	2,765	3,304	3,249	3,764	4,089	4,251	4,253	4,134	4,048	3,741	3,829
% Change 1979-84 ...	-8.0	-11.3	-18.9	-21.2	-14.0	-9.2	-8.8	-9.6	-12.0	-13.2	-14.5	-18.9
% Change 1983-84 ...	-1.6	2.6	7.3	-0.2	2.6	10.4	2.5	2.4	3.7	2.0	5.3	9.4
Mileage ²												
1979	114.4	109.7	131.4	125.9	132.4	131.2	134.9	139.9	127.6	131.6	123.4	123.2
1980	117.0	107.8	125.8	126.3	131.9	132.3	136.9	139.3	128.1	133.2	124.0	125.4
1981	116.5	110.2	128.3	129.0	134.8	136.1	141.8	144.0	131.7	133.7	125.3	124.9
1982	109.8	107.5	128.2	129.8	140.3	142.1	152.2	153.3	136.3	138.8	127.1	127.1
1983	119.4	111.8	132.8	132.7	143.6	246.7	156.8	157.7	139.9	144.0	133.7	129.8
1984	122.5	117.5	137.3	141.3	151.0	153.4	161.7	164.9	146.1	147.6	137.3	136.1
% Change 1979-84 ...	7.1	7.1	4.5	12.2	14.0	16.9	19.9	17.9	14.5	12.2	11.3	10.5
% Change 1983-84 ...	2.6	5.1	3.4	6.5	5.2	-37.8	3.1	4.6	4.4	2.5	2.7	4.9
Fatality Rate ³												
1979	2.69	2.84	3.10	3.27	3.31	3.43	3.46	3.36	3.68	3.54	3.54	3.83
1980	2.93	3.03	2.90	2.95	3.40	3.73	3.54	3.88	3.51	3.27	3.43	3.38
1981	3.07	3.07	2.85	3.07	3.12	3.19	3.40	3.42	3.23	3.18	3.17	3.17
1982	2.63	2.57	2.58	2.71	2.77	2.69	2.82	2.75	2.90	2.95	2.77	2.89
1983	2.41	2.41	2.32	2.45	2.56	2.52	2.64	2.64	2.85	2.76	2.66	2.70
1984	2.31	2.35	2.41	2.3	2.49	2.67	2.63	2.59	2.83	2.74	2.73	2.81
% Change 1979-84 ...	-14.1	-17.3	-22.3	-29.7	-24.8	-22.2	-24.0	-22.9	-23.1	-22.6	-22.9	-26.6
% Change 1983-84 ...	-4.1	-2.5	3.9	-6.1	-2.7	6.0	-0.4	-1.9	-0.7	-0.7	2.6	4.1

¹ Deaths attributable to motor vehicle accidents and occurring within 30 days after the accidents.

² Billions of vehicle miles.

³ Fatalities per 100 million vehicle miles.

Sources: Vehicle Mileage—Highway Statistics Division, FHWA.
Fatalities—Fatal Accident Reporting Systems, NHTSA.

TABLE XVII. Summary of Report Gas Pipeline Failures and Casualties, Calendar Years 1974—1984.

Year	Distribution Lines			Transmission and Gathering Lines			Totals		
	Failures	Fatalities	Injuries	Failures	Fatalities	Injuries	Failures	Fatalities	Injuries
1974 ¹	1,017	20	314	460	4	20	1,477	24	334
1975	979	8	220	394	6	17	1,373	14	237
1976	1,036	53	319	543	10	47	1,579	63	366
1977	1,530	29	420	466	7	30	1,996	36	450
1978	1,555	20	320	533	11	86	2,088	31	406
1979	1,520	33	313	450	12	93	1,970	45	406
1980	1,467	9	269	529	2	41	1,996	11	310
1981	1,128	10	73	495	6	6	1,623	16	79
1982	1,191	20	225	520	11	41	1,711	31	266
1983	1,127	10	220	453	2	25	1,580	12	245
1984	747	26	189	255	9	40	1,002	35	229
% Change 1974—84	-27	30	-40	-45	125	100	-32	46	-31
% Change 1983—84	-34	160	-14	-44	350	60	-37	192	-7

¹ Figures for years after 1973 include information from telephone reports which were not included in 1973 figures.

NOTE: Information as required by 49 CFR Part 191.

TABLE XVIII. Summary of Report Liquid Pipeline Accidents and Casualties, Calendar Years 1974—84.

Years	Accidents	Fatalities	Injuries	Commodity Loss (barrels)
1974	256	10	11	293,643
1975	255	7	15	319,423
1976	209	5	5	255,037
1977	238	3	19	228,429
1978	256	3	10	280,794
1979	251	4	13	548,669
1980	219	3	12	289,445
1981	239	5	32	214,384
1982	200	0	6	221,411
1983	161	6	9	384,670
1984	203	0	19	292,196

TABLE XIX. Harardous Materials Incidents, by Mode, Calendar Years 1974—84. ¹

<i>Year</i>	<i>Air</i>	<i>Highway</i>	<i>Railway</i>	<i>Water</i>	<i>Freight Forwarder</i>	<i>Other</i>	<i>Total</i>
1974.....	157	7,612	616	26	—	17	8,428
1975.....	152	9,891	676	32	—	18	10,769
1976.....	83	10,757	970	14	11	23	11,858
1977.....	122	14,835	950	14	11	20	15,952
1978.....	229	16,450	1,216	49	4	16	17,964
1979.....	293	16,070	1,234	41	2	14	17,654
1980.....	226	14,180	1,272	34	2	29	15,743
1981.....	160	8,670	1,145	8	3	63	10,049
1982.....	96	5,675	839	9	6	1	6,626
1983.....	67	4,877	868	12	1	1	5,826
1984.....	107	4,506	1,002	9	145	7	5,776

¹ Incidents reported through January 1985.

TABLE XX. Harardous Materials Casualties (Deaths and Injuries), by Mode, Calendar Years 1974—84. ¹

<i>Year</i>	<i>Air</i>	<i>Highway</i>	<i>Railway</i>	<i>Water</i>	<i>Freight Forwarder</i>	<i>Other</i>	<i>Total</i>
1974.....	9	299	606	17	—	4	935
1975.....	4	514	96	2	—	66	682
1976.....	4	597	166	0	0	0	767
1977.....	9	578	257	0	0	0	844
1978.....	48	574	480	10	1	3	1,116
1979.....	6	708	228	1	0	3	946
1980.....	8	511	123	1	1	2	646
1981.....	7	419	222	0	0	18	666
1982.....	0	106	36	1	0	0	143
1983.....	3	125	68	0	0	0	196
1984.....	15	151	76	19	3	0	264

¹ Incidents reported through January 1985.

TABLE XXI. Selected Maritime Fiscal Data, Fiscal Year 1982—85.

<i>Activity</i>	<i>1982</i>	<i>1983</i>	<i>1984</i>	<i>1985</i>
Construction Differential Subsidies				
Number of new ships contracted for	0.0	0.0	0.0	0.0
Total ships under construction	12.0	1.0	1.0	0.0
Total expenditures (millions of dollars)	185.0	35.5	13.7	4.7
Operating Differential Subsidies				
Companies with long-term contracts	23.0	24.0	23.0	22.0
Ships covered.....	168.0	164.0	136.0	118.0
Total subsidy paid (millions of dollars)	400.2	368.2	384.3	351.7
Ship Financing Guarantees				
Vessels Covered	4,358.0	4,373.0	4,060.0	3,855.0
Shipboard lighters covered	2,118.0	2,118.0	1,975.0	1,747.0
Principal covered by guarantees (millions of dollars)	8,123.6	6,491.0	7,303.2	6,518.9
Government Owned Ships In The National Defense Reserve Fleet	303.0	304.0	386.0	300.0
U.S.-Flag Oceanborne Foreign Trade				
Long tons carried in U.S.-flag ships (millions of tons)	31.1	36.7	29.4	27.3
Percent of foreign trade carried in U.S.-flag ships	4.6	5.8	4.3	4.3

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