THIRD ANNUAL REPORT

Fiscal Year 1969

DEPARTMENT OF TRANSPORTATION

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U.S. DEPARTMENT OF TRANSPORTATION

Washington, D.C.

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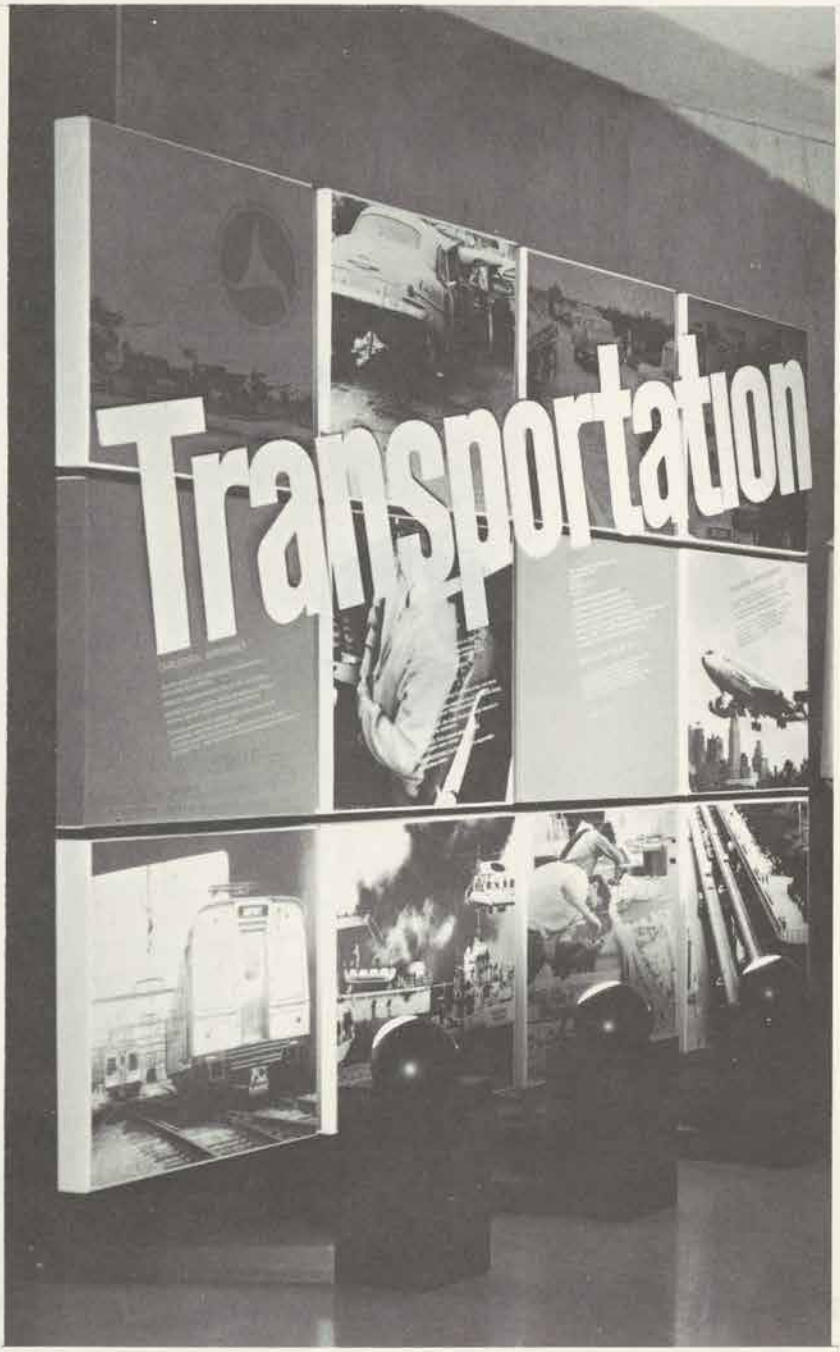
Transportation

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

March 17, 1970

The President
The White House
Washington, D. C. 20501

Dear Mr. President:

In compliance with the requirements of Section 11 of the Department of Transportation Act, I transmit herewith, for submission to the Congress, the third annual report of the Department of Transportation discussing its accomplishments during Fiscal Year 1969.

Sincerely,

John A. Volpe

Enclosure

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Department of Transportation
Secretarial Officers and Administrators
June 1969

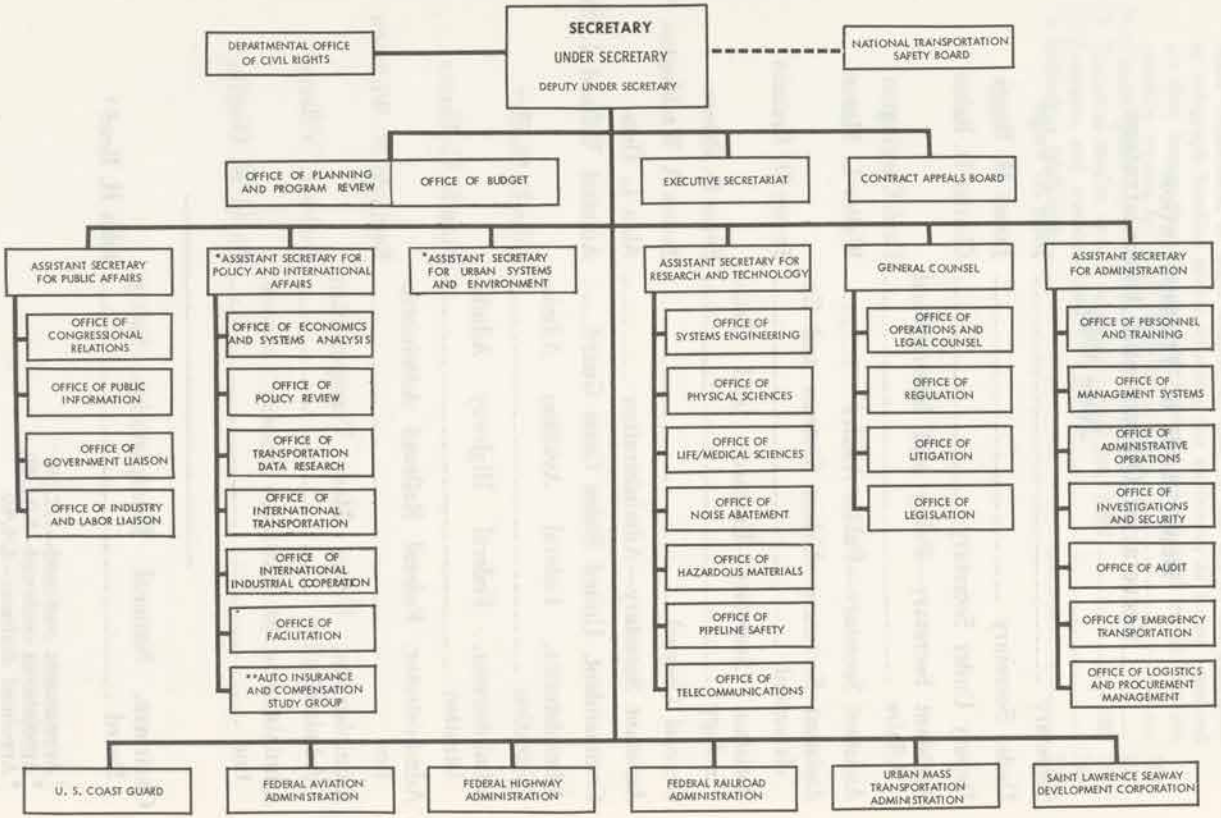
Secretary	John A. Volpe
Under Secretary	James M. Beggs
Deputy Under Secretary	Charles D. Baker
Assistant Secretary—Policy and International Affairs	Paul Cherington
Assistant Secretary—Public Affairs	Walter L. Mazan
Assistant Secretary—Urban Systems and Environment	James D. Braman
Assistant Secretary—Research and Technology	Secor D. Brown
General Counsel	James A. Washington [1]
Assistant Secretary—Administration	Alan L. Dean
Commandant, United States Coast Guard	Admiral Willard J. Smith
Administrator, Federal Aviation Administration	John H. Shaffer
Administrator, Federal Highway Administration	Francis C. Turner
Administrator, Federal Railroad Administration	Reginald N. Whitman
Administrator, Urban Mass Transportation Administration	Carlos C. Villarreal
Administrator, St. Lawrence Seaway Corporation	David W. Oberlin [2]

Chairman, National Transportation Safety Board	John H. Reed [3]

[1] Appointment confirmed—7/2/69.
[2] Appointment confirmed—8/11/69.
[3] Appointed chairman—5/6/69.

DEPARTMENT OF TRANSPORTATION

30 JUNE 1969



* THESE ASSISTANT SECRETARIES WERE DESIGNATED ON 2/7/1969 AND THEIR ORGANIZATIONS ARE IN THE DEVELOPMENTAL STAGE.

** EXPIRES MAY, 1970

Chapter I

INTRODUCTION

Activation of the Department of Transportation on April 1, 1967, was the culmination of efforts that dated from 1808 to systematize the relationships of the United States Government to the transportation industry. It was an effort to assure efficient administration of the transportation programs of the Government while at the same time promoting and facilitating coordinated transportation service that will be supplied by private companies. The Department was envisaged as a coordinator of efforts of all levels of government, industry, and labor to identify and solve transportation problems. It was also to assist the President in developing transportation policy.

While much of the Department's early effort was directed to establishing its own organization, and developing its policies and procedures, it engaged in numerous substantive programs as well. The problems of organization arose from the fact that the Department was constructed from about 30 segments, of which some were large independent agencies, *e.g.*, the FAA with 44,000 employees or the Coast Guard with 41,300, while others had as few as six highly specialized employees. To help the Secretary coordinate these elements, the law established the Office of the Secretary with four statutory Assistant Secretaries, a General Counsel, and an Assistant Secretary for Administration. The functions of the Assistant Secretaries were not defined by the law.

Since it was organized during a period of budgetary stringency, the Office of the Secretary and some other elements have not as yet been staffed for most efficient performance; for example, the Department has never been permitted to employ an adequate number of highly skilled supergrade officers to perform its complex intermodal tasks.

Much of the Department's early program effort has been designed to enhance safety in all modes of transportation, from the largest air carriers and ships to the smallest sailboat. Essentially novel safety programs are being developed in the National Highway Safety Board, the FAA, the Coast Guard, and indeed, in all segments of the Department.

The effort to improve all aspects of urban transportation has also been a major early effort, especially since the Urban Mass Transportation Administration became part of the Department. The emphasis is now reinforced by the appointment of an Assistant Secretary for Environment and Urban Affairs.

Adoption of sophisticated, computer-based, analytical approaches to transport problems, and of an "environmental preservation" attitude were elements of the planning from the beginning. Because of the financial difficul-

ties besetting much of the transportation industry, the Department has had to develop new policy positions and new approaches to financing for the industry, though many phases of that work are still to be implemented.

The problems of cities and urban corridors also demanded immediate and massive research and development demonstration efforts for high-speed ground transport; thus the metroliner and the turbo-train were successfully inaugurated, while many other approaches are in developmental stages.

Integrated multi-modal transportation as a solution to specific problems of freight carriage was carefully researched and efforts to promote such solutions were begun; closely related were major efforts to promote and facilitate containerization.

Other facilitation programs were developed to aid both passenger and freight transportation, and numerous independent programs, such as, the Congressionally directed study of the compensation of automobile accident victims were also begun.

But in spite of all the efforts—both organizational and substantive—the Department had not completed its own structure, much less its program, when the Nixon Administration came into office; at that time the Department was less than 2 years old. Some of its elements were mature, staffed with experienced professional officers, and effectively engaged in program operation; some were still in formative stages with inadequate resources.

For most modes of transportation the powers of the Secretary were rather comprehensive and certainly extensive enough so that he could exercise great influence on the direction of developments within each mode. For other modes, such as rail transport, the Secretary's responsibilities were rather substantial, but his powers were distinctly limited. He does not, for example, have adequate authority to require changes in construction or inspection standards that are necessary for safe operation of railroads. In some phases of transportation, and even for some modes, the Secretary has no authority, but he still has responsiblity to advise the President concerning national transportation policy, which must control government action in all modes. The most notable exception to the Secretary's authority, of course, is promotion of the merchant marine.

In several units, such as UMTA (Urban Mass Transportation Administration), the new Secretary found that the Department was only just organizing its resources, and in UMTA particularly, the available management resources bore no relationship to the magnitude of the problems to be dealt with, or even to the administrative load. This, in spite of the obvious fact that the problems of the Nation's cities are among the Nation's most acute and troublesome concerns.

Secretary Volpe has placed great stress on developing the Department's capability to improve environmental conditions, especially conditions within the cities. He immediately reorganized the Department to concentrate the attention of one Assistant Secretary on the environmental and urban aspects of the Department's potential. The Secretary believes that the potential for ameliorating conditions within the cities can best be realized if the Department adopts a "systems approach" to the analysis and improvement of poor

conditions by means of resources available to it. Traditional approaches that focused on the potential of one mode of transportation for a restricted geographical area must give way, he insists, to a more functional approach that combines the capacities unique to each mode of transportation into an integrated system for a geographic area. Such a system can be designed to provide essential transportation while at the same time accomplishing other ends as well. Illustrative of the systems approach is the multipurpose use of transportation corridors—*e.g.*, the proposed design of linear cities on land that formerly might have accommodated only a road or a railroad, or accommodating rail, highway, and pipeline transportation in a single corridor. The Department will take that approach to land use whenever possible. In cooperation with city planners, ecologists, and others concerned for the welfare of people, the Department of Transportation will vigorously exploit this potential.

The Department with the cooperation of industry will be able to help in overcoming the difficulties inherent in one of the most challenging of current transport problems—the 300- to 400-mile intercity trip. These trips have usually been made by automotive vehicles or short-range aircraft, but the facilities for handling passengers and vehicles for such short trips are completely inadequate, and in most metropolitan areas space cannot be found to accommodate either the facilities or the highways needed to allow further expansion of these earlier patterns of intercity travel.

The solution to these problems will require huge inputs of men, materials, and capital that are not now available. But the times cry out for bold innovation and new initiative; Secretary Volpe has managed the Department with the assumption that if its proposals for handling the problems are adequate, resources will be provided for it to install the needed systems, fund the necessary improvement, or undertake other activities to realize the Department's full potential.

Chapter II

OFFICE OF THE SECRETARY

Organization

Immediate Office of the Secretary. During the year, numerous changes were made in the structure and organization of the Office of the Secretary to reflect changes in assignment or emphasis, particularly to meet responsibilities in the Planning-Programing-Budgeting area, in the Emergency Transportation area, and in the Research and Technology area. At the end of the fiscal year, the Office of the Secretary included more functions than it had at the beginning of the year, but in contrast, the Secretary had delegated to his subordinates all the powers granted to him that he does not need to exercise personally in order to control the Department.

Other Organizational Changes.

1. After President Nixon's Administration began, Secretary Volpe reallocated the duties of the four Assistant Secretaries appointed by the President and confirmed by the Senate. Thus the functions and positions previously assigned to the Assistant Secretary for Policy Development and the Assistant Secretary for International Affairs were merged under a new Assistant Secretary for Policy and International Affairs. In addition the Offices of International Industrial Cooperation and Technical Assistance were merged, and a small task force was created to conduct the Auto Insurance and Compensation Study assigned to the Department by Congress.

2. To direct the Department's efforts in environmental and urban matters in accordance with President Nixon's emphases, a new Assistant Secretary's office was created; this office absorbed the Office of Enviromental Impact that was already in operation in the Department.

3. An Office of Pipeline Safety was created to administer Department responsibilities under the Natural Gas Pipeline Act of 1968.

4. Control of the Office of Emergency Transportation was shifted from the Assistant Secretary for International Affairs and Special Programs to the Assistant Secretary for Administration.

Planning-Programing-Budgeting. One of the most complex and troublesome problems for the Secretary since the inception of the Department has been the planning-budgeting effort. In the original organization of the Department, the function was split into its component parts with the planning-programing work assigned to the Assistant Secretary for Policy Development, and the Budget Office reporting to the Assistant Secretary for Administration.

Though the Department's output did fulfill the requirements of the Bureau of the Budget, including preparation of a program of special studies, it had become apparent to the Secretary by October 1968 that the Department's machinery was not appropriately designed to assure timely preparation of the program and budgeting material required by the Bureau of the Budget, without engendering conflicts and tensions within the Department.

While the process of deriving the materials for the budget presentation helped integrate and coordinate the wide range of Departmental programs, the process did not succeed in refining adequately the priority needs and programs for the Department nor in relating the costs and benefits of the numerous programs.

To improve the Department's performance in rational decision making at the level of his immediate advisers, the Secretary transferred the offices responsible for both programing and budgeting to the Office of the Secretary and assigned the function of coordinating this work to the Deputy Under Secretary. The combination of these efforts has stimulated program officials in the Department to (1) become increasingly sensitive to the importance of relating programs to Department objectives, (2) identify and measure the benefits of programs, and (3) think in terms of priorities, overall systems, and broader program areas.

Within the Department, capabilities for analysis have improved markedly as demonstrated by a number of good special program studies that were completed. The analysis itself has had an increasing impact on the planning and program decision-making processes within the Department.

Experience with the exercise of preparing the Department's budget and special studies programs for fiscal year 1971 suggested to the secretarial officers that some modification of the Department's program structure might be advisable. After appropriate study, these officers decided to maintain essentially the program structure already in effect, with a modification to highlight safety programs of all administrations.

Presidential transition. In September 1968 the President directed each Department to prepare an agency plan to assure a smooth and orderly transition to the officials who would be selected by a new President. To that end the Department of Transportation prepared a detailed briefing that provided relevant information on the problems and operations of the Department. The briefing discussed such matters as the goals and objectives of the Department, economic efficiency in transportation, optimal use of environmental resources, safety, and support of other national interests. In addition to data on the Department itself, its employees, and their duties, the briefing included information on the legislative program of the Department and the problems it confronted in each of its many functions.

In discussing inter-urban transportation the Department was said to be concerned with development of the post-interstate highway system, the Federal role and program for airports and airways, the future role of the Federal government with respect to railways, user charges for waterways as well as for airports, and the rational development of inter-urban corridors.

Issues relating to international involvement of the Department included the development of the supersonic transport, the national maritime policy, the development of port facilities, and the Saint Lawrence Seaway.

Additional national interests in which the Department had some contribution to make included improvement of safety in all modes of transportation, reduction of adverse environmental effects of transportation, development of polar transportation, and of marine sciencies.

1969 Report to the President. Soon after President Nixon was inaugurated he asked each Cabinet officer to report on the problems he found in the Department for which he was responsible. For the Department of Transportation, that report stressed the problems of organizing to (1) bring the Secretary's influence to bear in national maritime policy and (2) prevent the Coast Guard from being split from the Department as had been suggested in a special study on the Government's role in the marine sciences. The Department's effort to organize itself to address urban problems was also reported.

At the outset, another of the Department's administrations, the Federal Railroad Administration, was also inadequately staffed and lacked statutory authority to require changes in railway safety practices in the same way that the other administrations can influence the transportation modes with which they are concerned.

Most crucial of the Department's safety responsibilities was highway safety; for it the Department had not yet developed either adequate management capability or adequate staff.

The issues with which the Department was most concerned, according to the report to the President, included: (1) Airway congestion in the neighborhoods of the larger airports, (2) the determination of an appropriate future for the interstate highway system, (3) evaluation of the prospects for an SST, (4) devising of an appropriate maritime program, (5) greater efforts to improve safety in all modes, and especially in pipeline and hazardous material transportation, and (6) problems of the cities. The Department can make contributions to the solution of urgent city problems by giving special attention to quick development of urban mass transportation, transportation facilities specifically for the urban poor, and by insuring that any new transportation facilities will improve the quality of the urban environment.

Decentralization. Because the DOT Act had endowed the Secretary of Transportation with a wide range of responsibilities with respect to transportation activity in the United States, and at the same time established a series of autonomous modal administrations within the Department, one of the early actions of the first Secretary was to delegate to each Administrator responsibility for performance of most functions relating to his particular mode.

Secretary Volpe continued and expanded the delegations of authority. On January 27, 1969, a few days after assuming office, he asked each of the administrations to undertake a study of the extent of delegated authority in its area, and to indicate how the Secretary might delegate even more

functions. DOT thus anticipated the President's instruction of March 27, 1969, prescribing greater decentralization of Federal programs, especially those performing services for the public. Because of the nature of DOT's programs, it had already established a regional organization made up of Field Coordination Groups; for the most part these groups operated in the cities newly designated by the President as headquaraters for the Federal Field Groups.

On March 27, 1969, President Nixon issued a statement on Restructuring of Government Service Systems and at the same time signed the Reorganization Act of 1969. The statement defined eight regions of the country within which the Cabinet departments rendering services directly to the public will organize to administer their programs. The message also stressed coordination and cooperation among agencies in the field and decentralization of authority within the service agencies. Eight Regional Councils were formed, thus expanding a structure that had been initiated in 1968 following the prescriptions of the Intergovernmental Cooperation Act of 1968. Interagency cooperation in urban matters was placed under the guidance of the Under Secretaries' group of the Urban Affairs Council on which served the Under Secretaries of the several departments performing services for the public. Initially the member agencies of Regional Councils included HUD, HEW, Department of Labor, and the Office of Economic Opportunity; the Department of Transportation was not included, presumably because it does not deal in social services, or grants for them.

Because it was already a member of the Urban Affairs Council, however, the Department was automatically involved in the Under Secretaries' Group, and thus soon in the Regional Councils. DOT's involvement with the Urban Affairs Council made imperative a more broadly scaled effort than it had previously exerted. A special intra-Department committee has been established to monitor the Department's performance in response to the initiatives of the Bureau of the Budget and the interagency steering group. A major responsibility of the group will be simplification of relationships between local governments and Federal agencies, particularly in the area of grantmaking. The Department plans to station a representative of the Secretary in each of the Regions (of which there are now 10) to coordinate the Department's efforts in the region.

The report to the President of June 1969 from Cabinet agencies concerned noted that in DOT delegations of authority were occurring at two levels—from the Secretary to the Administrators and Assistant Secretaries, and from them to others in their own organizations. Actions already taken in this Department included delegating rulemaking authority to the Federal Highway Administration, delegating authority to apportion funds for highway purposes to the Federal Highway Administrator, and authority to apportion Federal aid to airports to the Federal Aviation Administrator. The Secretary delegated authority to the Federal Railroad Administrator to (1) determine both high-speed ground projects to be conducted, and research and development projects to be undertaken, and (2) make changes in the freight and passenger charges on the Alaska Railroad.

The Administrators quickly made numerous delegations to their subordinates; the Federal Highway Administrator made 45 new delegations in program areas and 14 in legal support and administrative areas. The Commandant of the Coast Guard identified 12 new authorities that he could delegate, and the Federal Railroad Administrator delegated three important authorities. The Federal Aviation Administration was already highly decentralized.

To continue the program of delegation and decentralization, the Department established a committee of officers of Secretarial elements and administrations to conduct a continuing review of all administrations, programs, delegations, and procedures, seeking to suggest opportunities for further delegations of Secretarial authority.

Civil Rights

Introduction. From the beginning of the Department the Secretary of Transportation has provided energetic and committed leadership in the entire area of civil rights. Not only has he instructed DOT officials to follow the spirit as well as the letter of civil rights laws, Executive Orders, and policies but he has also initiated specific equal opportunity programs.

Civil rights leadership responsibilities have been clearly identified in the Office of the Secretary and in each of the Department's operating administrations and major field installations. Liaison with civil rights leaders has been developed and improved. Through these actions greater emphasis has been placed on the fulfillment of civil rights responsibilities by DOT officials as well as by recipients of DOT-sponsored Federal assistance and by contractors and subcontractors involved in DOT projects.

In April 1969 the Secretary made a presentation to the President and his Cabinet on the civil rights programs of the Executive Branch, with particular emphasis on the activities and experiences of DOT.

Later in April 1969 the Secretary conducted a special equal opportunity conference attended by nearly 100 senior Washington and field officials of the Department at which the heads of the operating administrations reported personally on their progress and the actions they intended to take to improve the Department's performance as an equal opportunity employer.

A Departmental Office of Civil Rights was established whose director was designated the principal advisor to the Secretary on civil rights and equal opportunity matters, with responsibility to act for and represent the Secretary to assure full and affirmative implementation of civil rights and equal opportunity precepts within the Department. Counterpart offices of Civil Rights were established also in the operating administrations.

In an effort to bring DOT civil rights programs and employment opportunities to the attention of civil rights organizations and individuals as well as the general public, a special exhibit was prepared for presentation at conventions and conferences.

Public Programs—Contract Compliance. The contract compliance program of the Department of Transportation covers the diverse contracting and grant-in-aid programs of the operating administrations; one of these is

the largest construction program in the Federal Government. In the wake of the Comptroller General's opinion of November 1968, all pre-award conferences that required more of the low bidder in the area of equal employment opportunity than was included in the advertised specifications were discontinued. Pre-award conferences to determine the capability of the low bidder to carry out his equal opportunity obligations and to educate the low bidder in his equal opportunity obligations were continued, however.

As a result of the equal opportunity provisions of the Federal-aid Highway Act of 1968, the Federal Highway Administration established a program effective December 1, 1968, requiring pre-qualification of bidders on Federally assisted highway contracts. Although almost 4,000 contractors were pre-qualified under this program, administrative and procedural problems became evident and the program was changed. On March 17, 1969, a new program, incorporating equal opportunity special provisions in bid specifications, was established and is presently in effect. The Federal Highway Administration conducted no pre-award reviews in fiscal year 1969.

Pre-award conferences have continued but only in line with the Comptroller General's opinion. A total of 73 pre-award conferences were conducted with contractors for both direct and Federally assisted contracts.

Approximately 350 post-award compliance reviews were made during 1969, the majority being in the first half of the fiscal year.

TABLE 1.—Contract compliance reviews—fiscal year 1969

Organization	Pre-award reviews	Post-award reviews	Total
CG	19	17	36
FAA	23	84	107
FHWA	0	132	132
UMTA	31	112	143
	73	345	418

Title VI Compliance Program. The Department of Transportation has the second largest program in the Federal Government covered by Title VI of the Civil Rights Act of 1964 (nondiscrimination in Federally assisted programs). Under this program a total of 2,562 compliance reviews were conducted during fiscal year 1969. The Federal Aviation Administration conducted 2,482 reviews, although the majority of these were not in-depth reviews. The Urban Mass Transportation Administration conducted 50 reviews; the United States Coast Guard conducted 24; and the Federal Highway Administration conducted six.

Internal Programs—General. In order to ascertain the degree of minority group utilization in DOT, a Department-wide census was conducted as of June 30, 1968, and as of June 30, 1969. These surveys revealed that

TABLE 2. Title VI compliance action—fiscal year 1969

Organization	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
CG	8	7	9	0	24
FAA	471	714	535	762	2,482
FHWA	0	0	0	6	6
UMTA	19	17	14	0	50
	498	738	558	768	2,562

Complaints of Discrimination

Total Workload:	
Complaints received	25
Complaints carried over from FY 1968	8
Total in process FY 1969	33
Complaints closed	19
Complaints pending as of 6/30/69	13

Analysis of Complaints in Process

Operating Administration	Type of Complaint	
	Contract Compliance	Title VI
FAA	2	4
FHWA	13	12
USCG	0	1
UMTA	1	0
	16	17

DOT's total employment on June 30, 1968, was 96,266, of whom 7,268 (7.6%) belonged to a minority group. On June 30, 1969, DOT's overall employment was 94,903, of whom 6,786 (7.2%) were minority group.

After analysis of the June 30, 1968, census results Secretary Boyd convened the first special EEO (Equal Employment Opportunity) conference of top level Department executives. This conference signaled renewed emphasis on EEO throughout the Department. Six months later on April 24, 1969, Secretary Volpe convened the second special conference on EEO and a third such conference has been planned for October 1969. Indicative of the kind of results produced has been the increase in minority group supergrades from one at the beginning of fiscal year 1969 to three at the end of the fiscal year with another dozen in various stages of processing.

TABLE 3.—Analysis of complaints closed

	Contract Compliance	Title VI
FAA	2	0
FHWA	5	10
USCG	0	1
UMTA	1	0
	8	11

Even though improvement in attitudes toward minority employment was marked, improvement in hiring statistics was hard to achieve, made more difficult by employment and budget ceilings imposed on the Department. Few new employees were hired; thus only small numbers of minority employees could be employed.

In an effort to strengthen the machinery for processing complaints of discrimination in Federal employment, in March 1969 the Civil Service Commission revised the basic EEO regulations and introduced the function of the EEO counselor who will work to resolve employee problems informally before they become formal complaints. The Office of Civil Rights developed an order implementing the new Civil Service Commission rules that was being coordinated at the end of the year.

TABLE 4.—Complaints of discrimination

Total Workload	
Complaints received	27
Complaints carried over from FY 1968	6
Total in process FY 1969	33
Complaints closed	15
Complaints pending as of 6/30/69	18

Complaints in process		Complaints closed	
FAA	15	FAA	7
USCG	12	USCG	8
	27		15

Complaints on hand 6/30/69	FAA	USCG
In process less than 60 days	4	3
In process over 60 days without hearing	6	1
In process over 90 days without hearing requested	2	2
	12	6

1 Case in excess of 1 year (430 days) — USCG
6 Cases 100 to 348 days — 4 FAA, 2 USCG
4 Cases 60 to 90 days — 4 FAA

Also following the April 1969 conference a program of evaluation of EEO effort in the field was launched. The first reviews were of FAA's Western Region and Coast Guard's Eleventh District.

In response to the interest and requests of the Senate Subcommittee on Administrative Practice and Procedure, renewed emphasis was given to the Alaskan Native Hire Program during the fiscal year.

OST Policy and International Affairs

The newly appointed Assistant Secretary for Policy and International Affairs assumed responsibility for most of the functions that had formerly been assigned to the Assistant Secretaries for Policy Development and for International Affairs and Special Programs. These responsibilities include:

(1) Formulation and review of domestic and international transportation policies and objectives.
(2) Review and analysis of domestic and international transportation systems.
(3) Direction of programs to facilitate the efficient movement of people and goods, promote international technological cooperation, provide technical assistance to developing countries, and establish a comprehensive data and information system.

In each of these areas major accomplishments were realized in fiscal year 1969.

System Requirements, Plans and Information. One of the major efforts of the year was to employ systematic analysis in considering the major transportation problems of the Nation. The systems approach required development of a set of largely computerized analytical techniques and tools and establishment of a capability to provide analytical answers to economic and systems problems rapidly. Support for management and economic decisions on the SST and Airports/Airways legislation are two key areas in which this analytical capability was applied.

A dynamic planning process is being developed that can describe and evaluate long-range alternatives for the future of the Nation's transportation system and subparts of the system. In addition, a major proposal was submitted to the Congress to establish a Transportation Information Program that will provide a coherent and effective means to meet the transportation information needs of industry and government at all levels.

Legislation and Economic Regulation. Important progress was made this year in development of legislation and in the exercise of leadership in the close and continuing review and appraisal of regulatory activities. Departmental positions were prepared on over 600 legislative proposals, many of which directly involved major activities of the operating administrations; others involved major policy questions affecting the Department; and still others involved economic regulatory matters with strong policy consequences.

In developing policy concerning economic regulation, the Department recognized the fact that in a highly developed Nation experiencing vast and

accelerated technological change, flexibility is necessary to respond to such change. To this end, the Department developed such a new approach in about 40 cases, most of which were before the three transportation regulatory bodies.

International Transportation. The Department's leadership continued to be asserted in the host of international transportation problems and programs that arise both in international forums and in the day-to-day business of government. The Department's leadership was prominent in preparing United States' positions and in its participation at the 16th Assembly of the International Civil Aviation Organization, in the continuing activities of the International Civil Aviation Organization, and in bilateral aviation negotiations with Japan and shipping consultations with Brazil and Argentina.

This year major Department contributions to national positions were developed in connection with American participation in international air route cases, international shipping conventions, and agreements for international motor vehicle safety standards.

International Cooperation. Last fiscal year the groundwork was laid for cooperative efforts with foreign nations in transportation research and development. This fiscal year, collaboration arrangements were made with France, Germany, the Soviet Union, Czechoslovakia, Rumania, and Yugoslavia. Potential arrangements were explored with Great Britain, Canada, and Japan. By planning together with other advanced countries having similar problems, the United States can use its research facilities and resources more efficiently and find solutions to some of its transportation problems more quickly. Joint planning activities can help avoid hundreds of thousands of dollars worth of duplicative activity.

Progress was also made this fiscal year toward establishment of a Transportation Research Information Service which will make readily available information concerning national research efforts, permitting more rational international collaboration in transportation research and development. The British, Germans, and Canadians are participating in the pilot effort.

The Department continued to develop policies, plans, and programs to provide transportation to other countries and to serve as the principal advisor to the Agency for International Development in the transport sector.

Facilitation Program. The Facilitation Program made significant progress this year in minimizing problems that impede the administrative efficiency and economy of the transportation system. The clear promise of savings of millions of dollars in the cost of freight and passenger movements was realized in some areas. For example, millions of dollars of savings accrued to U.S. exporters as a result of the decision by the Department of Commerce to eliminate the filing of export declarations on shipments whose value is less than $100. The Department made efforts, moreover, to eliminate the export declaration on all shipments, an action calculated to save exporters some $100 million annually. Finally, the effort to convince Public Health authorities that they should eliminate vessel quarantine practices at major U.S. ports cost only a few hundred dollars. The new clearance sys-

tem that has been adopted will save transport interests many millions of dollars annually.

It has been estimated that the cost to carriers, banks, and shippers of documention for U.S. foreign trade transactions amounts to roughly $5 billion a year. The facilitation efforts underway this fiscal year and planned for the near future hold the potential of cutting this cost in half within the next 5 years.

Automobile Insurance Study. The automobile insurance and compensation study specially authorized by Congress is well underway. Using research contracts to supplement the work of its own analysts, the Department is investigating the following issues, among others: compensation received by seriously injured traffic victims, consumer attitudes toward auto insurance, accident claims in Federal and State courts, the high-risk auto insurance market, measures to deal with financially irresponsible motorists, and analysis of underwriting practices and rating classifications. A report will be prepared by the spring of 1970.

OST Public Affairs

Communication and understanding are as relevant to the success of Department programs as are new technologies. The Office of Public Affairs maintains channels of communication to promote understanding—with Congress, the White House, and other governmental units at all levels involved in transportation; with industry, labor, and the public. The channels are two-way, with information received or required flowing to and from appropriate offices in the Department. Through better understanding, many controversial matters have been resolved without becoming key issues.

The office has enlisted Congressional support for approximately 20 bills that the Department has recommended and submitted to the 91st Congress, among which are the Aviation Facilities Expansion Act of 1969, the Public Transportation Assistance Act of 1969, the implementation of the Tokyo Convention, the tire defect notification requirement, the Highway User Act of 1969, and the Waterway User Act of 1969.

During the first 6 months of the 91st Congress, 1st Session, the Department appeared at more than 40 Congressional hearings. For each, the Office of Public Affairs was responsible to enlist the witness, arrange for his briefing, and assist him to prepare his testimony.

The Assistant Secretary's office transmitted to appropriate Department officials statements of the views and interests of the members of Congress with respect to Departmental functions and activities. Congressional requests for information or assistance entail an average of 50 telephone calls a day, about three-fourths of which require research and follow-through.

There has been greatly increased emphasis within the Office of Public Affairs toward broadened relationships between the Department and the Governors, State legislators, mayors, and regional and local transportation officials. Seminars were held with newly elected Governors and their appointed officials to acquaint them with Department programs and to

learn their ideas and plans for improving transportation in their areas. This office also arranged meetings in Washington for Department administrators to brief out-of-town officials.

The Assistant Secretary's staff has kept current on specific projects, grants, and legislative proposals as they affect individuals, States, and cities and has kept the Governors and mayors informed. It has worked closely with the National Governors' Conference and has handled a heavy volume of inquiries on the Administration's proposal on airport/airways development. It maintains communication with the White House Office of Intergovernmental Relations and the Council of State Governments, and is a participant on the National Advisory Council on Extension and Continuing Education. The Staff also participates in meetings with other Federal agencies on mutual problems such as the interrelation of transportation planning with the environment.

The Office of Public Affairs encourages participation of industry and labor in defining, understanding, and meeting the transportation needs of the Nation. One objective is to assure optimum utilization of resources and capabilities available in industry and labor to solve transportation problems without costly duplication.

In its public information programs, the Department sponsored numerous special projects, e.g.:

- Arrangements for acceptance ceremonies of the first Turbo trains at the Coast Guard Academy, New London, Connecticut; for ceremonies marking their initial service run out of Boston to New York City; and for initiation of Metroliner service between Washington, D.C., and New York City,
- An advanced technology auto show called "Cars of America—Tomorrow," sponsored jointly by the Department and the Smithsonian Institution. The 2-day event in September 1968 attracted some 30,000 people to exhibits on the Mall in Washington, D.C. The show was designed to demonstrate the potential of automotive technological advances which may one day significantly improve the quality of the environment. In addition to preparation of news releases and radio public service announcements, assistance was provided to many exhibitors to insure timely shipment and installation of their displays.
- Ceremonies to commemorate the Tenth Anniversary of the opening of the St. Lawrence Seaway.
- Design and production of a 20-foot exhibit featuring four rear-screen, audio-visual (slide) presentations telling of the Department's purpose and programs. Designed for use as a recruitment vehicle at the Careers Conference, it has been adapted for display at other conferences and conventions featuring transportation.
- Preparation and publication of a 24-page general-purpose brochure explaining what the Department of Transportation is and what it does. The publication is often used in replying to inquiries.

- A major role in publicity efforts for the biennial International Air Show held in Paris, France, May 29–June 8, 1969, particularly assistance in publicizing the United States exhibit.
- Arrangements and news coverage for a tour by the Secretary of urban mass transit facilities in several United States and Canadian cities in connection with National Transportation Week, 1968.

The Office of Public Affairs also answers tens of thousands of phone and mail inquiries each year; prepares radio and television announcements, speeches, and articles for periodicals; provides filmclips, motion pictures and photographs for use by schools, industry, other government agencies and the news media; arranges news conferences for the Secretary and other officials both in Washington and on trips; and prepares the large volume of news releases which Department activities warrant.

OST Environment and Urban Systems

At the outset of his Administration President Nixon established an Office of Urban Affairs in the White House with an Assistant to the President for Urban Affairs at its head. He also established a Council on Urban Affairs and an Environmental Quality Council with the Secretary of Transportation as a member of both. Secretary Volpe, similarly determined to apply the resources of the Department of Transportation to the amelioration of urban and environmental problems, established the counterpart Office of Assistant Secretary for Environment and Urban Systems.

According to Mayor J. D. Braman, the first incumbent of the Office:

> "The mission of the Assistant Secretary for Urban Systems and Environment will be to coordinate the policies, programs, and resources of the Department of Transportation with public and private efforts to solve urban and environmental problems; to develop and test new procedures, techniques, and methods by which transportation development can be made more relevant to urban and environmental needs and goals; and generally to make the offices and agencies within the Department more responsive to the needs of cities and more sensitive to the protection and enhancement of the environment."

This Office faces outward in the sense that it responds to the public organized in municipalities, citizen groups, and State governments as well as to other elements of the Federal Government and the Office of the President. The Office can also provide effective cross-modal leadership to coordinate Departmental resources to meet specific local needs. The Office faces inward in the sense that within the Department it must help develop planning techniques and criteria to apply to Federal transportation programs to insure that they are consistent with national urban and environmental policies and local community goals, and that they help implement those policies and goals.

This Office has a public interest orientation—one that is concerned with establishing a balance between social, human, and environmental values on

the one hand and purely monetary, efficiency, and engineering values on the other; one that seeks to assure freedom of urban areas to develop balanced transportation systems best suited to their needs and not distorted toward one or another mode by the easy availability of Federal funds; one that must act, in the words of Secretary Volpe, "as the 'conscience' of the Department." Such an Office is difficult to establish and develop in a Department in which each of the major operating segments has a statutory license; large resources; long-established policies, procedures, and relationships; and a powerful, organized constituency to advance the interests of its particular transportation mode. In developing and coordinating the formal statement of its functions and in undertaking its responsibilities as assigned by the Secretary, the new Office quickly encountered the sensitivity of the established operating administrations to any actions or even the possibility of actions that might intrude in their traditional line responsibilities. The fact that understanding and teamwork were needed to enable the new office to meet the expectations of the Secretary and at the same time to alleviate the fears of the administration that the new office might seek to usurp operating program responsibilities became immediately apparent. The development of such understanding and cooperative endeavor is one of the principal objectives of the Assistant Secretary for Environment and Urban Systems.

The primary mission of the new office is to provide a bridge between purely transportation objectives (such as rapid, safe, and efficient movement of goods and people) and more fundamental social, economic, and environmental goals of the nation and of the individual communities. The Office of Assistant Secretary for Environment and Urban Systems is a new resource for the Secretary to help him assure that transportation systems outside urban complexes add to and are compatible with the nation's great natural beauty and that transportation systems within urban areas help to resolve land use problems; are sensitive to individual, neighborhood, and community needs; are protective of historic sites; and are instruments for restoring or strengthening the economic and social health of the Nation's cities and the beauty and enjoyment of the urban environment.

The impact of this new Office is being felt in many ways, some of which are the following:

- The Secretary withdrew Federal funding from the Riverfront Expressway in New Orleans, effectively causing its cancellation. The expressway was opposed by local citizen groups, by the Advisory Council for Historic Preservation, and other conservation and heritage organizations on the ground that it would unfavorably and irreparably affect the appearance, atmosphere, and environment of the Vieux Carre, an historic French quarter of the city. The Secretary's action brought hundreds of letters and telegrams from grateful citizens and organizations throughout the country who applauded it as an act of courage, foresight, and sensitivity to human and historic values.
- The Secretary decided that Federal funds will not be available to expand the Miami Jetport beyond its use as a training facility, on the

ground that its expansion into an international airport and the commercial, transit, and other developments and noise related to such expansion would have an adverse and perhaps tragic effect on the rare and unique wildlife of the Everglades National Park. This decision too has met with wide acclaim among private citizens, conservation societies, members of Congress, and others.

- TEU provides staff support, resource coordination, presentations, position papers, and innovative suggestions for the Secretary in his capacity as a member of the President's Council for Urban Affairs and the Environmental Quality Council. The Secretary is Chairman of the Subcommittee on Urban Transportation, Chairman of the Subcommittee on Automotive Pollution, Chairman of the Subcommittee on Handling, Transportation, and Disposition of Toxic Materials, and a member of other subcommittees such as Model Cities and the Land Use and New Towns Subcommittee. The Assistant Secretary also chairs certain steering groups and represents the Secretary on the Subcommittee on Minority Business Enterprise.
- TEU represents the Secretary on the Federal Task Force on Alaskan Development, on the Joint Interior DOT Task Force on the Miami Jetport, on the Migratory Bird Conservation Commission, on the Interagency Committee on Disposal of Chemical Munitions, on the Cabinet Committee on Voluntary Action, and on the Advisory Council on Historic Preservation.
- TEU has been designated to provide staff support for the Department to the Office of Intergovernmental Relations under the direction of the Vice President.
- TEU is responsible for overseeing coordination of DOT's urban and environmental programs with those of other agencies, such as those on Model Cities and relocation with the Department of Housing and Urban Development, those on pollution with the Department of Health, Education, and Welfare, and programs on preservation of natural resources and historic sites with the Department of the Interior.
- TEU is reviewing DOT efforts, and is preparing recommendations to the Secretary for further action, to meet the transportation needs of the handicapped.
- TEU is providing Departmental leadership and direction in a study for the Bureau of the Budget on the effectiveness with which Section 134 of the Federal Aid Highway Act of 1962 has been applied. This Section makes federal aid contingent upon continuing comprehensive transportation planning by cities and states. The relationship of this transportation planning with other planning for comprehensive establishment and achievement of community goals will also be examined and evaluated.
- The Assistant Secretary has provided Congressional testimony on environmental quality and other matters and has been a powerful influence in the devolpment of legislation for funding a long-range

comprehensive urban public transportation program and in organizing support for passage of an effective law.

OST Research and Technology

Since several of the Department's administrations are concerned with highly technical programs and operations, the Secretary has assigned one of his Assistant Secretaries to monitor research and technology in the Department. That Assistant Secretary provides the Secretary with advice on all matters of research, and his office plans, monitors, and coordinates the programs of research and development throughout the Department, in accordance with the obligations of the Secretary under the DOT Act. In addition certain technical programs of special concern to the Secretary are assigned to this office. Illustrations of such programs are the Federal Transportation Noise Abatement Program for which the Office provides both leadership and a base of operations, the Hazardous Materials and Telecommunications programs, and the administration of the Natural Gas Pipeline Safety Act of 1968.

Major programs and achievements of this office during the past year included:

- Support of the Secretary's Air Traffic Control Advisory Committee in its one year study of the research and development requirements for future airports/airways systems. Its study was completed and evaluation of the report begun.
- Conduct of the Department's Noise Abatement Program under proprovisions of P.L. 90–411 and other statutes and directives. A notice of proposed rulemaking relating to subsonic aircraft noise was developed and issued. The office conducted numerous discussions with its counterparts in foreign governments in preparing the regulation. With respect to aviation noise, the office also took the lead in developing an Interagency Aircraft Noise Abatement Program and a coordination system to operate it.
- In collaboration with the National Aeronautics and Space Administration the office initiated a study to consider what civil aviation research and development should be pursued in the Federal government, and the conditions under which it should be pursued.
- With respect to regulating the shipment of hazardous materials, the Assistant Secretary has taken the lead in developing changes to the regulations corresponding to new materials being shipped and newly developed containers for them. The regulations concerning shipment of radioactive materials were completely revised.
- In the regulation of natural gas pipelines, the office issued interim Federal Safety Standards for the construction and maintenance of pipeline facilities and the transportation of natural gas, since the problem was of great urgency. It is planned that these standards will be perfected and promulgated in final form after appropriate studies and hearings have been completed. In addition a Technical Pipeline

Safety Standards Committee had been established in compliance with Natural Gas Pipeline Safety Act of 1968.

- The office provided inputs to three major studies on national telecommunications management policy (Presidential task force, Bureau of the Budget, and General Accounting Office), is responsible for having NASA include UHF equipment aboard ATS–E (Applications Technology Satellite) to provide satellite communications experiments for aeronautical and marine use; and provided leadership in the Intergovernmental Agency on International Aviation and organs of the International Telecommunications Union for U.S. positions for aeronautical and maritime satellite communications.

OST Legal Affairs

Operations and Legal Counsel. During fiscal year 1969 this office provided continuing legal services to the Office of the Secretary as well as to the operating administrations. It prepared opinions on such subjects as whether the Boeing SST contract could be terminated for default; it participated in the development of an alternative plan for future financing of the SST project; and participated in the re-examination of the legality and the priority of the Urban Mass Transportation Administration grant to the Chicago South Mass Transit District. A considerable amount of time was devoted to a study of OST procurement; furnishing legal services in connection with high-speed ground transportation; and providing legal advice for the Department's response to PATCO "Operation Air Safety" and "Sick Call" actions. The office helped prepare the Secretary's testimony on the Federal Highway Administration construction and equal employment opportunity program before the Senate Subcommittee on Administrative Practice and Procedure, and the Secretary's written response to questions submitted by the Chairman of the Subcommittee.

The Office of Operations and Legal Counsel also participated in various task forces established to prepare the Federal Highway Administration two-hearing procedure, to meet air congestion problems, and to implement Section 4(f) of the Department of Transportation Act. In addition, the office participated in drafting aircraft noise regulations and legislation, the conflict-of-interest guidelines governing employee organizations, and a proposed Department of Transportation equal employment opportunity contract compliance order.

In the Department's international concerns, the office was engaged in lengthy negotiations to develop the United States position on the revision of the Warsaw Convention; participated in the drafting and presentation of the United States proposal for an international convention on aircraft hijacking; and participated both in the preparation of the United States position and in the United States delegation to the United Nations Conference on Road Traffic. The Office also participated in discussions with the Soviet Union in regard to the law of the sea and represented the Secretary in negotiating a revised United States-Canadian memorandum of arrangements on Great Lakes Pilotage.

Office of Regulations. Section 14 of the Department of Transportation Act (80 Stat. 950) requires the Secretary of Transportation to prepare a proposed codification of transportation laws pursuant to agreement with the pertinent committees of Congress. This project requires the preparation of a bill to codify Title 49 "Transportation" of the United States Code, and a bill to codify Title 46 "Shipping." The target date for the completion of the bill to codify Title 49 was met before the end of the report period, and the bill awaits only Budget Bureau clearance before being forwarded to Congress. The bill to codify Title 46 has a target date of April 30, 1970.

Under the Uniform Time Act of 1966, the Secretary of Transportation must define the boundaries of the United States standard time zones established by that Act, and enforce compliance with the time set in those zones. The Secretary of Transportation defines the boundaries through rule-making proceedings under the Administrative Procedure Act. The Department published a total of eight notices of proposed rule-making and issued nine final rules.

Office of Litigation. The Office of Litigation participated in 30 proceedings before various regulatory agencies as follows: Civil Aeronautics Board—14; Federal Communications Commission—one; Federal Maritime Commission—one; Interstate Commerce Commission—14.

Among the more significant proceedings were four motor carrier rate increase cases before the Interstate Commerce Commission, in each of which the Department argued that the carrier had not met its burden of proof in showing the need for a proposed rate increase. The carriers had not indicated the extent to which alleged increased costs were compensated for by higher productivity on the part of both men and machines. The Interstate Commerce Commission has handed down decisions in three cases denying the rate increases; to a gratifying extent, the standards used by the Commission in rejecting the proposed rates were much the same as those suggested by the Department.

The Rent-A-Train proceeding involved a new and highly imaginative tariff proposed by the Illinois Central Railroad under which grain exporters could "rent" a train for a year at a time. The Department took the position that the tariff should be permitted to go into effect on the ground that it was innovative and beneficial for the railroad, shippers, and grain growing areas in Illinois to be served by the Rent-A-Train. Subsequently, this tariff was in the main approved by both the Hearing Examiner and a division of the Commission. This case is now before the full Commission for a decision on the ground that it is a matter of "general transportation interest." The Inter-American Freight Convention Proceedings before the Federal Maritime Commission involved proposed pooling agreements that, to a large extent, would have "bilateralized" ocean shipping between the United States and Brazil. The Department argued that the pool agreements were anti-competitive, unjustly discriminatory and detrimental to the commerce of the United States, all contrary to Section 15 of the Shipping Act of 1916. In his decision the Hearing Examiner found that the pool agreements were in violation of Section 15 for much the same reasons as set forth in the Department's filings.

In the Civil Aeronautics Board's Washington-Baltimore helicopter service investigation, the Department took the position that the authorization of unsubsidized scheduled helicopter service to the downtown city centers of Washington and Baltimore and three area airports would be in the public interest since such service should help alleviate the congestion at Washington National Airport. In November 1968 the Board authorized Washington Airways, Inc. to render the proposed service. (The service is not now being performed due to zoning restrictions in the downtown Washington area.) In another CAB proceeding, the Motor Carrier Air Freight Forwarder Investigation, the Department filed a statement of position urging the Board to affirm explicitly its policy of permitting long-haul motor carriers to enter the air freight forwarding business. An earlier Board decision to that effect had been revised and remanded by the Second Circuit Court of Appeals on the ground that the Board had not provided an adequate basis for its determination. On remand, the Board again concluded, as the Department and others had urged, that there was no basis for automatically excluding long-haul motor carriers from the air freight forwarding market. The Board went on to adopt, for the time being, a policy of "monitored entry." The General Counsel also worked with the Justice Department in approximately 20 court cases brought against the Department, or in which the Department was otherwise interested.

Office of Legislation. This Office had before the Congress, or in the process of development, 49 pieces of Department-sponsored legislation, including legislation concerning aircraft noise abatement (Public Law 90–411) and natural gas pipeline safety (Public Law 90–481). On both of these bills, this Office performed substantial drafting services, coordinated Department comments and clearances on both, and prepared Department testimony. A substantial amount of work was involved in drafting, coordinating, and preparing the hearing on the airport/airways legislation which began in June 1969. In the area of non-Department of Transportation-sponsored legislation, the General Counsel received over 600 requests for comments of which over 100 have been submitted for administrative concurrence.

OST Administration

The Assistant Secretary for Administration is the principal adviser to the Secretary on matters relating to the organization and administrative management of the Department. His subordinate offices provide services both directly to the Office of the Secretary and also to those of the administrations in the Department that do not have full administrative and management services of their own. Elements such as the Federal Railroad Administration, Urban Mass Transportation Administration, and the National Transportation Safety Board are among those that depend upon the Assistant Secretary for certain services.

Since the Assistant Secretary for Administration was the only Assistant Secretary who was expected to continue in office after the transition to a new Administration, he was appointed by outgoing Secretary Boyd to manage the transfer of the Department between the outgoing and the new officials.

As noted above the transfer occurred with little apparent disruption of the Department's functions.

Office of Management Systems.

DOT Functional Consolidation. Although several of the operating Administrations have their own administrative organizations, in most cases larger than that of OST, the Assistant Secretary for Administration has staffs to plan and coordinate the work of the counterpart organizations, assure Department-wide uniformity, and supply services to the Office of the Secretary.

One of the gains expected from the establishment of the Department was savings resulting from consolidation of functions performed in two or more of the elements in the Department. Thus, one of the most significant efforts in administration has been the conduct of several such consolidations as the result of management studies in depth. Some consolidations were based on the employment of the working capital fund.

Some of the management studies undertaken last year to determine which service functions could be consolidated and offered to all units in the new headquarters building were completed and others were well advanced. A decision to consolidate library services followed the recommendation of one study. In contrast, a decision was made not to consolidate the public document and docket inspection facility. The studies on travel services, visual services and warehouse operations were completed and under consideration. With respect to messenger services and office services such as duplicating, additional studies and surveys uncovered new problems, so that consolidation of the functions was still undetermined.

Similarly, studies had been undertaken regarding possible consolidations of civil rights operations, Congressional relations, facilities planning, internal audit, and other functions; the studies were not completed at year's end.

Manpower savings resulting from the consolidations already effected potentially total about 80 positions, but just as important as the manpower savings will be the increased effectiveness of the operations and services resulting from the consolidations.

Management Studies. The major achievement of the Office of Management Systems was to establish the Department's systems and routines for doing business. In addition to the studies resulting in the functional consolidation discussed above, efforts in other aspects of management improvement led to the following results: financial systems officers developed six Department Orders on such matters as administrative control of funds and a statement of DOT accounting principles, and participated in a large scale study of grants. Management analysis officers completed the management studies supporting organizational changes listed earlier, and in addition worked on a Research and Development fact book, a study of Washington area flight operations, and another on the St. Lawrence Seaway. This office was involved in all administrative reorganizations, and establishment of new functions such as Office of Pipeline Safety. It was utilized by the Secretary to conduct the organizational studies of the National Highway Safety Board,

and of the new office of the Assistant Secretary for Environment and Urban Affairs. An officer of Management Systems organized the OST participation on the Regional Councils and the Field Coordination Groups; one of its officers did the planning for the Secretary's efforts in decentralization and new delegations of authority. Within the same office a group was concerned with economical procurement and appropriate utilization of the Department's resources of automatic data processing equipment, with outstanding success in preventing procurement of equipment either unsuited to the Department's needs or completely unnecessary. Another Division of the Office was engaged in the effort to devise and install a modern management information system to provide the Secretary with instantly available data on all the manifold operations of his Department.

Office of Administrative Operations. The Office of Administrative Operations provides such services as personnel and training programs for nonexecutive personnel, accounting operations, office and procurement services, publishing and graphics services, data processing and library services for the Office of the Secretary and the other Department units. Particularly because of the consolidation of the Department headquarters in the Nassif Building, the office had a hectic year, since it had to be responsible for continuing the organizing and servicing functions that it would normally have in any new Department, and at the same time had to conduct the planning and oversee the construction of the needed facilities for the whole Department in the Nassif Building. It was already responsible for such large operations as the services provided under the working capital fund and the consolidated Department library.

Office of Personnel and Training. Development of personnel policy and programs for the entire Department, and the operation of certain personnel programs are responsibilities of the Office of Personnel and Training. Development of programs for manpower utilization, wage and salary administration, employee services and employer-management cooperation are also among the functions performed for the Office of the Secretary and the smaller administrations. The Office has conducted numerous programs designed to obtain the best qualified employees for the Department, and to assure their further training after employment, and has developed plans for a transportation career training program. This office had a considerable responsibility for the development of the briefing book for the Presidential transition described previously, and handled the details of the separation from government of political officials of the former Administration and the entrance on duty of the new officials. It had a considerable responsibility for operations and advice during the PATCO difficulties with the Federal Aviation Administration concerning employment conditions for Air Traffic Controllers.

Office of Logistics and Procurement Management. This Office also is responsible to perform its functions both for the Office of the Secretary and for other elements of the Department. It has prepared Department orders with respect to various aspects of procurement, contracting, inspections of contract compliance, grants and contracts with educational institutions;

within the Department it monitors compliance with procurement regulations. It is also responsible to monitor and evaluate the procurement plans of other elements of the Department to insure uniformity of regulations and their application throughout the Department.

Office of Audit. Like many other offices in the Assistant Secretary's area, the Office of Audit has only a small staff; in this case, six professional auditors. With that staff the Chief of Audit for the Department has undertaken selective audits for components of the Department, has developed the audit regulations and standards for the Department, and in addition has published a users' manual for the Department's consolidated audit system. About 10 comprehensive audit reports were completed on internal operations of selected elements of the Department, and a number of reports on research contracts and grants made by elements of the Department were processed.

Office of Investigations and Security. During the year the Secretary decided to separate this office from the Office of Civil Rights; both offices had been headed by the same individual. The separation emphasized the importance given to equal employment opportunities and nondiscrimination in the Department.

The office supplies policy direction, staff support, and other technical assistance to the Offices of Investigations and Security of those administrations that have them, and furnishes all required service in that area to the Office of the Secretary and the smaller administrations. The workload of this office has been especially heavy because it has been required to make special provisions for the several elements of the Department that have close relationships with the Defense Department, the State Department, and other agencies with security classified functions; communications and cryptographic security has been partially a responsibility of this group. Security for the operations in the new building has occupied much of the time of the Office. It has devised a personnel security system for the Department, has issued the necessary directives to implement it, and has had a role in the handling of some of the administrations' security problems—*e.g.*, the airplane highjacking difficulty which is in the first instance a problem of the Federal Aviation Administration.

Office of Emergency Transportation. A function whose location within the Department was the occasion for careful study during the year just passed is the definition and implementation of the Secretary's role in emergency transportation. While the DOT Act specified that the Secretary would exercise leadership under the direction of the President in transportation matters, including those affecting the national defense and those involving national or regional emergencies, few resources of men and money were available to implement that instruction. A very small office of emergency transportation was transferred from the Department of Commerce at the inauguration of the Department; it was placed originally under the Assistant Secretary for International Affairs and Special Programs. The President's Office of Emergency Preparedness provided funding for the work of the small group.

The Secretary decided in August 1968 to divide the functions of the office so that the supervision of planning for the Department's internal readiness would be assigned to the Assistant Secretary for Administration and planning relating to the transportation industry's capability to respond to emergency needs would be the responsibility of the Assistant Secretary for Policy Development. The small Office of Emergency Transportation was placed under the Supervision of the Assistant Secretary for Administration. Planning has proceeded satisfactorily for both the Department's emergency activity and the management of nation's transportation industry in emergencies. For the latter activity a corps of Executive Reservists has been developed and trained; annual exercises are conducted to allow the reservists to maintain and enhance their skills.

The Department is conducting a thorough study of its emergency and wartime functions and its state of readiness for them, further to enhance its capability to deal with emergencies of all types.

Chapter III

UNITED STATES COAST GUARD

The Coast Guard is responsible for enforcing or assisting in the enforcement of Federal laws governing navigation, shipping, and other maritime operations, and for protection of life and property on the high seas and waters subject to the jurisdiction of the United States. The Coast Guard also coordinates and provides maritime search and rescue facilities for marine and air commerce and the Armed Forces. Other functions include promoting the safety of merchant vessels, conducting oceanographic research, furnishing icebreaking services, and developing, installing, maintaining, and operating aids to maritime navigation. The Coast Guard maintains itself in readiness to function as a specialized service of the Navy in time of war or national emergency.

Management Improvement

The Coast Guard continued its energetic and aggressive campaign to explore all potential opportunities for better utilization of current resources. All areas that were considered susceptible to management improvement were examined and the "cost effective" principle was applied when appropriate. With this positive attitude, the Coast Guard has reported actions with an estimated dollar-value benefit of $21 million for fiscal year 1969.

Among the projects was a cost avoidance of $4.4 million resulting from a re-evaluation of the Coast Guard Aviation Plan that eliminated the requirement for medium-range search aircraft. A study indicated that a combination of long-range search and medium-range recovery aircraft would provide Search and Rescue capability equal to or better than the current one. The aircraft replacement program of fiscal year 1969 provided 6 HH–3F helicopters capable of replacing eight medium-range search aircraft.

Improvement in supply management contributed $5.5 million in cost avoidance savings reported from procurement improvements, exercising an option under the multi-year procurement contract, reducing the number of items in inventory, and redistribution of stocks to avoid unnecessary procurement. A sizable portion of the supply savings came about through the screening of Federal surplus material listings, to acquire tools and related equipment which were used to fill immediate needs or to replenish inventories.

A substantial manpower gain was realized in fiscal year 1969 by reallocating 225 military and civilian positions throughout the Service to higher priority activities where additional personnel were urgently needed

to cope with an increasing workload resulting from the Nation's expanding population and economy. This was achieved through redistribution of workload and more effective manpower utilization.

Important to the management improvement effort were some 1,160 military and civilian suggestions received during the fiscal year which, together with benefits realized from civilian superior performance, brought supplemental savings estimated at $389,000.

International Affairs

The Commandant of the Coast Guard served as Chairman of the U.S. Delegation to the 4th Extraordinary Session of the Assembly of IMCO (Inter-governmental Maritime Consultative Organization) in November 1968 which considered amendments to the International Convention for Safety of Life at Sea. The extraordinary session of the assembly was called to consider improvements in safety of life at sea in relation to disasters of the *Torrey Canyon* type. The conference adopted 27 resolutions concerning safety of life at sea.

Three Coast Guard survey teams visited Southeast Asia during early 1969 to investigate the feasibility of Asian Development Bank loans to various undeveloped countries for the purpose of improving Search and Rescue, Aids to Navigation, and navigation through the Straits of Malacca.

In February 1969, RADM C. P. Murphy, Chief of the Office of Merchant Marine Safety, was re-elected Chairman of the Maritime Safety Committee of IMCO, the highest international body which deals exclusively with maritime safety matters.

In June 1969, the Coast Guard led the U.S. delegation to the International Conference on the Measurement of Ships. This conference resulted in the first international convention on ship measurement, culminating 10 years of preparatory work.

Operations in Vietnam

During fiscal year 1969 Coast Guard operations in Vietnam underwent several significant changes. Beginning in February, the Coast Guard commenced a training program for Vietnamese Navy personnel to operate the 82-foot patrol boats which were to be turned over to them. On May 16, the first two boats were turned over, reducing the number of manned Coast Guard boats from 26 to 24. In addition, the first week in June when the Vietnamese Navy assumed full control of all Naval operations in the Gulf of Thailand marked the end of one of the three divisions of Squadron One, Division 11. Division 11 was the second group of patrol boats to be deployed to Vietnam in July 1965; it was based on the island of Phu Quoc near the Cambodian border. The men and boats are now operating as a part of Division 13 at Vung Tau. During May, the five high-endurance cutters comprising Squadron Three assumed a greater proportion of the offshore patrol responsibility when the Navy destroyer escorts were with-

drawn from the area. The high-endurance cutters are better suited to this type of operation.

"Market Time" surveillance activities continued at a very active pace throughout the year. The tedious task of boarding and searching thousands of junks progressed unabated—Coast Guard units boarded and searched 53,000 junks and sampans and visually inspected more than 85,000 more. Patrol boats and high-endurance cutters fired nearly 4,200 naval gunfire missions in support of tactical operations, killing or wounding an estimated 700 Viet Cong. and destroying or damaging more than 5,300 structures and 1,600 junks. These missions, in many cases, marked the difference between victory and defeat for both U.S. and Vietnamese ground forces. The significant increase in the number of these missions during the year—nearly 10 times the total of any earlier year—stemmed from an increased emphasis on this aspect of "Market Time" operations, and increased appreciation of the units' capability.

During the year, the military assistance program continued to place a heavy workload on other Coast Guard units in Vietnam. The four explosive-loading teams supervised the handling of more than 1.8-million tons of ammunition on more than 500 ships, without a single major mishap. The merchant marine advisory detail continued to provide the expertise necessary to handle the many merchant seaman problems arising in the combat zone. In the area of aids to navigation, a Coast Guard buoy tender made several short-term deployments to Southeast Asia, and at the year's end a new LORAN-C station was nearly completed at Tan My, the second in Vietnam, and the fifth in Southeast Asia.

Search and Rescue

The Search and Rescue School, staffed by U.S. Coast Guard and U.S. Air Force instructors, provides a standard 4-week course of instruction in search and rescue techniques to selected students of the U.S. Armed Forces, foreign military services, Federal Aviation Administration, and other appropriate foreign and U.S. Government civilian organizations.

Special students are included from time-to-time; e.g. members of the New York State Police. This year the graduates of this school included:

	Officers	*Enlisted Men*	*Total*
U.S. Coast Guard	68	71	139
U.S. Air Force	35	17	52
Foreign nationals	—	—	14
U.S. civilians	—	—	2

In addition, several special courses were held: a 2-week course for 20 U.S. Coast Guard Cadets and a 1-week special orientation course for five U.S. Air Force and 15 U.S. Coast Guard senior staff officers.

Additional courses included 28 members of the Civil Air Patrol and 18 members of the U.S. Coast Guard Auxiliary.

Search and Rescue Operations

The U.S. Coast Guard was called upon to assist numerous persons and protect their property. Typical examples of Coast Guard assistance are summarized below:

TABLE 5. Persons assisted and property saved—fiscal year 1969

	Response by			Total
	Aviation Units	Vessels	Shore Units	
Lives saved	301	343	1,397	2,050
Otherwise assisted	10,299	16,539	86,922	113,760
Total assisted	10,609	16,882	88,319	115,810
Value of property including cargo:				
Vessels				$1,445,564,000
Aircraft				859,183,000
Miscellaneous				123,353,000
Total				$2,428,100,000

TABLE 6. Search and rescue assistance requested and response by source—fiscal year 1969

Assistance requested by	Responses by resource			Total responses
	Aviation units	Vessels	Shore units	
Private vessels	2,774	2,515	25,754	31,043
Commercial fishing vessels	488	1,108	2,986	4,582
Other commercial vessels	295	511	2,193	2,999
Government & public vessels	58	88	235	381
Foreign vessels	104	119	185	408
Total vessels	3,719	4,341	31,353	39,413
Private aircraft	275	58	88	421
Commercial aircraft	86	23	16	125
Military aircraft	396	44	43	483
Other government & public aircraft	4	2	5	11
Foreign aircraft	17	7	6	30
Total aircraft	778	134	158	1,070
Personnel only	1,429	513	3,051	4,993
Miscellaneous	667	329	1,757	2,753
Total number of responses	6,593	5,317	36,319	48,229

TABLE 7. Search and rescue assistance rendered by resource—fiscal year 1969

Major type of assistance rendered	Assistance rendered by resource			Total responses
	Aviation units	Vessels	Shore units	
Located	1,421	317	1,543	3,281
Refloated or dewatered	47	304	3,903	4,254
Towed	272	2,263	16,965	19,500
Escorted	236	200	1,319	1,755
Fueled or repaired	16	192	385	593
Medical	720	292	1,710	2,722
Assistance to persons in position of peril	1,066	606	3,388	5,060
Searches & attempts to assist	2,428	878	6,026	9,332
Other assistance	387	265	1,080	1,732
Total	6,593	5,317	36,319	48,229

Case Studies

Ketch Resolute. On July 16, 1968, the Los Angeles Police Department requested Coast Guard assistance in locating and apprehending the 40-foot Ketch *Resolute*, allegedly stolen from its San Pedro moorings. A helicopter from Coast Guard Air Station Los Angeles located the Ketch and vectored the CGC *Cape Hatteras* to the scene. The *Resolute* repeatedly disregarded orders to proceed to Avalon and headed for sea. Two FBI agents were delivered to the CGC *Cape Hatteras*. The *Resolute* again disregarded repeated orders to heave to for boarding and the *Cape Hatteras* then fired 15 to 20 rounds across the *Resolute's* bow to no avail. The *Cape Hatteras* then went alongside with grapnels and placed FBI, police, and a Coast Guard boarding party on board. Five persons on the *Resolute* were subdued with moderate force and no injuries. The *Resolute* was then taken in tow and moored at Treasure Island.

Oil Rig "Little Bob" Afire. On August 21, 1968, the CGC *Point Verde* reported that she had received a call from the Chevron Oil Company, Venice, Louisiana, reporting that an oil rig, approximately 25 miles east of Grant Isle, Louisiana, had a blowout and was on fire. The exact number of persons on board the rig at this time was unknown. Two Coast Guard helicopters and the CGC *Point Sal* were dispatched. Several private vessels and oil company helicopters were already on the scene. A Coast Guard helicopter transported three injured persons to the U.S. Public Health Service Hospital in New Orleans and several oil company helicopters transported persons to other hospitals. The Coast Guard helicopter returned to the scene and along with the *Point Sal*, a Coast Guard 53-foot boat, and another Coast Guard helicopter conducted a search for persons in the water. The number of persons on board was determined to be 33 with 23 definitely accounted for, five confirmed missing, and five reported accounted for, but not confirmed. Two people were known dead with 12 having being hospitalized.

M/V Hohannes Frans (NE) Taking on Water. On September 19, 1968, this 634-foot Dutch tanker with a cargo of oil reported that it was disabled in 10- to 15-foot seas and taking on water 250 miles northeast of Bermuda. The CGC *Dallas,* which was in the immediate area, received the same report from the subject via flashing light and immediately went to her assistance, but the pump provided by the *Dallas* failed to work properly. A Coast Guard aircraft delivered four additional pumps by the evening of September 19; the *Dallas* reported that the flooding had been stabilized. Three civilian tugs were en route with the first due on the morning of the 21st. Weather conditions improved enough on the 21st for the master and crew to remain aboard and continue efforts at dewatering. The tug *Foundation Vigilant* arrived on scene on the morning of the 21st and took the vessel in tow. The tug *Tasman Zee* arrived shortly thereafter and provided three pumps. The three ships proceeded to Bermuda. The CGC *Dallas* proceeded to Ocean Station Echo.

Japanese Airline DC–8 Down. On November 22, 1968, a DC–8 with 107 persons on board disappeared from the radar during final approach to San Francisco International Airport. Visibility was ¾ mile in fog and the ceiling was 300 feet. A Coast Guard helicopter located the aircraft in the water 6,100 yards from the runway with people on the wings boarding life rafts. Within 7 minutes, two additional helicopters and a Coast Guard boat were on the scene. The boat assisted the San Mateo Sheriff's boats in towing the rafts ashore. The pilot of the aircraft reported that all 107 persons were accounted for with no injuries. Although 20,000 pounds of JP4 (aviation fuel) were on board at the time of the incident, a Captain of the Port inspection revealed no ruptures and no danger of oil pollution. The Commander of the Twelfth Coast Guard District received the following message (quoted in part) from the Director, Guard and Rescue Division, Japanese Maritime Safety Agency:

> "The prompt action and excellent operations demonstrated by your Coast Guard Twelfth District in the rescue of distressed passengers and crew from the Japan Air Lines Aircraft SHIGA are gratefully appreciated in Japan. For the first time in the world history all the people aboard the aircraft were rescued in such an aircraft accident."

"Instant Hurricane" In Eighth Coast Guard District. A fierce "Instant Hurricane" passed along the Eighth Coast Guard District coastline during the period of February 14–16, 1969, causing unusual loss of life and damage to small vessels. The suddenness with which this storm developed over Eastern Texas provided only short notice to vessels at sea. Reports were received of 83 m.p.h. winds in the Galveston area and the Weather Bureau reported that area experienced the highest tides since Hurricane Carla in 1961. Seas of 20 – 30 feet were generated by the intense winds. The severe turbulence and rains associated with the front made rescue activity perilous and difficult.

During the period, Eighth Coast Guard District units saved nine lives, assisted 123 persons (some of whom might have lost their lives if unas-

sisted), assisted 27 vessels, and were involved in 18 other searches, ranging from sunken vessels and men overboard to overdue boats. Unfortunately, 15 lives were lost during the course of the storm.

Aids to navigation suffered heavy losses. Eight lights were reported destroyed, eight were extinguished, and five were damaged. Twenty-two buoys were reported off station and 12 were reported missing. The whip antenna at Galveston Loran Station was blown down and one potable water tank at Base Galveston was destroyed.

Along with the extreme workload of the Search and Rescue Surface Vessels and personnel, aircraft from Coast Guard Air Stations in New Orleans, Houston, and Corpus Christi flew a total of 46 sorties for 107.8 hours.

Fifty-Seven People Rescued from Great Lakes Ice Floe. Rescue Coordination Center, Trenton, Ontario, reported on March 3, 1969, that approximately 50 people were stranded on an ice floe in Lake Erie south of Leamington, Ontario. A second report came within an hour from Group Detroit that an estimated 20 additional people were caught on the ice one-half mile south of Fairhaven, Michigan, with the floe drifting into Lake St. Clair.

Response was immediate from both the U.S. and Canada. Helicopters, fixed-wing aircraft, iceskiffs, and the CGC *Tupelo* were dispatched by the Coast Guard. Small boats from the local Michigan Sheriff's Department removed the people from the St. Clair ice floe and Coast Guard forces were diverted to Pelle Point to assist those stranded south of Leamington. A Coast Guard helicopter removed 20 persons from the floe and another Coast Guard helicopter rescued 15 others. Ontario provincial police removed all others.

Coast Guard Air Station, Traverse City aircraft continued searching the ice areas after the rescues with negative sightings. Cooperation between the two countries and the rapid mobility of the helicopters were responsible for the complete success of the operation. There were no reports of missing persons.

Marine Inspection and Allied Safety Measures

The main objective of the Coast Guard's Merchant Marine Safety Program is an effective preventive safety effort to minimize deaths, injuries, and property damage in marine transportation accidents. Since Congress passed the first law providing for "inspectors" of steamboats in 1838, the role of marine safety has been expanded to include the frequent inspection of numerous other classes of vessels, the licensing and certification of their officers and crews, and the investigation of marine casualties and accidents.

Training Programs for Merchant Seamen. The Vietnam sealift and early retirement programs of the maritime unions continue to create a serious manning problem on U.S. merchant vessels. Consequently, the Coast Guard works closely with maritime unions and management to establish, develop, and provide a curriculum for training seamen. Without sacrificing the good record of safety enjoyed by the U.S. merchant marine, the Coast Guard

has established regulations and issued waivers providing for relaxation of experience requirements to qualify for various ratings.

Revision of Merchant Marine Officers' License Examinations. The Coast Guard has selected the Educational Testing Service, Princeton, New Jersey, to conduct a study to improve the requirements and examination procedures for the licensing of merchant marine officers. Plans to revise procedures will be implemented in accordance with the recommendations contained in the service's report.

Disciplinary Matters. Marine investigating sections in major U.S. ports and abroad investigated 36,850 cases involving police checks, casualties, negligence, incompetence, and misconduct. Charges were preferred and hearings held on 1,511 cases by civilian examiners. Security checks were made on 28,085 persons desiring employment on board merchant vessels.

TABLE 8. Marine personnel activities

	F.Y. 1968	F.Y. 1969
Licenses issued	25,390	25,834
Merchant mariner's documents issued	28,670	25,805
Seamen discharged	527,656	529,781
Personnel investigations completed	25,294	36,850

Casualty Investigations. During fiscal year 1969, the Coast Guard investigated 2,595 casualties to personnel on commercial vessels, not resulting from a vessel casualty. Also investigated were 2,684 vessel casualties, some of which also resulted in injury or death to personnel. The following are resumes of six major marine casualties investigated by Marine Boards of Investigation during fiscal year 1969. Sixty-six lives were lost as a result of these casualties.

On November 25, 1968, the M/V *Triple Crown* foundered off the Coast of Southern California with a loss of nine lives while retrieving the anchor and chain of a large offshore drilling rig. At the time of the casualty the *Triple Crown* had eight anchors and 26,000 feet of chain on board, the weight of which caused a low freeboard aft. Three- to five-foot waves washed over the stern and entered a stackhouse door which could not be closed due to the location of one anchor on deck. The engine room flooded, the vessel listed to starboard and sank.

On December 7, 1968, the F/V *Fenwick Island* capsized and sank in a heavy storm while nine miles off Cape Lookout, North Carolina, with the loss of seven lives. Seven crew members survived. While battling the elements with a full cargo of fish, the *Fenwick Island* took a severe roll starboard causing her cargo to shift and a fish hold trimming port cover to loosen. Flooding occurred and in an attempt to correct the starboard list, the starboard seine boat was carried away; the list shifted to port causing a second cargo shift, further flooding of the fish hold, and sinking of the vessel.

The third major marine casualty occurred on December 7, 1968, in the Mississippi River when the USCGC *White Alder* and the Chinese Nationalist SS *Helena* collided, resulting in the sinking of the *White Alder* with the loss of 17 Coast Guardsmen; only three crewmembers survived.

On January 9, 1969, the Tug *Theresa F.* capsized near the Mississippi River 70 miles south of New Orleans, resulting in the loss of three lives while seven were rescued. The *Theresa F.* was approaching the mouth of the Mississippi, towing a barge loaded with phosphate rock. The barge moved erratically from side to side causing the tug to heel over. On the second occasion, the vessel capsized.

The fifth major marine casualty was the collision between the M/V *Union Faith* of Taiwan registry and the Tug *Warren J. Doucet* pushing three tank barges loaded with crude oil.

On April 6, 1969, the *Union Faith* was upbound in the Mississippi River and the tug *Warren J. Doucet* was downbound. At the foot of Canal Street, New Orleans, the vessels collided. The Tank Barge IOC No. 7 exploded and burned upon impact, setting the *Union Faith* on fire. The barge broke loose and sank. The *Union Faith* drifted downstream and flames reached the Greater New Orleans Bridge which had to be closed to traffic. Only 26 of the 51 crew members of the *Union Faith* survived.

On May 12, 1969, the Tank Barge MOS 106 unloading gasoline exploded and burned at the Triangle Refinery Dock, La Grange, Missouri, on the Mississippi River. Five died and four survived as a result of this casualty. The MOS 106 broke loose from her moorings, drifted eight miles downstream, and lodged under the Chicago and Burlington Railroad Bridge where she continued burning. Railroad traffic was halted and the bridge sustained some damage.

Transportation of Hazardous Materials. The volume of hazardous materials transported in containers and in portable tanks continues to increase. Experience gained from special permit shipments is being used to update existing regulations and formulate new regulations. The first phase of developing new regulations for bulk transportation of dangerous cargo was concluded when the new unmanned barge regulations were presented. Development of similar regulations for manned vessels is continuing. These new regulations are unique in that group hazardous classifications are not used. Instead, specific shipping requirements are designed to meet the hazard inherent in transporting each product. This year saw the first U.S. flag dangerous-cargo vessel, the ammonia-carrying *Marine Eagle*, enter active service. A number of multi-cargo chemical tankers destined for United States registry are now under design or construction. A continued increase of effort is essential for the Coast Guard to progress with this changing technology of transportation.

Pollution Study. The Coast Guard's study group formed to investigate the problems of environmental pollution from vessels has evaluated oil spill cleanup methods through a contract study that proposed a research and development plan. The group is making a detailed analysis of pollution in

a selected port in order to reduce the frequency of pollution spills in that area.

Technical Advances in New Construction and Equipment. There has been an increase in number of new and unusual design concepts for U.S. flag vessels. Each of these unique designs brings new problems from a safety standpoint, necessitating concentrated Coast Guard involvement during design stages. Under active review are two types of vessels intended for the transportation of barges and two all-aluminum vessels which require special fire protective features. Advances in technology of design and construction of surface-effect ships have been closely followed by the Coast Guard. The majority of inquiries on these vessels have come from foreign manufacturers.

The use of containers for the movement of marine cargoes continues to rise. The Coast Guard is reviewing industry experience with containers to determine the nature and the extent of safety deficiencies in the marine phase of container transport. Where problem areas are identified, alternative solutions will be developed and evaluated. The study group is also following European development of several plans for container certification that will facilitate the free interchange of containers between countries and between modes of transport. Containers should be certified for such things as: (1) Security for customs purposes; (2) structural strength for safety; (3) reliability of temperature control devices for protection of perishables; and (4) efficiency of repairs. The Coast Guard will be working with industry and the Office of Facilitation, Assistant Secretary for Policy and International Affairs, Office of the Secretary, to provide the necessary U.S. efforts in this work.

A Coast Guard sponsored shipboard fire and safety testing facility was under construction at Mobile, Alabama, during the year and testing began in September 1969.

Admeasurement Statistics. During fiscal year 1969 there were 6,686 measurements of vessels completed. This figure includes admeasurements, re-admeasurements, adjustments, and yacht measurements. Last year there were 6,245 cases completed. At the end of the year there were 521 admeasurement cases pending as compared with 698 cases last year. There were 3,625 pleasure vessels measured by the simplified method during the fiscal year. Comparable figures for a 6-month period in 1968 were 1,545.

New Traffic Regulations. Traffic rules for maritime transportation in waters of the United States are established by area: Inland (coastal), Western Rivers, and Great Lakes. These rules have not changed significantly for over 100 years. After extensive review, a bill has been proposed to update and unify these rules, patterned as closely as is practicable after the International Regulations for Preventing Collisions at Sea.

Submersibles. The Coast Guard's Underwater Safety Project coordinated Coast Guard–Industry–Navy advance planning for search and rescue coverage of the Grumman/Piccard *Ben Franklin* Gulf Stream Drift Mission. The Coast Guard is participating in an effort to establish a plan whereby available submersible vehicles and equipment, owned and operated by in-

dividuals, corporations, or other entities would be used to assist in case of underwater distress. This proposal is called MARSAP (Mutual Assistance Rescue and Salvage Plan) and is being developed with the cooperation of a majority of the nonmilitary submersible owners and operators.

Fishing Vessel Study. A study of alternative safety programs for U.S. commercial fishing vessels was undertaken. The population of fishing vessels was identified and categorized by fishery and certain fisheries were selected for study according to criteria developed. Casualties were analyzed as to cause; alternative safety programs were evaluated; and techniques for predicting expected benefits of these programs were developed. Liaison was established with fishery associations and a contract was let to the Bureau of Commercial Fisheries, Division of Economic Research, Department of Interior, to develop financial data on sample vessels for future evaluation of the economic impact of safety programs on fishing vessel owners.

IMCO Participation. During fiscal year 1969 the Coast Guard's Office of Merchant Marine Safety provided technical input and representation to IMCO. The Coast Guard's technical representatives to the Subcommittees on Subdivision and Stability, and on Containers and Cargoes played a major role in developing a complete revision of the Grain Regulations, Chapter VI, of the 1960 SOLAS (Safety of Life at Sea) Convention. The IMCO Subcommittee on Ship Design and Equipment is developing a code for the construction of ships transporting hazardous chemical products in bulk. In behalf of the United States on June 23, 1969, RADM C. P. Murphy, Chief, Office of Merchant Marine Safety, signed the International Convention on Tonnage Measurement, 1969, subject to acceptance. The Convention, which culminated 10 years of work by members of IMCO, was prepared and opened for signature and accession during a 4-week International Conference which convened in London May 27, 1969, under the auspices of the organi-

TABLE 9. Summary of merchant marine safety activities

Material safety activities	F.Y. 1967	F.Y. 1968	F.Y. 1969
Vessels certificated	9,259	9,353	9,360
Vessels issued original certificates	655	580	764

Inspected Vessels

Type	F.Y. 1967	F.Y. 1968	F.Y. 1969
Cargo and miscellaneous*	2,223	2,192	2,170
Tank ships*	408	401	395
Tank barges	2,782	2,889	2,987
Passenger (over gross tons)*	201	200	160
Small passenger	3,645	3,671	3,648
Total	9,259	9,353	9,360

*Vessels in these categories over 1,000 gross tons, exclusive of Great Lakes and public vessels, at the end of fiscal year 1967 totaled 1,083; at the end of fiscal year 1968, 1,104; at the end of fiscal year 1969, totaled 1,581.

zation. When the Convention comes into force, after accession by 25 signatory states, the combined merchant fleets of which constitute about 65 percent of the world's merchant shipping, vessels will for the first time be assigned universally recognized tonnages determined by identical measurement rules.

Merchant Vessel Documentation. On June 30, 1969, there were 72,391 vessels in the documented U.S. fleet. This figure represents a gain of 3,684 vessels over the number reported as of June 30, 1968. Of the 72,391 vessels, approximately 51,000 are in commercial service, the remainder being documented as yachts.

Law Enforcement

At the end of fiscal year 1969, there were five established law enforcement patrols: Alaska Patrol, Washington-Region Patrol, Florida Straits Patrol, Mid-Atlantic Patrol, and Northwest Atlantic Patrol. In July 1969, the Yellowfin Tuna Patrol was initiated to enforce the Yellowfin Tuna Regulations. The Coast Guard, U.S. Customs, and the Bureau of Commercial Fisheries (Dept. of Interior) are jointly responsible for the enforcement of these regulations.

In January 1969, the United States and the Soviet Union agreed on a 2-year extension of a convention concerning fisheries in the Mid-Atlantic. In May 1969, a similar agreement was made with Poland. Coast Guard patrols were extensive on the abstention areas, fishing zones, and loading zones created by the Soviet agreement. It is expected that this need will continue in 1970. With the addition of the new fisheries agreement with Poland and the start of active enforcement of Yellowfin Tuna Regulations, the Coast Guard is now engaged in active enforcement or surveillance of activities under 14 International treaties and agreements throughout the world. Federal statutes relative to the navigable waters on the U.S., the territorial sea, contiguous zone, and the high seas are also enforced. Over 800,000 geographic square miles were patrolled, 9,000 foreign vessels were sighted, 359 were boarded, and 71 violations were observed.

During fiscal year 1969, the Coast Guard has continued to be active in the enforcement of Federal laws prohibiting the pollution of navigable waters and the coastal waters of the United States. In port areas and potential problem areas, Coast Guard patrol boats conduct periodic surveillance to detect and investigate violations which occur. In addition to enforcing pollution laws, the Coast Guard has been placing emphasis on education of the public, industry, and State and local governments, and on cooperating with these groups in planning for quick and effective responses to pollution incidents. At the President's direction the Coast Guard participated in the development of the National Multi-agency Oil and Hazardous Materials Pollution Contingency Plan, which was completed in September 1968. This plan is an agreement among concerned Departments and agencies of the Federal Government to coordinate and investigate their responses to pollution incidents. It established a National Interagency Committee to continue cooperation among agencies. The Coast Guard member of this committee

represents the Department of Transportation. At its second meeting on April 1, 1969, the committee appointed an *ad hoc* subcommitee to revise the National Plan, a task in which the Coast Guard was closely involved. An improved plan was approved by the National Interagency Committee on June 24, 1969, and submitted for approval by member agencies.

A blowout in an offshore oil well in the Santa Barbara Channel off southern California in January 1969 resulted in extensive pollution of those waters and adjacent beaches by crude oil. Coast Guard Group Santa Barbara provided an on-scene commander, as specified in the National Contingency Plan, and coordinated Federal involvement in the massive cleanup operation by the oil company. The Coast Guard also provided important surveillance, marine traffic control, and information-disseminating services during the incident. A study, underwritten jointly by the Coast Guard and the Federal Water Pollution Control Administration, was started to gather data about the Santa Barbara incident so that the nation can profit from the experience gained there. A number of other studies and research and development projects on pollution control problems were begun in fiscal year 1969.

Port Safety/Security. Fifty-four Captains-of-the-Port enforced port security and dangerous cargo regulations throughout the U.S. Waterborne commerce has continued an average annual increase of 3.5 percent. Aside from the problems of marine traffic congestion in harbors and waterways created by increasing utilization, technological advances in bulk shipment of dangerous cargo present new challenges to port safety forces daily.

The number of foreign vessels of novel design plying United States waterways, continued to increase during fiscal year 1969. These vessels, carrying bulk quantities of liquefied gas under pressure and other chemicals create new and unusual hazards to port areas. "Jumbo" tankers and barges used for transportation of petroleum products present a constant potential for water pollution and marine disaster. The Port Safety Program must maintain an acceptable level of safety in U.S. ports—that degree of safety which will insure full utilization of the port and will allow an orderly growth of maritime commerce.

The following statistics are indicative of Coast Guard efforts for the promotion of port safety in fiscal year 1969.

Table 10. Port safety efforts

Number of waterfront facilities inspected	40,700*
Number of port safety violations detected	4,818
Number of vessels boarded	28,200*
Dangerous cargo inspected (hours)	45,780*
Number permits issued for explosive loading	1,592
Number of tons of explosives loaded	5,506,901
Anchorage patrols (hours)	2,620*
Harbor patrols (hours)	63,800*
Port safety promotion (hours)	14,900*
Number port security cards issued	7,420*

* Estimate-based first three quarters FY 1969.

The number of waterfront facility casualties in U.S. ports and the estimated loss from these casualties decreased during the year. The number of cargo-related casualties on board vessels in U.S. ports increased slightly over fiscal year 1968, as did the estimated loss, as shown in the following:

	FY 1968	*FY 1969*
Number of casualties on waterfront facilities	371	300*
Estimated loss	$27,600,000	$15,553,000
Number of cargo related accidents on board vessels	31	36
Estimated loss	$ 2,071,000	$ 2,958,000

* Estimated from available information.

The value of marine industrial property loss prevented by Coast Guard port safety efforts is computed by considering this corrective action in relation to the probability of a casualty occurring and the average casualty loss. The amalgamated value of property loss prevented in fiscal year 1969 was estimated to be $132,700,000. Since the present cost of the Port Safety Program is estimated to be $14,300,000 annually, the cost benefit ratio is 9.3 to 1. The actual loss to marine industry and the loss prevented are testimony to the need for an effective port safety program.

The Coast Guard is charged with the protection of U.S. ports against sabotage or other subversive acts. When the presence of any vessel in a U.S. port is considered possibly dangerous to the national security, the vessel is subjected to certain security measures. During fiscal year 1969, the number of these special interest vessels substantially increased over the previous year as shown:

	FY 1968	*FY 1969*
Port days	1,104	1,667
Port calls	301	348

Increased trade activity with Eastern European nations accounted for this increase.

The military assistance program to Vietnam continues to place a heavy work load on Coast Guard explosive-loading expertise. In 1968, two additional Explosive Loading Details were assigned to South Vietnam to provide supervisory and technical assistance for the safety of U.S. vessels off-loading military explosives. In continental United States, the quantity of military explosives loaded under supervision increased slightly from 3.0 million tons in fiscal year 1968 to 3.3 million tons in fiscal year 1969. The amalgamated total of tons of military explosives supervised in U.S. ports and Vietnam is 5.1 million tons. A slight increase in personnel to meet this workload was provided in the fiscal year 1969 budget.

The Coast Guard acts as coordinator for the interagency program to prevent illegal entry of persons, articles, or things across sea coasts. An exercise to test the effectiveness of this program for detecting clandestine entry was conducted during fiscal year 1969. The results were made known to the

Interdepartmental Committee for Internal Security, as well as the participating agencies.

The administration of anchorage grounds and special anchorage areas was taken over by the Coast Guard from the U.S. Army Corps of Engineers in fiscal year 1967. During fiscal year 1968, the regulations governing these anchorages were revised by the Coast Guard and republished in Title 33, Code of Federal Regulations, Part 110.

Military Readiness

Over 30 Coast Guard ships participated in Navy refresher training during the fiscal year. Military readiness emphasis is on the antisubmarine warfare, gunnery, and electronic warfare posture of the new *Hamilton* class cutter. The Coast Guard Antisubmarine Warfare Integration Study was completed in January 1968 and approved by the Chief of Naval Operations and the Secretary of the Navy. In addition to administratively monitoring conventional warfare operations, the Coast Guard is evaluating its potential capabilities for inshore undersea warfare and counterinsurgency. In the area of emergency planning, the Coast Guard established three permanent billets for RETREPs (Regional Emergency Transportation Representatives) within OEP/OCD regions 1, 7, and 8 where the RETCOs (Regional Emergency Transportation Coordinators) are Coast Guard senior officers. In the other regions the Coast Guard has provided members on the Regional Emergency Transportation Committee.

Aids to Navigation

The CGC *Tern*, commissioned on February 7, 1969, and stationed in New York, embodies an advanced concept in servicing aids to navigation. The *Tern's* over-the-stern gantry system of handling buoys is unique. The automation and modernization of over-age, isolated lighthouses and light stations showed significant progress this year. A new, more effective version of the LAMP (Lighthouse Automation and Modernization Project) plan was promulgated this year. Additionally, several advanced remote control and monitoring devices used in LAMP have been brought from the development to the production state.

On November 1, 1968, Loran-A coverage in the Gulf of Mexico was expanded by placing new stations in operation at Galveston and Port Isabel, Texas and Grand Isle, Louisiana. These new stations were the first Loran-A stations built specifically to meet a civil maritime requirement. In October 1968, the U.S. Air Force requested additional Loran-C coverage in Southeast Asia, and by December 27, 1968, the Coast Guard had received authorization to proceed with the project. In response the Air Transportable Loran Station was deployed. Site construction was begun in March 1969 and despite prototype "growing pains" the station was delivered to Da Nang in June. The 625-foot antenna has been erected at Tan-My, South Vietnam, and the system was expected to be operational by August 1969. This will be the fastest deployment of a Loran-C station since the inception of the program.

The Loran-C monitor station in the Shetland Islands was completed, and has replaced the station at Eigeroy, Norway. Experimentation has begun on a long-range Loran-A link between Attu Island, Alaska and Ottisi, Japan. If successful, this link will provide long-range electronic navigation capability in the Northwest Pacific air corridor. Continued support was provided to the NATO Loran-A system in the form of system accuracy and calibration checks by Coast Guard personnel and aircraft.

The aids-to-navigation mission in Southeast Asia appears to be an ever increasing one. In Vietnam, the Coast Guard is responsible for a total of approximately 115 aids and the CGC *Blackhaw*, a 180-foot tender, is deployed regularly to Vietnam and Thailand to service the aids to navigation at advanced U.S. Bases in Southeast Asia.

During the first full year of operation, bridge regulations have been revised, new instructions promulgated, and two minor legislative revisions proposed. Additionally, a study on "Truman-Hobbs Obstructive Bridge Administration" was undertaken by the U.S. Coast Guard Academy.

Table 11. Aids to navigation—June 30, 1969

Output Summary	
Buoys:	
Lighted	4,055
Unlighted	19,985
Fog signals	533
Daybeacons	7,323
Radiobeacons	200
Lights (including Lightships)	9,803
Loran transmitting and monitoring stations	78
Permits processed for bridge construction	313
Drawbridge regulations processed	40
Bridges under alteration	3
Obstructive bridges on which work is pending	13
Obstructive bridges on which alterations completed	0

Ocean Stations

The Coast Guard continued its operation of four ocean stations in the North Atlantic and two in the North Pacific. These ocean station vessels provided meteorological, navigational, communications, and rescue services for air and marine commerce and collected a mass of scientific data. Three new 378-foot high-endurance cutters were placed in operation during the year to bring the total of new ships to eight. These eight new cutters performed ocean station duties during the year, completing 22 patrols of 32 days each.

Oceanography

The Coast Guard has more than 40 vessels capable of various levels of oceanographic and marine science activity. During the year, these vessels

were engaged in both Coast Guard and cooperative programs. On all six ocean stations, observations of the water mass were made; over 3,000 oceanographic stations were occupied. Standard sections in both the Atlantic and Pacific Oceans were occupied on an intermittent basis. Among the diverse cooperative projects in which the Coast Guard took part were: (1) Study of the Eastern Tropical Atlantic, (2) Survey in Golfo San Matias, Argentina, (3) Weddell Sea Survey, (4) Water Mass Studies in conjunction with ICNAF, (5) Barbados Oceanographic and Meteorological Experiment, (6) West Greenland Glacier Survey, and (7) North Pacific Buoy Experiment. Work continues to improve the operational prototype of the first of seven planned Coast Guard SWORD (Shallow Water Oceanographic Research Data) and ODAS (Oceanographic Data Acquisition System) projects. These systems collect hydrographic data automatically from offshore light structures and large navigational sea buoys respectively. This data is either collected for use at some later time or transmitted to a shore station for real-time use.

International Ice Patrol

The Coast Guard commenced the 55th season of International Ice Patrol service in the North Atlantic Ocean on March 15, 1969. International Ice Patrol was conceived for the purpose of protecting North Atlantic shipping from the iceberg hazard encountered annually during the spring and early summer. The patrol utilizes SC–130 aircraft and a Coast Guard oceanographic vessel to observe and study the iceberg conditions. Predictions as to the iceberg danger, recommendations as to the best action to be taken by shipping to avoid such a danger, and scientific data concerning the oceanography of the area and the life cycle of the icebergs encountered are the major products of this service. The 1969 season is notable in that icebergs still persisted on June 30 with the season not expected to terminate until mid-July. A proper evaluation of this situation will not be available until termination of this season and a review of the environmental information.

Icebreaking

The Coast Guard now conducts the national icebreaking program with polar icebreakers, one Great Lakes icebreaker, and one auxiliary icebreaker, some of which were transferred from the Navy. During the year, four icebreakers supported the national Antarctic program. Two icebreakers conducted ice escort of shipping and scientific missions in the eastern Arctic. CGC *Glacier's* participation in the 2nd International Weddell Sea Oceanographic Expedition in the Antarctic was the scientific highlight of the year. The CGC *Staten Island* obtained full-scale model test data during its winter deployment in the Bering Sea. This data will be used in the design of a new icebreaker and in the Arctic Tanker Test.

Operational Facilities

Cutters. As part of the continuing program to replace over-age and obsolete search and rescue cutters, the ninth through the 15th new 210-foot

medium-endurance cutters were completed in fiscal year 1969 and construction reached approximately 96 percent on the 16th and final cutter. Nine 95-foot patrol boats were transferred to the U.S. Navy for subsequent transfer to the Republic of Korea, and construction was started on nine 82-foot patrol boats as replacements which will be completed between February and July, 1970.

Shore Stations. During fiscal year 1969, the surface search and rescue stations at Point Reyes, California; Chicago, Illinois; Mackinac Island, Michigan; and Virginia Beach, Virginia were decommissioned. During the same period, new stations were commissioned at Fort Totten on Long Island, New York and at St. Ignace, Michigan. In addition, construction of new stations has been completed at Stillpond Neck, Kennedyville, Maryland; and Wrightsville Beach, North Carolina. Rehabilitation and modernization projects are to be completed during the next fiscal year at the following stations: Siuslaw River Station at Florence, Oregon; Alexandria Bay Station, New York; Jonesport Station at West Jonesport, Maine; Point Allerton Station at Hull, Massachusetts; and Hobucken Station, North Carolina.

Aviation and Aircraft. The Coast Guard operated 172 aircraft, of which 107 were helicopters. The twin-turbine HH–3F helicopters, introduced into the Coast Guard inventory in January 1969, are replacing obsolete HU–16E fixed-wing aircraft and will provide a greatly improved capability for search and rescue. New units were established at Cape May, New Jersey, and Chicago, Illinois, and each unit has two helicopters assigned. Helicopters were assigned to Coast Guard Air Stations at Corpus Christi, Texas, and Barbers Point, Hawaii, for the first time. The Coast Guard relieved the Navy of the icebreaker helicopter support mission when, in the spring of 1969, Coast Guard helicopters were assigned to the icebreakers which departed on Arctic deployments.

Communications. Planning efforts for improved long-range Pacific and Atlantic Ocean communications increased at a rapid pace. Basically this program consists of reorganizing coastal radio stations, most of which are 25 – 30 years old, into a flexible, reliable, and more efficient system. In addition during fiscal year 1970 a major long-range station will be constructed, north of San Francisco. Other radio stations will be constructed, modernized, or disestablished, as necessary, in order to achieve an integrated system capable of providing complete radio coverage throughout the Coast Guard's areas of responsibility.

The continuing modernization program for operational communications equipment progressed through replacement of obsolete terminal and transmission devices and expansion of leased teletype networks. A secure voice capability was added at three major operational commands by including them in the AUTOSEVOCOM system. Expanded weather broadcasting service, intended to serve primarily the recreational boating public, was initiated at selected locations on a trial basis. Information provided by the Weather Bureau forms the content of these broadcasts.

Continuing ship/shore and point-to-point satellite communication experiments were conducted during fiscal year 1969. This technique was also utilized for transmission of operational and administrative messages. While the Coast Guard will never rely completely on satellites to solve all of its communications problems, there is no question that they will provide a valuable and necessary supplement to many future systems. Complete communication services were furnished for operation and administration of the multiagency BOMEX (Barbados Oceanographic and Meteorological Equipment) including ship/shore, air/ground, and point-to-point transmission. Communication support necessary to insure the safety of the drift mission of the civilian submersible *Ben Franklin* was provided by two major Coast Guard radio stations.

Coast Guard Intelligence

With the election of President Nixon, the Coast Guard increased considerably its role in providing Presidential protection. To assist the Secret Service, the Coast Guard has established two permanent security details in addition to providing resources at special request. Duties assigned include security patrols offshore from the President's home on Key Biscayne, guarding the Presidential yacht at Coast Guard Base, Miami Beach and providing maritime support for Secret Service agents. A smaller security force has been established at Coast Guard Loran Station, San Mateo Point, California, adjacent to the President's home at San Clemente. Services during the President's visit to Midway Island in June 1969 is an example of incidental protective services performed; at the request of the Secret Service in Honolulu, the Commander of the Fourteenth Coast Guard District provided boats, ships, and aircraft for offshore patrols and to enforce security zones.

Engineering Developments

Civil Engineering. During the year the Coast Guard began the construction of a 500-man recruit barracks at the Training Center, Alameda, California, and a combination recreation and auditorium building at the Training Center, Cape May, New Jersey. Authorized projects which were completed during fiscal year 1969 were the two 500-man student barracks at the Reserve Training Center, Yorktown, Virginia; an aircraft hangar at the Air Station at New Orleans, Louisiana; and several projects to replace and improve facilities at other Coast Guard stations. Construction continued at an active rate on Governors Island, New York with a new barracks wing being completed. Contracts were awarded for installation of a sewage system at that station; for replacement of existing facilities at selected shore units; for enlargement of others; and construction of an enlisted men's galley mess building at the Reserve Training Center, Yorktown, Virginia.

Electronics Engineering. To meet the constantly changing and expanding requirements for secure communications, preparations are being made to renovate completely all shipboard Secure Processing Centers. This large project will be approached in three phases: (1) Planning and equipment

procurement, (2) design and installation funding, and (3) installation. The first phase has been completed. The second phase is scheduled for fiscal year 1970 and the third phase for fiscal year 1971. Secure communications requirements have also had considerable impact on the design and planning of new Primary Radio Stations since pilot installations of secure ship-to-shore circuits have proven so successful.

Major improvements are programmed for Coast Guard radio stations during the 1970's. Four new long-range radio stations are planned which will consolidate the long-range communications capabilities in the Eastern and Western Areas. In the Western Area, Point Reyes and Bolinas, California have been selected for the receiving and transmitting sites for Long-Range Radio Station, San Francisco. The antenna system design has been completed and plans for the radio system and electronics equipment will be completed during next year. A target operational date of July 1, 1971, has been established. Plans to modernize the existing facilities at Radio Station, Honolulu to employ it as a long-range radio station will be developed during fiscal year 1970. In the Eastern Area, two long-range radio stations are planned. Studies will determine the optimum locations of the stations. Site surveys and antenna designs are planned for completion during the next fiscal year.

Radio communications facilities on the CGC *Northwind* were modernized and made adequate for current operational requirements last year. Five of eight polar icebreakers now have modern communications systems. Modernization of the CGC *Glacier's* facilities is currently in progress and the CGC *Staten Island* is scheduled for modernization next year. Modernization of the CGC *Eastwind's* facilities will be dependent upon her return to operational status.

A project to develop a more reliable, lower cost Loran-C receiver has been initiated. All the Loran-C receivers being developed by industry will be analyzed and tested. Both analytical and hardware investigations will attempt to improve Loran-C receivers. Construction of a new Loran-C transmitting station was begun this year at Tan My, Vietnam in response to an urgent Department of Defense requirement, using electronic equipment that had already been acquired for the ATLS (Air Transportation Loran Station) program. The total time required to respond to this request was less than 9 months.

Naval Engineering. Three 378-foot high-endurance cutters and five 210-foot medium-endurance cutters were accepted from the builders and placed in service, as were one 80-foot stern-loading tender and one 75-foot river tender with barge. Vessels still under construction at the close of the fiscal year included one 378-foot high-endurance cutter, one 210-foot medium-endurance cutter, four 75-foot river tenders with barges, nine 82-foot patrol boats, and one 157-foot coastal buoy tender. Seven 44-foot motor lifeboats and sixteen 30-foot utility boats were also manufactured for Coast Guard use, as well as a number of smaller boats. Major alterations, including structural renovations, habitability improvements, and other modernizations of facilities were completed on high-endurance cutters and icebreakers to

increase their mission effectiveness. Ten high-endurance cutters were outfitted and deployed to Southeast Asia for duty with Naval forces. Progress continued in outfitting the icebreakers for helicopter landings. This modification will be completed on all icebreakers before the next deployment on October 1, 1969, and will result in the total staffing of icebreaker helicopters with Coast Guard crews.

Ocean Engineering. On April 1, 1969, the Coast Guard established an Ocean Engineering Division within the Office of Engineering. The new division was formed to improve engineering support for the marine sciences and short-range aids to navigation missions. Contract awards were made for authorized equipment including five large navigational buoys as part of the lightship replacement program and 80 plastic buoys as part of the Lightweight Buoy Project. That project will ultimately provide a complete, inexpensive, small buoy handling system, model testing of buoy hull shapes, and mooring methods for the lightweight CANUN buoy, and a prototype procurement of the lightweight CANUN buoy for Coast Guard evaluation and testing.

Boating Safety

The Office of Boating Safety was established on October 1, 1968, to develop, coordinate and direct the recreational boating safety program. Establishment was necessitated by continuing expansion of recreational boating activity, coupled with increased Congressional and Presidential interest in improving boating safety. The Committee on Government Operations held hearings on recreational boating safety on July 1, 1968, at Hempstead, New York. Based on these hearings, the Committee published its second report on Recreational Boating Safety on May 15, 1969. The House Committee on Merchant Marine and Fisheries held hearings on the proposed Recreational Boat Safety Act of 1968 during October 1968 at New London, Connecticut; Toledo, Ohio; Long Beach, California; and Newport News, Virginia.

The National Transportation Safety Board issued its "Study of Recreational Boat Accidents, Boating Safety Programs, and Preventive Recommendations" on February 13, 1969. This report generally supports Coast Guard's pending legislative proposals and increased emphasis on the boating safety program. Thirty-nine law enforcement agreements have been signed with various state jurisdictions. Seventeen of these 39 jurisdictions entered agreements with the Coast Guard in fiscal year 1969. Forty-seven states, the Virgin Islands, and Puerto Rico, have adopted numbering systems in accordance with the Federal Boating Act of 1958. There were 4,742,871 craft numbered at the end of 1968. There are an estimated 8.4 million boats in the United States.

The authority which was granted last year to allow Coast Guard Boarding Officers to issue written warnings for minor infractions of the regulations has been well received. This authority to issue warnings is pilot in nature, but the response from Coast Guard District Commanders has been so overwhelmingly in favor of the program that it is being continued again this

year. The warning program has greatly reduced the amount of paperwork handled by the Coast Guard District Commanders in processing these cases. Boating Safety Centers were established in four districts last year. The objectives of the Centers are to provide the boater with services at one central location, and to collect pertinent data for program evaluation purposes. Administrative penalty guidelines were overhauled with substantial increases in monetary penalties to be assessed. This was done with a view establishing uniformity in the various districts and within existing law to align penalties more closely with those recommended by the Model State Boat Act. During calendar year 1968, 5,427 vessels were reported involved in 4,195 accidents which resulted in 1,342 fatalities and 1,284 personal injuries and property damage of $6,631,600. As compared to calendar year 1967, fatalities increased 2.3 percent, injuries decreased 5.9 percent, and the dollar value of property damage increased 5.9 percent. *Boating Statistics,* CG–357, was published in May, 1969 in compliance with the Federal Boating Act of 1958. This publication is the most complete, comprehensive and accurate annual compilation of facts concerning boating accidents available. The analysis of these statistics provides a basis for determining the emphasis to be placed on the several elements of boating safety.

Boating Standards Division. With the establishment of the Office of Boating Safety on October 1, 1968, the Boating Standards Division was created to coordinate all activities concerning the development and administration of boating safety standards. By their membership on technical committees and boards, and in their official capacities, officers of the Coast Guard encouraged cooperation among the several nongovernmental standards organizations in developing a series of boating safety standards. Technical assistance was provided in administering several contracts for improving the quality of existing standards. The first issue of the "Boating Safety Circular" will be distributed early in fiscal years 1970 to approximately 20,000 boat and equipment manufacturers, distributors, dealers, marinas, and others involved in boating safety. This will begin a series of circulars designed to familiarize the boating community with Coast Guard boating safety policies, procedures, and objectives.

Coast Guard Auxiliary. The Coast Guard Auxiliary is a volunteer, nonmilitary organization established to assist the Coast Guard in the promotion of safety, efficiency, and compliance with law in the operation of motorboats and yachts. Auxiliarists are experienced boatmen, licensed amateur radio operators, or licensed aircraft pilots. Each is trained in seamanship, piloting, and related subjects prior to acquiring full membership. Auxiliarists take part in advanced membership training programs, which include correspondence courses from the Coast Guard Institute. The Auxiliary is presently active in approximately 1,000 communities in the United States, Puerto Rico, and the (U.S.) Virgin Islands.

The Auxiliary's purpose is accomplished through three principal programs: (a) free courses of instruction to the public in boating safety, (b) courtesy examination of safety equipment on motorboats at the request of the owner or operator, and (c) operational activities such as regatta patrols and as-

sistance to boats in distress. Auxiliarists are prohibited from performing law enforcement functions; they receive no compensation for their services. Each member must own at least 25 percent of a boat, radio station, or aircraft. These "facilities" are inspected annually to rigid safety standards. The following is a comparison of Auxiliary achievement and strength in fiscal year 1967, 1968, and 1969.

Table 12. The Coast Guard Auxiliary

	1967	*1968*	*1969*
Persons receiving safety boating instruction	205,439	136,371	423,952
Motorboats examined (facilities & courtesy examinations)	158,289	172,729	146,988
Regatta patrols	4,629	5,057	4,075
Assistance missions	6,809	7,644	9,749
Lives saved	184	132	215
Total membership	24,981	25,833	27,651
Total facilities	15,289	15,573	15,708
Qualified instructors	6,206	6,758	6,070
Qualified courtesy examiners	8,281	7,638	8,878

Research and Development

On November 1, 1968, the Coast Guard established the Office of Research and Development whose mission was to plan and direct a program of applied research, exploratory and advanced development responsive to immediate requirements, long-range objectives, and advancing technology and aimed at improving the effectiveness and efficiency of the Coast Guard. The Field Testing and Development Center in Curtis Bay, Maryland, was transferred to the Office of Research and Development, and the establishment of a Shipboard Fire and Safety Testing Facility was commenced in Mobile, Alabama. When operational, the latter will be the only facility in the country allowing full-scale shipboard fire tests.

Major efforts have been directed toward the problem of oil pollution in coastal waters. Fiscal year 1969 saw initial development of prototype oil spill detection devices, and storage and containment systems. In Search and Rescue, side-looking airborne radar and infra-red sensors are being evaluated for use in detecting passive small craft and icebergs, both poor targets for conventional radar. A pilot Harbor Advisory Radar service, being installed in San Francisco Bay, is the initial phase of a long-range effort to develop an all-weather harbor and harbor approach navigation system. Studies and field measurements are being conducted on the properties, extent, and movement of sea ice in the marine transportation routes to Alaska in order to develop data required for the design of icebreakers and "ice strengthened" vessels, and to further identify problems associated with marine transportation in the Arctic.

National Data Buoy Development. The National Data Buoy Development Project, whose function is to perform the research, development, testing,

and evaluation on manned oceanographic and meteorological data buoys, made significant progress in four areas: (1) Definition and refinement of data requirements, (2) external coordination and benefit analysis, (3) systems planning and engineering, and (4) hardware studies and testing. Contractual efforts were directed at refinement of user requirements, studies of data characteristics, tradeoff analysis and interface studies, sensitivity analysis on systems mixes, and automation of computer models. Project personnel attended and participated in numerous national and international planning efforts, as well as maintaining close liaison with the educational, scientific, and industrial communities.

Following a competitive selection process, a contractor was chosen to provide systems engineering and management support to the Project Office. A contract was awarded for an investigation of optimum allocation of available high-frequency radio bands for data relay. A contractual study of oceanographic sensor hardware and software was initiated. Also, a program was developed for the initial testing of deep ocean moorings in the Pacific, using five standard aid-to-navigation buoys.

National Navigation Planning

The Coast Guard National Navigation Planning Staff has been engaged in a joint effort with the Federal Aviation Administration and the Department of Defense to develop a National Plan for Navigation. The object of this effort is to recommend U.S. national policy and prepare a national plan for development, implementation, and operation of aids to navigation responsive to both current and future needs. As input to the National Plan for Navigation and also as input to a study to improve the operation of maritime aids to navigation which are uniquely a Coast Guard responsibility, a contract study has been completed which provides a definition of user needs in the short distance maritime environment, identification of alternative systems, and a methodology to evaluate alternate systems and quantify system benefits. A contract has recently been awarded directed toward defining the system of nonelectronic aids to navigation having highest cost effectiveness.

Coast Guard Reserve

The most important event of fiscal year 1969, because of its impact on the future of the Reserve, was the completion of the fiscal year 1970 Issue Study, "Reserve Training Concepts and Force Analysis". This study is a comprehensive review of the Coast Guard's manpower requirements to meet its wartime missions, the strength and composition of the Reserve force necessary to meet mobilization needs, and the most economical means of producing and maintaining the required Reserve force.

The major results of the study are: (a) The establishment of mobilization manpower requirements of the Coast Guard based on modern concepts of war and threat assessment, (b) the establishment of a Selected Reserve (early response) manning requirement of 16,590 as compared with the

interim ceiling of 18,000 established by the Commandant pending completion of the Study, and the establishment of a total Ready Reserve of 23,905 (exclusive of personnel on active duty), (c) the establishment of the composition of the required Ready Reserve force, by pay grade and specialty, and (d) the establishment of from 5 to 11 months of training including attendance at a class A school for new recruits.

At the close of the fiscal year, there were 17,815 Coast Guardsmen in the Selected Reserve while the total Coast Guard Ready Reserve consisted of 27,614 personnel. The Unit Development Plan of the Reserve Training Center, Yorktown, Virginia, is proceeding according to plan. The two 500-man barracks were completed by June, 1969 to provide increased capacity and more satisfactory berthing for trainees. Training aids and other needed equipment are being added pursuant to the fiscal year 1968–1973 procurement program.

Personnel

As of June 30, 1969, the Coast Guard consisted of 6,306 civilian and 39,308 military personnel.

Recruiting. Sixty-one main recruiting offices and approximately 50 suboffices were manned by 250 recruiters. During the fiscal year, there were 15,519 applicants for enlistment in the Regular Coast Guard and 6,786 were enlisted. The Reserve received 10,241 applicants and enlisted 2,610.

Training for Foreign Visitors. About 50 visitors from 17 foreign countries under the sponsorship of other Government agencies used Coast Guard facilities for training in such areas as aids to navigation, merchant marine safety, and law enforcement.

Coast Guard Education Program. The education and training programs sponsored by and participated in by the Service are summarized in Table 13.

Public Health Service Support. On June 30, 1969, there were 144 Public Health Service personnel on duty with the Coast Guard, serving at 26 shore stations, 10 mobile dental detachments, and aboard ships assigned to ocean stations, Arctic and Antarctic operations, and shipboard operations in Southeast Asia.

Fiscal and Supply Management

During the year a Coast Guard Budget Management Committee completed a study of Coast Guard financial management policies and procedures and recommended necessary refinements in the Coast Guard cost accounting system to permit the adoption of responsibility-centered and cost-based operating budgets for Coast Guard units and programs effective July 1, 1970. As an immediate outgrowth of this study, the bulk procurements of main propulsion fuel for 72 Coast Guard cutters over 200 feet in length will be financed under the Coast Guard Supply Fund, effective July 1, 1969, and fuel costs will be applied to the cutters on a "monthly cost of consumption" basis during fiscal year 1970.

Continued emphasis was directed toward achieving cost reductions and improved management effectiveness in procurement and inventory manage-

ment. Excess material valued at $604,485 was accepted on a nonreimbursable basis from the General Services Administration and the Department of Defense. During fiscal year 1969, a nonrecurring cost reduction of $50,238 was achieved by exercising the option to contract for the construction of one additional 75-foot towboat (pusher) and 100-foot barge combination unit under a multiyear procurement contract for the construction of four towboats and barge combination units in fiscal years 1968 and 1969. A contract awarded at the end of the year for the construction of two 378-foot cutters (WHEC) contains an option to contract for the construction of a third ship on or before November 1, 1969. Exercise of this option will achieve savings of $100,000 in fiscal year 1970.

Funds Available, Obligated, and Balances and Expenditures Incurred

Table 14 shows the amount of funds available for the Coast Guard during fiscal year 1969 and the amounts of obligations and unobligated balances as well as expenditures incurred.

TABLE 13. Education program

Education and training participation	F.Y. 1968	F.Y. 1969
Coast Guard academy:		
Total applications	3,816	4,549
Total applicants selected as finalists	1,500	1,700 (approx)
Appointments accepted	387	408
Cadets (average during year)	741	714
Graduates (Bachelor of Science Degree)	157	131
Officer training completed:		
Officer candidate school graduates	302	363
Postgraduate	75	89
Initial flight training	60	75
Additional flight training (helicopter/fixed wing)	32	46
Short term specialized courses	1,258	990
Off duty training	235	271
Enlisted training completed:		
Recruit training regular	5,511	6,838
Recruit training reserve	1,463	2,165
Coast Guard basic petty officer schools	1,642	2,445
Navy basic petty officer schools	768	1,223
Advanced petty officer schools (CG and Navy)	99	29
Specialized training courses (service and civilians)	1,959	1,974
Correspondence courses completed:		
Coast Guard Institute	11,948	15,903
United States Armed Forces Institute	304	192
United States correspondence course center	4,808	3,032
Examinations:		
Officer education and examination program	372	328
Department of Defense officer record examinations—		
Direct commissioned officers	19	68
Officer candidate school graduates	301	364
Academy graduates	157	132

TABLE 14. Coast Guard financial data

	Funds [1] *Available*	*Net Total Obligations*	*Unobligated Balances* [2]
Appropriated Funds:			
Operating expenses	$371,105,776	$371,020,825	$ 84,951
Reserve training	25,900,000	25,841,983	58,018
Retirement pay	53,000,000	52,837,702	162,297
Acquisition, construction, and improvements	131,697,372	101,807,349	29,890,023
Research, development, test, and evaluation	4,000,000	3,916,820	83,180
Total appropriated funds	$585,703,148	$555,424,679	$ 30,278,469
Reimbursements:			
Operating expenses	$ 9,148,884	$ 9,148,884	----------
Acquisition, construction, and improvements	13,959,749	9,842,926	$ 4,116,823
Research, development, test, and evaluation	60,000	60,000	----------
Total Reimbursements	$ 23,168,633	$ 19,051,810	$ 4,116,823
Trust Fund:			
U.S. Coast Guard Gift Fund	$ 164,585	$ 122,192	$ 42,393
Grand Total	$609,036,355	$574,598,681	$ 34,437,685

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

Acquisition, construction, and improvements:	
Appropriated Funds	$ 41,697,372
Reimbursements	9,090,973
U.S. Coast Guard gift fund	39,004

[2] Unobligated balance of $34,006,846 under acquisition, construction, and improvements appropriation remains available for obligation in fiscal year 1970. These funds are programmed for obligation in fiscal year 1970 for the following purposes:

	Coast Guard Projects	*Dept. of Defense Projects*
For projects deferred in fiscal year 1969 to be subsequently accomplished	$ 1,967,000	----------
For completion of projects started in fiscal year 1969 and prior years	27,923,023	$ 4,116,823
Total	$ 29,890,023	$ 4,116,823

	Total Expenditures	*Direct Expenditures*	*Reimbursable Expenditures*
Expenditures Incurred:			
Operating expenses	$379,212,946	$370,350,662	$ 8,862,284
Reserve training	25,935,261	25,935,261	
Retirement pay	52,827,702	52,837,702	
Acquisition, construction, and improvements	90,545,609	84,512,282	6,033,327
Research, development, test, and evaluation	1,736,126	1,736,126	----------
Sub-Total	$550,267,644	$535,372,033	$ 14,895,611
Trust Fund:			
U.S. Coast Guard gift fund	$ 122,001	$ 122,001	----------
Grand Total	$ 122,001	$ 122,001	----------
Grand Total	$550,389,645	$535,494,034	$ 14,895,611

Upper picture shows closeup of English and Spanish versions of sign used to warn potential aircraft hijackers. In a test program carried out in various cities, signs were posted at airport boarding areas and (as in the lower picture) at airline tickets counters.

Chapter IV

FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Administration is responsible for insuring the safe and efficient use of the Nation's airspace, by military as well as civil aviation, for fostering civil aeronautics and air commerce in the United States and abroad, and for supporting the requirements of national defense.

The activities required to carry out these responsibilities include: safety regulation; airspace management and the establishment, operation, and maintenance of a civil-military common system of air traffic control and navigation facilities; research and development, primarily in support of the foregoing activities but including management of the U.S. supersonic transport development program; the fostering of a national system of airports, promulgation of standards and specifications for civil airports, and administration of Federal grants-in-aid for developing public airports; various joint and cooperative activities with the Department of Defense; and technical assistance (under State Department auspices) to other countries.

Aviation Safety

General. Aviation safety is FAA's primary mission, and most of the agency's activities contribute at least indirectly toward this objective. Under this heading in this report, however, only those programs or developments having a direct concern with aviation safety will be dealt with. Such programs or developments routinely fall within the areas of certification, surveillance, safety-rule making and enforcement, and safety research and development (R. & D.).

One development during the 1969 fiscal year—of concern to the last three of the four areas just named, and with other ramifications as well—attracted far more public attention than any other aspect of aviation safety. This was aircraft piracy, or hijacking—sometimes called skyjacking.

Aircraft Piracy. After some 7 years of almost complete quiescence, aircraft hijacking in the United States erupted in 1968 on an epidemic scale and continued into 1969. The agency's only similar experience, but comparatively short and far less serious, had occurred in 1961. Prior to the 1968 recrudescence of the crime, a total of only four U.S. registered air carrier aircraft had been successfully hijacked. But this total was swollen by 13 more in calendar year 1968 alone, with the rate of occurrence climbing sharply at the end of the year and rising to a peak of 12 for a single month in January 1969. Though the rate dropped back markedly after January, 10 more air carrier aircraft had been successfully hijacked by the

end of the 1969 fiscal year. Thus, as of June 30, 1969, the grand total of U.S. air carrier aircraft successfully hijacked stood at 39.

Comparative figures for U.S. general aviation (which includes all civil aviation except the air carriers) show only three aircraft successfully hijacked before 1968, and only five more by the end of June 1969.

A series of antihijacking measures had resulted from the 1961 outbreak. The most important of these was Public Law 87–197, approved by President Kennedy on September 5, 1961, which—

- Defined aircraft piracy and provided punishment ranging from 20 years' imprisonment to death.
- Provided punishments for lesser related crimes as follows: (1) For interfering, by assault or threat, with performance of duty by a flight-crew member or flight attendant, a fine not exceeding $10,000 or imprisonment not exceeding 20 years, or both, except that when a deadly or dangerous weapon is used, the punishment is imprisonment for any term of years or for life; (2) for having an unauthorized deadly weapon concealed about one's person aboard an air carrier aircraft or while attempting to board such an aircraft, a fine not exceeding $1,000 or imprisonment not exceeding 1 year, or both; (3) for imparting or causing to be imparted information known to be false concerning a prospective attempt to commit aircraft piracy or any crime referred to in (1) or (2) above, a fine not exceeding $1,000 or imprisonment not exceeding 1 year, or both.
- Empowered air carriers, subject to reasonable rules and regulations prescribed by the FAA Administrator, to refuse transportation to any person or property if, in the air carrier's opinion, such transportation "would or might be inimical to flight safety."

Other measures resulting wholly or in part from the 1961 hijackings included (1) designation by the Attorney General of specially selected and trained FAA employees as peace officers to ride on and protect aircraft that might be subjected to a hijacking attempt, and (2) issuance, following certain cockpit incidents subsequent to the 1961 hijackings, of a Federal Aviation Regulation requiring the door to the flight deck or cockpit of airliners in flight to be closed and locked.

These measures were largely frustrated in the 1968–69 hijackings by certain circumstances favoring the hijacker. When he made his move aboard an aircraft in flight, he had the advantage that any effort to resist him would be a gamble with the lives of all on board. But arresting him after the plane had landed was generally not possible either; the planes were all being hijacked to Cuba, where the hijacker was allowed to remain after the plane and its other occupants had been permitted to return to the United States. (Of the grand total of 39 U.S. air carrier aircraft successfully hijacked by June 30, 1969, all but one had been forced to land in Cuba; the lone exception, shortly after takeoff from Honolulu on August 31, 1965, was forced by a teenager to return to the Honolulu airport.) The absence of direct diplomatic relations between the United States and Cuba complicated the situation, communication being through the Swiss Embassy.

In response to the alarming rate of hijackings prevailing at the end of 1968 and in January 1969, FAA in February created an eight-man Task Force on the Deterrence of Air Piracy, assembling in this group a broad spectrum of agency expertise under the leadership of the Deputy Federal Air Surgeon. Systematic study of the problem by the task force revealed, among other things, that a hijacker "profile" could be constructed from behavioral characteristics possessed in common by many of the hijackers of the past. When the task force combined this "profile" with a weapons-screening device developed by the agency, the result was a detection system promising usefulness for dealing with the problem in a way within the purview of the agency and the airlines—i.e., by trying to prevent potential hijackers from boarding aircraft in the first place.

At year's end, this system was in a field-testing phase involving tests (underway, completed, or planned) at eight metropolitan airports in the United States (mostly the eastern half) and the airport at San Juan, P.R. Press briefings were publicizing these efforts in each of the cities, and signs, written in both English and Spanish and prominently displayed at ticket counters and boarding areas, warned the reader that (1) hijackers face severe penalties, (2) passengers and their baggage are subject to search, and (3) carrying a concealed weapon on board an airplane is a Federal crime. (See pictures on page 56.) Passenger reaction was very encouraging.

In related efforts during the year, FAA continued research and development on other approaches to the problem, helped call public attention to the unwelcome status of hijackers in Cuba, and pointed out publicly that one of the greatest deterrents to the hijacking of U.S. aircraft would be a Cuban policy of returning the hijackers to the United States for prosecution.

This last point emphasizes the importance that international arrangements may play in helping to solve the problem of aircraft piracy. Indeed, since numerous aircraft of countries other than the United States have been victimized (beginning at least as far back as 1930), and since the successful hijacker virtually always forces the aircraft to land in a foreign jurisdiction, the ultimate solution to the hijacking problem may lie in effective international countermeasures. There was some progress in this area during the year as the United States moved toward completing the remaining ratification needed to make the Tokyo Convention effective.

The Tokyo Convention was not designed specifically to solve the problem of aircraft piracy; though it contains provisions on that subject, they do not assure punishment or extradition of hijackers. The convention's primary purpose is to provide for continuity of jurisdiction over crimes and other offenses committed on board aircraft engaged in international aviation. Under its provisions—which were worked out in a 13-year effort begun in 1950 by the Legal Committee of ICAO (International Civil Aviation Organization), a specialized agency associated with the United Nations—the flag country of an aircraft has jurisdiction over offenses committed on board that aircraft while it is in flight anywhere in the world or when it is on the surface of the high seas or of any other area outside

the territory of any country. This and other provisions make the convention a desirable step forward in international law, and a framework within which to seek an acceptable solution to the problem of aircraft piracy; U.S. officials have been working through ICAO on this problem. The United States was among the first signatories when it signed the convention on September 14, 1963, at Tokyo. The convention was transmitted to the Senate on September 25, 1968, and on May 13, 1969, the Senate voted favorably on a resolution to advise and consent to the President's ratification of the convention. As of June 30, 1969, the President had not acted because implementing legislation, though introduced in Congress, had not yet been passed. As of the same date, the convention had been signed by 36 nations and ratified by 11. Its terms place it in operation 90 days after the 12th ratification is received by ICAO at Montreal.

Certification of Airmen. Latest figures available (end of calendar year 1968) show continuation of the vigorous growth trend of recent years in the number of airmen holding valid certificates. These end-of-1968 figures, when compared with those of a year earlier, show a substantial net gain in the number of airmen with current certificates in both the pilot and nonpilot categories. Net gain for the total pilot category (main subcategories: student, private, commercial, and airline transport pilots) was 11.9 percent (up from 617,931 to 691,695); for the total nonpilot category (main subcategories: mechanic, parachute rigger, dispatcher, air traffic control tower operator, and flight engineer), 7.9 percent (up from 231,801 to 250,151). The student-pilot subcategory—the supply source for the other pilot subcategories—gained substantially more proportionally than the total pilot category: 15.5 percent (up from 181,287 to 209,406). The key nonpilot subcategories of aircraft mechanic and air traffic control tower operator showed the following net gains, respectively: 7.9 percent (up from 146,572 to 158,211) and 6.8 percent (up from 17,425 to 18,610).

Current medical certificates, based on periodic physical examinations, are required to validate all pilot certificates (except those for glider pilots) and, in addition, to validate the nonpilot airman certificates for flight engineer, flight navigator, and air traffic control tower operator. The examinations are administered by private physicians designed by FAA as AME's (aviation medical examiners), except that senior flight surgeons may examine military applicants. On June 30, 1969, AME's numbered 6,435, an increase since the previous June 30 of 5.3 percent. Denial of a medical certificate by the examining physician may be appealed as high as the Federal Air Surgeon, the head of FAA's Office of Aviation Medicine. Such appeals reviewed by the Federal Air Surgeon during the 1969 fiscal year numbered 388; certificates issued as a result numbered 157. Airmen denied medical certificates may petition the Federal Aviation Administrator for exemption from the requirements. With the aid of an advisory panel of medical specialists in private practice, the Administrator reviewed 393 petitions for exemption during fiscal year 1969 and granted 107. Not included in these figures were 88 petitions automatically denied because the petitioners failed to provide pertinent medical information for consideration.

Other fiscal year 1969 developments related to certification of airmen included certain followthrough measures against airman-examination cheating discovered in fiscal year 1968: the first convictions under U.S. criminal statutes for falsification of airman certification records; revocation of a flight training school's certificate; revocation or voluntary surrender of a number of airman certificates; and use of a system of randomizing written tests for the commercial pilot certificate.

Certification of Aircraft and Aircraft Components. FAA controls standards for new models of aircraft and aircraft components/appliances by means of the type certificate and, for changes in a type design short of creating a new type, the supplemental type certificate. Certification activities of this kind during fiscal year 1969 are reflected in the following statistics (figures in parentheses are for fiscal year 1968): New aircraft models certificated (see Table 15), 125 (114); supplemental type certificates issued, 1,387 (1,055); new aircraft engine models certificated, 54, including 29 turbine models (75, including 37 turbine models); new propeller models certificated, 35 (48); original airworthiness certificates, export certificates and related approvals issued, approximately 18,000 (approximately 15,000).

Notable among aircraft engines type certificated during the year and included in the above statistics were the Pratt & Whitney turbofan model JT9D–3, which will power the Boeing 747 jumbo jet, and the Air Research TPT 331–3, specially designed for use in air taxi aircraft.

Other notable items related to certification of aircraft and aircraft components/appliances during fiscal year 1969 included: (1) Review of the type certification of the Sikorsky S–61 helicopter, following two accidents and one incident involving S–61's in scheduled air carrier operations within a 3-month period in 1968; (2) establishment of two new EMDO's (engineering and manufacturing district offices)—one in Kansas City, Mo., and one in Chicago—making a nationwide total of 21 such offices out of which FAA's manufacturing inspectors work with companies and individuals seeking certification or approval of airframes or aircraft engines, propellers, parts, or appliances for use in civil aviation; (3) supplemental type certification of two kinds of inertial navigation equipment for use by U.S. international air carriers; (4) drafting of an FAA advisory circular (which was being coordinated at year's end) covering certification of area-navigation equipment; (5) continuation of a program, begun in March 1961 and involving international cooperation, to develop SST (supersonic transport) aircraft certification standards; (6) establishment of a program, in cooperation with the U.S. Air Force, to prepare FAA's certification flight-test and operations pilots for evaluating the Anglo-French SST (the Concorde) during the 1970 fiscal year; (7) publication, in July 1968, of tentative airworthiness standards for V/STOL (vertical/short takeoff and landing) transport aircraft, followed by appropriate distribution to government agencies and private industry, both in the United States and abroad; and (8) work with the British Air Registration Board toward a mutually acceptable United States-British code of airworthiness standards.

TABLE 15. Aircraft models certificated, fiscal year 1969

Category	Make	Model	Make	Model
BUSINESS and GENERAL (Except Helicopters)	Aero Commander	681	De Havilland	DH 82A
	Aeronautica Macchi SpA	AM–3		300
	Aero Spacelines	337MG	Found Brothers	FBA Centennial 100
	Aircraft Hydro-Forming	Bushmaster 2000	Handley Page	H.P. 137 Jetstream Mk. 1
	Beagle	B.121 Series 1		
		Series 2	Mitsubishi	MU–2B–15
	Beech	E33C	Mooney	M10
		RC–45J (SNB–5P)	Piper	PA–28R–200
		D55A	Reims Aviation S. A	Cessna F150J
		65–A90–2		FR172F
		–3	Socata	MS 894A
		70	Ted Smith	Aerostar 601
		95–B55A	Weatherly	201A
		–C55A		
		99A		
	Bellanca	17–31		
		–31TC		
	Britten-Norman	BN–2A		
	Cessna	150K, A150K		
		182M		
		P206D, TP206D, U206D, TU206D		
		207, T207		
		210J, T210J		
		310P, T310P		
		337D, T337D		
		401A		
		402A		
		421A		

Category	Make	Model	Make	Model
TRANSPORT	Aero Commander (Israel Aircraft)	1122	Boeing	737–2A1
	Boeing	707–3B4C		–48
		–131B		–100
		–244C		–159
		–307C		–159C
		–321C		–200
		–323C		–200C
		–329C		–202C/210C
		–331B		–204
		–337C		–214
		–340C		–217
		–345C		–219
		–369C		–242C
		–372C		–244
		–379C		–275
		–382C		–275C
		–387C		–297
		–396C	Canadair	CL–215–1A10
		727–1A7C	Fairchild Hiller	F–27M
		–2A7	Fokker	F. 28 Mark 1000
		–46	Hawker Siddeley	D.H. 125 Series 400A
		–109C	Lear Jet	24B, 24B–A
		–116C	Lockheed	382E
		–134C	McDonnell Douglas	DC–9–21
		–251		–37F
		–251C	Nihon (NAMC)	YS–11A–300
		–284	Piaggio-Douglas	PD 808/526
		–291		

TABLE 15. Aircraft models certificated, fiscal year 1969—Continued

Category	Make	Model	Make	Model
BALLOON	Piccard	Ax-6	Raven	S-50A
GLIDER	Glasflugel	H 301B Libelle Standard Libelle	Schweizer	SGS 1-26D
	Laister	LP-49	Slingsby	T.49B T.53B
	Schempp-Hirth K.G	Cirrus		
HELICOPTER	Bell	205A-1 206A-1 (OH-58A)	Sud-Aviation	SE 313B Alouette II Artoust SA 318B Alouette II Astazou 318C Alouette II Astazou 321F Super Frelon
	Boeing-Vertol	114A		
	Hughes	369HE, 369HS		
	Kawasaki	KV-107-11A		
	Sikorsky	S-64E		
	Silvercraft SpA	SH-4		

Certification of Air Agencies. The number of certificated pilot schools as of January 15, 1969, showed an increase of 19.2 percent over the number of a year previously (up from 1,720 to 2,050). Figures for mechanic schools as of February 3, 1969—the latest available at writing of this report—showed an increase in number since May 13, 1968, of 10 percent (up from 96 to 106). Certificated repair shops gained in number from June 30, 1968, to June 30, 1969, 12.1 percent (up from 1,883 to 2,111).

Surveillance of Aircraft Operations and Maintenance. Aircraft airworthiness and airman competence must be maintained after original certification. A number of FAA programs contribute to one or the other of these objectives, or to both, some setting standards to be met and others assuring compliance with the standards.

A basic requirement for the continuing airworthiness of aircraft is mechanical maintenance in accordance with an FAA-approved program. Developing an appropriate program for jumbo jets—and in particular for the Boeing 747, which will be the first jumbo jet to enter airline operations—was an outstanding item in this field during fiscal year 1969.

This work, the largest single maintenance program development effort ever made for a civil transport airplane, occupied agency experts in maintenance and maintenance engineering throughout the year. The prospect at year's end was that the program's objective would be achieved in December 1969: issuance of an FAA-approved maintenance review board document providing a comprehensive maintenance management program for keeping the Boeing 747 airworthy in airline service.

Into this document will have gone tens of thousands of man-hours by well over a hundred top technical people, including experts on every aspect of the airframe, engines, and appliances, drawn not only from FAA but also from the airframe manufacturer, the powerplant manufacturer, and 15 airlines. Considerations evaluated or analyzed by these groups have included failure modes, effects of failures, estimated failure rates, component and system redundancies, fatigue testing in the light of previous service experience, and reliability of similar units or systems on currently operating aircraft.

"Condition monitoring," a new concept in the art and science of continuing aircraft airworthiness, is to be added to older concepts in the maintenance management program for the Boeing 747; it will undoubtedly be applied to the other jumbo jets as they appear, and to the supersonic transport generation of airplanes. This concept reflects, among other things, advances of recent years in extending the number of performance indicators available from data-recording devices used on aircraft and success in adapting computers to relate such information diagnostically to the functioning of aircraft components, appliances, and systems. In distinction from other maintenance concepts, which require maintenance actions on the basis of computations and reliability factors derived from service experience and applied to aircraft components or appliances as types or categories, condition monitoring emphasizes the actual condition of the individual airplane and its individual component parts. While maintaining the highest operating

safety of the airplane, it will permit the operator more flexibility in deciding when and how to perform maintenance.

Other significant items in the area of assuring aircraft operational airworthiness or of the surveillance of aircraft operations and maintenance included: (1) In the aircraft reliability control program, FAA approval of 15 new airline programs using the reliability principle in managing the maintenance of airframes, engines, and other components of transport aircraft; (2) the fourth annual aviation maintenance symposium, held in December 1968 at Oklahoma City and attended by 504 aviation-community representatives (from both U.S. and foreign government agencies, manufacturers, and airlines, from ICAO, from various aviation training institutions, and from labor unions), where 20 technical papers were presented on various aspects of the theme "The Man in the Maintenance Reliability System"; (3) the third year of activity of the MAC (maintenance analysis center), at FAA's Aeronautical Center, Oklahoma City, which continued its development as the central source of mechanical-reliability information on the U.S. civil aviation fleet; (4) start of the extension of the SWAP (systemsworthiness analysis program) principles of surveillance to certain general aviation activities (including air taxis, repair stations, and airman schools) in FAA's other regions after completion of a successful test program in FAA's Southern Region; and (5) continuation of the PAR (performance and reliability) program for safety monitoring of airline performance, with a revised format under development at year's end to eliminate the PAR reporting requirements.

Safety Rules and Regulations. New safety rules and regulations, usually as amendments to the existing Federal Aviation Regulations but sometimes as new or special FAR's, are necessary to reflect the lessons of experience and adjust the regulatory system to the continual changes occurring in the aviation environment. Among the more significant issuances during fiscal year 1969 were those concerned with the following:

- Air travel clubs. Safety requirements for air travel clubs were upgraded from the general operating and flight rules of Part 91 and the maintenance rules of Part 43 of the Federal Aviation Regulations to the level of the requirements, in Part 121, covering certification and operation of air carriers and commercial operators of large (over 12,500 pounds) aircraft—without, however, imposition of those Part 121 requirements that would have been onerous and inappropriate for air travel clubs in view of the basic differences between them and the airlines and commercial operators. To make this distinction, FAA wrote a new FAA part for the FAR's and on September 5, 1968, issued it as Part 123—Certification and Operations: Air Travel Clubs Using Large Airplanes. The effective date of Part 123 was October 14, 1968, but it provided for a transitional period, ending February 1, 1969, during which clubs could continue operating while in process of obtaining operating certificates under the new rules. As of June 30, 1969, FAA had issued operating certificates to 19 air travel clubs using large airplanes.

- Altitude alerting system or device for turbojet aircraft. An amendment to Part 91 (General Operating and Flight Rules), issued August 22, 1968, and effective September 28, 1968, requires installation of such an alerting system or device in turbojet aircraft by March 1, 1971, to provide an additional safety factor.
- Aircraft crashworthiness and passenger evacuation. Amendments to Part 21 (which covers certification procedures for products and parts) and Part 121 (which covers certification and operation of air carriers and commercial operators of large aircraft) were issued March 18, to be effective April 23, 1969, clarifying or revising from experience some of the rules on aircraft crashworthiness and passenger evacuation placed in effect in October 1967, but not changing the essential standards.
- Admission of Secret Service agent to flight deck. Special Federal Aviation Regulation 19, issued July 24, 1968, effective July 26, 1968, and expiring July 31, 1969, required the pilot in command of an aircraft operated by an air carrier or commercial operator and carrying a person protected by a Secret Service agent to admit the latter to the flight deck and occupancy thereon of an observer seat upon his request and presentation of proper credentials. This rule was designed to help Secret Service agents carry out their responsibilities for the safety of the President of the United States, the Vice President, and other specified persons, including persons determined to be major presidential or vice-presidential candidates.
- Small airplanes capable of carrying more than 10 occupants. Special Federal Aviation Regulation 23, issued December 27, 1968, and effective January 7, 1969, was necessary, in the light of FAA's previously announced intention (April 1967) to impose additional airworthiness standards on airplanes used for air taxi operations, to provide to manufacturers preparing to type-certificate new airplanes the airworthiness standards necessary to make their airplanes eligible for air taxi operations. The standards apply to piston-powered and turboprop airplanes weighing 12,500 pounds or less and capable of carrying more than 10 occupants, including the flightcrew. (See notices of proposed rulemaking immediately below.)

Increased safety requirements for aircraft used in air taxi operations were the main subject of rulemaking taking place at year's end. Large and small aircraft were being dealt with separately. Large aircraft were the concern of Notice 68–16, issued July 18, 1968 (published in the *Federal Register* July 25, 1968), which had proposed amendments to the FAR's requiring air taxi operators using large aircraft to comply with the Part 121 rules covering certification and operations of scheduled or supplemental air carriers, as appropriate, but would leave unchanged the maintenance privileges previously accorded these air taxi operators under Parts 43 and 91. Rulemaking on this proposal was nearly complete at year's end.

In dealing with small aircraft in airtaxi operations, the agency found it necessary to revise the approach it had proposed in Notice 67–9, issued

March 17, 1967, which approach was to apply new rules selectively to air taxi operations with small aircraft on the basis of whether such operations were scheduled or nonscheduled. Various factors, such as the growth of scheduled air taxi operations and the imminent introduction of small aircraft capable of carrying more than 20 occupants, were blurring the line between scheduled and unscheduled operations and invalidating that basis of distinction between operators under Part 135 of the Federal Aviation Regulations (air taxi operators and commercial operators of small aircraft) and air carriers operating large aircraft under Part 121. An appropriately revised notice of proposed rulemaking was issued January 24, 1969. Comments, due by May 21, 1969, were being considered at year's end.

Safety-Rule Enforcement. The following statistics reflect activity in enforcing the Federal Aviation Regulations during fiscal year 1969 (fiscal year 1968 statistics are given in parentheses for comparison): Total violations reported to General Counsel, 3,073 (3,273); total actions processed to completion, 3,035 (3,127); completed actions consisting of proceedings to suspend or revoke certificates, 1,427 (1,518); formal hearings before FAA hearing officers in certificate cases, 107 (42); hearing-officer certificate cases appealed to National Transportation Safety Board, 43 (20); total civil-penalty cases completed, 886 (855); completed civil-penalty cases resulting from voluntary compromises between FAA and the airmen or operators involved, 879 with the remaining seven resulting from U.S. district court judgments (766, with the remaining 89 resulting from U.S. district court judgments or voluntary compromises between the Department of Justice and the airmen or operators involved); total civil penalties collected, $166,573.44 ($168,643.88); portion of civil penalties collected by Department of Justice (remainder by FAA), $13,608.44 ($22,820.88); violations referred to the Department of Defense because they involved military personnel, 32 (46); violations referred to foreign nations through the State Department because they involved airmen holding foreign certificates, 36 (17). Completed cases not accounted for in the foregoing were disposed of by administrative action consisting of letters of reprimand or letters of correction.

Safety Research and Development. FAA's R. & D. programs to promote aviation safety cover the aircraft and related materiel in all phases of flight, and also human factors involved in flight. The more important of the numerous activities in these programs during fiscal 1969 are included in the groupings that follow.

- Airport hazards: (1) To complement transverse grooving of runways as a continuing attack on runway-traction problems, FAA investigated the correlation between wet-runway friction and airplane stopping distance in two ways: one by using a computer to simulate the airplane, and one by seeking to adapt to civil operations the USAF's measurement of runway friction with the James brake decelerometer. (2) Against the bird hazard on and around airports, FAA evaluated an engine-inlet protective device delivered during the year on a 1967 contract and used test results for devising protective concepts adapted

to a variety of engine inlets. (3) Work continued on, among other projects, airport firefighting equipment and techniques, antiskid runway paint, and an emergency arresting system involving a cable across the runway to prevent aircraft overruns because of slippery conditions or overshot landings.

- Aircraft crashworthiness: (1) Potential for reducing fuel spill in a survivable crash was demonstrated by crash tests performed during fiscal year 1969 on transport aircraft wings having certain structural improvements and containing fuel tanks coated in selected areas with elastomer-polyurethane foam. (2) Various thickened (gelled or emulsified) safety fuels were evaluated during the year for crash-fire characteristics with the aid of a laboratory-type rating system devised for FAA by the Interior Department's Bureau of Mines; these ratings, together with results from testing compatibility of the same safety fuels with jet transport and engine fuel systems (a process continued into and completed in fiscal year 1969), will be the basis for selecting an optimum safety fuel to be subjected to follow-on full-scale qualification tests. (3) Tests of crash impact on large-scale fuselage models during fiscal year 1969 showed an analytical digital computer program developed in previous years to be useful for evaluating, in the design stage, new concepts in fuselage crashworthiness.
- In-flight hazards: (1) Atmospheric turbulence continues to pose hazards. Notable R. & D. activities in this area in fiscal year 1969 included: (a) The working out of a new approach to the problem of CAT (clear air turbulence) by FAA in conjunction with the NMC (National Meteorological Center)—an approach in which the location and movement of regions of probable CAT (such regions being identified by new computer-based techniques of probability analysis provided on contract to FAA) can be forecast through being related in computer programing to NMC's improved-model forecasts of temperatures and winds up to 40,000 feet; (b) continued study of the problem of aircraft wake turbulence; and (c) completion of the instrumenting of three jet transports with systems capable of recording engineering-quality flight data during the unusual events, including encounters with severe turbulence, occasionally experienced by aircraft in scheduled airline service. (2) Extinguishing of in-flight turbine-engine fires with liquid nitrogen was found feasible in a test by FAA. (3) Work continued on various other programs underway in previous years to reduce or eliminate in-flight hazards—notably midair collisions, aircraft sabotage, and aircraft piracy (on the last, see separate heading above).
- General aviation: (1) An objective standard of operational competence against which candidates for the private pilot certificate can be measured in their flight tests is the aim of a study begun in fiscal year 1969 on the basis of a survey of the flying habits of the private pilot population completed during the year; steps were begun toward developing similar objective standards for testing candidates for the commercial

pilot certificate or for an instrument rating. (2) Tests in the icing research tunnel at NASA's Lewis Research Center, Cleveland, Ohio, revealed that ice adhesion to certain wing-mounted passive materials was so weak that testing of these materials on an aircraft in flight is warranted. (3) Other projects dealt with improving stall warning systems, training of student pilots simultaneously for the private pilot certificate and an instrument rating, determining which (if any) design practices contribute to general aviation accidents involving pilot error, examining effects of elapsed calendar time since certification on instrument-rating skills of both private and commercial pilots, and correlating preflight practices with subsequent safe or unsafe flight.

- Human factors in flight: (1) Factors affecting livability of the SST cabin environment were studied for limits now incorporated in the SST tentative airworthiness standards, including pressure and temperature levels and ozone standards; further baseline data were obtained on cosmic rays at SST operating altitudes by USAF aircraft using special FAA-developed sensor devices. (2) Further study of pilot aging in relation to psychophysical and medical changes was undertaken, in cooperation with the U.S. Navy, using a group of approximately 1,000 aviators previously assessed in 1940, 1952, 1958, and 1964.
- Other safety R. & D. activities: In addition to the foregoing, work continued on (a) integration and testing of subsystems of SEAL (signal evaluation airborne laboratory), the improved flight-inspection equipment being developed for FAA, (b) improving the survivability of the magnetic tapes of airborne recorders, which often contain information of vital importance to investigators of aircraft accidents, and (c) a device to make sport parachuting safer by giving the parachute jump instructor remote control of student parachuting.

Other Aviation Safety Developments. Outstanding among activities to promote aviation safety not mentioned above was FAA's general aviation accident prevention program (Project 85). Having progressed through a planning and preparatory phase during fiscal year 1968, the program was implemented on July 1, 1968, for a 2-year trial in the Central and Southwest Regions. Under this program an accident-prevention specialist at each general aviation district office stimulates and focuses cooperation of the aviation public, the aviation industry, and government agencies toward the goal of a substantial reduction in the number of general aviation accidents. During the first year of the tryout, letters of support and approval were received from all segments of the aviation industry, general aviation pilots attended program meetings and clinics in large numbers, and the Governors of all the States in the two FAA regions concerned had proclaimed or planned to proclaim an aviation month.

In additional notable developments, FAA (1) published an advisory circular on emergency locator radio beacons, which are of special interest as a device (in one class of such beacons) for helping rescuers locate crashed aircraft in unpopulated areas, (2) adopted a modification of the

standard VASI (visual approach slope indicator) permitting a less expensive but adequate version of this navigational aid to be installed at airports of relatively low activity and at airports serving smaller aircraft, and (3) announced, in December 1968, that the policy on reporting of near midair collisions in effect through calendar year 1968—i.e., immunity from FAA adverse regulatory action for persons involved in a voluntarily reported incident—would be continued through calendar year 1969 to encourage uninhibited reporting as a help to determining counteractive measures.

Safety Record for the Year. The accompanying tables of statistics issued by the National Transportation Safety Board provide the opportunity to inspect the accident and fatality rates of the principal segments of U.S. civil aviation during calendar year 1968 in the perspective of the corresponding rates for the preceding decade. Separate tables are included for (1) U.S. certificated route air carriers providing scheduled domestic and international passenger service, (2) U.S. supplemental ("nonsked") air carriers (the statistics in this table being based on both civil and military-contract passenger operations), and (3) general aviation (all nonairline civil aviation).

The reader should keep in mind that the trend of the figures over a period of several years is more significant than the fluctuation between adjacent years.

Airspace Management

If safety is the better part of FAA's mission, the efficient and equitable utilization of the Nation's airspace comprises the better part of the rest. And like safety, this function requires competent people, sufficient and properly maintained facilities, and a well-designed air traffic control system. Events of this reporting period amply demonstrated how vital any one of these three elements can be to efficiency in the airways.

Fiscal year 1969, like the 7 preceding fiscal years, registered record levels of air traffic activity; this year's activity, however—unlike that of previous years—seriously strained the capacity of the air traffic control system, causing unprecedented traffic bottlenecks.

During the reporting period, FAA's ATCT's (airport traffic control towers) handled 55,900,642 takeoffs and landings, exceeding the fiscal 1968 total of 52,998,583 by 5 percent; FAA's ARTCC's (air route traffic control centers) handled 20,562,235 aircraft flying under instrument flight rules, exceeding the fiscal year 1968 total of 18,093,385 by 14 percent.

Admittedly, the year-to-year rise in activity, though substantial, was short of dramatic. But air traffic does not flow evenly; it fluctuates with the seasons. FAA's air traffic control system did not begin to strain acutely until the arrival of the calendar year 1968 summer tourist season and its host of vacationing air travelers.

Schedule Restrictions. Only part of the ATC system was put under strain. The en route system had no serious difficulty feeding the terminal areas (though some ARTCC's, notably the Chicago one, worked overtime to keep up with the traffic); nor were the small and medium hubs in ap-

TABLE 16. Accidents, fatalities, rates—U.S. general aviation

Calendar year	Accidents		Fatalities	Aircraft hours flown (000) [1]	Aircraft miles flown (000) [1]	Accident rates			
						Per 100,000 aircraft hours flown		Per million aircraft miles flown	
	Total	Fatal				Total	Fatal	Total	Fatal
1958	4,584	384	717	12,579	1,660,109	36.4	3.1	2.8	0.2
1959	4,576	450	823	12,903	1,716,019	35.3	3.5	2.7	0.3
1960	4,793	429	787	13,121	1,768,704	36.5	3.3	2.7	0.2
1961	4,625	426	761	13,602	1,857,946	34.0	3.1	2.5	0.2
1962	4,840	430	857	14,500	1,964,586	33.4	3.0	2.5	0.2
1963	4,690	482	893	15,106	2,048,574	31.0	3.2	2.3	0.2
1964	5,069	526	1,083	15,738	2,180,818	32.2	3.3	2.2	0.2
1965	5,196	538	1,029	16,733	2,562,380	31.1	3.2	2.0	0.2
1966	5,712	573	1,149	21,023	3,336,138	27.2	2.7	1.7	0.2
1967	6,115	603	1,228	22,153	3,439,964	27.6	2.7	1.8	0.2
1968 (Prelim.)	[2] 5,069	692	1,374	23,972	3,740,000	21.1	2.9	1.4	0.2

[1] Source: FAA

[2] Commencing January 1, 1968, the definition of "substantial damage", and therefore, of a reportable accident, was changed; therefore fewer accidents were reported. Care should be used in comparing with similar data for prior year.

Source: National Transportation Safety Board
Department of Transportation
Washington, D.C. 29501
January 15, 1969

TABLE 17. Accidents, fatalities, fatality rates—U.S. certificated route air carriers: scheduled domestic and international passenger service

Calendar year	Accidents		Fatalities				Passengers carried	Passenger-miles flown	Passenger fatality rate per 100 million passenger-miles flown
	Total	Fatal	Passg.	Crew	Other	Total			
1958	54	6	124	15	5	144	48,853,324	32,497,133,000	0.382
1959	67	10	268	42	0	310	59,002,094	37,765,609,000	0.710
1960	67	12*	336	42	11	389	57,886,566	40,484,908,000	0.758
1961	58	5	124	11	1	136	58,411,977	41,701,560,000	0.298
1962	43	5	158	25	0	183	62,548,399	45,853,343,000	0.264
1963	49	5	121	24	0	145	71,437,828	52,703,333,000	0.230
1964	53	9	200	26	1	227	81,762,273	61,022,488,000	0.261
1965	63	7	226	27	0	253	94,662,314	71,796,399,000	0.315
1966	53	4	59	13	0	72	109,390,556	83,142,197,000	0.071
1967	51	8	226	24	5	255	132,088,038	103,381,996,000	0.219
1968 (Prelim.)	54	13*	305	34	6	345	148,700,000	113,300,000,009	0.269

*Includes two midair collisions nonfatal to occupants of air carrier aircraft involved.

General notes: 1. Passenger deaths occurring in sabotage accidents are included in the passenger fatality column, but excluded in the computation of passenger fatality rates. Years and deaths involved: 1960, 29; 1962, 37; 1964, 41.

2. The 1958 figures do not include those for Alaskan air carriers.

Source: National Transportation Safety Board
Department of Transportation
Washington, D.C. 20591
December 31, 1968

TABLE 18. Accidents, fatalities, fatality rates—U.S. supplemental air carriers: passenger operations (civil and military)

Calendar year	Accidents		Fatalities				Passengers carried	Passenger-miles flown	Passenger fatality rate per 100 million passenger-miles flown
	Total	Fatal	Passg.	Crew	Other	Total			
1958	2	0	0	0	0	0	676,072	1,152,988,000	0
1959	5	1	1	2	0	3	895,518	1,629,556,000	0.061
1960	3	2	93	9	0	102	1,057,933	2,207,595,000	4.13
1961	2	2	151	9	0	160	978,171	1,543,027,000	9.786
1962	1	0	0	0	0	0	823,838	1,789,154,000	0
1963	2	0	0	0	0	0	(est.) 749,164	1,533,810,000	0
1964	0	0	0	0	0	0	674,489	1,502,018,000	0
1965	0	0	0	0	0	0	1,060,206	2,489,173,000	0
1966	1	1	78	5	0	83	1,597,911	4,125,445,000	1.891
1967	0	0	0	0	0	0	2,315,820	5,995,901,000	0
1968 (Prelim.)	3	0	0	0	0	0	2,600,000	9,050,000,000	0

Source: National Transportation Safety Board
Department of Transportation
Washington, D.C. 20591
December 31, 1968

preciable distress. But the large hubs, particularly New York, Chicago, and Washington, were jammed with aircraft unable to take off or land on schedule.

On one day in July, a total of 1,927 aircraft in the vicinity of New York City were delayed either in taking off or landing—some for as long as 3 hours. From this large east-coast hub, congestion spread to other points. Once aircraft stacked up over New York's airports, other New York-bound aircraft were forced to sit on the ground either at their points of origin or elsewhere, all the while using up ramps originally intended for incoming flights. Hence, stacks began to form at other airports. In at least one instance, a transcontinental flight was actually delayed on the ground in Los Angeles because of traffic congestion at Kennedy International. At the root of the problem was the inability of the airports at these hubs to accommodate the traffic. They just did not have enough concrete.

The long-term cure, of course, is more airports and more capable ATC systems. In the interim, FAA took some ad hoc measures to prevent another crisis during the fiscal year 1970 tourist season.

The most important of these measures was adoption of a rule limiting the number and type of IFR (instrument flight rules) operations (takeoffs and landings) between the hours of six in the morning and midnight at John F. Kennedy International, La Guardia, Newark, Washington National, and Chicago's O'Hare International Airports. In promulgating the rule, FAA declared that the measure reflected "the obligation of the Department of Transportation to provide for efficient utilization of the airspace . . . ."

Going into effect on June 1, 1969, and scheduled to run until December 31, 1969, the rule assigns the following hourly quotas for IFR operations at these airports: Kennedy International, 80 (70 for air carriers and supplementals; 5 for scheduled air taxis; 5 for general aviation); La Guardia, 60 (48 for air carriers and supplementals; 6 for scheduled air taxis; 6 for general aviation); Newark, 60 (40 for air carriers and supplementals; 10 for scheduled air taxis; 10 for general aviation); Washington National, 60 (40 for air carriers and supplementals; 8 for scheduled air taxis; 12 for general aviation); O'Hare, 135 (115 for air carriers and supplementals; 10 for scheduled air taxis; 10 for general aviation). The rule does not charge extra sections of scheduled air carrier flights against the established quotas, except at Kennedy International; this airport, however, is permitted 10 extra air carrier operations per hour during the peak traffic period between 5 p.m. and 8 p.m.

As can be seen, the new rule gives preference to air carriers and air taxis over general aviation. This was done "in accordance with the policy of recognizing the national interest in maintaining a public mass air transportation system . . . ." the agency noted. FAA made it clear, however, that the "concept of 'first come-first served' remains as the fundamental policy governing the use of airspace so long as capacity is adequate to meet the demands of all users without unreasonable delay or inconvenience."

Area Navigation. The crisis of July and August also spurred FAA to take another important step to improve the efficiency of the air traffic control

system: the agency accelerated preparations for the eventual introduction of area navigation.

The air navigation system used in the United States today requires pilots to fly directly toward or away from a ground-based radio navigation aid (a VOR or VORTAC) transmitting a line of position, or radial. Obviously, a system that requires all traffic to be funneled over fixed ground-based sites has its drawbacks; the number of routes attainable between two points is severely limited. Since routes are established along navaids, they do not necessarily lie along the shortest and most convenient paths for travel between given points. The route limitations imposed by the ground equipment are felt even more acutely in and around terminal areas because arrival and departure procedures are based in large measure on the same navaids serving the en route portion of the route structure. Hence, as aircraft in transition make altitude changes, more traffic is funneled into the limited route structure, causing congestion and making life very difficult for the terminal controller.

With area navigation, aircraft need not fly a track to or from a navaid. Pilots flying appropriately equipped aircraft can follow any arbitrary track within the limitations of the system. An airborne computer calculates the aircraft's position and displays track and distance to any point selected by the pilot or prescribed by the controller.

The advantages of area navigation over the present system are numerous: (1) Routes can be established along the shortest and most convenient paths, eliminating the doglegs imposed by the present system; (2) parallel and one-way routes can be established to reduce congestion; (3) aircraft can be segregated according to speed and destination; (4) navaids can be placed at accessible points on more favorable terrain; (5) departure routes can be designed to lead directly from the runway to the appropriate parallel airway; (6) arrival routes can be designed to accept traffic directly from en route airways.

Of course, the objective of area navigation is not to afford pilots the opportunity to fly any random route of their choosing, but to make more efficient use of the available airspace. Allowing routes to proliferate at random would be self-defeating in any traffic situation where volume is a factor; hence, in cooperation with air carriers, the agency is defining and charting basic area navigation routes. During the fiscal year, the agency concentrated on working out routes for the busiest terminal areas in the contiguous 48 States and on determining the best direct-line routes between New York and Chicago. In June 1969, the agency issued a notice of proposed rulemaking allowing for the designation of area navigation airways that can be used by aircraft equipped with suitable area navigation equipment. At year's end, the agency was in the process of preparing an FAA advisory circular establishing procedures for approving area navigation routes and setting standards for approving airborne area navigation equipment.

National Airspace System Modernization

As FAA had readily admitted, the imposition of schedule restrictions was in the nature of an emergency response to a serious crisis; it was not meant to be a long-term solution to congestion in the air. Nor is the agency depending solely on new air navigation techniques and an intensified Federal-aid airport program. As a matter of fact, the agency is now in the midst of a NAS (National Airspace System) modernization program. This program, which contemplates a broad-gauged use of automation in air traffic control, will increase both the capacity and efficiency of the ATC system and lighten the manual-chore workload of the air traffic controller.

NAS Terminal Automation. This fiscal year saw the control of all IFR operations in the Metropolitan New York area consolidated in one terminal facility—the New York common IFR room, located at John F. Kennedy International Airport. The manual IFR operations controlled by the Kennedy TRACON (terminal radar approach control) were transferred to this common facility in July 1968; those controlled by the Newark TRACON, in August; those by the La Guardia TRACON, in September. In addition to controlling takeoffs and landings at these three major airports, the common IFR room has 19 satellite fields in the Metropolitan New York area under its jurisdiction.

In June 1969, the common IFR room shifted from a manual radar system to a computerized alphanumeric radar system. This shift made New York the second terminal area in the United States—Atlanta was the first—to use alphanumerics in air traffic control on other than an experimental basis.

Ultimately, aviation hubs throughout the United States will be equipped with automated radar terminal systems of one configuration or another. Among the more notable developments of the 1969 fiscal year in the terminal automation program were:

- Enhancing the air traffic control capabilities of the Atlanta terminal area by adding a third UNIVAC 1218 computer to the area's ARTS (automated radar terminal system) configuration.
- Reaching an advanced stage at NAFEC in the testing and evaluation of two prototype models of DAIR (direct altitude and identity readout), one designed for military installations and the other for civil airports. The schedule at year's end called for this work to be completed early in fiscal year 1970.
- Awarding a $35 million contract for the initial purchase of ARTS III equipment. An advanced version of Atlanta's ARTS I configuration, ARTS III will be joined to existing TRACON's at 60 or more of the Nation's busiest airports.

NAS En Route Stage A. Major components of what will become the first operational NAS En Route Stage A system were already in place at the Jacksonville (Fla.) ARTCC when fiscal year 1969 opened. The Jacksonville En Route Stage A system has been serving both as an operational flight data processing facility and as a test-bed for the national automated ATC system that will ultimately provide FAA with radar data processing and tracking capabilities. In December 1968, the data-processing capability

of the Jacksonville system went into operation on a part-time basis. The second automation phase will add radar data processing, aircraft tracking, and alphanumerics to the system. The shakedown testing for this package got underway this fiscal year at NAFEC. At year's end, the package was expected to be operationally tested at Jacksonville in calendar year 1970.

Nineteen other centers in the contiguous 48 States are scheduled for eventual equipment with NAS En Route Stage A. Of these, 10 have already been supplied with NAS En Route Stage A computers—six during this reporting period.

Other NAS En Route Stage A activities during this reporting period included:

- Award of $55.7 million in contracts to (1) procure computers, common digitizers, and other En Route Stage A hardware components; (2) support a systems integration of the various En Route Stage A hardware elements at 20 ARTCC's.
- Issuance of a notice of proposed rulemaking requiring all aircraft operating in controlled airspace at 10,000 feet or higher above mean sea level and in other designated airspace in the contiguous 48 States to be equipped, by January 1, 1973, with radar beacon transponders having 4,096 identification codes and automatic altitude-reporting capability. This transponder is the airborne portion of the semiautomated ATC system.
- Award of a $9 million contract to increase the capacity of the En Route Stage A equipment scheduled for installation at the Chicago ARTCC and NAFEC.

Other Air Traffic Control Developments

Facilities. FAA obligated $131.8 million (including $16.3 million in reimbursable funds) for facility and equipment purchases during the reporting period, including equipment purchases for ARTS and NAS En Route Stage A. The following table compares the number of major air navigation facilities in use in the civil-military common system at the end of fiscal year 1969 with the number in use at the end of the preceding fiscal year.

Alaskan North Slope Activity. The discovery of oil in the Prudhoe Bay area on Alaska's North Slope brought a dramatic increase in air traffic activity to this vast frozen wilderness. It also placed a great burden on each of the three major air traffic facilities located in or near the city of Fairbanks. Fairbanks is the key transportation and communications link between Alaska's northern interior and the North Slope; the city is a way station for most cargo and passengers moving to or from Alaska's Arctic oil fields. Hence, the demand for flight services performed by the Fairbanks FSS rose 325 percent between the end of fiscal year 1968 and the end of fiscal year 1969 (from 33,993 separate services rendered to 144,429); the Fairbanks RAPCON recorded a 56-percent increase in en route traffic (from 33,709 aircraft handled to 52,731), the Fairbanks ATCT a 32-percent increase in takeoffs and landings (from 87,975 operations to 116,022).

TABLE 19. Number of major air navigation facilities in civil-military common system at end of fiscal years 1968 and 1969 [1]

Major Facility	Number	
	June 30, 1969	June 30, 1968
Air route traffic control center (ARTCC)[2]	27	27
Air route surveillance radar (ARSR)	90	89
Remote communications air/ground site (RCAG)	378	376
VOR/VORTAC (all combinations)	951	948
Airport traffic control tower (ATCT)	304	291
Combined station/tower (CS/T)	51	50
Airport surveillance radar (ASR)	155	154
Military radar approach control facility (RAPCON or RATCC)	31	33
Precision approach radar (PAR)	28	32
Instrument landing system (ILS) [3]	284	280
Approach light system with sequence flashing (ALS/SFL)	279	254
Flight service station (FSS)	334	332
International flight service station (IFSS)	10	11

[1] Source: FAA Air Traffic Service Fact Book. Figures shown include all facilities in the civil-military common system—i.e., facilities installed and/or operated with FAA funds; military facilities performing services for civil users; non-Federal facilities in the common system.

[2] Both fiscal 1968 and 1969 figures include two center/radar approach control facilities (CERAP's).

[3] Figures include partial ILS's.

On the North Slope itself, the story was similar. The Bettles and Point Barrow FSS's—the two stations serving the area—each experienced a sharp rise in the number of flight services rendered. Services performed by the Point Barrow station rose 500 percent, to 17,221; the number performed by the Bettles station rose 87 percent, to 16,168.

In order to accommodate this traffic, FAA and the oil companies drilling in the area collaborated to bolster the air traffic facilities on the Slope. The oil companies built six new airfields, and both FAA and the companies installed navaids to serve the area. Chandalar Lake got a nondirectional radio beacon. Prudhoe Bay received an RCAG (remote communications air-ground facility). Initial steps were also taken to install a VORTAC and a radar facility on the Slope and improve the en route and terminal capabilities of the Barrow area.

With the appropriate facilities in place, FAA's Alaskan Region was able to establish controlled airspace over the North Slope, though not so soon as it had hoped. During the early part of the fiscal year, special voluntary communication procedures had been put into effect until FAA could designate routes and transitional areas and install equipment necessary for controlled operations. Problems with antennas and a military-owned microwave link, on which the Prudhoe Bay RCAG was totally dependent, delayed the establishment of controlled airspace until April 1969.

Given the size of the oil strike, traffic in the area is expected to continue to increase; indeed, at year's end, fiscal year 1970 winter operations between

Fairbanks and the Slope were expected to be twice as heavy as fiscal year 1969 winter operations. With this prospect ahead, FAA presented to the oil companies (in May 1969) a plan of action for improving the safety and efficiency of aircraft operations over the Slope. The plan calls for the companies to assume the cost of constructing and establishing air navigation sites and for FAA to furnish the navigational equipment and to operate the sites. Though the plan was well received by the oil companies, it still remained to be adopted when the year closed.

Other. In addition to the foregoing, FAA—

- Delivered BRITE–1 displays to 86 air traffic control towers.
- Sought to improve the overall capabilities of the existing instrument landing system under a 5-year study begun in March 1969. This study, which is being conducted by a State University, gives particular attention to interference problems.
- Began testing a low-cost solid-state device for reducing radar clutter caused by weather conditions.
- Ordered the primary equipment for a new teletypewriter communications system for weather reporting. This equipment, scheduled for a Kansas City, Mo., location, will perform all the message-relay functions now performed by 36 separate relay centers, and all the switching functions now performed by three weather distribution networks. At year's end, the complete system was expected to be in place and operating early in fiscal year 1972.
- Completed a program at seven ARTCC's providing diversified and redundant communication paths between control centers and critical locations.
- Contracted for 13 airport surveillance radars (ASR–7 model) employing the latest developments in solid-state electronics. The agency also ordered 21 video systems that display maps and other air traffic information on terminal radarscopes.
- Reconfigured, and virtually completed the modernization of, the Alaskan flight service station system.
- Awarded a $350,000 contract to an airframe manufacturer for research on the use of satellites in ATC communications.

National Defense

FAA's national defense activities during fiscal year 1969 may be divided into three broad categories: those involving joint programs or other forms of direct cooperation with one or more components of the DOD (Department of Defense), those concerned with FAA's responsibility for the defense readiness of civil aviation, and those concerned with FAA's own readiness as an agency for defense emergencies.

Cooperation with Components of DOD. Because of the interface between civil and military aviation, FAA and the Armed Forces have a sizable community of interest. This shared interest, centering in the civil-military common system of air traffic control and navigation, which FAA operates and maintains, gives rise to numerous programs. During fiscal year 1969,

some 150 major programs involving FAA-DOD cooperation were monitored by FAA's Defense Coordination Staff and its counterpart in DOD, the Civil Aviation Liaison Office. To help with such coordination and as participants on behalf of FAA in many such programs, military personnel have been a part of the agency's regular staffing since FAA superseded the Airways Modernization Board and the Civil Aeronautics Administration, in 1958. At the end of fiscal year 1969, FAA's staffing included 38 officers of the Armed Forces (the number at the end of fiscal year 1968 was 44).

Joint planning previously accomplished by FAA and DOD concerning their national-emergency relationships was under review during fiscal year 1969. Such planning was initiated in response to Executive Order 11161, dated July 7, 1964, which directed DOD and the then independent FAA to base their joint planning for war or a national emergency short of war on the probability that in such a contingency the President would make FAA an adjunct of DOD. FAA's subsequent incorporation into the Department of Transportation has required further consideration of certain points covered in earlier planning.

While such planning went forward, FAA continued to provide, as in previous years, a variety of services to DOD involving airspace reservations and air traffic control. When the agency can serve military flying in the same way as civil flying—that is, with the normal air traffic control and flight services—this is done. Often, however, the military require airspace reservations for special purposes—including national defense exercises, aircrew proficiency training missions conducted by air defense components of the Army and Navy as well as by three major Air Force operational commands (Aerospace Defense Command, Tactical Air Command, and Strategic Air Command), and overseas deployments of Air Force combat and support units to Southeast Asia and Europe. All such reservations are handled by FAA's CARF (Central Altitude Reservation Facility), in Washington, D.C. During fiscal year 1969, CARF processed a total of 8,391 military altitude reservations. (The year before, the figure was 10,525.)

U.S. activities in Southeast Asia continued during the 1969 fiscal year to require important FAA support services. Highlights include the following:

- The Southeast Asia airlift of civil air carriers under military contract continued at a high level of activity but made only "normal" demands on FAA in its safety-regulating role during fiscal year 1969. This airlift, since its beginning in January 1966, has easily surpassed any previous transoceanic air operation in volume of passengers and cargo moved. During fiscal year 1969, cooperation of the organizations concerned—the U.S. military, the contract civil air carriers, FAA (including the civil aviation assistance group in South Vietnam), and the South Vietnamese Government—resulted in improved communications and security, better operational procedures, and vastly improved airport facilities.
- FAA-administered Wake Island continued its valuable role as a staging area for Military Airlift Command aircraft and contract air carriers on the Vietnam airlift. During fiscal year 1969, the Wake interna-

tional flight service station provided in-flight services to 48,000 long-range aircraft of the Armed Forces, most of which were engaged in support of the Vietnam military effort, and to 30,000 civil aircraft, the majority of which were under contract to the Military Airlift Command for the same purpose.

- The Guam CERAP (a facility combining an FAA air route traffic control center and an Air Force RAPCON, or radar approach control facility) played for the fourth consecutive year a significant role in support of military activities in Southeast Asia. Though gradually reduced in number, missions to Southeast Asia requiring FAA traffic control services on Guam continued during fiscal year 1969 on a round-the-clock basis.
- FAA-installed electronic equipment and FAA technicians (on a reimbursable basis) continued to help both the U.S. Air Force and the U.S. Army carry out their missions in Southeast Asia. At the end of fiscal year 1969, there were 52 Army and Air Force facilities in South Vietnam and Thailand with FAA-supplied electronic equipment, and four FAA electronic specialists had traveled nearly 150,000 miles during the year by land (using military jeeps) and air (using both military and commercial aircraft) to assist Army and Air Force units with training, engineering, and logistic support connected with operating these facilities.
- Air traffic control advisers and an air traffic control training specialist continued to be provided by FAA to major commands of the U.S. Air Force in Southeast Asia and the Far East on a reimbursable basis. Such FAA employees continued to be based in Japan, Okinawa, the Philippines, Vietnam, Thailand, Taiwan, Korea, and Hawaii.

Laser firing into the airspace over Maui Island (Hawaii) in experiments by DOD's ARPA (Advanced Research Projects Agency) and the Smithsonian Institution required FAA to take special precautions to prevent any possible hazard to air travel. The ARPA and Smithsonian astrophysical observatories conducting the experiments are located on Mount Haleakala (on Maui), thus underlying the network of local airways. During fiscal year 1969, FAA's Pacific Region approved a controlled firing area surrounding the observatories, and all laser operations are coordinated with FAA air traffic service facilities.

The Apollo program continued to receive communications support from FAA in conjunction with the Air Force. During fiscal year 1969, FAA installed additional radio equipment and antennas furnished by the AFWTR (Air Force Western Test Range), thus greatly expanding the voice and data communications capabilities essential to the program's support. Airspace services were provided for the prime and alternate recovery areas for the Apollo 8 and Apollo 10 manned moon-orbiting missions.

Joint use of long-range radars has continued to be practiced by FAA and DOD to the maximum extent possible—FAA using them for air traffic control, DOD for air defense. A further reduction, however, was made during fiscal year 1969 in the number of joint-use radars in the DOD aerospace

defense system, from 21 to 18, while the number of FAA-owned joint-use radars remained at two. Thus, the total number of long-range radars jointly used by FAA and DOD in the contiguous United States at the end of fiscal year 1969 was 20 (as compared with 23 at the end of fiscal year 1968). Outside the contiguous United States, a total of six long-range radars are used jointly by FAA and DOD.

Aircraft development is another area in which FAA and the military services have been cooperating to their mutual benefit for many years. Notable items during fiscal year 1969: (1) FAA and the USAF cooperated in investigating certain characteristics of executive jet aircraft, the results to be used by FAA to help establish flight characteristics for high-subsonic-speed jet aircraft and by the USAF to help achieve improved military flying characteristics. (2) FAA expects to use as a basis for criteria applying to civil helicopters a new military specification for rotary-wing handling characteristics being developed in U.S. Army research programs in which FAA participated during fiscal year 1969.

Civil Aviation Defense Readiness. The responsibilities for civil aviation defense planning assigned to FAA by Executive Order 11003, dated February 16, 1962, when FAA was an independent agency, are now delegated to the agency by the Secretary of Transportation under the provisions of the Department of Transportation Act of 1966. These responsibilities embrace national emergency plans and preparedness programs for the Nation's civil airports, civil aviation operating facilities and services, and general aviation aircraft (i.e., non-air-carrier aircraft).

FAA continued during fiscal year 1969 its assistance to the Office of the Secretary of Transportation in planning for the Air Force's operation of the CRAF (Civil Reserve Air Fleet) during national emergency conditions (the CRAF consists of air carrier aircraft). The agency also continued assistance to the Civil Aeronautics Board in support of the WASP (War Air Service Program); an important element of this support is FAA's coordination of claimancy actions to procure critical materials under the priority system applying in a national emergency.

At the international level, FAA participated in the planning activities of the following bodies concerned with civil aviation defense readiness: Joint United States-Canada Civil Transportation Emergency Planning Committee; Joint United States-Mexico Committee on Emergency Planning and Disaster Assistance; North Atlantic Treaty Organization (NATO) Civil Aviation Planning Committee.

An aviation war risk insurance program continued to be administered by FAA under title XIII of the Federal Aviation Act of 1958 (as amended) and a delegation of authority from the Secretary of Transportation under the Department of Transportation Act of 1966. Under this program, a standby insurance binder plan would make aviation war risk insurance available upon the outbreak of war to American civil aircraft, and also to foreign-flag civil aircraft, engaged in operations deemed to be in the interest of U.S. national defense or the U.S. national economy. On June 30, 1969, aircraft covered by premium insurance binders under this program

numbered 76, and the resulting maximum contingent liability was $4,727,782,000.

In addition, the program currently provides, at the request of the Secretary of Defense, aviation war risk insurance without premium to U.S. civil air carriers under contract to the Military Airlift Command for airlift services, including such services as involve overseas destinations where warlike actions may be encountered. Covered by no-premium policies on June 30, 1969, were 400 aircraft engaged in operations under military contract or committed to the Department of Defense in event of national emergency; the maximum contingent liability under these policies amounted to $35,874,810,772.48.

Further, the program is currently issuing, at the request of the Department of State, war risk insurance binders without premium to U.S. civil air carriers under contract to that Department. On June 30, 1969, aircraft in this category numbered 62, and the insurance binders covering them involved a maximum contingent liability of $5,597,350,000.

The total contingent liability under the aviation war risk insurance program as of June 30, 1969, was $37.3 billion (some aircraft are covered by more than one of the foregoing types of insurance).

Revenue for the 1969 fiscal year was $18,100, and administrative expenses (including an adjustment of $1,179.36 applicable to the previous year) totaled $18,305.06. Retained earnings at the beginning of the year were $36,534.34; at the end of the year, $36,329.28.

Applications for inclusion of additional aircraft in the program were being processed at year's end.

FAA Emergency Responsiveness. To improve its ability to respond as an agency to defense or other emergencies, FAA during fiscal year 1969 (1) brought to the final stages of coordination a completely revised FAA headquarters defense readiness plan; (2) developed and published for agency use in tests, exercises, or actual emergencies a manual pertaining to the damage-assessment system and procedures; (3) developed and implemented the Emergency Relationship Orientation Course, designed for senior officers of the agency; (4) began revision of the agency's handbook for emergency resource management, with completion anticipated during the first half of fiscal year 1970; and (5) made excellent progress in restoring facilities and structures destroyed or damaged by Typhoon Sarah on Wake Island in September 1967, including restoration of the control tower and all communication and navaid facilities, repair of 115 damaged houses, and start of construction on 43 new houses.

Fostering Domestic Aviation

The Secretary of Transportation has delegated to the Federal Aviation Administrator the authority and duty (vested in the Secretary by the Transportation Act of 1966) to "encourage and foster the development of civil aeronautics and air commerce in the United States and abroad." FAA's domestic-aviation activities during fiscal year 1969 under this responsibility are reported below.

Airports: Federal Grants-in-Aid. Congress appropriated $70 million in FAAP (Federal-aid airport program) funds for fiscal year 1969. FAA, in turn, entered into 513 airport-aid agreements and obligated a total of $103.4 million (net) in FAAP funds. (FAAP funds carried over from previous years account for the difference between fiscal year 1969 appropriations and obligations.) In allocating these funds, FAA assigned the highest priority to safety facilities required for all-weather operations; also stressed were projects designed to relieve airport congestion.

Airports: Development. Adequate planning and financing are key ingredients in any successful airport development program. A third essential ingredient is sufficient acceptability of a suitable site to all interests concerned. During fiscal year 1969, the truth of this last statement was emphasized in the form of emerging problems confronting planners for the future airport needs of Miami, Fla., and reemphasized with respect to similar planning for New York City. The Dallas-Fort Worth area has been more fortunate in this respect.

Ground was broken for the Dallas-Fort Worth Regional Airport in December 1968, culminating years of planning and negotiation. Perhaps the prime example of the regional-airport concept in the United States—a concept advocated by FAA and the CAB as early as 1961—this airport will occupy an 18,000-acre tract approximately equidistant from Dallas and Fort Worth. When completed (in late 1972, according to the present schedule), it will give these two cities one of the largest and most capable jetports in the world. FAA has thus far invested $7.5 million of FAAP funds in the project.

FAA also granted $500,000 in fiscal year 1969 for the construction of a transition and training airport with potential to grow into a new Miami jetport. Looking ahead to the day when Miami International Airport will no longer be able to handle the air carrier traffic of the Miami-Miami Beach area, the Dade County Port Authority acquired 39 square miles of land in the ecotone between Big Cypress Swamp and Everglades National Park as a future jetport site. In September 1968, ground was broken at this site for a single-runway pilot training field. Such a field would divert as many as 200,000 training flights per year from Miami International and thus postpone the saturation of that airport; eventually, the field could serve as the nucleus for a supplemental air carrier facility for Miami. From an airport builder's point of view, the Everglades site seemed nearly ideal. Lying 40 miles west of Miami and surrounded by natural buffer zones, the proposed airport would pose neither a noise nuisance nor an air pollution threat to south Florida residents. Conservationists, however, mounted a campaign against the use of this tract as an airport site; a major airport, they held, would upset the delicate ecology of the Everglades. The Secretaries of Transportation and the Interior responded by appointing a joint committee to coordinate environmental studies touching on this question. At year's end, the future of this tract as a site of a major airport was in doubt; but the problem has come early enough to be resolved before Miami's need for the new facility becomes acute.

In the New York City area, on the other hand, time for providing a fourth jetport has run out. A decade has been spent in seeking a site, and during that period nearly two dozen possibilities have been studied and rejected. During that same period, traffic at the existing three jetports has swollen more than 150 percent. The chief difficulty in the search for a site is the third ingredient mentioned above: though everybody agrees on the need for a new project, there is vehement opposition from some quarter to every proposed location. In March 1969, FAA representatives appeared before the New Jersey legislature and reemphasized the agency's belief that the proposed Solberg site in New Jersey's Great Swamp is a suitable location for the fourth jetport. The issue, however, has reached an impasse, and favorable legislative action appears unlikely during calendar year 1969.

National Capital Airports. Combined passenger traffic at FAA-operated Washington National and Dulles International Airports increased to 12.1 million, exceeding the 1968 fiscal year's total by 6.2 percent. Washington National accounted for the lion's share of this traffic, handling 10.1 million passengers—the first year this airport has exceeded the 10 million passenger mark; Dulles handled 2 million passengers—the first time this airport attained the 2-million passenger mark. Combined aircraft operations at the two airports decreased, to 558,600—a 0.7 percent decline from fiscal year 1968. This decrease was due to a drop in the number of military operations at Dulles and to commercial schedule restrictions in effect at Washington National.

The airports had a combined fiscal 1969 gross income of $12.2 million and a profit before deductions of $3.1 million. After deducting $14.9 million for depreciation and interest (the bulk of which was chargeable to Dulles), the airports showed a net loss of $11.8 million.

A number of other fiscal year 1969 developments at these airports were (1) inauguration of STOL service between Dulles, Washington National, and Baltimore's Friendship International Airport; (2) grant of a 5-year contract to the Greyhound Corp. to provide ground transportation service between Dulles and National and the Washington metropolitan area; (3) completion of four conceptual designs for modernizing and improving the people-handling capability of Washington National; (4) opening of 1,050 automobile parking spaces at Washington National.

Noise Abatement. The fight against aircraft engine noise has suffered in the past because Federal agencies lacked sufficient power to deal effectively with the problem. Congress removed this disability early in fiscal year 1969 with the passage of Public Law 90–411 (approved July 21, 1968). This act vests in the FAA Administrator the power to prescribe rules and regulations for the control and abatement of aircraft engine noise and sonic boom. The Administrator may prescribe noise standards as criteria for aircraft certification, he may require the retrofit of existing aircraft with quieter engines or noise-abating devices, and he may enforce operating procedures that reduce noise.

In January 1969, FAA exercised its powers under the new act by proposing a rule establishing maximum noise levels for all uncertificated sub-

sonic turbojets and all other uncertificated aircraft weighing over 12,500 pounds. At year's end, final action on the rule was expected in fiscal year 1970.

FAA continued to pursue an active research and development program in engine-noise abatement and sonic boom. Some $3,459,000 in fiscal year 1969 funds were available to the agency for such research. The bulk of these funds—$2,800,000—went for sonic boom investigations.

U.S. Supersonic Transport Program. This fiscal year saw The Boeing Company abandon the variable-sweep-wing configuration—the Phase II design-competition winner—in favor of a conventional fixed-wing configuration. Boeing turned to the latter after repeated efforts to integrate the variable-sweep design had failed.

The new configuration—a delta-wing design with a horizontal tail—was submitted to FAA for evaluation in January 1969. A 100-man Government review team drawn from FAA, NASA, and the Defense Department found Boeing had adequately integrated the new design. The team also found that the technical data supporting the design was in sufficient depth to assure a reasonable understanding of the nature of the design and the risks involved. Accordingly, FAA informed the Secretary of Transportation that the program was ready to go into prototype construction.

In late February, President Nixon appointed a 12-member interdepartmental committee to review the SST program and make appropriate recommendations to him. The committee reported to the President in April; by year's end, however, the President had made no announcement concerning the program's future.

Information and Education Programs. To keep civil aviation programs and policies before the public, particularly the flying public, FAA employs a variety of information and public-education programs. During fiscal year 1969, these activities were highlighted by the issuance of approximately 180 press releases to the national news media and the release of 13 new motion pictures.

Agency activities during the fiscal year in aviation education at teaching institutions and workshops included:

- Launching the Experimental Aviation Technology Education Project in cooperation with a number of institutions of higher learning. The objective of the project is to institute college-level programs that are responsive to the manpower needs of the aviation community.
- Distributing 402,000 pieces of aviation education curricula and teaching materials to educators, from the kindergarten through the university level. At year's end, nearly 1,000 high schools and 350 colleges in the United States had aviation education programs.
- Participating in 250 aviation education workshops attended by 15,000 educators.
- Promoting the development of aviation career programs for minority groups. At year's end, several demonstration programs of this kind were in progress.

Other Domestic Aviation Developments. The following fiscal 1969 developments in domestic aviation should also be noted:

- Automated airport data system. This program was launched in April 1969 for collecting, processing, and disseminating data on all civil and joint use airports, heliports, STOLports, and seaplane bases in the United States, Puerto Rico, and the Virgin Islands.
- Rapid transit to Cleveland Hopkins Airport. This rail service, which began in fiscal 1969, provides easy access to Cleveland Hopkins Airport from most sections of Cleveland (Ohio). FAA and other Department of Transportation elements are promoting the introduction of similar service at other large hubs as a way of alleviating congestion on airport access roads.
- Offshore airports. FAA let a $35,000 contract for a study of offshore-airport construction methods.
- Wheel-load effects. FAA, the U.S. Air Force, and the U.S. Army launched a study to determine the wheel-load effects that the Lockheed C–5A, the Boeing 747, and other very heavy aircraft will have on airport pavements.
- All-weather landing. Three airports qualified for operations under Category II minimums, bringing the total qualified to 11.
- Aircraft loan guarantee program. The responsibility for administering this program (which permits the Government, under special circumstances, to guarantee private loans made to local, feeder, and certain other air carriers for aircraft purchases) was delegated by the Secretary of Transportation to the FAA Administrator in June 1968. In October 1968, Congress extended the program's loan-guaranteeing authority to September 1972. In the course of the year, the Department received $13,463.38 in fees on outstanding guarantees. On June 30, 1969, the outstanding balance (principal only) on Government-guaranteed aircraft loans came to $3,903,249.24; the Government's contingent obligation under these guarantees amounted to $3,512,924.32.
- Airport systems planning. A concerted effort was directed to the preparation of a new national airport-planning process that is both long-range and comprehensive in character and involves the participation of the aviation industry, airport-user communities, and all three levels of government.

International Aviation Activities

Participation in International Organizations and Meetings. FAA continued to participate in the activities of ICAO (International Civil Aviation Organization) and other international aviation organizations. Part of such participation is to help in the formulation and coordination of the U.S. position to be taken on aviation questions at international meetings. IGIA (Interagency Group on International Aviation), of which DOT is a member, coordinates the views of U.S. Government and industry elements on international aviation questions; FAA, as the DOT element con-

cerned with aviation, is deeply involved in DOT's activity in IGIA. During fiscal year 1969, IGIA's work included making recommendations on the U.S. position for the 17 ICAO conferences held during the year on various technical, legal, and economic problems confronting aviation around the world. FAA personnel were members of U.S. delegations to, among other international gatherings, eight ICAO air navigation meetings.

Notable among meetings attended by FAA personnel as members of U.S. delegations were (1) the Sixteenth Session of the ICAO Assembly; (2) the Sixth ICAO Air Navigation Conference; (3) the Fifth Meeting of the North Atlantic Systems Planning Group. These meetings covered such subjects as aircraft engine noise, aircraft hijacking, the safe and timely movement of aircraft in the en route segment of flight, and the separation between turbojet air carrier aircraft flying the North Atlantic route.

Foreign Assistance and Training. FAA's activities in the area of foreign assistance are sponsored by the State Department's AID (Agency for International Development) and the Defense Department's military assistance program. During fiscal year 1969, FAA had approximately $5 million available from all sources for foreign assistance operations—down from $8.2 million in the preceding period.

At year's end, FAA was operating 16 technical assistance groups (plus the RAAG (Regional Aviation Assistance Group) in the United States) with personnel scattered over 20 foreign countries. AID sponsored 10 groups; the rest were sponsored by the Defense Department. In addition to staffing these groups, FAA dispatched 29 technicians on temporary duty assignments to 20 countries. The work performed by these technicians amounted to a total of 3.85 man-years of service.

In the training area, FAA trained 184 foreign nationals from 40 countries in various specialized aviation skills. AID sponsored 126 of these trainees, and ICAO 16; the rest were sponsored by their own countries.

Other International Aviation Developments. Other fiscal year 1969 developments in the area of international aviation included:

- Concluding a bilateral airworthiness agreement between the United States and Israel. Israel, seeking to sell Israel-manufactured aircraft in the United States, took the initiative in negotiating the agreement.
- Inaugurating scheduled passenger service between New York and Moscow, on July 15, 1968. Pan American World Airways and Aeroflot are each providing twice-weekly service between these two cities.
- Beginning the first of a series of passenger charter flights to the Soviet Union by Overseas National Airways. This carrier plans similar flights to Hungary.

Administration

On the first day of the reporting period, the White House announced the resignation of General William F. McKee (USAF, Ret.) as Federal Aviation Administrator, effective July 31, 1968. General McKee had served in this post since July 1, 1965. With his administration having only 6 more months

to run, President Johnson chose not to name a successor to General McKee; hence, the Secretary of Transportation designated David D. Thomas, the Deputy Administrator, to serve as Acting Federal Aviation Administrator until the next administration should fill the vacancy. John H. Shaffer, President Nixon's choice for the office, took the oath as the fourth Federal Aviation Administrator on March 24, 1969. On the same date, Mr. Thomas resumed the duties of Deputy Administrator.

Organizational Developments. The plan to realign certain support functions of FAA's regional and area offices went into effect in November 1968 with the issuance of an order directing its implementation. The objective of this realignment is to afford to area managers more time for discharging their day-to-day operational functions by relieving them of their more burdensome support functions. (The more prominent features of the realignment were discussed in the fiscal year 1968 report.)

A further regional-area office realignment was underway late in the reporting period. In May 1969, the FAA Administrator directed that plans be drawn up for consolidating, within the contiguous United States, regional and area offices located in the same city. Thus the area offices located in New York, Atlanta, Kansas City, Fort Worth, and Los Angeles would be eliminated; each would give up its functions and resources to the regional headquarters office located in the same city.

The rationale underlying this last regional-area adjustment was clear enough: it offered operating eeconomies. Preliminary plans prepared by the regions just before the close of the reporting period indicated a saving of 141 positions as a result of regional-area staff consolidation in the five aforementioned area offices. This would release 141 positions to the firing line, where critical position-shortages exist. At year's end, the consolidation was expected to be implemented by the late summer of 1969.

Other fiscal year 1969 organizational developments involved:

- Establishing the Office of Civil Rights (and moving to establish corresponding regional and center civil rights staffs); the director of this Office reports directly to the FAA Administrator. (See *Civil Rights and Equal Employment Opportunity*, below, for details.)
- Changing the name of the Office of Information Services to Office of Public Affairs, in June 1969; during the previous month, the head of this office had been elevated from office director status to assistant administrator status.
- Transferring the Aeromedical Education Division from the Office of Aviation Medicine, FAA Headquarters, Washington, D.C., to FAA's Aeronautical Center, Oklahoma City, Okla., in July 1968.
- Establishing the Office of Aviation Economics and the Office of Aviation Policy and Plans under the Associate Administrator for Plans, on November 27, 1968; at the same time, the Office of Noise Abatement was transferred from the Associate Administrator for Operations to the Associate Administrator for Plans.

Financial Management. FAA continued to make progress in developing a complete accounting system in accordance with the principles, concepts,

and standards approved by the Comptroller General of the United States in January 1967. During the reporting period, seven accounting system segments were submitted to the General Accounting Office for informal review and field testing (bringing the total number submitted to 14). GAO field-tested six segments during the fiscal year and granted informal approval to two segments. At year's end, 11 segments were awaiting informal GAO review and approval.

Among other significant developments in this area, FAA (1) completed and installed a revised project materiel accounting system; (2) mechanized the general ledger trial-balance reports; (3) completed designing the allotment and cost accounting systems.

FAA continued to revise its Planning-Programing-Budgeting System program categories, program proposals, and procedures in order to make them compatible with the Department of Transportation PPB system. This revision will, among other things, simplify the formulation of program proposals and reduce the number of program elements from 31 to 15. In addition, procedures enabling FAA field elements to combine both their current-year and budget-year estimates in a single submission were worked out and implemented. ("Budget year" is the fiscal year for which estimates are submitted; "current year" is the fiscal year immediately preceding the budget year.) This not only simplifies budget formulation techniques, but also reduces the volume of information submitted to FAA headquarters in Washington.

FAA's auditors performed a variety of internal and external audit services during the year. These included (1) issuing eight agencywide internal audit reports and seven local special-audit reports; (2) performing final audits on 412 FAAP projects involving $139.1 million in sponsors' costs; (3) auditing 65 contracts with private industry and evaluating 72 contract proposals involving a grand total of $351.8 million in estimated costs; (4) responding to 17 protests or inquiries concerning the propriety of FAA procurement actions; (5) handling 14 General Accounting Office audits; (6) issuing 46 reports evaluating the financial condition of certain air carriers and commercial operators.

The accompanying tables compare FAA's financial condition and financial resources by appropriation at the end of fiscal year 1969 with its financial condition and resources at the end of fiscal year 1968.

Personnel Administration and Training. The continued growth in air traffic activity again pushed the agency's personnel strength to an all-time yearend high. On the last day of fiscal year 1969, FAA's work force numbered 49,106, exceeding the 1968 fiscal-yearend strength of 46,825 by 2,281, or 4.9 percent. In occupational categories, air traffic control specialists (having increased by 2,178) accounted for 80 percent of the gross increase (2,726) in number of employees during the year (95 percent of the net increase indicated above), and two other firing-line categories—electronic technicians and flight standards specialists—accounted for 80 percent of the remainder of the gross increase. (Of the decreases by occupational categories, totaling 445, 87 percent were accounted for in the two categories

TABLE 20. Federal Aviation Administration statement of financial condition
(In thousands of dollars)

Assets	June 30 1969	June 30 1968
Cash:		
Funds in U.S. Treasury	$ 648,062	$ 746,935
Trust, deposit and general funds	25,686	45,740
	$ 673,748	$ 792,675
Accounts receivable:		
Federal agencies	$ 11,819	$ 21,367
Other	4,452	3,766
	$ 16,271	$ 25,133
Inventories:		
General operating and facilities construction materiel	$ 92,828	$ 99,188
Other inventories	19,517	17,787
	$ 112,345	$ 116,975
Fixed assets (net):		
Realty and facilities	$ 485,682	$ 481,846
Personal property in-use	621,247	588,033
	$1,106,929	$1,069,879
Construction work-in-progress	234,451	183,744
	$1,341,380	$1,253,623
Other		$ 95
Total assets	$2,143,744	$2,188,501

Liabilities and equity	June 30 1969	June 30 1968
Liabilities:		
Accounts payable & accrued liabilities	$ 110,872	$ 84,036
Advances from other agencies	6,635	4,042
Funds held for others	25,699	45,752
Annual leave—employees	55,133	45,005
Assets on loan to agency	18,000	11,637
Deferred credits	2,249	10,257
Total liabilities	$ 218,588	$ 200,729
Equity:		
Invested capital, 1 July	$1,987,772	$ 2,012,696
Net change in invested capital	(62,616)	(24,924)
Invested capital, 30 June	$1,925,156	$ 1,987,772

(Included in "Invested capital, 30 June" are following unexpended appropriations:

	FY 1969	*FY 1968*
Unapportioned	$158,490,000	$ 281,672,00
Unallotted	47,774,000	46,201,000
Unobligated	24,276,000	64,652,000
Unliquidated	439,324,000	374,232,000
	$669,864,000	$766,757,000)
Total Liabilities and Equity	$2,143,744	$ 2,188,501

NOTE: The above statement includes financial data for the National Capital airports. It excludes the following contingent liabilities: (1) $37,278,000,000 in insurance in force and commitments to insure under the aviation war risk insurance program; (2) $48,446,000, payable to supersonic transport development program contractors in the event the SST program is terminated at the Government's convenience; (3) $419,639,000 in unadjudicated claims; (4) $338,000 in long-term contract commitments. Prior year 1968 Accounts Receivable representing advances to contractors in the amount of $19,808,000 have been reclassified under construction work-in-progress.

Inventories at FAA's centralized depot at Oklahoma City have been valued at standard prices; inventories at other locations have been valued at cost.

TABLE 21. Statement of financial resources by appropriation
(In millions of dollars)

	Fiscal year 1968			Fiscal year 1967		
	Carryover of unobligated appropriations	Appropriations	Unobligated balance	Carryover of unobligated appropriations	Appropriations	Unobligated balance
Research & development	$ 9.1	$ 27.0	$ 0.6	$ 16.8	$ 27.0	$ 9.1
Operations	----------	[1] 705.0	[2] 1.9	----------	617.2	[2] 0.5
Facilities & equipment	99.1	120.0	103.6	130.8	54.0	0.1
Operation & maintenance National Capital airport	----------	9.1	[2] 0.2	----------	8.7	[2] 0.1
Construction, National Capital airports	6.3	0.7	5.7	6.6	0.2	6.3
Grants-in-aid airports	55.0	70.0	21.6	74.8	66.0	55.1
Civil supersonic aircraft	222.9	[3] (30.1)	99.0	143.2	142.4	222.9
Total	$392.4	$901.7	[4] $232.6	$372.2	$915.5	[4] $393.1
Percent of available funds unobligated at 30 June	----------	----------	18.0%	----------	----------	30.5%

[1] Net of appropriation transfers to other agencies ($0.4 million, fiscal year 1969).

[2] Returned to Treasury Department, not available for carryover.

[3] Includes transfer of $0.1 million to Office of the Secretary of Transportation.

[4] Excludes $37,000 aviation war risk insurance.

of secretary-stenographer and administrative-clerical, with 90 percent of the remainder being wage-board employees.)

Over the last 24 months, FAA has filled 4,178 new positions with ATC specialist trainees. Such a large number of trainees in such a relatively short time has forced the agency to change its program for these employees. After October 1962, ATC specialists had been receiving their basic training on the firing line—at towers, centers, or flight service stations, depending on their specialty. This procedure worked satisfactorily when the work force was declining (as it was between June 1963 and June 1967). But it would not do for fiscal year 1969, during which the influx of employees requiring primary training was so great that at year's end they constituted some 10 percent of the total ATC specialist work force; the burden on the ATC journeymen would have been too great. Hence, early in fiscal year 1969 the agency consolidated all primary ATC specialist training at the FAA Academy, in Oklahoma City. The first such classes there in 6 years opened in October 1968.

A new teaching approach has been adopted for this training. The agency has replaced the traditional subject-oriented lecture with a student-centered, task-oriented approach. Individual subjects are not taught separately, but combined in one comprehensive problem-solving course involving typical air traffic situations.

Three ATC specialties are taught: terminal controller, en route controller, and flight service specialist. Terminal and en route controllers take a 9-week course at the Academy and then spend from 2 to 3 years in on-the-job training at a tower or center. The flight specialist course is 14 weeks long; however, flight service specialists spend a relatively short time in on-the-job training.

More than 1,600 ATC trainees were graduated by the Academy in fiscal year 1969. The average daily attendance was approximately 750 students. At year's end, attendance was expected to continue at this level through the first quarter of fiscal year 1970, and then drop to approximately 500 students.

Two other developments affecting the air traffic control work force should be mentioned. In October 1968, the President signed a bill into law permitting FAA to compensate at one and one-half times their regular pay overtime work by nonmanagerial employees through GS–14 engaged directly in activity critical to the immediate daily operation of the air traffic control system. Prior to this act, the ceiling for overtime pay, regardless of the employee's rank, was one and a half times the regular pay for the first step of GS–10. In the other development, the Civil Service Commission developed and approved new classification and qualification standards for ATC specialists. The new standards simplified procedures for career development within the occupation and permitted FAA to upgrade 9,234 ATC specialist positions during the reporting period—4,650 at air route traffic control centers, 1,901 at airport traffic control towers, and 2,683 at flight service stations.

In other developments in the area of personnel administration and training during the reporting period, FAA—

- Developed a new merit promotion program incorporating new Government-wide policies and procedures. The new program was adopted to assure to all employees fair consideration for promotion, to provide improved career opportunities, and to strengthen employee confidence in the program.
- Revised and simplified the form used by supervisors for rating and ranking employee performance.
- Greatly increased the number of native Alaskans hired in relation to all new employees hired in the Alaskan Region by making special recruitment efforts.
- Took several actions to improve its recognition and awards program. The agency adopted a new suggestion-processing system that reduced the time between the submission of a suggestion and its adoption; it also established the Administrator's Career Achievement Award for retiring employees who distinguish themselves during a career of 30 years or more of Federal service.
- Reduced the injury frequency rate for the sixth consecutive year.
- Launched a comprehensive validation of staffing standards for all air traffic functions. A joint steering committee composed of FAA, Office of the Secretary of Transportation, and Bureau of the Budget personnel was formed to review the data collected by the study. The study was prompted by the continued growth in air traffic activity.
- Tested an automatic data-processing system for consolidating and budgeting agency training requirements. The system proved sound and was approved for agencywide implementation.

Occupational Health Program. FAA continued, as part of the overall air traffic controller health program, to test the generally held but scientifically unsubstantiated belief that the stresses encountered in air traffic control work may, over a period of time, impair the health and personalities of air traffic controllers. In approaching the question, FAA has sought to develop objective standards that accurately measure the effects of stress on people in general and air traffic controllers in particular. Such standards would help decide whether controllers should receive special treatment in the form of early retirement and other career benefits.

Data collected during fiscal year 1968 strongly suggested that controllers have a higher incidence of stress-related diseases than the airman population as a whole. During fiscal year 1969, this study gathered and compared data on three additional control groups—Air Force pilots, Air Force officers, and all Air Force personnel. Once again, controllers showed a higher incidence of stress-related disorders than any of the control groups. Among the control groups themselves, Air Force pilots had a lower incidence of these disorders than Air Force officers in general; Air Force officers had a lower incidence than the Air Force population as a whole. These data, combined with data on groups of industrial workers, appear to suggest that the higher the medical standards employed in selecting a particular group,

the lower the incidence of stress-related disorders within that group. Should this observation hold up under further investigation, the refined medical examinations and screening methods now being used by FAA may be expected to help select individuals better able to withstand the occupational stresses of air traffic control.

Civil Rights and Equal Employment Opportunity. Responding to a call by the Secretary of Transportation to "do everything the letter and the spirit of the law provide in order to make equal opportunity a reality," FAA elevated its civil rights and equal employment opportunity functions to a higher administrative echelon. This move significantly strengthened these activities.

In March 1969, the equal opportunity and civil rights functions of the Office of Compliance and Security were transferred to a newly created Equal Opportunity Staff, headed by a Director of Equal Opportunity. In May 1969, this staff was redesignated the Office of Civil Rights, and the director's title became Director of Civil Rights. The designation "civil rights" was judged to be more fully descriptive of the office's responsibilities; moreover, it conformed with a similar change made in the Office of the Secretary. At year's end, plans were complete for corresponding changes at the regional and center level.

The Director of Civil Rights is the FAA Administrator's principal adviser on all matters pertaining to civil rights and equal opportunity. He is responsible, among other things, for assuring that (1) FAA employment practices offer equal opportunities to all job applicants and all employees eligible for advancement; (2) employment practices of FAA contractors, subcontractors, material suppliers, and recipients of FAA grants-in-aid conform with Federal civil rights regulations; (3) FAA programs and activities affecting housing and urban development are consistent with the fair housing provisions of the Civil Rights Act of 1968.

In other civil-rights/equal-opportunity developments, the agency—

- Hired 18 additional recruiters to assist in attracting women and members of minority groups to FAA.
- Published locally and distributed selectively throughout the Eastern and Central Regions brochures describing opportunities for minority group members and women in such FAA occupational fields as air traffic control, electronic equipment maintenance, engineering, and flight standards inspection.
- Completed a special project in the Southwest Region for testing interested college juniors attending institutions with black or predominantly black student bodies for summer employment with FAA. A total of 184 such students took the regular air traffic examination; of this total, 21 were offered and 18 accepted summer employment as GS–4 or GS–5 trainees in various air traffic specialties. The ultimate objective is to interest these trainees and other members of minority groups in permanent employment with FAA.

Legislative and Legal Activities. From the standpoint of FAA, the most significant items of legislation before the Congress during this period were

the legislative proposals to expand and improve the Nation's airway and airport systems. This legislation, which was submitted to Congress by the Nixon administration in June 1969, also proposed ways and means for raising the necessary revenue to support this expansion.

In other fiscal year 1969 legislative developments, Congress passed three pieces of legislation affecting FAA: (1) An act empowering the Federal Aviation Administrator to prescribe aircraft engine noise standards; (2) an act permitting the agency to compensate nonmanagerial employees (GS–14 and below) engaged directly in air traffic control at a true time-and-a-half rate for overtime work; (3) an act extending the Federal aircraft loan guarantee program to September 1972. Each of these three pieces of legislation has been discussed in detail in earlier sections of this report.

A number of cases of unusual interest to FAA were decided by Federal courts during the reporting period. In *Sawyer* v. *United States*, the District Court of the United States for the Eastern District of New York ruled on the respective responsibilities of the aircraft pilot and the air traffic controller. This action was instituted by the wife of the pilot in command of a United Air Lines DC–8 that collided, in December 1960, with a Trans World Airlines Constellation over Staten Island, N.Y., killing all 128 persons on board the two airplanes and six persons on the ground. Though recognizing that the air traffic controller is responsible for maintaining separation between aircraft, the court cleared the Government of negligence in the accident. In doing so, it held that the responsibility for the safety of an aircraft and its passengers rests primarily with the pilot in command. The United Air Lines aircraft pilot had neglected this responsibility, the court noted, when he proceeded without clearance several miles beyond a point at which he had been instructed to hold, into airspace assigned the TWA airliner.

FAA's promulgation of traffic rules limiting the number of IFR flights in and out of five high-density airports (see "Airspace Management" above, pp. 71, 75) precipitated a number of suits against the Government. Brought by private pilots and general aviation associations, these suits alleged the rules were arbitrary and capricious and questioned both their justification and validity. The courts found, however, that the rules were well within the Federal Aviation Administrator's "plenary power" to adopt rules insuring the "efficient use of airspace."

In *Gravelle et al.* v. *United States*, a class action arising out of FAA's sonic-boom tests at Oklahoma City, the U.S. Court of Appeals for the Tenth Circuit upheld a U.S. District Court's finding in favor of the complaining parties. The action originally consisted of 49 individual damage claims against the Government; later, 22 more residents of the Oklahoma City area were permitted to become a third party to the action. In actuality, only eight cases were tried, but the parties had agreed to be bound by the results of these eight selected cases. The main issues before the court were the measure of damage and its proximate cause. In finding for the plaintiffs, the court reached a result contrary to the result reached earlier in similar cases.

Annual National Aviation System Planning Review Conference. In an innovative step, FAA held the first of a projected annual series of National Aviation System Planning Review Conferences with more than 800 invited representatives of the aviation community. These conferences are intended as a public forum for industry and Government aviation executives to discuss and help shape FAA's long-range plans and policies.

The 3-day fiscal year 1969 conference, opened on April 23, 1969, with keynote addresses by the Secretary of Transportation and the Federal Aviation Administrator, featured seminars covering subjects discussed in FAA's first 10-year National Aviation System Plan, which had been published and distributed to conference attendees and other interested parties earlier in the year. The views expressed at the seminars, together with documented proposals submitted by the aviation community, will be considered by FAA in formulating the fiscal year 1970 version of the National Aviation System Plan.

Other Administrative Developments. Among other actions or achievements in the area of administration, FAA—

- Simplified and improved its system for distributing all types of issuances. This was the first time the agency's distribution system was intensively evaluated since its establishment in fiscal year 1963.
- Simplified and improved the printing and distribution of FAR's (Federal Aviation Regulations). The agency was able to reduce the FAR publication process to 21 days. Additionally, it decided to place the FAR's on sale by the Superintendent of Documents. At year's end, the first volume—there will be 11 in all—was expected to go on sale in July 1969.
- Developed staffing standards covering 2,000 flight standards field positions. All such previous attempts had been unsuccessful; this time, the agency succeeded by applying a multiple regression analysis technique that compensated for the inherent differences in the activities of inspectors at general aviation, air carrier, and engineering and manufacturing district offices.
- Completed a study in the Central Region on the feasibility of shutting down specified facilities during off-peak traffic hours. Such a practice, besides affording the obvious advantage of avoiding outages during peak traffic periods, would increase availability of facilities for maintenance and relieve the pressure attending maintenance under busier traffic conditions. This concept will be tested at the Chicago and Indianapolis centers during the coming months.
- Realized savings of $15.1 million (compared to $10.4 million during the previous period) under the Government-wide cost-reduction program.

Chapter V

FEDERAL HIGHWAY ADMINISTRATION

Federal Highway Administration Staff Offices

Since the Federal Highway Administration was established in 1967 within the U.S. Department of Transportation, the dimensions of the U.S. highway program have been expanded, and the Federal interest in highway transportation has been broadened.

The FHWA (Federal Highway Administration) is concerned with integrating highway transportation facilities and the Nation's overall transportation system to improve the efficiency of all modes of transportation. It also is dedicated to making the Nation's highway system as safe as humanly possible.

Improvement of the highway resource is carried on by the FHWA through three operating components: The Bureau of Public Roads, the Bureau of Motor Carrier Safety, and the National Highway Safety Bureau.

The Bureau of Public Roads has been in existence since 1893 under various names and jurisdictions. It was founded as the Office of Road Inquiry and was basically a research and development agency, building so-called "object lesson" roads long before there was a Federal-aid highway construction program.

The Federal-State construction program was inaugurated by the Federal-Aid Road Act of 1916 with an appropriation of $5 million. This has grown to a Federal assistance program of over $5 billion annually.

Down through the years, the program has expanded in scope and direction, even though the Bureau of Public Roads still administers a huge Federal-aid program. It is properly concerned with the impact of the program on human and social values, and its interests far transcend the construction of highways.

Slightly over 900,000 miles of the Nation's 3.7 million miles of streets and roads are on Federal-aid systems, making them eligible to receive Federal financial aid for their improvement. The bulk of Federal-aid funds is now being spent for constructing the National System of Interstate and Defense Highways, the coast-to-coast, border-to-border network of safe and efficient controlled-access highways. The Federal funds are derived from special taxes on highway users.

A much more recent creation is the National Highway Safety Bureau, an outgrowth of two laws passed by Congress in September 1966—the National Traffic and Motor Vehicle Safety Act and the Highway Safety Act of 1966.

The Bureau is charged with responsibility for carrying out the most comprehensive highway and traffic safety program in history—a program dealing primarily with motor vehicles and their operators. Federal motor vehicle standards as well as standards for developing, improving, and expanding State and local highway safety programs have been issued.

The safety performance of all motor carriers engaged in interstate and foreign commerce is the domain of the Bureau of Motor Carrier Safety. It is the only one of the three bureaus whose role is almost entirely regulatory in nature. It previously operated as a component of the Interstate Commerce Commission.

Through its 100-man field staff, it deals with more than 2,250,000 vehicles belonging to nearly 150,000 certificated and private motor carriers, and performs such services as checking driver qualifications, analyzing accident reports, checking on the movement of dangerous cargo, and conducting safety education campaigns and clinics.

An Office of Civil Rights was established in the Office of the Federal Highway Administrator. Actions taken during the year include initiating a program to pre-qualify contractors bidding on Federal-aid contracts on their equal opportunity responsibilities before permitting them to bid, adding special equal opportunity provisions to contracts whereby successful bidders would be legally bound to carry out equal opportunity provisions the same as other contract provisions, and maintaining nationwide surveillance of contractors to assure compliance with contract provisions. The Office also worked to eliminate any discrimination in employment, in matters pertaining to acquisition of right-of-way, relocation of displaced persons, consultant and appraisal services, research projects, property management, engineering and fee contracts, and the fair housing Act as it relates to the highway program. In particular, notable gains were made in employment of minorities in all job categories and at all job levels in FHWA during the year. The Office was also instrumental in establishing nationwide training programs to recruit and upgrade minorities in the highway construction industry.

The Bureau of Public Roads

Functions. The Federal-aid highway program is supervised by the BPR (Bureau of Public Roads), one of three component bureaus of the Department of Transportation's Federal Highway Administration. Founded in 1893, Public Roads' functions now cover a wide range of activities characterized by its headquarters structure, which includes offices of engineering and operations; right of way and location; planning; research and development; traffic operations; and beautification.

In addition to managing the Federal-aid funds, BPR builds roads on Federal lands and furnishes highway engineering services to other Federal agencies. It also aids foreign countries, especially in developing parts of the world, in organizing highway departments and in starting road improvement programs as a part of the foreign aid programs of the State Department and other agencies. It carries on extensive programs in highway planning, research and development, and traffic operation studies.

Some of the Bureau's major activities during the fiscal year 1969 are briefly summarized below.

Interstate System. The Federal-Aid Highway Act of 1968 authorized a 1,500-mile expansion of the National System of Interstate and Defense Highways to a limit of 42,500 miles. Proposals for new routes submitted by the States totaled 10,700 miles and, after review and analysis, 1,473 miles were allocated in December to 28 States.

The fifth Interstate System Cost Estimate that will be reported to the Congress on January 12, 1970, is intended as the basis for apportionment of Interstate funds authorized for the fiscal year or years beyond 1971.

TOPICS. In recognition of the mounting problems of transportation in urban areas, the Congress authorized $200 million a year for fiscal years 1970 and 1971 to fund the TOPICS program. TOPICS, an acronym for Traffic Operations Program to Increase Capacity and Safety, provides Federal funds for traffic engineering improvements rather than major construction work. Started in 1967 on a demonstration basis by the BPR, this program is designed to make existing urban arterial streets work better, thus avoiding or at least postponing the need for new facilities which would be costly in terms of both money and disruption. By June 30, 1969, a total of 49 cities had entered the program and another 57 cities were in the process.

Spot Improvement Program. Now in its sixth year, the Highway Safety Improvement Program—popularly referred to as the "Spot Improvement Program"—during fiscal year 1969, completed the programing of approximately 1,300 improvements at high-accident locations on the Federal-aid systems. Since its inception, some 6,600 improvements have been programed using Federal aid and more than 15,000 projects using State funds only, have been reported.

During the year, the program was revised to make it a continuing effort of the BPR and the State highway departments. At the same time emphasis was placed on better methods for the detection of locations at which engineering improvements can be expected to reduce accidents.

Safety. Closely related to the safety improvement program is the important task of improving the design of new roads to provide "built-in" safety. The BPR has continued its efforts in this area, with principal attention directed to up-dated uniform national standards for traffic control devices, to improved roadway and tunnel lighting systems, and to electronic systems to improve capacity and safety on urban freeways.

Careful attention was given during the year to improvements in structural design of the roadway and to the installation of guardrail and additional means of removing or eliminating fixed objects from the roadside. Of special importance was the development and use of a relatively new type of safety device, called "impact attenuators," designed to protect vehicles which come into contact with immovable objects, including bridge elements, which cannot be located at a safe distance from the traveled way.

Highway safety as a general objective pervades all BPR research. One of the increasingly important areas for research is in the field of single-vehicle "run-off-the-road" accidents, especially on limited-access highways. A computer simulation model, developed under contract to study such accidents, can reproduce them mathematically and thus point to means of reducing them.

Route Location. Route location in the more complex urban areas continues to be one of the major concerns of the BPR. Route locations have been approved for approximately 95 percent of the 42,500-mile Interstate Highway System.

During the 1969 fiscal year, the Bureau continued to be involved in the development of new policies and procedures implementing Section 4(f) of the Department of Transportation Act and Section 128 of Title 23 of the United States Code. Section 4(f) restricts the taking of land for highway purposes from public parks, recreational areas, waterfowl and wildlife areas, and historic sites. Section 128 requires that an opportunity for public hearings be afforded before the Federal Government approves State highway department plans for many highway projects. Revised Policies and Procedures Memorandum 20–8 was issued on January 14, 1969. This PPM instituted the two-hearing procedure on major highway projects.

Highway Relocation Assistance. The Federal-Aid Highway Act of 1968 provided substantially increased services and payments to families, farms, and businesses displaced by federally-aided highway construction.

To implement the Act's provisions, the Federal Highway Administrator recruited and appointed relocation specialists for each of the nine regional offices. Procedural and instructional directives were prepared and disseminated to regional, divisional, State, and local highway departments. These directives were developed as a result of close, continuing draft reviews and conference discussion with concerned groups, particularly other Federal agencies, the American Association of State Highway Officials, the National Association of Housing and Redevelopment Officials, and many other organizations.

By June 25, 1969, 35 States had passed compatible implementing legislation and developed State and local program procedures. Four additional States have devised alternate working procedures.

Environmental Considerations. This was the first year's operation of the new Environmental Division in the Bureau's Office of Right-of-Way and Location. Staffing was completed to the extent that for the first time the Bureau could "field" an interdisciplinary team, consisting of an architect, economist, highway engineer, landscape architect, right-of-way officer, sociologist, transportation planner, and urban planner.

The Bureau created a special task force for noise and air pollution. A major staff effort was begun on the preparation of a report identifying the economic, social, and environmental effects of highway location and design.

Joint Development and Multiple Use. Joint development and the multiple use of highway rights-of-way have proceeded at an increased tempo during

the past year. The Bureau has processed nearly 400 requests for multiple use since 1961 and is involved in many of the several hundred more under preliminary study by the States to take advantage of potential savings in money, space, or time. Major proposals assisted during the year included the Baltimore, Maryland, school and community center complex on a platform; the Louisville, Kentucky, riverfront belvedere; the Syracuse, New York, use of interchange land for civic purposes; and viaduct extensions for future multiple use in Charleston, West Virginia, and Birmingham, Alabama.

Beautification. In June 1969 the Secretary of Transportation advised the Senate Subcommittee on Roads that the Department is re-studying the entire Highway Beautification Program with an eye toward modification.

During the year, continued emphasis was placed on negotiations relating to outdoor advertising control agreements. These negotiations included meetings with State officials in many parts of the country; at the end of the year, 21 agreements had been executed.

The number of definitions of an unzoned industrial area for junkyard control approved by the Secretary increased from 25 to 35. Also, numerous meetings were held during the year with auto, steel, and scrap industry officials, looking toward methods of recycling ferrous scrap which would logically reduce the junkyard screening and removal problems.

Landscaping and construction of safety areas utilizing Highway Trust funds as a part of the regular construction program continued at a good pace.

Urban Planning. Throughout the year the BPR planning staff continued to provide assistance to professional and administrative staffs of State and local governments affected by the transportation planning requirements of Section 134, Title 23, United States Code.

The staff also provided technical assistance to the development of coordinative procedures for implementing the review requirements of Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966 for proposed Federal-aid projects in metropolitan areas. In all, 746 proposed Federal-aid projects were submitted by State highway departments to Section 204 areawide agencies designated by the Bureau of the Budget, for review as to their compatibility with the comprehensive plan or planning being carried on in metropolitan areas.

At year's end the 209 comprehensive urban transportation planning programs in the 233 areas above 50,000 population affected by the requirements of Section 134, Title 23, United States Code, were in various stages of progress, but with the great majority having completed the technical work of network analysis, and many establishing operations plans for their continuing activities.

Urban Transportation. Significant progress was made by Public Roads on activities oriented toward demonstrating how urban highway programs can maximize their people-carrying potential.

In the Virginia-Washington, D.C. metropolitan area, the Shirley Highway (Virginia) bus rapid transit feasibility study began in 1968 and has progressed to the point where it appears possible and feasible to provide an exclusive bus roadway on this facility. The redesigned Shirley Highway now under construction provides for reversible lanes for peak traffic conditions. Arrangements are being made to allow buses the exclusive use of some sections of the already constructed reversible lanes in the morning peak period. This will give them a 15-minute time advantage over buses traveling in mixed traffic. Two alternate schemes for providing a temporary roadway for buses through the construction that will save an additional 15 minutes are being evaluated.

The final report was completed for a BPR financed study, "Evaluation of a Bus Transit System in a Selected Urban Area." The study objective was the investigation of a bus transit system as an alternate to the construction of additional highway facilities to accommodate the peak-hour demands. Results indicate that an expanded bus transit system may be seriously considered as an acceptable and economically competitive alternative to the construction of additional highway capacity to handle peak-time traffic demand.

Through joint action of other agencies of the Department of Transportation, a study design was developed for determining the feasibility of moving more people with fewer vehicles on a metropolitan area freeway, by reserving one lane for the exclusive use of buses and car pools during normal weekday peak periods.

Functional Classification Study. During the year, a functional classification study of the Nation's highways was initiated as part of the requirement for the 1970 Report to Congress on Highway Needs, as called for under SJR–81, approved in 1965, and Section 17 of the 1968 Federal-Aid Highway Act. Work has also begun on the initial phases of the 1972 Needs Report, involving a determination of future highway needs and benefits, and financing plans to help shape the post-Interstate highway program.

Traffic Analyses. Under the cooperative highway planning program, the State highway departments operated nearly 2,800 continuous traffic count stations and 300 additional stations were counted one week each month. Analysis of the traffic count data reported shows that highway travel continues to climb, with traffic volumes on completed sections of the Interstate System increasing during 1968 at a rate nearly double the national average for all roads and streets—7.5 percent versus 4.0 percent. The State highway departments also operated over 700 truck weighing stations. Analysis of the reported data shows that ton-miles of freight hauled and average load carried continued to increase, while axle loads remained nearly static. This is the result of a shift to larger trucks with more axles.

Estimates of travel by highway in 1968 were prepared by the State highway departments and summarized by the BPR. Total travel in the United States exceeded one-trillion vehicle miles for the first time. This is the equivalent of over 2,000,000 round trips to the moon. More than 65 percent of this travel was over the Federal-aid highway system.

Since 1942, the BPR has been summarizing annually speed data collected by most States on main rural roads, and since 1960, on urban streets. The results have been published annually as speed trends, and show that given the opportunity and adequate facilities, drivers continue to desire to drive faster every year. Since World War II, with the improvements in both vehicles and highways, average speeds have increased about 1 mile per hour each year. The result of high design standards on the Interstate System has been evident for the past 5 years; speeds on completed sections are 5 m.p.h. faster than on other roads and streets. During the past year, the study, Annual Speed Trends was published and work was continued toward programing this study for the computer, to allow more comprehensive and detailed analysis of the data.

Regional Development Programs. The Congress has created a number of regional development commissions, the general responsibilities of which include highway development planning. The original of these groups and the one with substantial funding is the Appalachian Regional Commission. This was the fourth year during which the BPR has assisted the Appalachian Regional Commission.

A total of $470 million ($200 million for fiscal year 1966, $100 million for fiscal year 1967, $70 million for fiscal year 1968, and $100 million for fiscal year 1969) has been appropriated to date for the highway program. The Appalachian Commission currently has made available to the Appalachian States a total of $468,185,000 for construction of road projects.

The BPR has been contacted by members of the planning staffs of the Ozarks Regional Commission, Four Corners Regional Commission, and the New England Regional Commission, and conferences have been held pertaining to highway planning.

Foreign Projects. During the fiscal year work was substantially completed on upgrading and paving the Inter-American highway in Guatemala. In El Salvador, Nicaragua, Panama, and Honduras, work consisted of maintenance and brush removal because the highway in these countries had been previously completed to proper standards. Grading and paving contracts were under way on the 200-mile section from Cartago, Costa Rica, to the Panama border and a contract was awarded for paving between San Ramon and Las Canas, Costa Rica. The BPR furnished technical assistance on highways other than the Inter-American in Guatemala, Nicaragua, and Costa Rica.

Highway improvement programs staffed with BPR personnel were carried on in seven countries during the fiscal year. The programs in five countries—Brazil, Bolivia, Laos, Peru, and the Philippines—were sponsored by the Agency for International Development. In the Dominican Republic the program was financed by loans from the Export-Import Bank. Kuwait also requested Bureau assitance and an agreement was signed in August 1969 under which all funding will be provided by Kuwait. Procurement and/or short-term advisory activities were carried on in Chad and Argentina.

In accordance with the Federal-Aid Highway Act of 1966, needs studies for construction programs for Guam, American Samoa, and the Virgin

Islands were completed in March 1969. The report made specific recommendations for both technical and financial Federal assistance for implementing highway construction programs in each of the three territories.

Emergency Relief Funds. Repair or reconstruction of bridges and highways damaged by natural disaster was necessitated over wide areas in Ohio, Arkansas, New Jersey, Michigan, Iowa, California, Colorado, Nevada, Hawaii, Minnesota, and North Dakota, and by catastrophic failures in Washington State, West Virginia, Ohio, and Florida.

During the fiscal year allotments of $31,735,359 were made to repair and reconstruct highways and bridges on the Federal-aid system and $18,261,466 for roads in the public domain.

Public Lands Highways. Projects estimated to cost over $89 million were proposed by the States for the $16 million Public Lands funds available for fiscal year 1969. Allocations were made for 25 projects in 21 States. Of these projects, 17 are for continuing work on highways for which Public Lands funds were allocated from previous years' authorizations.

Federal Highway Projects. The BPR administered 213 projects involving Federal funds of approximately $121 million for work on 1,096 miles of highway, including work completed during the year and work underway at the close of the year. This was exclusive of preliminary engineering work advanced from the program stage but not yet in the construction stage.

Defense Plans and Operations. Defense access-road construction estimated to cost approximately $4,800,000 was programed during the year. Work accomplished included preliminary engineering for access roads for the Safeguard installations in North Dakota, feasibility studies of highway requirements for eight proposed Sentinel antiballistic missile facilities and the evaluation of 1,260 miles of access roads serving Minuteman installations in four States.

The principal coordination activities included discussions regarding the selection of the additional 1,500 miles of Interstate routes with the Department of Defense and the reconciliation of problems involving highways in connection with development of water resources.

During the fiscal year, a series of conferences designed to train State highway department, State police, and highway-user personnel in the principles of emergency highway traffic regulation was initiated. In addition, procedures were developed for the estimating of highway damage and remaining highway capability from strike reports and for reporting of damage to highways and the interdiction of highways by fallout.

Bridge Safety. Obligation to the President's Task Force on Bridge Safety was fulfilled with the publishing of the Committee Report—*National Study to Assure Bridge Safety*. As a result of this study, Federal, State, and local government agencies having responsibility for bridge inspection and maintenance are either intensifying their existing programs or developing new and improved bridge inspection programs.

Work is underway toward establishing National Bridge Inspection Standards and a training program for bridge inspectors as required by the Federal-Aid Highway Act of 1968.

Social and Environmental Research. In a new effort to understand the effects of highways on environment, the BPR engaged private contractors in mid-1969 to study "Highway Improvement as a Factor in Neighborhood Changes" and "Highway and Regional Economic Effects," with reports due in 2 years. With State highway departments cooperating, related problems such as the social and economic costs of motor vehicle crashes, noise and air pollution, are also under study.

In 1969 a BPR contractor completed a study of transport needs of the rural poor, based primarily on a trial of free bus service, financed by the Office of Economic Opportunity, for low-income families in remote areas of West Virginia.

Other socioeconomic research concerned land development problems at limited-access highway interchanges. Data from studies by many State highway departments and BPR staff on land development for more than 400 interchanges showed that rural interchanges tend to attract highway-related land uses. In contrast, those near large population centers attract a greater variety of users, from apartment buildings to industrial parks, and create tremendous demands on the highway, sometimes with extreme congestion. This research seeks to help planners and administrators anticipate, prevent, or at least alleviate such problems.

Highway Communications and Controls. The BPR staff and contract research has produced an engineering model of an ERGS (Electronic Route Guidance System) which ultimately can help direct drivers at significant decision points. Once the driver dials his destination into the system, appropriate maneuver symbols will be displayed in his vehicle to guide him at each important intersection. Two sets of ERGS roadside equipment have been installed in the Washington, D.C., area for operational studies with an ERGS-equipped vehicle. Under cooperative agreements with the District of Columbia and the States of Maryland and Virginia, a 100-intersection network in that area is scheduled to be installed in 1970–71 for test and evaluation.

A computerized system designed to ease merging of motor vehicles from access ramps onto freeways, developed in prototype under contract, uses a small digital computer and ramp-side display to guide entering motorists into a safe, smooth merge. In an experimental installation near Boston, sensors in the freeway's right lane will measure traffic speed and the size of gaps in the stream, while other sensors in the entrance ramp will measure ramp traffic. A computer will feed signals to the ramp display to guide drivers into gaps in freeway traffic. In addition, the State of Texas and the city of Dallas are working with BPR in research on the Dallas Central Expressway corridor to develop techniques, such as variable message signs, to reroute drivers to make best use of available capacity in the corridor. If successful, the Dallas findings will be applied elsewhere.

In its continuing effort to use existing highways more effectively, BPR has contracted with the Maine State Highway Commission for installation of a unique electronic experimental PAS (Passing Aid System) along a 15-mile rural section of U.S. Route 2. To be completed in late 1970, the

system is intended to enable a motorist to pass slower traffic safely on a two-lane highway even where visibility is limited. Detectors in the highway pavement, feeding data to a nearby computer, will make an electronic display in the car which will show the time available for passing. The system can also warn of other hazards.

Other Highway Research. Progress continued also in the more "traditional" areas of research. Implementation—putting to work the findings of research—is a critical part of the Bureau of Public Roads' function. Studies by several State highway departments in planning, organizing, directing, and controlling maintenance activities marked progress in implementing results of maintenance research and development. Three States have established that they could improve the effectiveness and quality of their maintenance and concurrently reduce costs by a total of $20 million each year. Nine others have studies underway for similar improvements and savings.

A Quality Assurance Workshop in Washington, D.C., in October 1968, attended by 125 State and BPR engineers, marked the increasing role of statistical concepts in acceptance of materials and construction since BPR began to adapt them for use by State highway departments 5 years ago. At least 12 State highway departments currently use statistical concepts in standard specifications or acceptance procedures on State or Federal-aid construction.

Newly developed lane marking systems are visible at night in the rain, yet resist snowplow damage. In one, grooved pavement is striped with reflectorized traffic paint. In another, plow blades fitted with synthetic rubber bits "ride" over raised markers without significant damage. Research by several States also promises, by reducing the amount of reflectorizing glass beads used in paint, to reduce annual cost of conventional traffic striping by $1 to $2 million.

Some carbonate aggregates react with alkalis in cement to deteriorate concrete structures and pavements. An 8-year program of federally aided research by the Virginia Department of Highways and the Missouri State Highway Commission has contributed to a better understanding of the process and development of practical methods to deal with it, such as a test for detecting potentially reactive rocks, and ways to reduce destructive effects.

A 6-year research program to develop a better method of grading pavement asphalt, using fundamental viscosity characteristics, has yielded a single specification for standardization, now under consideration by the AASHO (American Association of State Highway Officials).

New Technology and Methods. The potential of automatic interpretation of terrain and soil conditions has been demonstrated in the early stages of an extensive aerial remote sensing research program, using multisensor data recorded on tape, by the State of Indiana and the BPR. This technique offers great potential for economical highway-oriented surveys of land use, soil, materials sources, and highway classification and conditions.

Several studies using nuclear methods are under way. With the AEC (Atomic Energy Commission), BPR is studying application of nuclear

radiation to change molecular structures (polymerization of monomers) to improve durability of impregnated concrete, and development of a portable instrument using radioisotope-generated X-rays to measure cement and water content in fresh plastic concrete.

The test model of a new accident research tool—a video surveillance and recording system whose TV cameras overlook busy 14th and F Streets in Washington, D.C.—is undergoing evaluation. An acoustic detector that will automatically trigger the system when activated by the sounds of an accident is under development. If successful, it will preserve on film not only scenes of accidents but the events of the preceding 20 seconds, for later analysis.

The Bureau of Motor Carrier Safety

The BMCS (Bureau of Motor Carrier Safety) develops, promulgates, administers and enforces rules and regulations governing truck and bus driver qualifications and hours of service; commercial vehicle safety equipment and accessories; commercial vehicle operational safety, inspection, and maintenance; recording and reporting of accidents; and the safe transportation and handling of hazardous materials moving by highway.

Program Elements. The program of the BMCS is basically a direct Federal regulatory activity. It involves six elements:

(a) *Regulation*—Promulgation, under normal rulemaking procedures, of requirements and standards relating to driver qualifications, hours of service limitations, operation of vehicles, vehicle performance and maintenance, and requirements for reporting of accidents. This function includes interpretation of the regulatory requirements and the continuing consideration of recommendations for regulatory changes.

(b) *Education*—The instruction of motor carriers and their personnel takes a number of forms, including formal service of the regulations upon the motor carrier, the conduct of initial surveys by BMCS field staff to serve as an introduction to the regulations, consultation and communicating recommendations to motor carriers for improvement in their practices, safety meetings with carrier personnel, and the issuance of publications, particularly those that relate to accidents and Bureau investigation of the more serious accidents, and those which summarize the conditions found in inspection of vehicles.

(c) *Examination*—Review of carriers' practices relating to selection, investigation, employment and supervision of employees, particularly drivers; inspection of records relating to physical and competence qualifications and adequacy of control of dispatching practices; and review of procedures to determine the competence of employees and the adequacy of methods of handling hazardous materials.

(d) *Inspection*—A detailed and thorough inspection is made of a limited number of vehicles on the highways—approximately 60,000 units per year. This work is usually conducted at State highway weighing locations with the assistance of State personnel. The inspection includes removal from service of those vehicles which are found to be in imminently hazardous condition. It includes examination of drivers' hours of service through inspection of daily logs which is performed both at the carrier's headquarters

and in the highway inspections. Physical examination records and personnel files relating to driver compliance are also reviewed.

(e) *Investigation*—Thorough investigation of flagrant violations is conducted by field staff in such detail as to permit determination whether prosecution or other enforcement action is warranted. Investigation in depth of serious accidents is made for the purpose of determining cause and establishing a basis for rulemaking or other remedial measures.

(f) *Enforcement*—As required by section 4(c) of the Department of Transportation Act, the BMCS makes about 7,000 reports per year to the Interstate Commerce Commission concerning the compliance and accident experience of carriers applying for operating authority. It also intervenes formally in application proceedings, where warranted. Other measures included in the enforcement program are criminal prosecutions and imposition of civil forfeitures for certain types of violations, and institution of investigations under section 204(c) of the Interstate Commerce Act for the purpose of enabling the Administrator to enter a cease and desist order.

In fiscal year 1969, the BMCS completed or initiated the development of revisions to the Federal Highway Administration's Motor Carrier Safety Regulations which will have material effect on the regulated motor carrier industry.

These actions include the following:

- Adopted new standards regulating use of regrooved, retreaded, and recapped tires on commercial vehicles and set minimum tread depth.
- Revoked the regulation which denied public access to motor carrier accident reports to implement the Freedom of Information Act.
- Proposed establishment of a committee of representatives of the motor carrier industry to assist in certain areas of rulemaking; the committee to furnish technical advice on motor carrier safety matters and make recommendations on means for obtaining greater industry compliance therewith.
- Proposed complete revision of driver qualifications to upgrade existing standards, requiring more frequent physical examinations, background investigations and driver experience and ability investigations; more stringent regulations concerning the use and possession of amphetamines, or pep pills, and intoxicating liquors; and a prohibition against the shifting of gears while crossing railroad tracks.
- Issued Advance Notice of Proposed Rulemaking to set more stringent requirements for braking performance of commercial vehicles.
- Issued Advance Notice of Proposed Rulemaking to change regulations governing coupling systems to assure safe connections between articulated vehicles.
- Issued Advance Notice of Proposed Rulemaking to create new regulations requiring certain performance capabilities of commercial motor vehicles on ascending grades.
- Proposed new regulations concerning anchorage of seats, installation and use of seat belts by commercial vehicle drivers, and installation of restraints for sleeper berth occupants.

- Issued Advance Notice of Proposed Rulemaking concerning requirements for warning devices for stopped vehicles to require fluorescent-type red flags instead of present choice of cloth or fluorescent.
- Completed staff work on a revision of the driving rules for the transportation of explosives and other dangerous articles. In addition, the BMCS provided support and approved numerous revisions to the Department of Transportation Hazardous Materials Regulations as they apply to motor carriers, shippers, distributors, and container manufacturers associated with the movement of hazardous materials by highway.

The BMCS continued the development of its Federal-State Cooperative Enforcement Agreement Program, with the consummation of three additional agreements with State agencies. This brings the total to 33 agreements with 35 agencies at the close of the fiscal year. These agreements provide for the exchange of motor carrier safety enforcement information and the providing of witnesses in enforcement actions, as necessary. There are no funding arrangements connected with this program, which is undertaken pursuant to the authority in Public Law 89–170.

The joint sponsorship of Regional Training Seminars for State motor carrier safety enforcement officers, in cooperation with the National Conference of State Transportation Specialists, continued in fiscal year 1969. A total of four seminars were held during the year, resulting in the training of some 128 State officers.

Compliance Program. The following activities were conducted during the fiscal year in the Bureau's own compliance program:

(a) *Fitness Reports.* The BMCS furnished 6,392 safety compliance reports to the Interstate Commerce Commission relating to the safety records of motor carriers applying for emergency and temporary authority to operate their vehicles. For the same period, the BMCS submitted 50 reports to the Commission relating to applications involving the transportation of explosives. Such applications are approved for a maximum of 5 years under the Commission's policy. Reports were submitted to the Commission on 25 carriers petitioning for waiver of the inspection requirements of the Lease and Interchange Rules. The BMCS also submitted 37 reports to the Department of Defense pertaining to carriers seeking to haul explosives for that Department.

(b) *Enforcement.* Investigations for enforcement purposes were conducted in 429 instances during the fiscal year, and reports were submitted to the Federal Highway Administration's legal staff for appropriate handling. For the first time since the creation of the Department of Transportation, administration investigative proceedings were initiated as a tool for enforcement of the Motor Carrier Safety Regulations. Similarly, civil forfeiture claims were filed against several motor carriers for failure to comply with these regulations. Another significant result came about following intervention in a purchase-merger proceeding before the Interstate Commerce Commission when the Federal Highway Administration withdrew from the case following the signing of what might be described as the most comprehensive consent agreement in the history of motor carrier safety regulations. Still

another important "first" occurred when the Federal Highway Administration petitioned the Interstate Commerce Commission to suspend the operating rights of a Class I common carrier of passengers, for failure to comply with the hours of service regulations governing drivers.

(c) *Investigations.* During the year, the field staff made a full investigation of 261 separate accidents, and a preliminary investigation of 638 accidents. Accidents were selected on the basis of high casualties, property damage, or other significant factors. Thirteen in-depth reports on accidents were released to the general public, recounting the circumstances of selected accidents, and their apparent cause or causes.

The BMCS continued to cooperate with and assist the National Transportation Safety Board in the investigation and determination of cause or probable cause of serious interstate motor carrier accidents.

The National Highway Safety Bureau

Background Analysis

Highway injuries exceed by 10 times all violent criminal acts combined, including homicide, armed robbery, rape, riot, and assault. Motor vehicle crashes deprive society of nearly as many productive working years as heart disease or cancer and of more than are lost to strokes.

Each year, more Americans are driving more motor vehicles more miles at higher speeds on the Nation's roads and highways. Each year, more Americans are killed and injured in highway crashes at greater cost to society. Preliminary figures for 1968 stand at 55,500 deaths and 2,300,000 injuries resulting from 1,500,000 crashes. The rate continued during the first 6 months of 1969, with 25,890 traffic victims.

Appalling as these figures may be, they constitute a downturn in the average annual increase in traffic deaths. For the 5 years preceding enactment of the two safety laws, the average annual increase was 6.9 percent per year, but for 1967, 1968, and the first 6 months of 1969, the increase has averaged 2.6 percent. Had the rate of increase prior to the safety laws continued, 56,701 would have been killed in 1967; 60,613 in 1968; 26,746 in the first 6 months of 1969, or a total of 144,060 fatalities. This may be compared with the actual total of 134,314—a difference of 9,746 lives.

Table 22. Motor vehicle deaths; number and percent change, 1962–1968

Year	Number	Percent change	Average annual percent change	Deaths per 100 million vehicle miles
1962	40,804	7.1		5.32
1963	43,564	6.8		5.41
1964	47,700	9.5	6.9	5.63
1965	49,163	3.1		5.54
1966	53,041	7.9		5.70
1967	52,924	−0.2	2.3	5.48
1968	55,500	4.9		5.50

Source: National Center for Health Statistics; National Highway Safety Bureau; Bureau of Public Roads.

There are numerous reasons for this change which involve an interaction of activities underway both prior and subsequent to the enactment of the two safety laws. Several of the significant influences are: (1) Implementation by the States of the Department of Transportation highway safety standards; (2) incorporation of Department of Transportation motor vehicle safety standards in current production motor vehicles; (3) construction of more miles of safer Federal-aid highways; (4) strong new State and community highway safety programs; and (5) increased awareness and cooperation on the part of the private sector, including industry, as well as the general public.

This decline in the estimated versus actual annual fatality rate should not be construed as a trend for the months and years ahead since there are numerous and complex problems yet unresolved. These include:

- Since only about 10 percent of the motor vehicle population is of the latest year model, 90 percent will lack some or all of the currently required safety devices.
- The state of repair of older vehicles is a significant contributing factor to the death tolls.
- Alcohol is involved in about 50 percent of all fatal crashes and the per capita consumption of distilled spirits rose 8 percent between 1965 and 1967.
- Fatalities per vehicle-mile are two to four times higher on rural and local roads than on the Interstate highway system, and improving the most hazardous aspects of these roads is a long and costly process.
- The number of vehicle-miles being driven at high speeds is increasing as is the average speed itself. The disproportionate increase in high-speed crashes is aggravating the severity of crash losses.
- Drivers in the youthful age groups will form a growing percentage of the population during the next decade.
- Adequate scientific data is accumulating slowly but remains in short supply.

The Department of Transportation believes the complexity of the problem requires a systems approach: First, toward its components, man, machine, and environment; and second, toward the sequences of pre-crash, crash, and post-crash. The Department's efforts are concentrated in the NHSB (National Highway Safety Bureau) of the Federal Highway Administration.

The goal of the NHSB is to reduce the number of traffic injuries and deaths by whatever means is the most effective (from a cost versus safety point of view) and permits the earliest possible implementation. Opportunities for action are presented at three points in the highway crash sequences:

First, to reduce those factors that cause crashes to occur. This aspect is being attacked through vehicle safety standards dealing with accident avoidance, such as improved tires, better visibility, better lighting and brakes. Highways designed for accident avoidance reduce the chances of crashes.

Driver education and licensing standards are among the most important programs in State and community accident prevention. One of the most serious causes of fatal crashes on the highways is the excessive use of alcohol. As the Secretary's report on alcohol and highway safety pointed out, approximately 50 percent of traffic fatalities involved use of alcohol in intoxicating amounts, or more than 25,000 deaths a year. Standards for legal intoxication have been established and are being implemented by most of the States, but additional effort is required. A strong countermeasure program will be a major effort in the forthcoming fiscal year.

Another major cause of highway crashes is the poor condition of motor vehicles in use. Another report transmitted by the Secretary to the Congress indicated that deterioration with time and mileage was inevitable and dangerous. As greater reliability is built into new cars, this situation may be somewhat improved in time. Meanwhile, the major arm in countering this factor in traffic accidents is the standard on periodic motor vehicle inspection which the States are urged to adopt. At the close of the fiscal year, comments on proposed used vehicle standards (requested November 1968) were still being reviewed. The standards cover such critical safety performance properties as braking, steering, handling, and tires. Limited resources prevent acceleration of the program at this time.

Second, to improve the chances of crash victims to escape death or serious injury. A number of actions have been undertaken. One Federal standard requires the installation of an energy-absorbing steering column. Another standard requires high-penetration-resistant windshields (a thick plastic lamination between layers of glass). Both of these are yielding favorable results. Accident investigation reports furnished to the NHSB show no fatal or dangerous injuries to drivers from the new steering columns at crash impact speeds up to 50 miles an hour, and a reduction of 32 percent in fatal head injuries in cars equipped with the new windshields. The best known of the countermeasures in this field is the restraint system of lap and shoulder belts. These devices are also effective to the extent to which they are used (30 percent reduction in minor injuries and up to 80 percent reduction in fatalities). Lap belts alone (when used) reduce the traffic death rate by 40 percent at speeds up to 60 miles per hour.

Another standard which has demonstrated excellent results is that which calls for motorcyclists to wear helmets and faceguards. Prior to the adoption of this standard, motorcycle deaths had been increasing at the rate of 30 percent per year. In those States which have passed the laws described in the standard, the turn-around has been dramatic with reductions in fatality figures running as high as 30 percent.

Breakaway signs on the highways are also saving lives, and will yield even greater results as their numbers increase across the Nation. The Texas Highway Department has reported that during 27 months in 117 crashes involving breakaway signs there was only one fatality compared with 80 deaths in collisions with non-breakaway signs in 1965 and 1966.

Third, to improve the chances of survival of those who are injured in highway crashes. The modern military medical system makes it possible

to render medical attention to a wounded man within 7 minutes of his injury; 45 minutes is the average time on a highway just outside the Nation's capital. In rural areas, many hours may pass while an injured motorist waits for medical attention and it may not reach him in time. Various communications and helicopter service experimental demonstration projects are underway through the joint efforts of the NHSB and the States of California, Nebraska, Arizona, Minnesota, Michigan, and New York. An early lesson derived from these projects is that to be effective, the use of helicopters in emergency medical services must be part of a well-coordinated package which includes modern surveillance techniques, communications network, and hospital-medical services.

Organization

The work of the NHSB is generally divided into its three major organizational components; the National Highway Safety Institute, the Highway Safety Programs Service, and the Motor Vehicle Safety Performance Service. Their tasks are interrelated, though the work of the Institute is directed primarily at furnishing the two Services with the research, facilities, and data which they require.

Research and Development Progress

Accident Investigation and Information Analysis. Investigation and analysis of accidents is basic to virtually all other research efforts as well as implementation of programs by the States and communities. Data accumulation is being approached in two ways; one is to assist the States in upgrading their procedures and techniques of routine accident investigation to provide the basic level of data. The second is a project undertaken by the NHSB to train multi-disciplinary teams (called medical-engineering teams) to conduct in-depth investigations of crashes, their causes, and the effect on the victims; their findings and recommendations are based on the most careful examination. This year, there are 15 such teams at work in various parts of the country. At the end of fiscal year 1969, some 184 reports had been received and analyzed to yield approximately 650 findings and recommendations. This activity is expected to continue and expand, and the analysis which will come out of the reports will provide the NHSB with more scientific foundation for the national traffic safety effort. Already, some 19 rulemaking actions for motor vehicle standards or amendments to standards have been initiated in whole or in part as the result of these reports. Other countermeasures are expected to stem from them plus an increased ability to assess the effectiveness of safety features now in force.

Demonstration Projects. The purpose of the demonstration projects is to facilitate and accelerate the application of research findings to operating highway safety programs. They are undertaken through federally financed contracts with the States and communities to perfect and demonstrate the practicality and advantages of new and improved techniques for advancing highway and traffic safety. An important project involves the District of Columbia which will attempt, through its motor vehicle inspection program,

to determine whether motor vehicle defects which were identified by the manufacturers and made the subject of recall campaigns, have indeed been corrected. Another project involves the introduction of automated, electromechanical testing and teaching procedures into the driver licensing process in the State of Iowa. Other projects have been directed toward improvement of emergency medical services, both in the communications phase and the actual medical-ambulance service performed. Another project will involve the introduction and implementation of the entire range of highway safety programs, features, and management techniques in a "demonstration city or county."

Safety Manpower. In order to implement the 16 highway safety program standards the States have estimated that 95,000 personnel trained in highway safety skills will be required by 1977 in contrast to the 65,000 specialists in such work today. These State figures do not include manpower requirements of the counties and cities. This estimate is used to help the NHSB to plan its recruitment and training strategies. Efforts, completed or underway to meet manpower shortages, include the development of State highway safety program management guidelines, the development and testing of an entrance-level course for ambulance attendants, the development and testing of a course for automobile inspection and repair personnel, and the selection of the preferred safety manpower development and training alternative.

Facilities. The Department's report on research and testing facilities requirements was mentioned earlier. Subsequent investigations have established that the laboratory requirements for bioengineering and applied research could be most economically provided by augmenting existing facilities at the FAA's Aeronautical Center at Oklahoma City and the Fairbank Highway Research Station at McLean, Virginia. However, it was determined that a facility for the testing of vehicles to verify compliance with the safety standards, and a driving simulation laboratory could not be provided through the use or modification of existing facilities; plans are underway to construct both. Insofar as practicable, the driving simulation laboratory will be a national resource serving all Federal agencies, the States, universities, and private industry.

National Driver Register. The National Driver Register is a Federal-State cooperative driver license records exchange system. It provides individual State licensing officials with a single source of locating records that problem drivers have established in other States. At the end of fiscal year 1969, the Register contained slightly more than 2 million files, and was growing at the rate of 2,500 accessions a day. An average of 65,000 reports and searches are processed in each 24-hour period.

The States vary in their use of the driver register. Presently 17 States and the District of Columbia check all original and renewal driver license applications against the files. An additional 24 States check the register on all original license applications, while the remaining States submit search requests on a "suspicious case" basis.

STATE AND COMMUNITY HIGHWAY SAFETY PROGRAMS

The Alcoholic Driver. The problem of the alcoholic driver, the problem drinker who drives, falls generally under the first of the crash sequence definitions of crash prevention, i.e., the pre-crash phase.

Two major conclusions were drawn in the Secretary's 1968 Report to Congress with respect to the problem of alcohol and highway safety: (1) Roughly half of all traffic fatalities (about 25,000 annually) involved excessive use of alcohol; (2) the great majority of intoxicated drivers were habitual problem drinkers as distinct from "social" drinkers.

Highway Safety Standard Number 8 establishes fundamental guidelines for broadening the scope and number of statewide activities directed toward reducing highway crashes arising in whole or in part from persons driving under the influence of alcohol. Many States and local communities are responding favorably to the objectives of this Standard.

Moreover, the NHSB is giving serious consideration to developing a strong alcohol countermeasures program which would provide: (1) Information on alcoholics to be furnished licensing authorities by doctors and social agencies; (2) exchange of information between police, traffic courts, medical and insurance organizations, and licensing agencies; (3) controls on driving by known alcoholics; (4) uniform codes for "implied consent" and blood alcohol level of presumptive intoxication; (5) alcoholic-centered enforcement through surveillance, purchase of breath testing equipment and video tape recorders for gathering evidence in prosecuting drunk driving cases, and the training of competent operators of such equipment; (6) increased research and demonstration projects to determine countermeasures effectiveness; and (7) public information campaigns.

Highway Safety Standards and State Actions. Since the formulation and execution of highway safety programs are basically responsibilities of the States and communities, the role of the Federal Government is one of providing leadership, guidance, and financial assistance. Nevertheless, this role has served to focus attention on highway safety and to enlist the allocation of greater resources to it.

The 13 highway safety program standards issued in mid-1967 were reviewed in the previous report.[1] In November 1968, three new safety standards were issued.[2] All of these standards identify and describe basic performance goals in the major problem areas of highway safety. Standards are under development in two additional functional areas, i.e., schoolbus safety and accident investigation.

As new problems emerge, it is imperative that the contributions resulting from sound research and opportunities for utilizing basic ideas and devices of modern technology be considered and applied in advancing the safety of highway travel.

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[1] Periodic Motor Vehicle Inspection; Motor Vehicle Registration; Motorcycle Safety; Driver Education; Driver Licensing; Codes and Laws; Traffic Courts; Alcohol in Relation to Highway Safety; Identification and Surveillance of Accident Locations; Traffic Records; Emergency Medical Services; Highway Design, Construction and Maintenance; Traffic Control Devices.

[2] Pedestrian Safety; Police Traffic Services; Debris Hazard Control and Cleanup.

The extent of progress made by the States in adopting and implementing the existing safety standards is substantial and certain functional activities deserve special mention:

- Periodic Motor Vehicle Inspections: 31 States, the District of Columbia, and the Commonwealth of Puerto Rico have inspection programs; 11 of the States enacted such programs after the adoption of the Highway Safety Act of 1966. Eight States operate random or spot check vehicle inspection programs.
- Motorcycle Safety (Helmet Laws): 39 States have such laws; 11 States and the District of Columbia have no requirements in this functional area. A helmet law was repealed in the State of Michigan; it was reinstated after July 1, 1969. An Oklahoma law applies only to motorcyclists under age 21.
- Licensing of Commercial Driver Training Schools and Inspectors: 43 States have statutory requirements; 17 States provided for such requirements subsequent to the enactment of the Highway Safety Act.
- Strengthened Driver Licensing Statutes: Most of the States have upgraded their licensing requirements and procedures.
- Blood Alcohol Concentration Chemical Test Laws: 48 jurisdictions have such laws, 7 of them passed since enactment of the safety laws; 21 States have established 0.10 percent or lower as the presumed intoxication level.
- Implied Consent Laws: 44 States and the Commonwealth of Puerto Rico have such laws, 25 of them enacted since the Highway Safety Act was adopted in 1966.
- Improved Emergency Medical Services: 17 States have enacted such legislation since passage of the safety laws.

Program Manual. The highway safety standards set performance goals in broad terms. To assist the States in their implementation, the NHSB has prepared detailed technical guidelines in the form of a manual which contains a volume for each of the 16 standards. A separate volume deals with planning and administration. The help of nationally known experts, as well as comments and recommendations submitted by the States and the National Highway Safety Advisory Committee have combined with the technical expertise of the NHSB to make these volumes as definitive as possible. Most of the volumes have been published and distributed; several volumes are in advanced stages of the approval process.

Cost of Implementing the Highway Safety Act of 1966. In accordance with the requirements of the Highway Safety Act, the States were asked for estimates of the cost of implementing the highway safety program. Results of the States' estimates and the NHSB analysis were published in a report to Congress. During fiscal year 1969, the States expected to spend more than $2 billion in State funds on the highway safety program of a total of nearly $3 billion needed, leaving an unfunded fiscal need in excess of $800 million. During the year, the States submitted approximately 2,100 applications for Federal grant-in-aid funds to apply to specific projects. All of

these applications were processed by the NHSB and most were approved. A fairly large number of project applications were suspended pending the availability of fiscal year 1970 funds. The total Federal obligations for State and community highway safety programs amounted to $63.8 million for the current reporting period.

State Highway Safety Programs. The Highway Safety Act of 1966, as amended, places the responsibility on each State for having an approved highway safety program. The failure to have an approved program may result in the following consequences:

(1) Ineligibility for funding of highway safety projects under Sec. 402(c) of the Act which provides that such funds shall be used for approved programs.

(2) No apportionment of Federal-aid highway safety funds after December 31, 1969.

(3) Withholding of 10 percent of Federal-aid highway funds (administered by the Bureau of Public Roads for construction of Interstate highways) apportioned on or after January 1, 1970, except as waived or suspended by the Secretary.

At the close of fiscal year 1969, all of the States had submitted programs which have been reviewed in terms of the requirements of the Highway Safety Act. Forty-four of the State program documents were provisionally approved, five were withheld pending further negotiations, and three State program documents were returned for additional information.

Governors' Views on Highway Safety Goals for the Decade Ahead. In March 1969 the Chairman of the Executive Committee of the National Highway Safety Advisory Committee and the Chairman of the National Motor Vehicle Safety Advisory Council collaborated in addressing a letter to the Governors which asked three basic questions, and several ancillary ones: Is the goal of reducing the rate of highway fatalities one-half by 1980 realistic? What measures, in your view, will be required to achieve this goal in your State? Can we set realistic milestones by which progress toward this goal can be measured during the 1970's?

By the end of the current reporting period, the Chief Executives of 36 States and the District of Columbia had replied to these questions. Most of the respondents considered the goals to be realistic, given the resources. Those areas most frequently mentioned as requiring emphasis were: public information, driver education, prevention of driving while intoxicated; periodic motor vehicle inspection, and driver licensing. Some of the Governors suggested that 5 percent annual reductions in the fatality rates might constitute appropriate milestones for the measurement of progress toward the desired goal, while others indicated that full implementation of one or more of the standards each year for the next 10 years would both achieve and offer a yardstick for measuring program effectiveness.

National Highway Safety Advisory Committee. The Committee held a series of meetings in December of 1968 to review the proposed Manual and make recommendations for its improvement. It also considered and made

recommendations concerning proposed new standards with respect to school-bus safety and accident investigation. Other items on the agenda which received attention included used vehicle safety, public support, priorities (standards which are to receive priority for obligation of Federal funds), and those highway safety goals which can realistically be expected to be achieved during the 1970s.

Motor Vehicle Safety Programs

Crash Survivability. Of the three phases of the crash sequence, the second one—preventing death and serious injury to collision victims—holds the greatest potential for short- and long-term results (together with alcohol countermeasures in crash avoidance). The early standards reported last year are showing promising results, and during the current reporting period, considerable effort has been directed toward expediting the development of other lifesaving devices. Passive restraint systems such as the "air bag" have received emphasis. This is a bag which would inflate virtually instantaneously when the vehicle crashed to protect the occupants—from the steering wheel for the driver, the dashboard for the right-hand passenger, and from the rear of the front seat for the rear seat occupants. Research and testing had progressed far enough to warrant initiating the standards development process with publication of an Advance Notice of Proposed Rule Making June 26, 1969, which asked for comments from manufacturers and other interested persons within 90 days. The restraint system would apply to all new passenger cars, multipurpose passenger vehicles, such as station wagons, and to trucks and buses. Since this device would protect crash victims only upon forward impact, other projects have been undertaken to plan greater protection from side impacts, rearend crashes, and rollover. Such measures are in various stages of research or rulemaking.

Motor Vehicle Safety Standards. The basic provision of the National Traffic and Motor Vehicle Safety Act of 1966 requires the issuance of motor vehicle safety performance standards which protect the public against unreasonable risk of death and injury resulting from inadequate design, construction, or performance of vehicles. The initial 22 standards were to be based upon existing standards, and both those and subsequent ones must meet certain criteria:

- The need for motor vehicle safety.
- Reasonableness, applicability and practicality.
- Objectivity.
- Compliance with the rulemaking procedures of the Administrative Procedures Act.

In addition, the NHSB has developed procedures and criteria apart from those required by law, such as publication of an Advance Notice of Rule Making (in the Federal Register) which calls attention to the area under consideration and seeks suggestions helpful in drafting the standard. Along the same lines a technical meeting is held after comments have been received to allow experts in Government and the private sector to contribute their knowledge and expertise.

Since the original 22 standards were promulgated, 11 new and revised standards have been issued, including numerous amendments and interpretations. Development work is in progress on some 50 additional rulemaking actions. Rulemaking in many important aspects of vehicle safety must await research in new and complex fields for which there is presently limited, if any, experience or scientific information.

The motor vehicle safety standards, together with amendments and interpretations, are published periodically. The latest amendment was released in April 1969. Another compilation is expected to be issued shortly.

Compliance. The standards are described in the form of performance requirements. Results of the prescribed test associated with these requirements indicate whether the standards have been met. The manufacturer must provide an adequate basis for the certificate of compliance required on all motor vehicles sold, or manufactured for sale, in the United States. The Government subsequently must perform corroborative testing or evaluation of the manufacturers' test data in its compliance evaluation program.

A large number of tests are required by the standards, and with 500 different makes and models of 10 million motor vehicles, as well as the vast automotive parts market, the dimensions of the problem may be appreciated. A fully comprehensive testing program would require efforts far beyond the resources of the NHSB. The NHSB therefore directs its compliance efforts to those areas in which there are indications of noncompliance problems. For example, during tests of a limited number of tires, 72 failures occurred; 38 brands and sizes of tires were involved. Because of the high rate of failure experienced, the NHSB scheduled an additional 1,900 tires for testing. A number of potential import violations are also under investigation.

Two tire companies have initiated programs at the request of the NHSB to recall tires in a specific size and line after a significant number of failures were discovered in the testing program of the NHSB. Section 109 of the National Traffic and Motor Vehicle Safety Act, stipulates that violations "shall be subject to a civil penalty of not to exceed $1,000 for each violation . . . except that the maximum penalty shall not exceed $400,000 for any related series of violations." The Department of Justice will be requested to initiate proceedings for the imposition of civil penalties in the instance of two tire companies and one automobile company for noncompliance under this provision of the Act. In addition, legislation has been requested which would require tire manufacturers to notify tire purchasers when defects are discovered, and to establish a recordkeeping system which would permit notification to retail customers.

Some of the compliance work can be done through analysis of manufacturer test data, but the heart of the compliance program consists of independent corroborative testing by the Government. Having no Government test facilities, the NHSB has contracted with eight independent testing laboratories to carry out a wide variety of compliance tests on 73 vehicles. In addition, more than 6,000 pieces of vehicle equipment were scheduled for testing, such as safety belts, brake hoses, tires, and door latches. All of the standards were subjected to some compliance testing or surveillance. Ve-

hicles and equipment of foreign manufacture have also been tested, and a total of 84 potential import violations are under investigation. A beginning has been made, but new approaches must be pursued and greater resources must be made available if this enforcement aspect of the traffic safety program is to meet the Department's statutory responsibilities.

Defect Analysis. One of the provisions of the National Traffic and Motor Vehicle Safety Act of 1966 requires that motor vehicle manufacturers furnish purchasers with notification of safety-related defects which may be discovered in the vehicle or its equipment. Similar notifications must be furnished the Department of Transportation. The Act does not specifically require recall or repair, but public notification has impelled manufacturers to recall vehicles and equipment for inspection and correction of defects.

From the institution of the program through the end of June 1969, manufacturers have announced 423 recall campaigns involving 13,353,830 motor vehicles. Foreign vehicles accounted for 83 of the campaigns and 962,985 motor vehicles of foreign manufacture. The information is tabulated by the NHSB, together with brief descriptions of the defects, and is published both quarterly and annually.

The NHSB is responsible for investigating potential defects independently, informing the manufacturers and the public, and monitoring the recall campaigns. Without a test facility, the NHSB relies heavily upon letters of complaint from consumers and Congressmen and published articles. Investigations are made in response to consumer complaints within the limited resources of the NHSB. The NHSB is presently conducting a defect notification recall campaign survey, the results of which will be used in auditing data provided by the manufacturers, on campaign effectiveness and for improvement of procedures.

Used Vehicles. The report on the adequacy of motor vehicle safety standards, inspection requirements, and procedures applicable to used motor vehicles in each State as required by the National Traffic and Motor Vehicle Safety Act, was submitted in June of 1968 (see Highlights Section). The report estimated that about half of the motor vehicles in use are deficient in critical aspects of safety performance, which should be a matter of concern to all who are potential victims of poorly maintained vehicles: "To deal with this problem will require effective safety performance standards for used cars and a strong enforcement program through periodic State vehicle inspection."

On November 27, 1968, the Federal Highway Administration invited comments on any of the complex technical, economic, and social issues raised by the establishment of standards for vehicles in use. Comments might consider appropriate performance requirements for safety related components, such as brakes, steering, handling, and tires; the most feasible and effective means of enforcing such performance requirements; and costs associated with the establishment of such safety standards. At the end of the current reporting period, the comments which had been received were still under review in the NHSB. Limited resources prevent acceleration of the program at this time.

At a joint meeting in May 1969, the members of the Vehicles-In-Use Committee of the National Motor Vehicle Safety Advisory Council and of the Standards and Manual Subcommittee of the National Highway Safety Advisory Committee urged adoption by each State of a motor vehicle inspection program, and recommended that the vehicle-in-use standards be of the most stringent nature consistent with the capability of inspection equipment and techniques.

National Motor Vehicle Safety Advisory Council. The Council held seven meetings and considered and made recommendations concerning numerous motor vehicle safety standards being developed by the NHSB, and on other related matters. In its annual report to the Secretary of Transportation, the Council included recommendations for Vehicle Aspects of School Bus Safety; Consumer Information Regulations; Public Information on Crash Survival Principles; Safety for Vehicles in Use; Coordination with the Federal Trade Commission and other Agencies; Requirements for Vehicles under 1,000 pounds; and Goals. Since its Annual Report was issued, the Council received a briefing on crash survivability research and developments, including a report on the status of the "air bag" passive restraint. As a result, the Council expressed to Secretary Volpe its enthusiasm for the "air bag" because of its potential value in reducing fatal and serious injuries received in head-on crashes. The Council urged the Secretary to implement this development by initiating appropriate rulemaking procedures. Subsequently, the Department issued an Advance Notice of Proposed Rule Making on June 26, setting in motion a proposed standard on air bag restraint systems.

NOTES TO THE FINANCIAL STATEMENTS

1. Title 23, United States Code, Sections 125/320 allows payment for disaster assistance and construction of roadways over Federal Dams prior to appropriation. The unappropriated expenditures for Emergency Relief and Roadways over Dams are $56,051,825.

2. The fixed assets are stated at cost. Depreciation is taken on Equipment Depot fixed assets. Office furniture and equipment are utilized for administrative operations and are replaced as needed. Office furniture and equipment are not depreciated.

3. The Congress grants contracting authority to Federal Highway Administration in advance of actual appropriations in order to permit Federal Highway Administration and the States to plan highway construction and State and Community Highway Safety Programs. This authority is apportioned to the States and Federal Highway Administration records the obligations as the States are permitted to proceed. Funds are appropriated by the Congress annually to cover estimated needs for liquidating the obligations maturing within the current fiscal year.

4. The available balance of contracting authority shown in the Statements of Operations includes both obligated and unobligated balances of contracting authority plus unliquidated obligations for administration and research.

5. Land and buildings valued at $13,940,705, and $62,100 respectively were transferred to the Commonwealth of Virginia at no cost. This transfer was made in accordance with Public Law 87–307 and represents the cost of construction of the Pentagon Road Network and facilities.

6. Cash returned to to Treasury is derived from liquidations of prior year obligations in a lesser amount than originally obligated. The cash returned by National Highway Safety Bureau was from administration, $914,654 with a corresponding decrease in obligational authority, and from contracting authority $222,288 with no decrease in contracting authority. Landscape and Scenic Enhancement program cash returned, $1,214,582, decreased administration obligational authority by $22,102 and program authority by $1,192,481.

TABLE 23. Summary statement of operations—July 1968 through June 1969

APPROPRIATIONS

For Contracting Authority		*For Working Capital*	
New	$ 5,728,117,900	New	$ 4,274,739,604
From last year	9,563,635,217	From last year	145,668,682
Reimbursable earnings	15,453,164	Reimbursable collections	11,455,684
Administrative obligational authority	27,451,704		
Available	$15,334,657,985	Available	$ 4,431,863,970

OPERATING EXPENSES

	Payments	*Changes in Accruals*
Bureau of Public Roads	$4,228,213,837	$−126,580,740
National Highway Safety Bureau	41,302,125	2,229,157
Bureau of Motor Carrier Safety	2,065,561	14,188
Total	$4,271,581,523	$−124,337,395
Decrease in accruals	−124,337,395	
	$4,147,244,128	

DEDUCT		DEDUCT	
Accrued expenses	$ 4,147,244,128	Payments	$ 4,271,581,523
Lapsing program authority	7,692,704	Increase-advances	493,638
Unobligated balance of administration	949,255	Decrease-unpaid project leave	63,647
		Disbursements in transit	71,911
		Unobligated cash returned to Treasury	2,364,023
Used	$ 4,155,886,087	Used	$ 4,274,574,742

AVAILABLE BALANCES, JUNE 30, 1969

Contracting Authority	$11,178,771,898	In Treasury	$ 157,289,228

TABLE 24. Summary balance sheet—June 30, 1969

ASSETS		
Current assets:		
Funds in U.S. Treasury	$1,669,819,592	
Less unappropriated receipts	−1,512,530,364	
Available fund balance with Treasury		$ 157,289,228
Accounts receivable:		
Repayments to fund	$ 8,216,831	
Emergency relief [1]	56,051,826	
Advances to travelers	399,564	
Other advances	816,842	
		$ 65,485,063
Materials and supplies		88,483
Fixed assets: [2]		
Office furniture and equipment	$ 5,483,913	
Equipment–depreciable	5,533,592	
Less allowance for depreciation	−3,264,834	
Equipment work-in-process	4,950	
Land	1,030,662	
Buildings and structures	17,544,293	
		26,332,576
Contracting authority [3]		11,707,747,451
Total assets		$11,956,942,,801
LIABILITIES AND U.S. GOVERNMENT INVESTMENTS		
Current liabilities:		
Disbursements in transit	$ 23,596	
Accounts payable and accrued liabilities for States' completed work	727,819,864	
Accrued liabilities–Other	16,114,585	
		$ 743,958,045
Accrued annual leave of employees		6,573,679
U.S. Government investments:		
Unobligated contracting authority—		
Bureau of Public Roads	$4,375,741,651	
National Highway Safety Bureau	250,311,165	
		$ 4,626,052,816
Undelivered orders and contracts—		
Bureau of Public Roads	$6,482,913,870	
National Highway Safety Bureau	77,595,610	
Bureau of Motor Carrier Safety	1,401	
		$ 6,560,510,881
Invested capital—		
Bureau of Public Roads	$ 20,037,185	
National Highway Safety Bureau	−139,833	
Bureau of Motor Carrier Safety	−87,058	
		$ 19,810,294
Retained Earnings		37,086
		$11,206,411,077
Total Liabilities and U.S. Government Investments		$11,956,942,801

TABLE 25. Bureau of Public Roads summary statement of operations July 1968 through June 1969

APPROPRIATIONS

For Contracting Authority		*For Working Capital*	
New	$ 5,651,937,900	New	$ 4,195,071,900
From last year	9,293,867,946	From last year	109,741,934
Reimbursable earnings	14,253,164	Reimbursable collections	11,455,684
Administrative obligational authority (beautification)	1,064,000		
Available	$14,960,223,010	Available	$ 4,316,269,518

OPERATING EXPENSES

	Payments	*Changes in Accruals*
Primary	$ 437,540,983	$ −15,449,577
Secondary	266,007,966	−10,830,703
Urban	246,528,305	−5,268,927
Highway planning research	75,070,922	−4,290,347
Interstate	3,045,728,621	−89,775,961
Public lands	7,592,553	−529,414
Forest highways	30,476,536	−618,459
Outdoor advertising	186,904	+73,029
Junkyards	998,117	+15,597
Landscaping and scenic enhancement	19,083,575	−1,733,862
D and L funds	18,885	0
Emergency relief	16,081,741	+997,274
Roadway over dams	160,512	+36,932
Pentagon road network	16,856	−3
Administration and research	63,126,146	+896,558
Purchase of fixed assets	453,468	0
Reimbursable	14,193,016	+60,148
Miscellaneous funds	4,948,731	−163,025
Totals	$4,228,213,837	$−126,580,740
Decrease in accruals	−126,580,740	
	$4,101,633,097	

DEDUCT		DEDUCT	
Accrued expenses	$ 4,101,633,097	Payments	$ 4,228,213,837
Lapsing program authority	7,692,704	Increase—advances	475,453
Unobligated balance of administration	33,487	Decrease—unpaid project leave	63,647
		Disbursements in transit	21,085
		Unobligated cash returned to Treasury	1,225,967
Used	$ 4,109,359,288	Used	$ 4,229,999,989

AVAILABLE BALANCES, JUNE 30, 1969

Contracting authority [1]	$10,850,863,722	In Treasury	$ 86,269,529

TABLE 26. Bureau of Public Roads summary balance sheet—June 30, 1969

ASSETS

Current assets:		
Funds in U.S. Treasury	$1,598,799,893	
Less unappropriated receipts	−1,512,530,364	
Available fund balance with Treasury		$ 86,269,529
Accounts receivable:		
Repayments to fund	$ 8,215,431	
Emergency relief [1]	56,051,826	
Advances to travelers	351,415	
Other advances	616,904	
		$ 65,235,576
Materials and Supplies		88,483
Fixed assets: [2]		
Office furniture and equipment	$ 4,990,016	
Equipment — depreciable	5,533,592	
Less allowance for depreciation	—3,264,834	
Equipment work-in-process	4,950	
Land	1,030,662	
Buildings and structures	17,544,293	
		25,838,679
Contracting authority [3]		$11,442,451,925
Total assets		$11,619,884,192

LIABILITIES AND U.S. GOVERNMENT INVESTMENTS

Current liabilities:		
Disbursements in transit	$ 23,308	
Accounts payable and accrued liabilities for States' completed work	728,901,145	
Accrued liabilities — other	6,377,056	
		$ 735,301,509
Accrued annual leave of employees		5,852,891
U.S. Government investments:		
Unobligated contracting authority—		
Federal-aid	$4,063,114,388	
Forest highways	50,601,868	
Public lands	37,767,661	
Highway beautification	23,552,050	
Emergency relief and other	201,352,620	
Miscellaneous funds	9,353,064	
		$ 4,375,741,651
Undelivered orders and contracts—		
Federal-aid	$6,354,040,165	
Forest highways	24,025,420	
Public lands	13,775,697	
Highway beautification	49,987,064	
Emergency relief and other	28,020,224	
Miscellaneous funds	13,065,300	
		$ 6,482,913,870
Invested capital		20,037,185
Retained earnings		37,086
		$10,878,729,792
Total liabilities and U.S. Government investments		$11,619,884,192

TABLE 27. Bureau of Public Roads miscellaneous funds summary statement of operations July 1968 through June 1969

APPROPRIATIONS

For Contracting Authority		*For Working Capital*	
New	$ 2,037,900	New	$ 2,037,900
From last year	25,177,555	From last year	26,355,966
Available	$ 27,215,455	Available	$ 28,393,866

OPERATING EXPENSES

	Payments	*Changes in Accruals*
Inter-American highway	$ 4,926,110	$ −163,699
Access roads, Act of 1950	−230	+230
Consolidated working fund	683	
Maintenance of roads, Alaska	−11,385	
Advances from State cooperating agencies	27,803	+444
Contributions for highway research program	3,846	
Chamizal memorial highway	1,904	
Totals	$ 4,948,731	$ −163,025
Decrease in accruals	−163,025	
	$ 4,785,706	

DEDUCT		DEDUCT	
Accrued expenses	$ 4,785,706	Payments	$ 4,948,731
Unobligated balance writeoff	11,385	Increase—advances	198,096
		Increase—unpaid project leave	+602
		Unobligated cash returned to Treasury	11,385
Used	$ 4,797,091	Used	$ 5,157,610

AVAILABLE BALANCES, JUNE 30, 1969

Contracting authority [4]	$ 22,418,364	In Treasury	$ 23,236,256

TABLE 28. Bureau of Public Roads miscellaneous funds summary balance sheet—June 30, 1969

ASSETS

Current assets:		
Funds with U.S. Treasury		$ 23,236,256
Accounts receivable—		
Advances to travelers	$ 75	
Other advances	198,096	
Repayments to funds	6,630	
		$ 204,801
Fixed assets: [2]		
Office furniture and equipment	$ 39,043	
Equipment — depreciable	11,879	
Less allowance for depreciation	(−)11,553	
Land	818,961	
Buildings and structures	14,822,417	
		$ 15,680,767
Total assets		$ 39,121,824

LIABILITIES AND U.S. GOVERNMENT INVESTMENTS

Current liabilities:		
Accounts payable and other accrued liabilities	$ 18,426	
Accrued liabilities for uncompleted work	1,004,267	
		$ 1,022,693
Accrued annual leave of employees		40,434
U.S. Government investments:		
Unobligated contracting authority—		
Contributions for highway research	$ 4,521	
Access roads, Act of 1950	112,317	
Inter-American highway	2,979,981	
Woodrow Wilson memorial bridge	152,623	
Advances from State agencies	6,352	
Chamizal memorial highway	1,097,270	
Alaskan assistance	5,000,000	
		$ 9,353,064
Undelivered orders and contracts—		
Inter-American highway	$ 10,156,551	
Consolidated working fund	7,923	
Chamizal memorial highway	2,900,826	
		$13,065,300
		$ 22,418,364
Invested capital		15,640,333
Total liabilities and U.S. Government investments		$ 39,121,824

TABLE 29. Bureau of Public Roads highway trust fund statement of operations July 1968 through June 1969

APPROPRIATIONS

For Contracting Authority		*For Working Capital*	
New	$ 5,575,000,000	New	$ 4,155,370,000
From last year	9,102,207,394	From last year	3,501,795
Reimbursable earnings	10,436,567	Reimbursable collection	7,890,926
Available	$14,687,643,961	Available	$ 4,166,762,721

OPERATING EXPENSES

	Payments	*Change in Accruals*
Federal-aid:		
Primary	$ 437,540,983	$ −15,449,577
Secondary	266,007,966	−10,830,703
Urban	246,528,305	−5,268,927
HPR	75,070,922	−4,290,347
Interstate	3,045,728,621	−89,775,961
Administration-research	60,217,472	+937,382
Purchase of fixed assets	451,441	
D and L funds	18,885	
	$4,131,564,595	$−124,678,133
Emergency relief	16,081,741	+997,274
Roadway over dams	160,512	+36,932
Pentagon road network	16,856	−3
Reimbursable	10,376,419	+60,148
TOTALS	$4,158,200,123	$−123,583,782
Decrease in accruals	123,583,782	
	$4,034,616,341	

DEDUCT		DEDUCT	
Accrued expenses	$ 4,034,616,341	Payments	$ 4,158,200,123
Lapsing authority emergency relief	6,500,223	Increase—advances	282,615
		Increase—unpaid project leave	+9,376
		In transit	+7,135
Used	$ 4,041,116,564	Used	$ 4,158,466,227

AVAILABLE BALANCES, JUNE 30, 1969

Contracting authority [4]	$10,646,527,397	In Treasury	$ 8,296,494

TABLE 30. Bureau of Public Roads highway trust fund balance sheet—June 30, 1969

ASSETS

Current assets:		
Funds in U.S. Treasury	$1,520,826,858	
Less unappropriated receipts	−1,512,530,364	
Available fund balance with Treasury		$ 8,296,494
Accounts receivable—		
Repayments to fund	$ 7,856,326	
Emergency relief [1]	56,051,826	
Advances to travelers	343,817	
Other advances	418,808	
		$ 64,670,777
Fixed assets: [2]		
Land	211,701	
Office furniture and equipment	4,948,083	
Buildings and structures	2,718,617	
		$ 7,878,401
Contracting authority [3]		11,302,201,924
Total assets		$11,383,047,596

LIABILITIES AND U.S. GOVERNMENT INVESTMENT

Current liabilities:		
Disbursements in transit		$ 17,920
Accounts payable and accrued liabilities for States' completed work		723,303,166
Accrued liabilities — other		5,320,712
		$ 728,641,798
Accrued annual leave of employees		5,669,008
U.S. Government investment:		
Unobligated contracting authority—		
Federal-aid	$4,063,114,388	
Emergency relief and other	201,352,620	
		$ 4,264,467,008
Undelivered orders and contracts—		
Federal-aid	$6,354,040,165	
Emergency relief and other	28,020,224	
		$ 6,382,060,389
Invested capital		2,209,393
		$10,648,736,790
Total liabilities and U.S. Government investment		$11,383,047,596

TABLE 31. Bureau of Public Roads highway trust fund–U.S. Government investment—July 1968 through June 1969

U.S. Government investment at July 1, 1968		$ 9,118,608,608
Increases:		
Contracting authority	$5,575,000,000	
Reimbursable work	10,436,567	
		$ 5,585,436,567
Total increases		$14,704,045,175
Decreases:		
Expenses	$4,034,164,900	
Property dispositions [5]	14,097,613	
Lapsing contract authority	6,500,223	
Leave earned but not used	545,649	
Total decreases		$ 4,055,308,385
U.S. Government investment at June 30, 1969		$10,648,736,790

ANALYSIS OF U.S. GOVERNMENT INVESTMENT

Invested capital		$ 2,209,393
Obligated:		
Federal-aid	$6,354,040,165	
Emergency relief	27,937,437	
Roadways over dams	32,605	
Pentagon road network	50,182	
		$ 6,382,060,389
Unobligated:		
Federal-aid	$ 82,627,806	
Emergency relief	20,965,358	
Roadways over dams	911,083	
Pentagon road network	206,408	
ROW revolving fund	31,000,000	
		$ 135,710,655
Reserved—not available		4,128,756,353
U.S. Government investment at June 30, 1969		$10,648,736,790

TABLE 32. Bureau of Public Roads highway trust fund statement of application of funds

Funds provided by:		
Appropriation	$4,155,370,000	
Repayments to appropriation	10,436,567	
Total funds provided		$4,165,806,567
Funds applied to:		
Federal-aid	$3,945,280,167	
Administration and research	61,606,295	
Bridges over dams	197,444	
Pentagon road network	16,853	
Emergency relief	17,079,015	
Reimbursable work	10,436,567	
Total funds applied		$4,034,616,341
Increase in working capital		$ 131,190,226

TABLE 33. Bureau of Public Roads highway trust fund change in working capital (accounted for as follows)

	June 30, 1969	*July 1, 1968*	*Increase*	*Decrease*
Current assets:				
Funds with U.S. Treasury	$ 8,296,494	$ 3,501,795	$ 4,794,699	$
Accounts receivable—				
Repayments to fund	7,856,326	5,754,000	2,102,326	
Advances to travelers	343,817	318,057	25,760	
Other advances	418,808	161,953	256,855	
			$ 7,179,640	$ 0
Current liabilities:				
Disbursement in transit	$ 17,920	$ 10,785	$	$ 7,135
Accounts payable and accrued liability for States' completed work	723,303,166	848,776,592	125,473,426	
Other accrued liabilities	5,320,712	3,865,007		1,455,705
			$125,473,426	$ 1,462,840
Sub-totals			$132,653,066	$ 1,462,840
Increase in working capital				131,190,226
Totals			$132,653,066	$132,653,066

TABLE 34. Bureau of Public Roads highway beautification program statement of operations—July 1968 through June 1969

APPROPRIATIONS

For Contracting Authority		*For Working Capital*	
New	$ 25,000,000	New	$ 1,064,000
From last year	60,580,550	From last year	70,064,548
Administrative obligational authority	1,064,000		
Available	$ 86,644,550	Available	$ 71,128,548

OPERATING EXPENSES

	Payments	*Change in Accruals*
Administration	$ 1,062,613	$ −5,347
Purchase of fixed assets	2,027	
Outdoor advertising	186,904	+73,029
Junkyards	998,117	+15,597
Landscaping and scenic enhancement	19,083,575	−1,733,862
Totals	$ 21,333,236	$ −1,650,583
Decrease in accruals	−1,560,583	
	$ 19,682,653	

DEDUCT		DEDUCT	
Accrued expenses	$ 19,682,653	Payments	$ 21,333,236
Unobligated balance of administration	22,102	Decrease—advances	+4,446
Lapsing program authority	1,192,481	Disbursements in transit	179
		Unobligated cash returned to Treasury [5]	1,214,582
Used	$ 20,897,236	Used	$ 22,543,551

AVAILABLE BALANCES, JUNE 30, 1969

Contracting authority [4]	$ 65,747,314	In Treasury	$ 48,584,997

TABLE 35. Bureau of Public Roads highway beautification program balance sheet—June 30, 1969

ASSETS		
Current assets:		
Funds in U.S. Treasury		$ 48,584,997
Accounts receivable	$ 76	
Advances to travelers	6,273	
		$ 6,349
Fixed assets: [2]		
Office furniture and equipment		2,890
Contracting authority [3]		25,000,000
Total assets		$ 73,594,236
LIABILITIES AND U.S. GOVERNMENT INVESTMENTS		
Current liabilities:		
Disbursements in transit	$ 155	
Accounts payable and other liabilities	52,077	
		$ 52,232
Accrued annual leave of employees		97,691
U.S. Government investment:		
Unobligated contracting authority	$ 23,552,050	
Undelivered orders and contracts	49,987,064	
		$ 73,539,114
Invested capital		(−)94,801
		$ 73,444,313
Total liabilities and U.S. Government investment		$ 73,594,236

TABLE 36. Bureau of Public Roads highway beautification program statement of applications of funds

Funds provided by:		
Appropriation	$ 1,064,000	
Less unobligated cash returned [6] to Treasury at June 30, 1969	1,214,582	
Total funds provided		$ (−)150,582
Funds applied to:		
Administrative operating expenses	$ 1,057,265	
Purchase of fixed assets	2,027	
Outdoor advertising	259,934	
Junkyards	1,013,714	
Landscaping and scenic enhancement	17,349,713	
Total funds applied		$ 19,682,653
Decrease in working capital		$ 19,833,235

TABLE 37. Bureau of Public Roads highway beautification program–U.S. Government investment—July 1968 through June 1969

U.S. Government investment at July 1, 1968		$ 69,912,156
Increases:		
Contracting authority	$ 25,000,000	
Appropriation	1,064,000	
Total increases		26,064,000
Decreases.		
Expenses	$ 21,325,861	
Unobligated cash returned to Treasury at June 30, 1969	1,214,582	
Leave earned but not used	(−)8,600	
Total decreases		$ 22,531,843
U.S. Government investment at June 30, 1969		$ 73,444,313

ANALYSIS OF U.S. GOVERNMENT INVESTMENT

Invested capital		$ (−)94,801
Obligated:		
Undelivered orders and contracts—		
Administration	$ 31	
Outdoor advertising	901,419	
Junkyards	5,115,402	
Landscaping and scenic enhancement	43,970,212	
		$ 49,987,064
Unobligated:		
Outdoor advertising	$ 2,000,000	
Junkyards	2,998,275	
Landscaping and scenic enhancement	18,553,775	
		$ 23,552,050
U.S. Government investment at June 30, 1969		$ 73,444,313

TABLE 38. Bureau of Public Roads highway beautifiication program change in working capital (accounted for as follows)

	June 30, 1969	*July 1, 1968*	*Increase*	*Decrease*
Current assets:				
Funds with U.S. Treasury	$ 48,584,997	$ 70,064,548	$	$ 21,479,551
Accounts receivable	76	33	43	
Advances to travelers	6,273	10,720		4,447
Sub-totals			$ 43	$ 21,483,998
Current liabilities:				
Disbursements in transit	$ 155	$ 334	$ 179	
Accounts payable and accrued liabilities	7,843,876	9,494,416	1,650,540	
			1,650,719	
Subtotals			$ 1,650,762	$ 21,483,998
Decrease in working capital			$ 19,833,236	
Totals			$ 21,483,998	$ 21,483,998

TABLE 39. Bureau of Public Roads public lands program statement of operations July 1968 through June 1969

APPROPRIATIONS

For Contracting Authority		*For Working Capital*	
New	$ 16,000,000	New	$ 7,600,000
From last year	32,952,558	From last year	5,294,047
Available	$ 48,952,558	Available	$ 12,894,047

OPERATING EXPENSES

	Payments	*Change in Accruals*
Administration	$ 346,061	
Construction	7,592,553	$ −529,414
	7,938,614	$ −529,414
Decrease in accruals	−529,414	
Totals	7,409,200	

DEDUCT		DEDUCT	
Accrued expenses	$ 7,409,200	Payments	$ 7,938,614
		Increase—unpaid project leave	+19,198
Used	$ 7,409,200	Used	$ 7,919,416

AVAILABLE BALANCES, JUNE 30, 1969

Contracting authority	$ 41,543,358	In Treasury	$ 4,974,631

TABLE 40. Bureau of Public Roads public lands program balance sheet—June 30, 1969

ASSETS

Current assets:		
Funds in U.S. Treasury		$ 4,974,631
Contracting authority		37,300,000
Total assets		$ 42,274,631

LIABILITIES AND U.S. GOVERNMENT INVESTMENT

Current liabilities:		
Accounts payable and accrued—		
Liabilities for States' completed work		$ 731,273
Accrued annual leave of employees		13,701
U.S. Government investment:		
Unobligated contracting authority	$ 27,767,661	
Undelivered orders and contracts	13,775,697	
Invested capital	(−)13,701	
		$ 41,529,657
Total liabilities and U.S. investment		$ 42,274,631

TABLE 41. Bureau of Public Roads public lands program–U.S. Government investment —July 1968 through June 1969

U.S. Government investment at July 1, 1968		$ 32,953,179
Increases:		
Contracting authority	$ 16,000,000	
Total increases		16,000,000
		$ 48,953,179
Decreases:		
Expenses	$ 7,409,200	
Leave earned but not used	14,322	
Total decreases		7,423,522
U.S. Government investment at June 30, 1969		$ 41,529,657

ANALYSIS OF U.S. GOVERNMENT INVESTMENT

Invested capital	$ (−)13,701
Obligated—	
Undelivered orders and contracts	13,775,697
Unobligated	1,867,432
Reserved—not available	25,900,229
U.S. Government investment at June 30, 1969	$ 41,529,657

TABLE 42. Bureau of Public Roads public lands program statement of application of funds—July 1968 through June 1969

Funds provided by:		
Appropriation	$ 7,600,000	
Total funds provided		$ 7,600,000
Funds applied to:		
Administration	$ 346,061	
Construction	7,063,139	
Total funds applied		$ 7,409,200
Increase in working capital		$ 190,800

TABLE 43. Bureau of Public Roads public lands program change in working capital (accounted for as follows)

	June 30, 1969	*July 1, 1968*	*Increase*	*Decrease*
Current assets:				
Funds with U.S. Treasury	$ 4,974,631	$ 5,294,047	$	$ 319,416
Current liabilities:				
Accounts payable and accrued liability for States' completed work	$ 700,654	$ 1,230,068	$ 529,414	$
Other accrued liabilities	30,619	11,421		19,198
			$ 529,414	$ 19,198
Sub-totals			$ 529,414	$ 338,614
Increase in working capital				190,800
Totals			$ 529,414	$ 529,414

TABLE 44. Bureau of Public Roads forest highways program statement of operations July 1968 through June 1969

APPROPRIATIONS

For Contracting Authority		*For Working Capital*	
New	$ 33,000,000	New	$ 29,000,000
From last year	72,949,889	From last year	4,525,578
Reimbursable earnings	3,816,597	Reimbursable collections	3,564,758
Available	$ 109,766,486	Available	$ 37,909,336

OPERATING EXPENSES

	Payments	*Change in Accruals*
Administration	$ 1,500,000	$ −35,477
Reimbursable	3,816,597	
Construction	30,476,536	−618,459
Total	35,793,133	$ −653,936
Decrease in accruals	−653,936	
	$ 35,139,197	

DEDUCT		DEDUCT	
Accrued expenses	$ 35,139,197	Payments	$ 35,793,133
		Decrease in advances	+812
		Disbursements in transit	28,041
		Unpaid project leave	92,823
Used	$ 35,139,197	Used	$ 35,913,185

AVAILABLE BALANCES, JUNE 30, 1969

Contracting authority	$ 74,627,289	In Treasury	$ 1,177,151

TABLE 45. Bureau of Public Roads forest highways program balance sheet—June 30, 1969

ASSETS

Current assets:		
Funds in U.S. Treasury		$ 1,177,151
Accounts receivable	$ 283	
Advances to travelers	1,250	
Repayments to funds	352,116	
Materials and supplies	88,483	
		$ 442,132
Fixed assets:		
Equipment—depreciable	$ 5,521,713	
Less allowance for depreciation	(3,253,301)	
Equipment work-in-process	4,950	
Buildings and structures	3,259	
		$ 2,276,621
Contracting authority		77,950,001
Total assets		$ 81,845,905

LIABILITIES AND U.S. GOVERNMENT INVESTMENTS

Current liabilities:		
Disbursements in transit	$ 5,233	
Accounts payable and other liabilities	4,848,280	
		$ 4,853,513
Accrued annual leave of employees		32,057
U.S. Government investment:		
Unobligated contracting authority	$ 50,601,868	
Undelivered orders and contracts	24,025,420	
Invested capital	2,295,961	
Retained earnings	37,086	
		$ 76,960,335
Total liabilities and U.S. investments		$ 81,845,905

TABLE 46. Bureau of Public Roads forest highways program statement of application of funds

Funds provided by:		
Appropriation	$ 29,000,000	
Reimbursable collections	3,816,597	
Total funds provided		$ 32,816,597
Funds applied To:		
Administrative operating expense	$ 1,464,523	
Reimbursable programs	3,816,597	
Construction programs	29,858,077	
Total funds applied		$ 35,139,197
Decrease in working capital		$ 2,322,600

TABLE 47. Bureau of Public Roads forest highways program–U.S. Government investment—July 1968 through June 1969

U.S. Government investment at July 1, 1968		$ 75,312,702
Increases:		
Contracting authority	$ 33,000,000	
Property acquired at no cost	1,423	
Reimbursable earnings	3,816,597	
Total increases		36,818,020
		$ 112,130,722
Decreases:		
Expenses	$ 35,139,197	
Leave earned but not used	(−)23,926	
Property dispositions	55,116	
Total decreases		$ 35,170,387
U.S. Government investment at June 30, 1969		$ 76,960,335

ANALYSIS OF U.S. GOVERNMENT INVESTMENT

Invested capital:	$ 2,333,047
Obligated:	
Undelivered orders and contracts	24,025,420
Unobligated contracting authority	210,155
Reserved—not available	$ 50,391,713
U.S. Government investment at June 30, 1969	$ 76,960,335

TABLE 48. Bureau of Public Roads forest highways program change in working capital (accounted for as follows)

	June 30, 1969	*July 1, 1968*	*Increase*	*Decrease*
Current assets:				
Funds in U.S. Treasury	$ 1,177,151	$ 4,525,578	$	$ 3,348,427
Accounts receivable—				
Advances to travelers	1,250	2,062		812
Repayments to fund	352,399	100,277	252,122	
			$ 252,122	$ 3,349,239
Current liabilities:				
Disbursements in transit	$ 5,233	$ 33,274	$ 28,041	
Accounts payable and accrued liabilities	4,848,280	5,594,756	746,476	
Sub-totals			$ 1,026,639	$ 3,349,239
Decrease in working capital			2,322,600	
Totals			$ 3,349,239	$ 3,349,239

TABLE 49. National Highway Safety Bureau statement of operations July 1968 through June 1969

APPROPRIATIONS

For Contracting Authority		*For Working Capital*	
New	$ 75,000,000	New	$ 77,587,704
From last year	269,765,007	From last year	35,838,759
Administrative obligational authority	26,387,704		
Reimbursable earnings	1,200,000		
Available	$ 372,352,711	Available	$ 113,426,463

OPERATING EXPENSES

	Payments	*Change in Accruals*
State and community highway safety program	$ 19,606,423	$ +1,877,235
Administration and research	21,558,353	+351,922
Purchase of fixed assets	137,349	
Total	$ 41,302,125	$ 2,229,157
Increase in accruals	2,229,157	
	$ 43,531,282	

DEDUCT		DEDUCT	
Accrued expenses	$ 43,531,282	Payments	$ 41,302,125
Unobligated balance of administration	914,654	Increase advances outstanding	16,670
		Disbursements in transit	50,115
		Unobligated cash returned to Treasury	¹ 1,136,942
Used	$ 44,445,936	Used	$ 42,505,852

AVAILABLE BALANCES, JUNE 30, 1969

Contracting authority	$ ¹ 327,906,775	In Treasury	$ 70,920,611

TABLE 50. National Highway Safety Bureau balance sheet—June 30, 1969

ASSETS

Current assets:		
Funds in U.S. Treasury		$ 70,920,611
Accounts receivable	$ 1,072	
Advances to states	91,938	
Advances to travelers	36,387	
Other advances	108,000	
		$ 237,397
Fixed assets: [2]		
Office furniture and equipment	$ 400,265	
		400,265
Contracting authority [3]		$ 265,295,526
Total assets		$ 336,853,799

LIABILITIES AND U.S. GOVERNMENT INVESTMENTS

Current liabilities:		
Disbursements in transit		$ 261
Accounts payable and accrued liabilities for States' completed work	$ 7,465,217	
Accrued liabilities—other	1,081,281	
		8,546,498
		$ 8,546,759
Accrued annual leave of employees		540,098
U.S. Government investment:		
Undelivered orders and contracts	$ 77,595,610	
Contracting authority	250,311,165	
Invested capital	(−)139,833	
		$ 327,766,942
Total liabilities and U.S. Government investment		$ 336,853,799

TABLE 51. National Highway Safety Bureau statement of application of funds

Funds provided by:		
Appropriations	$ 77,587,704	
Less unobligated cash returned to Treasury at June 30, 1969	1,136,942	
Total funds provided		$ 76,450,762
Funds applied to:		
State and community highway safety programs	$ 21,483,658	
Administration and research	22,047,624	
Total funds applied		$ 43,531,282
Increase in working capital		$ 32,919,480

TABLE 52. National Highway Safety Bureau–U.S. Government investment—July 1968 through June 1969

U.S. Government investment at July 1, 1968		$ 269,718,957
Increases—		
Contracting authority	$ 75,000,000	
Appropriation for administration	27,587,704	
Property acquired at no cost	747	
		102,588,451
		$ 372,307,408
Decreases—		
Expenses	$ 43,393,933	
Leave earned but not used	202,334	
Unobligated administrative cash returned to U.S. Treasury [6]	914,654	
Property dispositions	29,545	
		$ 44,540,466
U.S. Government investment at June 30, 1969		$ 327,766,942

ANALYSIS OF U.S. GOVERNMENT INVESTMENT

Invested capital		$ (−)139,833
Obligated:		
State and community highway safety	$ 58,763,246	
Administration and research	18,832,364	
		$ 77,595,610
Unobligated:		
State and community highway safety		222,288
Reserved—not available		$ 250,088,877
U.S. Government investment at June 30, 1969		$ 327,766,942

TABLE 53. National Highway Safety Bureau change in working capital (accounted for as follows)

	June 30, 1969	*July 1, 1968*	*Increase*	*Decrease*
Current assets:				
Funds with U.S. Treasury	$ 70,920,611	$ 35,838,759	$ 35,081,852	
Accounts receivable	1,072	4,471		$ 3,399
Advances to travelers	36,387	43,635		7,248
Advances to States	91,938	176,021		84,083
Other advances	108,000		108,000	
			$ 35,189,852	$ 94,730
Current liabilities:				
Accounts payable and accrued liabilities for States' completed work	$ 7,465,217	$ 5,588,089		$ 1,877,128
Accrued liabilities—other	1,081,541	783,027		298,514
				2,175,642
Sub-totals			$ 35,189,852	$ 2,270,372
Increase in working capital				32,919,480
Totals			$ 35,189,852	$ 35,189,852

TABLE 54. Bureau of Motor Carrier Safety statement of operations July 1968 through June 1969

APPROPRIATIONS

For Contracting Authority		*For Working Capital*	
New	$ 2,080,000	New	$ 2,080,000
From last year	2,264	From last year	87,989
Available	$ 2,082,264	Available	$ 2,167,989

OPERATING EXPENSES

	Payments	*Change in Accruals*
Administration	$ 2,035,825	$ +14,188
Purchase of fixed assets	29,736	
Total	$ 2,065,561	
Increase in accruals	14,188	$ +14,188
	$ 2,079,749	

DEDUCT		DEDUCT	
Accrued expenses	$ 2,097,749	Payments	$ 2,065,561
Unobligated balance of administration	1,114	Increase in advances	1,515
		Disbursements in transit	711
		Unobligated cash returned to Treasury	1,114
Used	$ 2,080,863	Used	$ 2,068,901

AVAILABLE BALANCES, JUNE 30, 1969

Unliquidated obligations	$ 1,401	In Treasury	$ 99,088

TABLE 55. Bureau of Motor Carrier Safety balance sheet—June 30, 1969

ASSETS		
Current assets:		
Funds in U.S. Treasury		$ 99,088
Accounts receivable	$ 328	
Advances to travelers	11,762	
		$ 12,090
Fixed assets: [2]		
Office furniture and equipment		$ 93,632
Total assets		$ 204,810
LIABILITIES AND U.S. GOVERNMENT INVESTMENTS		
Current liabilities:		
Disbursements in transit	$ 27	
Accounts payable and other liabilities	109,750	
		$ 109,777
Accrued annual leave of employees		$ 180,690
U.S. Government investment:		
Undelivered orders and contracts	$ 1,401	
Invested capital	(−)87,058	
		$ (−)85,657
Total liabilities and U.S. Government investment		$ 204,810

TABLE 56. Bureau of Motor Carrier Safety–U.S. Government investment—July 1968 through June 1969

U.S. Government investment at July 1, 1968		$ (−)133,920
Increases:		
Appropriated	$ 2,080,000	
Property acquired at no cost	39,712	
		2,119,712
		$ 1,985,792
Decreases:		
Expenses	$ 2,050,013	
Leave earned but not used	20,322	
Unobligated cash returned to U.S. Treasury	1,114	
		$(−)2,071,449
U.S. Government investment at June 30, 1969		$ (−)85,657
ANALYSIS OF U.S. GOVERNMENT INVESTMENT		
Invested capital		$ (−)87,058
Obligated—		
Undelivered orders and contracts		1,401
U.S. Government investment at June 30, 1969		$ (−)85,657

TABLE 57. Bureau of Motor Carrier Safety change in working capital
(accounted for as follows)

	June 30, 1969	*July 1, 1968*	*Increase*	*Decrease*
Current assets:				
Funds in U.S. Treasury	$ 99,088	$ 87,989	$ 11,099	
Accounts receivable	328	11	317	
Advances to travelers	11,762	10,247	1,515	
			$ 12,931	
Current liabilities:				
Disbursements in transit	$ 27	$ 738	$ 711	
Accounts payable and accrued liabilities	109,750	95,245		$ 14,505
			$ 711	$ 14,505
Sub-totals			$ 13,642	$ 14,505
Decrease in working capital			863	
Totals			$ 14,505	$ 14,505

TABLE 58. Bureau of Motor Carrier Safety statement of application of funds

Funds provided by:		
Appropriations	$ 2,080,000	
Less unobligated cash returned to Treasury	1,114	
Total funds provided		$ 2,078,886
Funds applied to:		
Administrative operating expenses	$ 2,050,013	
Purchase of fixed assets	29,736	
Total funds applied		$ 2,079,749
Decrease in working capital		$ 863

Chapter VI

FEDERAL RAILROAD ADMINISTRATION

While fiscal year 1969 was but the second full year of operation for the Federal Railroad Administration, substantial progress was made in developing the agency as an effective force within the Department responsible for helping to enhance the capability of the railroad mode, and helping the railroads perform their functions more effectively. It administered the on-going programs of the Office of High-Speed Ground Transportation, the Bureau of Railroad Safety, and the Alaska Railroad—all of which marked significant accomplishments during the year.

Office of the Administrator

The Office of the Administrator includes the supporting Offices of Policy and Program Analysis, Public Affairs, Chief Counsel, Hearing Examiner, and Administration, in addition to the Administrator himself.

Office of Policy and Program Analysis. This Office is chief advisor to the Administrator on the pressing problems of government policy affecting the railroad industry. It must identify and assess the needs of the industry and the public and establish programs to meet these needs. The Office also administers and conducts railroad research activities. During fiscal year 1969, OP & PA (Office of Policy and Program Analysis) assumed major responsibility for these program areas:

- Position statements on major transportation bills.
- The definition of goals, objectives, roles, and missions of FRA.
- Northeast Corridor contracts which involved State governments to upgrade high-speed train crossing safety.
- Regional, State, and national meetings with members of public utility commissions to promote better relations and understanding of FRA/DOT role with State commissions.
- Establishment of a Railroad Safety Task Force that reported on June 30. Its recommendations served as the basis for railroad safety legislation later proposed to Congress. The chief recommendation was that the Secretary of Transportation be given authority to prescribe rules, regulations, and standards covering all aspects of railroad safety. Another recommendation dealt with the transportation of hazardous materials; it would require the Secretary to establish a round-the-clock reporting system to provide information and assistance in emergencies involving dangerous shipments.
- Exploratory discussions with labor and management and staff study to improve railroad labor relations.

- Policy and economic impact reports developed for the Office of the Secretary, the Department of Labor, and the National Mediation Board on the effect of specific railroad strikes.
- A task group of all interested parties to develop an improved automatic coupler concept.
- Automatic train control action program.
- A highway-railroad grade crossing symposium.
- Various official and contract research activities.

Office of Public Affairs. As a major support office to the Administrator and each program office within the FRA, the OPA (Office of Public Affairs) necessarily becomes involved in every major issue confronting the agency. Its activity revolves around the initial and subsequent planning on matters that will eventually become public issues and day-to-day activities of conducting an internal and external information program. During the year, the bulk of the OPA's efforts was directed to four areas: (1) Railroad safety, (2) railroad passenger service, (3) high-speed ground projects, and (4) general support functions for the Office of the Secretary and the Administrator.

Railroad Safety. Because rail accidents increased, particularly those involving hazardous materials, public, Congressional, and press interest was extremely high. The OPA participated in all key meetings within DOT on the developing problem and assisted in the preparation of testimony and public statements.

Railroad Passenger Service. Similarly, public interest in passenger train problems ran high. Public and Congressional mail on that subject required more than 500 letters to be prepared. Telephone requests from the press and the general public on rail passenger questions averaged 50 calls per week. Additional support from the OPA ranged from preparing Congressional testimony to arranging press interviews with appropriate FRA and DOT officials.

Office of High-Speed Ground Transportation. Activities ranged from setting up appropriate ceremonies to mark significant developments in the program to announcements of major contract awards. Both high-speed train projects generated great public interest and each new development brought a significant upturn in press and public requests for information.

General Support Activities. During the year, OPA responded to approximately 1,050 letters from the general public, Congress, railroads, unions, and the press on rail issues other than safety, passenger service, and the high-speed program. At the same time, the OPA prepared 58 written reports to the Office of the Secretary and the Administrator and 18 internal memoranda on various subjects. Twelve speeches for top FRA officials were either written or edited. The 24 press releases written during the fiscal year topped the same period in 1968 by five. Public phone calls averaged 130 per week.

Office of Chief Counsel. In fiscal year 1969, the Office of Chief Counsel utilized for the first time the procedures of the Federal Claims Collection Act to negotiate settlements of claims for civil penalty violations of the

railroad safety laws. A total of $83,240 was paid by six railroads on 457 alleged violations. By providing for administrative handling of violations in lieu of prosecution in the District Courts, this new procedure promises to permit a more effective enforcement of the railroad safety laws. These settlements were reached in meetings of top carrier officials with personnel of the Chief Counsel's Office and Bureau of Railroad Safety where problems of safety and their enforcement were freely discussed. The results will be a more meaningful administration of the safety regulations than could be achieved by enforcement through court action.

In addition to the above, 32 railroads paid penalty judgments of $78,300 assessed by U.S. District Courts for 341 safety violations. These were cases started in earlier years or cases based on criminal or other violations which could not be processed under the Federal Claims Collection Act.

The Office of Chief Counsel provided legal assistance to the Special Task Force on Railroad Safety which was established by Secretary Volpe. The Office further assisted the Task Force in the preparation of its report which will be the guide for the Administration's much needed railroad safety bill.

The Office of Chief Counsel issued new rule-making procedures to replace the rules of the Interstate Commerce Commission, the Department of Commerce, and the Department of Interior which had been continued in effect since creation of the Federal Railroad Administration. The new rules followed those of the other components of the Department; they established informal proceedings for the development, amendment, or revision of all regulations. The new rules provide an opportunity for greater flexibility and responsiveness on the part of the Administration in keeping rail safety rules and regulations current with new situations in rail transport. For the first time individual carriers will be able to petition, under simplified procedures, for relief from rail safety regulations, except for signal regulations, where their rail operations have adopted modern techniques. Additionally, the Chief Counsel's office prepared a proposed codification of the laws administered by the Federal Railroad Administration. Since most of the statutes involved were passed more than 50 years ago, their codification into modern language raised serious questions of construction. Care had to be exercised to preserve the intent of Congress in passing the original statutes, a particularly important factor in the railroad safety statutes and the statutes creating and continuing the Alaska Railroad. In addition, the Office reviewed and edited the rail safety regulations transferred to FRA from ICC to eliminate obsolete language and outdated references. These updated regulations were then assembled for publication into one chapter of the Code of Federal Regulations.

The Office of Chief Counsel also worked with the Office of Policy and Program Analysis in providing legal review and assistance with respect to various policy problems of significance to the rail industry and on-going FRA programs.

Office of Hearings. Two Acts administered by the FRA require hearings prior to the enunciation of new or changed safety regulations: (1) The Locomotive Inspection Act and (2) the Safety Appliance Act. In addition,

hearings are sometimes held at the request of the parties, or when desirable, in administering the Signal Inspection Act. In fiscal year 1969, the Office of Hearings conducted 12 hearings, and made the initial decision in 12 proceedings. Acting for the Federal Highway Administration, it conducted the hearing and made the initial decision in the proceeding involving toll charges over the bridges across the Delaware River between Philadelphia, Pennsylvania, and Camden, New Jersey. Similarly, it conducted hearings and made the initial decision in several certificate-action cases for the National Transportation Safety Board.

Office of Administration. Fiscal year 1969 witnessed numerous significant administrative developments. Staff personnel completed arrangements for a nationwide health clinic program for field employees, consummated maintenance service contracts for office equipment, and gained authorization for field offices in all but two of the requested locations. In addition, the staff provided financial management advice and assistance, processed 92 new procurement actions totaling approximately $13,500,000, achieved several milestones in major systems study, improved internal procedures, established a cost reduction program, and strengthened paperwork management.

In personnel management, action was initiated to design and conduct a total personnel management program adapted to the FRA's requirements, including the needs of its operating railroad—the Alaska Railroad. As a first step, a unified merit promotion plan was promulgated. A revised Equal Employment Opportunity Program highlighted the civil rights activity.

Office of High-Speed Ground Transportation

Substantial progress was made in the last year by the OHSGT (Office of High-Speed Ground Transportation) in delineating and defining present and future transportation service options for the Northeast Corridor, in building simulation models to analyze and evaluate these options, and in developing an information base for the Northeast Corridor Transportation Project. These accomplishments will make possible more comprehensive analyses of proposed new transportation systems. The research and development in high-speed ground transportation and the demonstrations have provided an important input to the Northeast Corridor analysis and evaluation.[1]

Systems Analysis. With the development of: (1) Simulation modeling techniques, (2) advanced technology, (3) analyses of the economic impact of transportation and demand for transportation, and (4) cost estimating relationships, the Office gained ability to make the first large-scale analysis and representation of regional transportation system alternatives. Final

[1] The objective of the NECTP (Northeast Corridor Transportation Project) is to determine the intercity transportation needs of the Northeast Corridor through 1980, determine alternative ways of meeting these needs, and evaluate the alternatives for investment decisions. Estimates of the demand for transportation in the region over the next 20 years will be set against the range of capability of various kinds of transportation systems. Each candidate system will be evaluated on the basis of the resources it requires and the benefits it affords to both users and the community.

assembly has been completed and initial trials begun of a set of analytical and computer models for studying the interactions of new technology, passenger demand, and the impact of new systems and improved service upon the regional environment.

The OHSGT has combined all of its resources and talents in a task force to contribute to the solution of development problems in the Northeast Corridor, but with the hope that their solutions will have wider applicability. Thus the impact and demand projects have been designed with relation to the modeling efforts of the Northeast Corridor Project; the systems, costing and technical inquiry, with relation to the engineering research and development efforts; and the gathering of data and testing of traveller response to improved services, with relation to the demonstration program. Administration of the office reflects this organizational structuring, and reporting on program activities is done accordingly.

The development of this transportation system analysis capability has progressed well in advance of the state of the art—at times in the absence of reliable travel and cost data. Despite imperfections, the Northeast Corridor model system affords policy makers a substantially improved basis for investment decision. The methodology should be particularly useful to planners offering guidance to decision making in other Corridors throughout the country.

Northeast Corridor Transportation Project Models. The heart of the OHSGT analytical system is the Corridor simulation model. Its function is to simulate the working of prospective Corridor transportation systems comprised of mixes of several different technologies. The simulation is intended to portray the performance of different combinations of transportation systems, including both old and new elements. The commitment of funds to new system development will be sounder if it is based upon knowledge of the likely interactions of passengers, regional attitudes, and environmental needs and of the economic response of the region to possible changes in the transportation system in the Northeast Corridor. The simulation is a miniature of the actual Corridor system in which varying conditions of rate structure, demand, and operating policy can be tested.

The input to the simulation comes from several sources, including OHSGT-funded work accomplished to date. The output consists of objective descriptions of analyses of the transportation systems which may be candidates for consideration by decision makers. The model structure, including analyses and simulations, will supply the decision makers—planners and elected officials—with improved data and evaluations. It can be used to test the regional economic impact of alternative investment decisions before the actual commitment of funds and resources.

A major transportation planning problem is to determine where one mode of service should leave off and another begin. As the northeast air corridor becomes more congested with conventional aircraft, high-speed ground alternatives become more attractive, but so, too, do V/STOL (vertical/short takeoff and landing) systems. HSGT systems such as HSR (high-speed rail) and the future TACV (tracked air cushion vehicle) promise to be

more useful where traffic concentrations are high; V/STOL has great potential advantage for a decentralized pattern of service. The Corridor model system is intended to shed light upon the questions of where resources should be directed and how the modes can complement one another.

Systems Design. With the broad analytical base that has now been established and with an increasing availability of data and supporting models, OHSGT will be able to refine and extend the use of the Corridor simulation model. After the HSR, the TACV, and the V/STOL have been evaluated using modeling techniques, more advanced ground transportation alternatives such as the tube vehicle system will be simulated and evaluated.

A major objective of the Corridor project has been to define candidate transportation systems in engineering terms. The research and development in OHSGT has included systems engineering and costing studies and research. Research and development has provided: (1) Descriptions of the engineering configurations, i.e., performance capabilities and costs for systems designed to meet the requirements of Northeast Corridor high-speed intercity transportation; and (2) descriptions of advanced-technology systems to determine the need for further research and development.

The systems engineering has thoroughly analyzed more than 70 transportation concepts in terms of intercity requirements and grouped them in seven major classes. The studies of the past year concentrated on three classes of systems of most immediate interest to the Northeast Corridor analysis: HSR, TACV, and V/STOL. Each class has been defined in terms of its performance, capacity, speed, operating costs, and other characteristics.

The systems analysis tools developed by the Corridor Project have also been used to evaluate a series of incremental improvements to the existing Northeast Corridor rail passenger system. Improved roadbed, elimination of grade crossings, installation of welded rail, and other improvements which would be introduced within the next 2 years are being ranked according to their cost effectiveness in reducing travel time. Reductions in travel time are related to the expected increase in rail patronage.

Using New Technology. The systems engineering studies continue to analyze a variety of new technologies for further application. Intensive attention has been given to designing autos to travel fast with the assistance of intercity guided-vehicle devices and to electronic automation of highways. These analyses have evolved typical designs and costs covering a broad spectrum of performance capabilities in speed and passenger-seating capacity. The complete sets of engineering, performance, and cost data for possible candidate systems will provide a sound basis for evaluating their service potential under the variations in transportation conditions found in the Northeast Corridor.

In considering system options for surface transportation, the supporting technology for sub-systems has also been examined. For example, power pickup sub-systems must be analyzed within the broader context of the electric propulsion systems. At high speeds, conventional catenary/pantograph pickups lose their overhead power wire, while pickup shoes which slide along a third rail overheat and erode because of friction. To

overcome the pickup problems, devices such as servo-controlled pantographs are being examined.

Agreement on technology for one aspect of system development will affect the selection of options for others. For example, the choice of an air-cushion suspension system to support and guide the tracked vehicles will affect the shape and, therefore, the cost of the associated guideway. Levels of ride comfort resulting from the interaction of vehicle and guideway can affect passenger patronage and revenue. Noisy, uncomfortable vehicles could nullify the advantage of improved systems. Adverse community reaction could destroy the prospect of a new system even though its other undesirable characteristics might be remediable.

Research in high-speed rail and other advanced systems has been directed toward attaining shorter trip times and exploring the practical speed limits of ground systems. Travel time, convenience, and cost are the three major factors determining choice of mode by travelers; hence, high speeds have been an essential characteristic of future alternatives to the increasing congestion of airways and highways. High-speed trains will be able to travel at 150 m.p.h. or more while tracked air cushion vehicles are expected to achieve nearly 300 m.p.h. Tube vehicles may attain even higher speeds.

Another objective in the development of new transportation technologies has been the reduction of noise and air pollution. Toward this end, attention has been focused on electrical propulsion systems. This country's first full-size linear induction motor has been built and will be tested during 1970 in a wheeled vehicle at speeds up to 180 m.p.h. These tests will provide information on the efficiency of linear motors for propulsion and for designing an improved motor to propel the tracked air cushion research vehicle. Because it requires no wheels for traction and is economical at high speeds, the linear motor would be ideal for the tracked air cushion research vehicle which will be designed in 1970.

The need to conserve right-of-way has been a significant reason for concentrating research on high-capacity systems. The social cost of finding new highway routes near cities is a prime result of the diminishing space available for surface routes. A guideways project has sought to reduce the present high cost of tunneling by developing improved rock fracturing and tunnel-lining techniques, thus making sub-surface routes a more practical alternative. So far, research and development indicates that tunneling costs can be cut at least 10 percent and that further research will make even greater savings possible. If a new high-speed rail or TACV system is built between Boston and New York, a 10 percent reduction in tunneling costs would mean a saving of almost $100 million.

It is apparent that the automobile will maintain its importance in transportation for the foreseeable future, mainly because of its privacy and door-to-door flexibility. Investigation is being made, however, of ways to carry automobiles on another vehicle or to guide them automatically over intercity routes at high speeds. Such a system could lower pollution by using electric propulsion and, by maintaining a controlled flow speed, would reduce congestion and accident rates, while still retaining flexibility and

privacy for car owners. Research on automobile-related systems is being coordinated with the Urban Mass Transportation Administration and the Federal Highway Administration.

Demonstrations. Estimating and predicting the impact of the decisions of travellers are major problems in the Corridor evaluation. To get consumer-choice information was a major objective of the rail passenger demonstrations between Washington and Boston. If rail service is to succeed in meeting a portion of the passenger needs in the Northeast Corridor, rail service options must be made attractive and kept attractive. Seasoned travelers who are considering rail alternatives will use their experience with other modes as a basis for their expectations.

Metroliners and turbotrains speak for themselves in advancing the state of the art in rail passenger technology and service. They are stimulating public demand for rail improvements in other corridor areas, such as San Francisco-San Diego; Chicago-St. Louis; and Chicago-Twin Cities (Minneapolis/St. Paul). The innovators and builders of the demonstration equipment, research contractors, and equipment operators have developed (or renewed) capabilities for meeting transportation or related demands that are being identified and projected.

The rail demonstrations are an experiment to test public reactions to various types of rail service and promotional techniques. Answers are sought to questions raised by passengers that are based on popular features of other modes: Should the meal price be included in the fare? What personal services should be offered and how should the employees be trained to provide them? What should be done with baggage? Should family fares be offered at discounted rates? Should higher speeds at greater comfort with better service merit premium fares?

Ticket counts and responses to questions asked in surveys on the trains become data for computer simulation. Project analysis provides for information for making improved planning and investment decisions for system alternatives including rail. Ticket-count data-collection efforts have been under way since July 1966 on the entire Boston-to-Washington route. Surveys of opinions of New York-Washington passengers have been completed. This type of survey will soon be made between New York and Boston.

Ticket counts and opinion surveys are yielding passenger information never before consistently available anywhere in the United States. They provide comparative data from which railroads can predict passenger response to the service improvements of the demonstrations. This information will be used in determining the feasibility or desirability of continuing or extending rail service improvements after the demonstration, not only in the Corridor but in intercity service in general.

The demonstrations also provide a basis for validating the computer simulation "runs" and for determining how well those runs reproduce the effects of experimental stimuli. The actual effects of a variation in service will be compared with the prediction of the model system.

(a) *Washington-New York Demonstration.* Significant accomplishments in improved transportation service to travellers in the Northeast Corridor have taken place in the last year as a result of the Demonstration Program.

The Penn Central is using Metroliners between New York and Washington although the Government-supported demonstration has not yet begun. The near-capacity patronage of the Metroliners has given an early indication that the demonstration will show a market for clean, fast, modern, and convenient rail passenger service in an urbanized corridor region for distances up to 300 miles. In the first 5½ months of service between Washington and New York, the Metroliners carried 228,000 passengers. Approximately 75 percent of available seats were utilized. The Metroliner service during this period consisted of three six-car trains each making one round trip a day. Two trains make intermediate stops and have a travel time of 2 hours and 59 minutes and the third train provides nonstop service with a travel time of 2½ hours.

An analysis of the data collected over the past 2 years from the seat checks and passenger interviews showed that much of the Metroliner traffic is new to the railroad, either totally new travellers or riders diverted from other modes. Meanwhile, regular trains maintained and increased their volume of business. With a continuation of this trend the need for new or expanded air and highway facilities in the Northeast Corridor might be materially reduced.

Another aspect of the demonstration, the Lanham (Maryland) park-and-ride suburban station, near the Capitol Beltway, was begun and is scheduled for completion in December 1969. It will offer quick and easy automobile access to the trains for trips to and from suburban homes and industries. The State of Maryland made available 16 acres of land for the station's ample parking lot which is being built by Prince George's County. The State of New Jersey has acquired land for a Woodbridge-Metropark station to provide similar rail-auto access via the Garden State Parkway. Major bus companies are investigating the desirability of offering a bus-rail link-up at both stations.

(b) *Boston-New York Demonstration.* The service between New York and Boston has demonstrated the capabilities of the new Turbotrains—their engine propulsion and a pendulum suspension that permits maintenance of speed while rounding curves. This equipment could also be used on other railroads where major and expensive electrification, track, and right-of-way improvements would otherwise be needed to permit high-speed passenger service of the Metroliner type. The new Turbotrains began in April 1969 to make one daily round trip between New York and Boston, in 3 hours and 39 minutes each way—a 36-minute reduction from the 4 hours and 15 minutes required by the conventional trains. Results of a survey of Turbotrain operations from April 8 to June 30 showed that about 70 percent of the available seats between Boston and New York were used. Although there was only one round trip per day, the Turbo carried 18,000 passengers during that period of less than 3 months. When grade crossing protection is improved and the railroad gains operating experience with the equipment, a reduction of 1 hour in travel time (to 3 hours and 15 minutes) is expected.

Airport Access. An OHSGT-sponsored study of travel by travelers, visitors, and employees to and from the three Washington area airports indicated

the need for reliable high-speed ground access to the existing but relatively distant Friendship Airport as an alternative to increasingly congested highways or the more costly VTOL approach. The utility of any airport depends upon minimizing time on the ground as part of the total trip time. A demonstration to provide improved rail access to Friendship Airport from Washington and Baltimore has been in the planning stage and a contract has been awarded for engineering and costing studies to determine facility requirements. Where a new airport is anticipated, it is possible to plan concurrently for an access system that will take advantage of new technology to provide very high speed service.

Bureau of Railroad Safety

The number of train accidents in 1968 increased 10.1 percent over the previous year. The major factor in this increase was the 10.6 percent rise in "derailments" caused mainly by failure of equipment and defective track.[1] The number of "collisions" increased by 13.5 percent from 1967. The number of casualties resulting from all reportable accidents decreased by 0.2 percent.

Train Accidents. Table No. 59 lists the number and types of train and train-service accidents, number of train accidents, and the resulting casualties reported by rail carriers during calendar year 1968 and the two preceding years. In 1968, 8,028 train accidents were reported, an increase of 734 accidents or 10.1 percent over those reported in 1967, and an increase of 1,235 or 18.2 percent over those in 1966.

[1] The Federal Railroad Administration has no safety jurisdiction over the construction and maintenance of track, roadbed and structures, the running gear of rail cars, or the number or qualifications of train crew members.

TABLE 59. Railroad accidents and resulting casualties, calendar years 1966, 1967, and 1968

	1966	1967	1968
Number of train accidents:			
Collisions	1,552	1,522	1,727
Derailments	4,447	4,960	5,487
Other	794	812	814
Total train accidents	6,793	7,294	8,028
Number of train accidents with casualties	492	478	435
Trespassers killed	678	646	628
Trespassers injured	702	696	663
Passengers killed in train accidents	10	4	2
Passengers injured in train accidents	264	126	683
Passengers killed in train-service accidents	13	8	9
Passengers injured in train-service accidents	980	928	646
Employees on duty killed	159	166	146
Employees on duty injured	18,195	17,529	17,600
All other persons killed	1,824	1,659	1,574
All other persons injured	5,411	5,244	5,016
Total number of persons killed	2,684	2,483	2,359
Total number of persons injured	25,552	24,523	24,608
Highway grade crossing accidents [1]	4,117	3,955	3,835
Persons killed	1,782	1,633	1,547
Persons injured	4,073	3,847	3,807

[1] Included in totals

TABLE 60. Serious accidents investigated under the Accident Reports Act (45 U.S.C. 38–43), fiscal years 1965–69

Fiscal year	Number of accidents investigated			Persons	
	Collisions	Derailments	Total	Killed	Injured
1965	35	18	53	51	1,044
1966	44	16	60	75	639
1967	34	20	54	35	534
1968	23	22	45	25	428
1969	35	22	57	34	874

TABLE 61. Enforcement activities—Accidents Reports Act

Activities	FY 1968	FY 1969
Number of regular inspections	420	332
Accident and casualty cases investigated	40,386	34,542
Infractions disclosed by regular inspection	75	37
Number of complaints investigated	6	8
Infractions disclosed by complaints investigated	7	1
Violation cases transmitted for prosecution	[1] 27	10

[1] Includes cases pending at close of preceding fiscal year

Rail-Highway Grade Crossing Accidents. During 1968, a total of 3,816 grade crossing accidents was reported, a decrease of 116 accidents or 3.0 percent compared with the previous year.[1] A total of 1,546 deaths and 3,774 injuries resulted from these accidents, representing a decrease of 4.4 percent in deaths and a decrease of 1 percent in injuries compared with 1967.

Collisions at grade crossings involving trains and motor vehicles during 1968 totaled 3,603 and resulted in 1,448 deaths and 3,665 injuries—a decrease of 130 accidents, 72 deaths, and 61 injuries compared to 1967. Included in the total number of accidents involving motor vehicles were 53 derailments and 228 miscellaneous train accidents accounting for 121 deaths and 184 injuries. Also included in the total casualties at rail-highway grade crossings were 27 injuries to passengers, as well as four fatalities and 123 injuries to employees on duty. Information concerning these accidents is summarized in Table 62.

[1] In addition, there were 19 nontrain grade crossing accidents during 1968 which resulted in one fatality and 33 injuries.

TABLE 62. Accidents at highway grade crossings, calendar years 1966, 1967, and 1968

Accidents and casualties	1966			1967			1968		
	Number of accidents	Number of persons		Number of accidents	Number of persons		Number of accidents	Number of persons	
		Killed	Injured		Killed	Injured		Killed	Injured
Total rail-highway grade crossing accidents and resulting casualties [1]	4,097	1,780	3,043	3,932	1,632	3,812	3,816	1,546	3,774
Accidents at highway grade crossings involving motor vehicles	3,862	1,657	3,927	3,733	1,520	3,726	3,603	1,448	3,665
Derailments of trains at highway grade crossings involving motor vehicles [2]	62	37	75	64	28	63	53	20	49
Miscellaneous other train accidents as a result of collision between trains and motor vehicles [2]	272	138	131	266	105	116	228	101	135
Railroad casualties: [2]									
Passengers	--------	10	28	--------	--------	24	--------	1	26
Employees on duty	--------	4	102	--------	3	83	--------	4	3
Total	--------	14	130	--------	3	107	--------	5	149

[1] Excludes nontrain [2] Included in totals

Source: Highway Grade Bulletin

TABLE 63. Accidents and casualties caused by failure of some part or appurtenance of steam locomotives, locomotive units other than steam, and multiple-operated electric locomotive units, fiscal years 1964–69

Accidents and casualties	1964	1965	1966	1967	1968	1969
Number of accidents	76	87	65	121	128	78
Percent increase or decrease from previous year	*7.0	*14.5	25.3	*86.0	*5.8	39.1
Number of persons killed	1	0	0	0	0	0
Percent increase or decrease from previous year	*100	100	0	0	0	0
Number of persons injured	96	93	68	140	141	109
Percent increase or decrease from previous year	2.0	3.1	26.9	*105.9	*0.7	22.7

*Increase

TABLE 64. Specific causes, accidents, and casualties resulting from failure of steam locomotives, tenders, locomotives other than steam, multiple-operated electric locomotive units, and their appurtenances, fiscal year 1969.

Part or appurtenance which caused accident	Accidents	Killed	Injured
Air compressors [1]	0	0	0
Air reservoirs, fittings, safety and check valves [2]	0	0	0
Air hose coupling, train line [2]	1	0	1
Boiler:			
Explosions [2]	0	0	0
Fuel explosion in firebox [2]	0	0	0
Draft equipment—adjustment [2]	0	0	0
Steam valves, piping, and blowers [1]	1	0	1
Brakes and brake rigging [1]	3	0	3
Cabs:			
Doors and windows [1]	19	0	19
Seats [1]	7	0	7
Control equipment—mechanical, electrical, pneumatic or electro-pneumatic	2	0	18
Couplers, draft and drawgear [1]	0	0	0
Electrical equipment:			
Armature journals and bearings [2]	0	0	0
Energized electrical parts	1	0	1
Insulation, short circuits, or electrical flashes	15	0	24
Pantographs, trolleys, or third rail shoes [1]	0	0	0
Fans and shutters [2]	0	0	0
Fires due to liquid fuel or debris	3	0	5
Floors, steps, and passageways [1]	13	0	13
Handholds [1]	0	0	0
Internal combustion engines and turbines:			
Crankcase or air-box explosions [1]	4	0	4
Exhaust and cooling systems	3	0	3
Fuel injectors and connections [1]	0	0	0
Unguarded moving parts [2]	0	0	0
Miscellaneous [1]	6	0	10
Total [1]	78	0	109

[1] Decrease [2] Constant

Locomotive Inspection Activities. The Bureau's Locomotive Branch investigated 129 accidents during fiscal year 1969. Failure of locomotive equipment contributed to 78 of these accidents and resulted in 109 injuries. There were no fatalities (see tables 63 and 64). Predominant causes of these accidents were defective cab windows and doors; defective electrical insulation, short circuits, or electric flash; unsafe cab floors, steps, and passageways; defective cab seats; crankcase or air-box explosions in diesel engines; brakes and brake rigging; and fires due to liquid fuel or debris.

During fiscal year 1969, the Locomotive Branch inspected 104,281 locomotives, an increase of 578 over the number of units inspected in the previous fiscal year (see table 65). Of the total units inspected, 13,117 or 12.6 percent were reported as defective. The percentage of defective locomotives remained the same as it was last year.

Equipment and Operations Branch Activities. Deficiencies in the maintenance of safety appliances and power brakes on equipment in service continues to be a matter of grave concern. The percentage of defective equipment increased from 7.1 to 7.7 percent during the year. The operation of trains which have not been given proper train brake tests increased 3.6 percent from fiscal year 1968 to the high level of 21.3 percent.

Inspection Activities. Table 67 shows the number of freight cars, passenger-train cars, and locomotives inspected; the number found with defective safety appliances, the percentage defective, and data for comparison with the preceding year. Of the 1,094,149 freight cars inspected, 90,361 or 8.3 percent had defective safety appliances. There were 12,738 passenger-train cars inspected with 918 or 7.2 percent found to have defective safety appliances. A total of 117,596 locomotives were inspected with 2,926 or 2.5 percent of these having defective safety appliances. Of the total number of cars and locomotives inspected, the percentage defective was 7.7 and the number of defects per 1,000 units inspected was 89.16, up from 81.01 the preceding fiscal year.

Investigations of Complaints—Safety Appliances. During the year, 189 complaints were investigated, compared with 236 for the preceding year. Of the total, 80 involved power brakes, 39 involved safety appliances, 64 involved both power brakes and safety appliances, and six involved miscellaneous matters. In 123 of these investigations, evidence of violation of the law was obtained and prosecution on 1,019 counts was instituted. In many other instances, investigation resulted in the correction of unsatisfactory conditions.

Specialized Equipment. In response to shipper demands for specialized equipment, the development of new equipment by the railroad industry is continuing at an increasing rate. The technical staff of the Equipment and Operations Branch reviews drawings submitted by carriers and builders and inspects prototype cars to make certain that they meet requirements and to uncover any potential hazards which might exist in new and untried designs.

TABLE 65. Reports and inspections—steam locomotives, locomotive units other than steam, and multiple-operated electric locomotive units, fiscal years 1964–69

	1964	1965	1966	1967	1968	1969
Number of locomotives for which reports were filed	34,350	34,072	34,048	33,916	33,475	33,158
Number inspected	79,682	76,044	95,840	107,932	103,703	104,281
Number found defective	8,852	9,391	11,447	13,243	13,017	13,117
Percent of inspected found defective	11.1	12.3	11.9	12.3	12.6	12.6
Number ordered out of service	579	646	666	768	755	700
Number of defects found	28,453	31,596	36,556	42,609	44,918	46,439

TABLE 66. Inspections of safety appliances for fiscal years 1965—1969

	1965	1966	1967	1968	1969
Freight cars inspected	1,371,855	1,500,855	1,520,162	1,176,166	1,094,149
Percent defective	7.2	7.1	7.2	7.5	8.3
Passenger-train cars inspected	30,977	32,400	29,304	16,377	12,738
Percent defective	7.4	7.2	6.9	7.4	7.2
Locomotives inspected [1]	93,058	113,144	124,272	115,320	117,596
Percent defective	1.3	1.5	2.1	2.4	2.5
Number of defects per 1,000 units inspected	79.34	79.72	78.37	81.01	89.16

[1] These figures include locomotives which were inspected for defective safety appliances during the year by inspectors of the Division of Locomotive Safety

TABLE 67. Number of freight cars, passenger-train cars, and locomotives inspected, and the number found with defective safety appliances each year for the past 10 years

Fiscal Year	Inspected [1]	Defective	Percentage defective
1960	1,736,282	88,394	5.09
1961	1,670,968	80,828	4.84
1962	1,562,067	86,121	5.51
1963	1,405,624	83,221	5.92
1964	1,506,729	96,099	6.37
1965	1,495,890	102,707	6.87
1966	1,646,299	111,096	6.74
1967	1,673,738	113,642	6.78
1968	1,307,863	92,579	7.10
1969	1,224,483	94,205	7.69

[1] These figures include locomotives which were inspected for defective safety appliances during the year by inspectors of the Division of Locomotive Inspection.

The Branch keeps a close watch on both new cars and the conversion programs for older cars to assure compliance with the new standards. In order to achieve uniformity of applications, the technical staff must keep fully informed of carrier and car builder activities. Continuing established and time-proven practices of working closely with interested parties in conferences, studying submitted drawings and prints, and making physical inspections at the carrier's and car builder's shops and plants will provide needed advance information.

During the past year, 219 special inspections of new equipment were made by field inspectors and members of the Washington staff.

Signal Inspection Activities. During the year, 183 applications for approval of proposed modifications of block signal and interlocking systems were filed by the carriers. At the beginning of the year, action was pending on 68 applications previously filed. Of the total, 234 applications were acted upon during the year, and action was pending upon 17 applications at the close of the year. Public hearings were held on two applications.

Forty-eight applications were filed for modifications or relief from the Federal Railroad Administration's requirements. At the beginning of the year action was pending on 12 such applications. Of this total, 55 were acted upon, and action was pending on five at the close of the year. No public hearings were held on applications for relief from the requirements of the Rules, Standards, and Instructions. Also, one application was filed for relief from the Federal Railroad Administration's order 13413 relating to the removal of automatic train-stop and automatic cab-signal systems.

These signal inspection activities resulted in bringing to the attention of railroad managements, for necessary corrective action, a number of unsatisfactory maintenance conditions which were found to exist.

During the year, 58 complaints were received regarding alleged violations of the Rules, Standards, and Instructions. At the beginning of the year

action was pending on nine complaints previously filed. During the year investigations were completed on 48 and action was pending on 11 at the end of the year.

Also during the year six cases (45 counts) involving violations of Signal Inspection Law (49 U.S.C. 26) were forwarded to the Chief Counsel for consideration compared with one case (10 counts) during the previous year.

Table 68 shows, for a 5-year period, the number of applications for approval of modifications of block signal systems and interlocking as well as applications for relief from or modifications of the Rules, Standards, and Instructions prescribed by order of the Federal Railroad Administration, and the number of inspections and the devices inspected during the year.

Hazardous Materials. Title 18, Chapter 39, of the United States Code, Sections 831–835 provides for the safe packaging, marking, and transportation in interstate commerce of explosives, combustibles, and other dangerous substances. The Department of Transportation is authorized to formulate and administer regulations to implement this portion of the United States Code. The Hazardous Materials Regulations, 49 CFR, Parts 170–190 cover the packaging, handling, and transportation of such commodities, and apply to shippers as well as to carriers.

The Bureau of Railroad Safety promotes and assists in the safe movement of hazardous articles by railroad and liquid pipelines. It also conducts routine and special investigations relating to those commodities while in transit and in storage, and takes corrective action when noncompliance with the Regulations is observed. Close liaison is maintained with other modes of transportation and with the other operating administrations within the Department in instances involving inter-modal movements. This liaison is effected in part through Bureau representation on the Hazardous Materials Regulations Board.

During the year, safety inspectors of the Bureau made 1,249 inspections covering the movement of hazardous shipments by railroad. Improper documentation of shipments at point of origin was one of the principal deficiencies noted. Inspectors were able to take corrective action with carrier personnel to avoid recurrence in most instances.

Allegations concerning the unsafe transportation of hazardous materials received in 44 letters from the public, Congress, and State and local officials were investigated by the seven Regional Directors and necessary corrections were made in the conditions of transportation by both rail and pipeline carriers. Other inquiries relative to the applicability of the regulations in given circumstances were handled by the Bureau staff in Washington.

During the year, 15 documented violations of the Regulations were forwarded to the Chief Counsel of the Federal Railroad Administration for consideration for prosecution. In the same period, seven cases previously recommended to the Chief Counsel for prosecution were brought to trial and resulted in fines totaling $8,000 being levied on the rail carriers involved. One shipper was fined $3,000 for three violations involving the improper use of tank cars.

TABLE 68. Applications; block signal

Period	Number	Pending at beginning of year	Acted upon	Pending at close of year
Year 1965	221	63	212	72
Year 1966	213	72	202	83
Year 1967	172	83	222	33
Year 1968	197	33	162	68
Year 1969	183	68	234	17
Rules, Standards, and Instructions				
Year 1965	43	7	46	4
Year 1966	59	4	52	11
Year 1967	53	11	59	5
Year 1968	43	5	36	12
Year 1969	48	12	55	5

During the year inspections were made as follows:

System	Number of inspections	Signals	Switches	Other appliances	Devices on locomotives	Record of tests
Automatic block signal	782	8,012	5,428	1,743	----------	17,662
Interlockings	1,575	11,006	7,432	9,717	----------	22,766
Traffic control	1,101	9,272	5,731	7,538	----------	28,404
Automatic train stop	1,101	----------	----------	3,857	5,292	17,287
Automatic train control	166	----------	----------	253	1,059	3,604
Automatic cab signal	416	----------	----------	735	2,332	9,353
Total	5,141	28,290	18,591	23,843	8,683	99,076

A total of 910 Special Permits (including extensions and renewals) which allow the interstate movement of commodities under conditions not specifically covered by the regulations, were approved for rail transportation. Copies of the permits were disseminated to the field staff for guidance in regular inspection and enforcement work.

During the year the various pipeline carriers filed 475 accident reports with this Administration. The reports disclosed the pollution of one water stream and the contamination of a small local water supply.

Two special authorizations to transport nonpetroleum products by liquid pipeline were issued. Proposals for comprehensive safety regulations covering design, construction, operation, maintenance, and inspection of liquid pipelines were developed and published by the Administrator as a Notice of Proposed Rule Making. The proposed regulations were prepared in close coordination with the Office of Pipeline Safety, and the Office of Hazardous Materials. It is expected that the final rules for the proposal will become effective during fiscal year 1970.

Several serious railroad accidents occurred early in 1969 involving tank cars loaded with liquefied petroleum gas and other hazardous substances. As a result, in-depth studies were undertaken by the Tank Car Committee of the Association of American Railroads and personnel of this Bureau, with the object of defining the problem in order to take corrective action and thus minimize damage and loss of lading in future accidents.

A program was instituted during the year to train field staff personnel in the techniques of designing containers and the blocking and bracing of dangerous commodities for rail and pipeline transportation. Hazardous materials specialists of the Bureau attended several impact tests for the purpose of evaluating loading systems for hazardous materials, which were conducted by various elements of the Department of Defense and civilian industry.

Close liaison and cooperation was continued between the Bureau and the Association of American Railroads, especially its Bureau of Explosives, the Manufacturing Chemists' Association, the American Petroleum Institute, and the Compressed Gas Association. Hazardous materials specialists from Washington participated in on-the-spot investigations of 10 rail accidents in which the presence of hazardous materials had serious implications. This was done in conjunction with the Bureau of Railroad Safety accident investigation team.

Hours of Service Act. During the year hours of service reports were filed by 97 railroads reporting 4,884 instances of all classes of excess service. The reports covered 4,123 instances of excess service by operators, train dispatchers, and other employees subject to the 9-hour and 13-hour provisions of the law. A breakdown of this total, shown in Table 69, included 4,083 instances of employees who remained on duty longer than 9 hours in a 24-hour period at continuously operated offices; and 40 instances of employees who remained on duty longer than 13 hours in a 24-hour period at offices operated only during the daytime.

TABLE 69. The classes of offices, and the cause of instances in which operators, train dispatchers, or other employees who by the use of the telephone or telegraph handled orders affecting the movement of trains remained on duty longer than the statutory periods, as indicated by the carrier's monthly reports for years 1965—69

Classes of Offices	1965	1966	1967	1968	1969
At continously operated offices	2,305	2,062	3,616	3,020	4,083
At offices operated only during the daytime	22	58	31	10	40
Total	2,327	2,120	3,647	3,030	4,123
Causes					
Train accidents	89	56	126	78	89
Weather conditions, floods, fire, landslides	392	314	642	112	358
Delayed trains, and held to handle train orders	76	55	26	6	20
Misunderstanding of instructions or arrangements	86	56	103	132	85
Station or clerical work	9	4	3	11	1
Sickness, death, or personal injury	1,209	1,054	1,948	1,764	2,535
Relief operator arrived late	124	85	112	158	261
Labor shortage	226	168	600	716	710
Miscellaneous	116	328	87	53	64
Total	2,327	2,120	3,647	3,030	4,123*

*This represents an increase of 77.18 percent over 1965

The reports also covered 761 instances of excess service performed by train and engine employees subject to the 16-hour provision of the law. Included were 610 instances of employees who remained on duty longer than 16 consecutive hours; 136 instances of employees who continued on duty after having been on duty 16 hours in the aggregate in a 24-hour period; and 15 instances of employees who, after having been on duty 16 aggregate or continuous hours, returned to duty without the required off-duty period.

Medals of Honor Act. Under the Medals of Honor Act of February 23, 1905, as amended (49 U.S.C. 1201–1203), applications are considered for award of life-saving medals to persons, who by extreme daring endanger their own lives in saving or endeavoring to save lives from any wreck, disaster, or grave accident, or in preventing or endeavoring to prevent such wreck, disaster, or grave accident upon any railroad within the United States engaged in interstate commerce, or involving any motor vehicle on the public highways, roads, or streets of the United States.

At the beginning of the year two applications involving railroads were pending of which one was granted and one was denied. The facts involved in the successful application are:

> Mr. Colin P. Cooper, age 26, a clerk telegrapher on the Seaboard Coast Line Railroad, rescued a man from the path of a passenger train in Kissimmee, Florida on December 9, 1966. On the day of the incident, Mr. Cooper was on duty with the Kissimmee station. As a Seaboard Coast Line passenger train was approaching a grade crossing just before the station at a speed of approximately 35 miles per hour, a man fell on the tracks some 100 – 105 feet ahead of the locomotive. In a frantic effort to get up, he fell again. At this point, Mr. Cooper was seen dashing across the station platform onto the track where he grabbed the man by the arms and pulled him to safety an instant before the train rushed by. The engineman and fireman in the lead locomotive and witnesses on the station platform all agreed that Mr. Cooper saved the man from serious bodily injury or very possibly from death.

Since enactment of the Medals of Honor Act, there have been 128 applications involving railroad incidents for such award, 78 of which were granted after meeting the exacting standards required for approval: 50 applications have been denied.

The Alaska Railroad

The Alaska Railroad operates 482 miles of single track main line from the ports of Seward and Whittier to Fairbanks. Its depreciated value was about $132 million in fiscal year 1969. The gross income for the year was $17,002,186. The railroad does not depend upon Congressional appropriations for either its operating expenditures or capital replacements.

Recovery from the effects of the 1964 earthquake and the 1967 floods, a 9 percent rate increase effective September 1, 1968 (the first overall rate increase since 1939), and increased business activity enabled the Railroad

to realize a modest net gain of $313,098.79 after a depreciation charge of $2,409,593.48, in contrast to a net loss of $1,398,516.74 after depreciation of $2,243,640.24 for fiscal year 1968.

During fiscal year 1969, the Railroad handled 1,339,228 tons of revenue freight for a total of 227,096,000 ton-miles, and 71,536 passengers for a total of 11,259,481 passenger-miles. While the gross tons handled declined, compared with fiscal year 1968, the ton-miles increased 10.7 percent because the average length of haul increased from 138 miles to 170 miles.

The Railroad, as well as the Port of Seward, suffered a setback when the Alaska Steamship Company discontinued service to the port in January 1969, leaving Seward without a regular water carrier. The officials of Seward and the Railroad began efforts to re-establish service by other water carriers.

Imposition of employee ceilings and restrictions continued to cause operating difficulties during the year. Such restrictions during periods of increasing demands for rail services are especially troublesome. The efficient hiring of part-time employees is not possible under the present Civil Service regulation. At year end, the FRA Administrator had pending a request to exempt the Alaska Railroad from such restrictions so that the most economical and flexible use of the workforce could be realized.

During the year, the Railroad's management received authority to retire approximately 12 miles of branch line track extending from Palmer to Jonesville-Eska. The branch served only the coal mine at Jonesville, which was forced to cease operation after the military establishments at Anchorage converted from coal to natural gas for fuel. The right-of-way is being retained for possible future use.

Automobile-on-flat-car service for passengers to and from the Port of Whittier and Portage in connection with the Alaska State Ferry System proved popular with the traveling public and is being continued. However, passenger service to Seward, instituted during the Alaska Centennial year, attracted little use and was discontinued.

The discovery of vast oil reserves on the North Slope and commercial quantities of copper in northwest Alaska in the vicinity of Kobuk made it clear that consideration should be given to the extension of all-weather surface transportation facilities into the developing areas of Alaska. In response to this urgent need, the FRA began seeking funds for a study to determine the feasibility of extending surface transportation facilities to serve northern and northwestern Alaska.

Chapter VII

URBAN MASS TRANSPORTATION ADMINISTRATION

Federal Mass Transportation Activity before 1968

Introduction. Since the end of World War II, in cities across the United States, the automobile and the highway have strongly influenced the American pattern of life. Automobile ownership has almost tripled during the last quarter century. Freeways have become the most prominent feature of many cityscapes.

During the same period, public transportation had been marked by a decline in ridership, service, and quality of facilities.

In spite of this decline, the cost of providing public transportation service has increased to the point that the transit industry finds itself in financial straits. Traffic and revenues continue to decline; deficit operations are typical in spite of the fact that average fares have tripled. Much transit equipment is old and unattractive; modernization has been negligible.

The decline in public transportation quality has worked the greatest hardship on those who have no transportation alternative—the poor, the aged, the very young, the handicapped, and those who are in some other way socially or economically isolated.

The need for public transportation service in cities is aggravated even more by the Nation's increasing urbanization: while there were 75 million urban Americans in 1945, there were 125 million in 1965; the total will increase by still another 100 million by the end of the century.

Congress has recognized the role which urban transportation facilities and services play in determining the welfare and vitality of urban areas. In addition, Congress has stated its awareness of the negative impact which the deterioration of urban mass transportation facilities has on Federal programs such as housing, urban renewal, and highway development.

History of Federal Aid. Federal assistance to highway construction programs has been underway for half a century. Federal aid for urban mass transportation investments dates only from 1961. In that year, recognizing that highway facilities alone could not satisfy all urban transportation requirements, and recognizing further that State and local governments were, for the most part, unable to provide the resources necessary to build and maintain adequate mass transportation systems, Congress approved a pilot program of mass transit assistance to State and local public bodies. The Housing Act of 1961 provided a $25 million no-year authorization for a

limited program of demonstration grants and technical assistance, and a $50 million borrowing authority to assist the cities in the capital investment programs in public transportation.

These programs served as a beginning although, obviously, they could not satisfy the heavy demands for better transportation which confronted cities during the next several years.

In 1962 in a Joint Report to the President on urban transportation problems and requirements, the Secretary of Commerce and the Administrator of the Housing and Home Finance Agency (later to become HUD) recommended ways in which the Federal Government could help cities deal with their urban mass transportation problems.

Those recommendations served as the basis for the Urban Mass Transportation Act of 1964. That Act greatly expanded the Act of 1961 and authorized the first continuing Federal program of mass transportation aid by providing capital assistance grants, as well as loans, and grant funds for research, development and demonstration projects, all administered by the Department of Housing and Urban Development. During the next two years it became apparent that additional authority was needed and, as a result, in 1966, Congress authorized three new supplemental programs:

- Technical study grants for systems design, engineering, and studies to improve transit management and operations.
- Grants for the advanced training of managerial personnel in local transit system.
- Grants to institutions of higher learning for graduate research and training programs.

Also in 1966 Congress directed HUD, in consultation with DOT, to undertake an 18-month special study to formulate a program of research, development, and demonstration in new urban transportation technology. In 1968 the President submitted to Congress the resulting report, "Tomorrow's Transportation," which provides a foundation for decisions concerning the continuing programs for research, development, and demonstration now carried on in UMTA.

There were minor revisions to the substantive legislation in 1968, but the most important legislative change in organization was the transfer of the major elements of the program from HUD to DOT.

Reorganization Plan No. 2

The 1968 transfer was foreshadowed in the legislative history of the Department of Transportation Act of 1966. During development of that bill in the Executive Branch in 1965, there had been substantial sentiment for transferring the mass transit program to the proposed new Department, although it was recognized that because of transit's obvious impact upon urban development, HUD should continue to have a role in the transit programs. The President's draft bill did not transfer the urban mass transit functions of the Government, but section 4(g) of the DOT Act directed the Secretaries of the two Departments to report to the President within 1 year

after creation of DOT a recommendation for the logical and efficient organization and location of urban mass transportation functions in the Executive Branch.

Section 4(g) of the DOT Act also states Congressional policy to guide the Departments in evolving arrangements for program coordination. It directs the Secretary of Transportation and the Secretary of Housing and Urban Development to consult and exchange information regarding their respective transportation policies and activities; to carry on joint planning and research; and to coordinate assistance for local transportation projects. They are also directed to study jointly how Federal policies and programs can best assist in local urban comprehensive planning. A joint report on their studies and other activities must be submitted to the President for submission to the Congress annually.

The first report under Section 4(g) was submitted to the President in February 1968 and in March 1968 the President submitted his Reorganization Plan No. 2 to the Congress, which transferred the bulk of the mass transit program from HUD to DOT as of July 1, 1968. Under the Reorganization Plan, the capital grant and the capital loan programs for facilities and equipment were transferred in their entirety to DOT. The bulk of the research, development and demonstration, technical studies, and university research and training programs were also transferred to DOT. To HUD is reserved the function of advising the Secretary of Transportation on the status of planning in urban areas in order to assist him in decisions as to whether to make capital grants. Also reserved to HUD is the authority, within a prescribed subject matter area, to make grants for or undertake projects under Sections 6(a), 9, and 11, of the Urban Mass Transportation Act authorizing research, development, and demonstration projects; grants for university research and training projects; and grants to local public agencies for technical studies needed to plan mass transportation facilities. Projects supported by HUD under these sections must primarily concern:

- The relationship of urban transportation systems to the comprehensively planned development of urban areas; or
- The role of transportation planning in overall urban planning.

In effect, the Plan through these provisions maintains a HUD stake in the comprehensively planned *development* of urban areas as well as in their *planning*, even though the transportation capital investment programs (highways, mass transit, airports) are administered by DOT.

Organization of UMTA. Following the Reorganization Plan, the two Departments presented a Determination Order to the Director of the Bureau of the Budget for his approval of the transfer from HUD to DOT of the majority of the personnel and funds directly associated with the program. On July 1, 1968, 38 positions from HUD were transferred to the Department of Transportation, and the Under Secretary, John E. Robson, served as Interim Administrator until the appointment in September 1968 of a permanent Administrator, Paul L. Sitton, who had previously served as Deputy Under Secretary of Transportation. To carry out the program, the Urban Mass Transportation Administration was established as an oper-

ating Administration in DOT, co-equal with the FAA, the Coast Guard, the Federal Railroad Administration, and the Federal Highway Administration.

Programs and Activities

The Office of Program Operations is responsible for the development and review of applications for, and the management of approved projects for financial assistance to public agencies for:

- Acquisition, construction, reconstruction, and improvement of facilities and equipment for use in mass transportation services.
- Planning, engineering, and designing of urban mass transportation projects, and for other technical studies, as provided for in section 9 of the Act.
- Providing fellowships for training of managerial, technical, and professional personnel in urban mass transportation as provided for in section 10 of the Act.

During fiscal year 1969, totals of $172,068,659 in capital grants and $4,992,072 in technical studies grants were approved. Capital grants were made to assist 28 transit systems in 17 States and the District of Columbia, while 42 cities in 26 States and Puerto Rico obtained funds for technical studies. In addition, 16 previously approved capital grant projects and seven technical studies grant projects were amended.

The cumulative total of Federal funds committed to mass transit capital grants since the inception of the program in 1964 through fiscal year 1969 is now $571,625,062, involving 119 projects in 30 States. These grants are classified according to mode of transportation as follows:

Rail (27 projects)	$453,701,374	79%
Bus (90 projects)	102,435,356	18%
Ferryboat (2 projects)	15,488,332	3%
	$571,625,062	100.0%

Grants approved in fiscal year 1969 will assist in the purchase of 525 new buses and 434 new rail cars.

Major Capital Grants during the Year. A number of grants of unusual significance were approved during the year. The largest single grant ever made under any program of Federal assistance to urban mass transportation was to the MBTA (Massachusetts Bay Transportation Authority), operator of the transit system in the Boston area, for the purpose of extending rail rapid transit service northward to the Malden-Melrose city line in the northern environs of Boston. The total Federal grant was $50.9 million ($27.1 in fiscal year 1969 and $23.8 in fiscal year 1970).

An earlier grant of $12 million assisted MBTA in the construction of a rapid transit tunnel under the Charles River to replace an obsolete, blight-producing, elevated structure in Charlestown. The grant will help fund construction of a new rail line to connect with the tunnel and extend transit

service beyond the present Everett Terminal of the Forest Hills-Everett route. In addition, 44 new rapid transit cars will be purchased and 50 cars built during the 1950's will be refurbished.

In the San Francisco area, a $28 million grant to the San Francisco BARTD (Bay Area Rapid Transit District) made possible the ordering of this new system's first rolling stock. A contract for the construction of 250 new cars was awarded by BARTD to the Rohr Corporation of San Diego. It is expected that the first trains on the $1.3 billion BARTD system will be in service during 1971, and that the entire 75-mile system will operate in 1972. This new system, in which UMTA has invested over $105 million, is one of the most complex and massive engineering and construction projects in the history of the United States and its completion will be a landmark for the transit industry.

The Chicago South Suburban Mass Transit District received a grant of $25.2 million to assist in the purchase of 130 new double-deck multiple-unit electric cars. These will replace 43-year-old cars now operating on the Illinois Central Railroad's Chicago area suburban service, the second most used commuter service in that area.

Not all of UMTA's capital grants were made to assist large metropolitan area rail services. In fact, of 28 projects approved during the fiscal year, only four were for rail projects exclusively, while 23 were for bus improvement projects and one, in Cleveland, was a mixture of rail and bus facilities. During the year, grants for new buses were approved for cities such as Niagara Falls, Battle Creek, St. Petersburg, San Angelo, and Fresno.

There is continuing trend toward the abandonment of unprofitable private transit operations and an increasing number of cities are turning to UMTA for assistance in providing needed transportation services through public ownership of transit facilities. During fiscal year 1969, public transit systems were established with financial aid from UMTA in Kansas City, Rochester, Fort Wayne, and Williamsport.

The first major Federally-funded rail extension, that of Cleveland's rapid transit system to Cleveland Hopkins Airport, approved in fiscal year 1965, was opened for traffic in November 1968. Public usage of the new service has been far greater than had been originally estimated, necessitating the purchase of 10 additional rapid transit cars. A grant for that purpose was approved in June 1966. At the end of fiscal year 1969, three major Federally-funded rapid transit extensions were nearing completion, including some 15 miles in the medians of Chicago's Dan Ryan and Kennedy Expressways and on Boston's South Shore.

UMTA's Office of Research administers research, development and demonstration programs in the technological and environmental aspects of urban mass transportation. The Office of Research also administers Federal grants to public and private nonprofit institutions of higher learning for research and training in urban transportation problems.

Urban Transportation Research Activities. The projects for contracts or grants and the recipients included:

- Began demonstrations of door-to-door service: The Flint Maxicab.

- Launched five center city demonstration project selection and planning programs: Denver, Dallas, Seattle, Atlanta and Pittsburgh; $1,700,000.
- Launched eight central city financial and institutional analyses: Newark, Baltimore, Charlotte, Dayton, Flint, Indianapolis, San Diego, St. Louis; $141,000.
- Launched 21 central city workshops; $270,000.
- Began concept and feasibilities studies of three new systems: Minicar Transit System (Philadelphia), $699,000; Major Activity Center "People Mover" (Houston), $168,000; and University campus personal rapid transit loop system (West Virginia University and the Town of Morgantown); $100,000.
- Began demonstration of services to transport previously unemployed adults and summer young people to jobs: Service Development and other special bus and bus-rail projects in several dozen communities; $2,600,000.
- Began demonstration of two-way express bus service (i.e. for the suburbanite, park-and-ride-the-express-bus-to-downtown, and for the inner city resident, express bus to jobs in the suburbs, making use of buses which normally return empty "deadheading"), Washington, D.C.; $671,000.
- Evaluation of low fares for the elderly during off-peak hours (Chicago Transit Authority), joint study of a locally financed demonstration, with HEW; $15,000.

Development and Use of Technology. During the year the following projects were initiated:

Rail—

- Initiated testing program for new rail prototype car, the BARTD car; $3,000,000.
- Studies and tests of improved wheel, brake, and suspension components to improve ride and durability and to reduce noise; $300,000.
- Tests of a new propulsion system: Long Island R.R. turbo-electric power plant; $727,000.

Bus—

- Developing new system of door-to-door demand-activated service, M.I.T. Dial-a-bus (CARS); $812,000.
- Developing and testing new communications and controls (AM, Autobus) to make possible improved management of bus fleets and other transportation vehicles (e.g., police cars, trucks, etc.): City requirements studies in Detroit and Syracuse. Kent State University; $620,000.
- Designing a better suburban bus for local roads and streets, especially for dial-a-bus application. Rensselear Polytechnic Institute; $290,000.
- Testing new power plants: Steam engines (Dallas and Oakland); $854,000.
- Designing improved passenger shelters. Virginia Polytechnic Institute; $114,000.

- Improving bus speed: Traffic priority study jointly with FHWA (BPR) Washington, D.C.; $206,000.

Personal Rapid Transit and People Movers—

- Initiated detailed technical evaluations of several concepts: e.g., Monocab, Dashaveyor. Applied Physics Laboratory; $400,000.
- Conceptual definition begun on PRT communications and controls systems. Applied Physics Laboratory; $750,000.

Fast Transit Line Haul Systems—

- Initiated detailed technical evaluations of several concepts: Swish, Vacuum Tube Transit. Applied Physics Laboratory; $100,000.

Tunnelling—

- Problem definition and technical feasibility studies jointly with the Office of High-Speed Ground Transportation to develop new methods for:

Soft-ground nonpressurized tunneling Tunnel linings Materials handling systems Rock fracturing Cost estimating	$276,000.

Management Innovations. The following contracts were let for development of management techniques during the year:

- Development of an operator's handbook for small city operations concerning market analysis, capital investment planning, vehicle selection, marketing, scheduling and routing service, and manpower training. Indiana University (Bloomington); $100,000.
- Demonstrating automated accounting systems for bus fleet maintenance operations, applying new computerized methods developed at Kent State University under an UMTA contract. Dallas Transit System and AC Transit in Oakland; $304,000.
- Developing and testing equipment and procedures to improve and monitor bus schedules, servicing and maintenance operations, and in addition, provide information to riders about arrivals of buses at stops. Kent State University; $320,000.

Policy and Planning. Contracts were let for the following aids to policy and planning during the year:

- Study to develop recommendations for changes in regulation of urban public transportation; $150,000.
- Study to obtain information about the ability of local governments to finance improvements in public transportation services. Advisory Council on Intergovernmental Relations; $75,000.
- Development of census address coding systems to provide more precise ways to indicate origins and destinations of public transportation travellers, and to provide other data on travel within urban areas. Joint sponsorship with OST; $500,000.

- Development and testing of a method called the Urban Performance Model for evaluating more precisely the relationship of transportation to the "performance" of an urban area. Planning Research Corporation; $114,000.

The UMTA Office of Program Planning is responsible for policy development and program formulation; for conducting planning and program studies; for the development of legislation and the preparation of policy statements on legislation proposed elsewhere; for evaluation of existing programs; and for the coordination of transportation planning programs.

The Office of Public Affairs is responsible for the development of a complete program of public information and for liaison with other Federal, State, local, and nongovernmental organizations on urban transportation systems.

TABLE 70. Capital grant approvals—fiscal year 1969

Project No.	Grantee	Date approved	Purpose	Total Federal grant commitment
			NEW PROJECTS	
CAL–UTG–17	City of Montebello	7–29–68	10 buses, construction of maintenance facility	$ 731,596
CAL–UTG–19	San Francisco Bay Area Rapid Transit District	11–21–68	250 rapid-transit cars and continuing system construction	28,000,000
CAL–UTG–20	City of Culver City	12–20–68	8 buses, 13 fare boxes	182,916
CAL–UTG–21	Alameda-Contra Costa Transit District	12–20–68	30 buses, 160 two-way radios	785,366
CAL–UTG–22	Public Utilities Commission, City & County of San Francisco	6– 5–69	50 radio-equipped buses	1,036,875
CAL–UTG–23	City of Fresno	6–11–69	19 buses, two-way radio system, other equipment	476,790
CAL–UTG–24	Southern California Rapid Transit District	6–16–69	1,500 fare boxes, etc , for exact-fare plan	597,833
DC–UTG–1	District of Columbia Govt	6–28–69	Construct Southwest bus terminal	154,884
FLA–UTG–5	City of St. Petersburg	6–14–69	5 buses, other equipment	103,333
GA–UTG–2	City of Columbus	8–19–68	29 buses	660,880
ILL–UTG–7	Chicago South Suburban Mass Transit District	12–27–68	130 commuter cars for use on Illinois Central RR	25,219,366
IND–UTG–2	Fort Wayne Public Transportation Corp	5–21–69	Acquisition of private bus company and 40 new buses	1,169,133
IA–UTG–3	City of Sioux City	12–20–68	25 buses	322,000
MASS–UTG–5	Massachusetts Bay Transportation Authority	6–16–69	Extension of rapid transit to Malden-Melrose line, 44 new cars	[1] 27,078,667
MICH–UTG–8	City of Battle Creek	6–19–69	17 buses, other equipment	138,500

See footnotes on page 185.

TABLE 70. Capital grant approvals—fiscal year 1969—(Continued)

Project No.	Grantee	Date approved	Purpose	Total Federal grant commitment
NY–UTG–7	New York City Transit Authority	9–24–68	Modernization of 49th Street Station (BMT Broadway Line)	1,023,000
NY–UTG–8	City of Niagara Falls	6–14–69	15 buses	289,829
NY–UTG–9	City of Rochester	3–26–69	Acquisition of private bus company and 27 new buses	4,066,666
NY–UTG–10	City of Utica	4– 9–69	27 buses, other equipment	522,974
NC–UTG–1	City of Asheville	11– 7–68	34 buses, construction of maintenance facility	877,733
OHIO–UTG–5	City of Warren	10–17–68	24 buses, construction of garage, other equipment	469,508
OHIO–UTG–6	City of Euclid	10–30–68	12 buses, construction of garage, other equipment	1,060,666
OHIO–UTG–7	Cleveland Transit System	6–17–69	10 rapid-transit cars, 100 buses, other rail and bus improvements	8,840,066
PA–UTG–8	City of Williamsport	5–28–69	Acquisition of private bus company, 4 new buses, new garage, other equipment	251,286
TEX–UTG–4	City of San Angelo	6–18–69	9 buses, other equipment	151,922
WASH–UTG–5	City of Tacoma	10–14–68	10 buses	203,990
INT–UTG–6	Kansas City Area Transportation Authority	12–21–68	Acquisition of private bus companies and 30 new buses	4,271,333
INT–UTG–7	Bi-State Development Agency (St. Louis)	5–23–69	715 fare boxes, other equipment, for exact-fare plan	226,666
	Total New Projects			$108,913,778

PRIOR YEAR APPROVALS AGAINST FISCAL YEAR 1969 FUNDS

ILL–UTG–5	City of Chicago	10– 2–68	150 rapid transit cars	[2] 6,500,000
INT–UTG–4	Port Authority Trans-Hudson Corporation	10–14–68	Journal Square transportation center	[3] 17,592,000

Project No.	Grantee	Date approved	Purpose	Total Federal grant commitment
			AMENDMENTS TO PREVIOUSLY APPROVED PROJECTS	
ILL-UTG-1	City of Chicago	6-16-69	Englewood terminal	542,416
ILL-UTG-2	City of Chicago	6-16-69	Kennedy rapid transit	7,600,000
ILL-UTG-3	City of Chicago	5-27-69	Clinton station	66,666
ILL-UTG-4	City of Chicago	6-16-69	Dan Ryan rapid transit	5,500,000
IA-UTG-1	City of Waterloo	10-30-68	30 buses	42,400
KANS-UTG-1	City of Topeka	11-19-68	Construct garage, etc	8,200
KANS-UTG-2	Wichita Metropolitan Transportation Authority	4- 7-69	32 buses, construct garage	43,458
LA-UTG-2	City of Lafayette	9- 9-68	15 buses, construct maintenance facility	84,868
NY-UTG-3	Metropolitan Transportation Authority	8-26-68	Extend Long Island RR electrification	30,000
PA-UTG-1	Port Authority of Allegheny County	10- 7-68	180 buses, construct 2 garages	340,962
PA-UTG-5	Erie Metropolitan Transportation Authority	5-17-69	50 buses, construct maintenance facilities, other equipment	154,434
TEX-UTG-2	City of Abilene	5- 9-69	6 buses, other equipment	150,316
INT-UTG-2	City of Bristol (Va-Tenn)	12-12-68	16 buses, construct garage, other equipment	61,133
INT-UTG-5	Bi-State Development Agency	9-20-68	52 buses, 52 two-way radios	655,695
	Total Amendments			$ 39,371,548
	Grand Total			$148,285,326

[1] Plus $23.8 million from 1970 funds. [2] Plus $6.5 million from 1968 funds. [3] Plus $5.6 million from 1968 funds.

TABLE 71. Technical studies grants approved—fiscal year 1969

Project No.	Grantee	Date approved	Federal grant
	NEW PROJECTS		
	Grants to local public agencies to assist in solving immediate, short-range problems of transit operations		
ALA–T9–1	City of Mobile	6–11–69	$ 26,666
ARIZ–T9–1	Tucson Urban Reg. Rev. Comm.	1–16–69	20,333
CAL–T9–7	County of Santa Clara	10– 7–68	156,066
FLA–T9–2	City of Hollywood	8–30–68	7,500
FLA–T9–3	City of Pensacola	6–20–69	18,000
HAWAII-T9-2	City and County of Honolulu	6–17–69	180,000
MASS–T9–6	Greater Lowell Area Planning Commission	3–11–69	67,000
MICH–T9–2	City of Ann Arbor	11–25–68	10,000
MINN–T9–2	City of Duluth	1–23–69	22,000
NEB–T9–2	City of Omaha	6–19–69	81,172
NEB–T9–3	City of Lincoln	6–16–69	29,004
NJ–T9–1	Mercer County Improvement Authority	1–23–69	11,666
NJ–T9–3	Atlantic County Improvement Authority	6–19–69	14,000
OHIO–T9–2	City of Toledo	9–20–68	21,220
OHIO–T9–4	Stark C.O.G. (Canton)	6–16–69	41,000
OKLA–T9–1	Tulsa Metropolitan Area Planning Commission	6–19–69	34,662
ORE–T9–1	Central Lane Planning Comm. (Eugene)	9–30–68	13,600
ORE–T9–2	City of Portland	3–26–69	43,168
PA–T9–2	Erie Metropolitan Transportation Authority	10– 7–68	16,000
PA–T9–3	City and County of Lancaster	2–20–69	22,566
RI–T9–1	Rhode Island Public Transportation Authority	5– 9–69	38,000
TENN–T9–2	Metropolitan Transportation Authority Nashville	1–23–69	69,020
TEX–T9–1	City of Wichita Falls	9– 3–68	135,848
WASH–T9–2	City of Spokane	1–16–69	72,000
WISC–T9–2	City of Madison	5–13–69	11,866
WISC–T9–3	City of Kenosha	6–19–69	12,000
	Grants to local public agencies for studies of long-range transit programs or specific rapid transit projects		
FLA–T9–1	Metropolitan Dade County	10– 7–68	266,180
MD–T9–2	Regional Planning Council (Baltimore)	8– 7–68	300,000
MD–T9–3	Regional Planning Council (Baltimore)	12–20–68	400,000
MASS–T9–4	Massachusetts Bay Transportation Authority	9– 5–68	556,020
MICH–T9–3	Southeastern Michigan Transportation Authority	6–17–69	121,000
PA–T9–1	Port Authority of Allehgeny County	11– 1–68	300,000
PR–T9–1	Puerto Rico Highway Department	6–24–69	613,800
TEX–T9–2	City of Dallas	1–17–69	400,000
INT–T9–5	Kansas City Area Transportation Authority	10–22–68	121,466
	Grants to local public agencies to develop solutions to special situations, such as ghetto transportation, new towns, and suburban towns		
COLO–T9–3	Denver Regional Council of Governments	1–14–69	135,000
ILL–T9–2	Village of Skokie	10– 7–68	47,400

TABLE 71. Technical studies grants approved—fiscal year 1969
Continued

Project No.	Grantee	Date approved	Federal grant
ILL–T9–3	Illinois Department of Public Works	10–17–68	177,320
MASS–T9–5	Boston Redevelopment Authority	2–18–69	200,000
TENN–T9–1	City of Chattanooga	11–21–68	24,840
UTAH–T9–1	Salt Lake City	5–23–69	48,756
VA–T9–2	Fairfax County (Reston)	10– 7–68	30,000
	Total new projects		4,916,139
	AMENDMENTS TO PREVIOUSLY APPROVED PROJECTS		
GA–T9–1	Metropolitan Atlanta Rapid Transit Authority	2–20–69	[1] 74,066
MASS–T9–1	Massachusetts Bay Transportation Authority	12–16–68	13,333
MICH–T9–1	Southeastern Michigan Transportation Authority	4–15–69	40,000
INT–T9–1	Bi-State Development Agency	10–25–68	96,666
	Total amendments		75,933
	Grand total		4,992,072

[1] Reduction in previously approved project

Chapter VIII

SAINT LAWRENCE SEAWAY DEVELOPMENT CORPORATION

Review of the Year*

The total revenues for this year amounted to $6.8 million. After paying for all operating costs, $4.5 million was returned to the United States Treasury as a payment on the annual interest expense of $5.5 million. Although a total of $33.4 million has been returned to the Treasury, interest in the amount of $19.2 million has been deferred until the revenues are sufficient to repay this obligation. No scheduled capital repayment on the $129.1 million outstanding revenue bonds has been made to date. The Corporation's debt now totals $148.3 million.

A total of 48 million tons of cargo was carried through the Seaway during the 1968 navigational season. Only once in the 10 years of operation has this total been exceeded, and that was in 1966 when the total was 49.2 million tons of cargo. In 1968, a strike of the Canadian Seaway employees halted traffic on the waterway from June 21 through July 14. Grain shipments dropped when the Lakehead Grain Handlers in Canada were on strike from July 18 to September 12.

On the other hand, general cargo set a new record of 8 million tons—2 million more than in 1967. Iron ore shipments have increased steadily each year and reached a new high of 17.9 million tons in 1968. Wheat tonnage which reached a high of 11.2 million tons in 1966 decreased to 6.6 million tons in 1968.

The essential repairs to the locks have been completed. Most of the remaining work is not considered critical and will be accomplished later only if deemed necessary. The Corporation will continue to monitor the structures and has financed the entire rehabilitation program from its borrowing authority.

A Public Hearing was held in Alexandria Bay on June 3 by the Corps of Engineers concerning the speed limits for large vessels on the St. Lawrence Seaway. Officials were in attendance from the Office of the Secretary of Transportation, Coast Guard, Department of Justice, and Seaway Corporation, as well as local business interests and land owners.

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* Since the Seaway prepares its Annual Report to Congress independently as required by Statute, these excerpts are included for the convenience of readers. Data is given for the calendar year rather than the fiscal year because one operating cycle of the Seaway begins approximately on March 30 and ends on December 14.

On June 6 and 7, Public Hearings on the Advisability of Providing Additional Locks for the U.S. Section of the St. Lawrence Seaway and Extension of the Navigational Season were held in Chicago by the U.S. Army Corps of Engineers. Members of Congress and representatives of Federal agencies, shipping interests, State agencies, Port Authorities, transportation and industrial interests, and news media were invited to participate.

The House Public Works Committee, accompanied by officials of the Department of Transportation, Coast Guard, and the Corps of Engineers, made an inspection trip of the St. Lawrence Seaway on June 28 and 29.

The St. Lawrence Seaway Tariff of Tolls was amended by an Exchange of Notes, dated July 5, which exempted empty containers with cubic capacity of 640 feet or more from Seaway tolls. Previously, empty containers were classified as general cargo and assessed 90 cents a ton.

The Saint Lawrence Seaway Development Corporation and the Seaway Authority of Canada tied in their communications network to the U.S. Coast Guard's LAVERS (lake vessel reporting system) to obtain information useful for scheduling vessels through the Seaway. This was discontinued at the end of the 1968 shipping season.

The official closing date for 1968 was extended from December 6 to December 10, and vessels were permitted to transit on a day-to-day basis subject to weather and ice conditions. The last commercial vessel transited the U.S. locks on December 14 and work on the rehabilitation program began December 15.

Navigation Season

The Corporation Tug, *Robinson Bay*, began breaking ice on March 4, 1968. On March 30, the *Robinson Bay* with *Scow* 02 began buoy commissioning in the South Cornwall Channel. As of April 9, all St. Lawrence Seaway Aids to Navigation in U.S. waters were commissioned for the 1968 season.

TABLE 72. Lockages and transits—1968

	Lockages	*Ships*	*Small craft*
April	477	534	2
May	821	891	23
June	568	614	38
July	537	585	192
August	946	971	308
September	770	893	83
October	818	889	21
November	701	794	1
December	232	254	1
Total	5,870	6,425	669

During the navigation season there were 71 incidents—eight of which required the services of the Corporation Tug, *Robinson Bay*. Twenty-two incidents caused damage to Seaway facilities and charges for damages have been initiated.

The first vessel to transit the U.S. locks was the *Fuex Follets* of Canadian Registry. She cleared Snell Lock, downbound, at 1250 hours on April 8,

1968. With a cargo of grain, the vessel was bound for Port Cartier. The first vessel to transit upbound was the *Eskimo* of Canadian Registry. She cleared Eisenhower Lock at 1728 hours on April 8, loaded with general cargo and bound for Port Credit.

The Wiley-Dondero Canal closed to navigation on December 15, 1968 at 1600 hours. The last downbound commercial vessel, the *English River*, cleared Snell Lock at 1935 hours on December 14, and the last upbound commercial vessel, the *Elmbranch*, cleared Eisenhower Lock at 1501 hours on December 14. Pick-up of buoys started on December 14, 1968 and was completed December 19.

Rehabilitation Program

Delegation of authority for design and contracting services for rehabilitation of the Seaway facilities was extended for a second year to the Buffalo District Corps of Engineers on April 18, 1968.

During the summer, the Corporation met with representatives of the Corps and consultants to determine the scope and timing of the remaining work. It was decided to incorporate into the winter 1968–69 rehabilitation program only items considered essential from the structural, operational, and maintenance standpoint.

Contract drawings and specifications for this work were subsequently prepared and a contract was awarded on September 10 to Morrison-Knudsen Company, Inc., New York, for the estimated amount of $3,700,000.

The work at Eisenhower Lock consisted of installation and removal of lock cover, repairs to lock chamber face, culvert wall chamber side and ports, culvert wall, landside, and to floor and ceiling. At Snell Lock, it consisted of installation and removal of lock cover and culvert crack repair. Repairs at Eisenhower Lock involved removal of deteriorated concrete, in an estimated amount of 3,500 cubic yards, from the chamber face, ports, and culvert of 18 of the port monoliths. One on the north side was repaired last season and one on the south side was considered to be sound.

Some surface repair was performed on isolated sections of ceilings in the culverts. Replacement of concrete was by placement within forms or by shotcrete methods.

The technique of repairing the culvert crack at Snell Lock was the same as that used last year at Eisenhower where the monolith cracks were washed and then filled with cement grout. In addition, steel reinforcing was installed to build up resistance against the tensile forces. In each monolith, six holes were drilled, starting on the inside face about 17 feet below the top and extending from 84 to 95 feet through the concrete past the culvert crack. A bundle of high-strength steel tendons was inserted into each hole. These are capable of resisting a stress of 636,000 pounds. The bundles were anchored to the bottom, then prestressed and anchored at the top. Following this step, the hole was filled with cement grout.

The Engineering Board of Consultants has indicated that after this winter's work program has been completed the locks will be in a safe operating condition. Any remaining damaged concrete at the locks is not considered critical and no extensive rehabilitation is contemplated for the next several seasons. Monitoring of all instruments at the locks will be pursued and a study of the causes of the deterioration will be continued by the Corps of Engineers.

TABLE 73. Statistical highlights

	1968	*1967*
Ship transits:		
Commercial	6,425	6,884
All other	669	3,437
Total	7,094	10,321
Cargo (in millions of tons):		
Bulk	40.0	38.0
General	8.0	6.0
Total	48.0	44.0
Financial data (in millions of dollars):		
Revenues	$ 6.8	$ 6.1
Payments to U.S. Treasury–		
Total to date	33.4	28.9
Total for year	4.5	4.0
Total bond and interest debt	148.3	143.3
Employment:		
Administrative and operations	171	163
Advisory board members	5	5
Special consultants	–0–	–0–
Total	176	168

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