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General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-258242

September 26, 1994

The Honorable Wendell H. Ford
Chairman, Subcommittee on Aviation
Committee on Commerce, Science
and Transportation
United States Senate

Dear Mr. Chairman:

The Federal Aviation Administration (FAA) is responsible for ensuring aviation safety with fewer staff in a much more advanced and challenging technological environment than in the past. Now more than ever, FAA needs to effectively train its smaller, less experienced workforce to conduct the agency's activities. After FAA studies, completed in 1988, identified widespread problems in its training system, the agency undertook two major efforts to upgrade and modernize its training system: The Flight Plan for Training, developed in January 1989, outlined the initiatives and projects needed to improve training, and the Technical Training Management System (TTMS), introduced in September 1992, established a customer-driven approach for managing technical training.

Concerned about whether FAA's efforts to upgrade and modernize its training system are adequate in today's rapidly changing technological environment, you asked us to provide you with information on the progress FAA has made to improve its technical training system. Specifically, this correspondence (1) provides information on the cost and status of the Flight Plan initiatives and (2) identifies the manner in which TTMS affects FAA's technical training programs. Of the initial \$406 million cost estimate for the Flight Plan, FAA expected to fund about \$282 million from the operations account and about \$124 million from the facilities and equipment account. As agreed with your office, we did not include facilities and equipment expenditures in our review.

In summary, although FAA is aware of many problems in its training system--organization and leadership, resource allocation, and training design, delivery, and evaluation--it has been slow to resolve these problems. The Flight Plan was overly ambitious and poorly planned. As a result, FAA terminated over 25 percent of the plan's projects, and 65 percent of the ongoing projects are behind schedule. TTMS has enabled FAA to identify and fund training requirements systematically because the process gives funding priority to "true need" (operationally essential) training. However, once training needs have been identified and funded, training managers have not effectively used training class slots. Almost 20 percent of the training slots funded between 1991 and 1993 were not used. Furthermore, FAA has not evaluated its training programs at least every 3 years as its guidelines require to determine the effectiveness of its training.

BACKGROUND

FAA employs over 52,000 people; about 30,000 hold positions critical to safety as air traffic controllers, safety inspectors, and maintenance technicians. To address the training needs of this safety-related workforce, FAA has instituted one of the largest and most diverse training systems of any federal agency. This diversified training encompasses such areas as flight training on the latest aircraft, air traffic equipment operations and maintenance, and clerical and human relations training. Under FAA's training system, each service organization (such as Air Traffic, Airway Facilities, and Flight Standards Service) manages its own technical training program. The FAA Academy, located in Oklahoma City, Oklahoma, provides resident technical training for FAA's workforce.

Before fiscal year 1995, FAA used the operations account to fund centralized training and the facilities and equipment account to fund the first five contractor-provided training courses for new air traffic control systems. Beginning in fiscal year 1995, FAA will fund all training from the operations account. When funding for contractor-provided training for new systems is excluded, FAA spent about \$114 million to provide technical training to about 22,000 employees in fiscal year 1993. (Enc. I shows the actual, estimated, or proposed centralized technical training costs and enrollments for fiscal years 1991 through 1995.)

FAA HAS MADE LITTLE PROGRESS IN
IMPLEMENTING FLIGHT PLAN PROJECTS

In 1988, three studies were completed that identified widespread FAA training problems.¹ These problems included a fragmented training organization with poorly defined authority, responsibility, and accountability; an inadequate long-range planning process under which training was determined and constrained by the budget rather than driven by training needs; and insufficient evaluation of the training curriculum's development, delivery, and effectiveness.

In January 1989, FAA initiated the Flight Plan for Training to address its training needs. Initially, the Flight Plan encompassed 47 projects in eight major initiatives that involved improving on-the-job training, designing new training curricula, improving the recruiting and screening of applicants, and establishing better ties with academia and industry. FAA revised the Flight Plan in 1990 and again in 1992, in part because some projects were poorly planned. Overall, the three versions of the Flight Plan included 76 different projects. FAA has spent about \$81 million on Flight Plan projects through fiscal year 1994. For fiscal year 1995, FAA is proposing to spend about \$6.9 million, a decrease of over 34 percent from fiscal year 1994 funding. As of August 1994, we found that 46 of the 76 Flight Plan projects were ongoing, 22 had been terminated, and 8 had been completed. (Enc. II shows the costs and status of the projects for each Flight Plan initiative.)

Our analysis of the Flight Plan projects showed that FAA had terminated 22 because they were poorly planned, not needed, or too costly. Of the 22 terminated projects, 10 related to the FAA Academy. According to one FAA budget official, the Office of the Secretary of Transportation and the Office of Management and Budget were critical of FAA's justifications for funding the Academy as a separate initiative. FAA terminated other projects because they

¹The Management of the Technical Training Program of the Federal Aviation Administration, FAA Technical Training Review Group, March 1988; Training Controllers for the National Air Traffic System, Northern NEF, Inc., May 1988; and ATC Training Analysis Study: Design of the Next-Generation ATC Training System, HumRRO International, Inc., June 1988.

either had low priorities or were too costly. For example, we found that FAA did not start a planned \$169 million project to establish four regional radar training centers for controllers because the project's cost was too high.

Of the eight completed Flight Plan projects, we found that FAA had completed six on or ahead of schedule and two behind schedule. The Office of Training and Higher Education was established as planned. Although five projects were completed ahead of schedule, we found that FAA had reduced the scope for three of them. For example, FAA had initially planned to hold four symposia for state-of-the-art technical training between 1988 and 1992; the project was completed in 1990 after only two symposia were held. Other projects that FAA completed ahead of schedule included developing and implementing on-the-job training courses for Air Traffic instructors and examiners; developing and implementing curricula to train facility managers, training administrators, and evaluators; establishing the Airway Facilities System Specialist occupation; and preparing traffic management program guides.

In addition, we found that the two projects completed behind schedule created a ripple effect by delaying the start of another project. Specifically, the Flight Plan included a project to improve the Airway Facilities training curricula by the end of 1993. But FAA could not begin this project until it had completed two projects to update the maintenance technicians' job tasks--projects that it initially planned to complete in 1990. Because it did not finish updating the job tasks until 1993, FAA now estimates that it will not finish improving the Airway Facilities training curricula until 1995. Overall, we found that 30 of the 46 ongoing projects, or 65 percent, were behind schedule.

TTMS IMPROVES TRAINING REQUIREMENTS PROCESS, BUT PROBLEMS PERSIST IN MANAGING AND EVALUATING TRAINING

In 1990, the Deputy Associate Administrator for Appraisal assessed FAA's process for identifying training requirements and found that the agency's service organizations were not heavily involved in formulating training requirements, training requests submitted from the field were not ranked and received minimal review or validation, and all training requirements were not

identified by the process.² The study also found that FAA did not have a policy to minimize training no-shows or to hold managers accountable for the use of training slots.

To help resolve these problems, in September 1992 FAA's Executive Committee for Technical Training Oversight established TTMS.³ Under TTMS, the Executive Committee oversees the service organizations' technical training programs and resolves agencywide training issues. TTMS places the responsibility and accountability for managing technical training with the service organizations and revises the process for identifying, forecasting, budgeting, and delivering technical training. However, the service organizations have not fully implemented TTMS, in part because FAA's training policies are outdated and FAA has not provided procedural guidance on how the system should work. For example, FAA's currently approved training order dates back to December 1974, despite efforts to revise it in 1989 and 1993.

TTMS Improves FAA's Training Requirements Process

TTMS provides the service organizations with a systematic process for determining training requirements and giving funding priority to the training that FAA needs to perform its mission. Under TTMS, each service organization must complete a technical training needs assessment to identify training requirements as either "true need" or "other" training. For example, under FAA rules some aviation safety inspectors must receive flight training every 12 months. Unless FAA provides this true need training, it will be unable to provide required services. Therefore, the new system requires that all true need training be funded from either a centralized training budget or a service organization's operations budget.

Organizations Are Not Effectively Using Training Quota

Once training requirements are identified, the FAA Academy and service organizations prepare class schedules and

²The FAA Training Requirements Process, FAA Office of the Deputy Associate Administrator for Appraisal, March 1990.

³Executive Committee membership includes senior managers from the service organizations, training providers, and administrative organizations that represent the technical training community.

allocate training slots in scheduled classes to regional and field offices. The regional and field offices complete student enrollments (assigning slots to individuals). We found that the service organizations are not effectively utilizing their training slots. Specifically, annual attendance in courses between 1991 and 1993 has averaged about 19 percent below the available training slots. According to FAA training officials, staff do not show up for scheduled training because of personal reasons, failure to meet course prerequisites, or operational needs at their facility.

Training Is Not Adequately Evaluated

The Office of Personnel Management's training regulations require federal agencies to analyze and evaluate the results and effects of training in achieving their missions and goals. To assess the effectiveness of FAA training, the agency's guidelines require that training providers evaluate courses and service organizations evaluate their training programs at least once every 3 years. FAA does not have a training evaluation plan, and information on the number of courses and programs that FAA is required to evaluate every 3 years was not available.

We found that FAA does not routinely evaluate courses and programs and that the evaluations it does conduct are insufficient to determine the effectiveness of training on organizational performance. When evaluations do occur, they are primarily end-of-course and post-course questionnaires administered to elicit the reactions and opinions of students and their supervisors. In June 1992, FAA reported that only 63 of 325 Academy courses studied, or 20 percent, had been evaluated during the previous 3 years.⁴ Since 1992, FAA's Office of Training and Higher Education has conducted training management reviews at four regional offices and evaluated human resource utilization at the Academy's Airway Facilities Branch.

However, the service organizations do not periodically evaluate the effectiveness of their training programs. According to FAA training officials, training evaluations are not a priority, particularly when resources are scarce. The officials told us that FAA does not have the

⁴The Triennial Course Evaluation Process at the FAA Academy, Strategic Planning and Evaluation Staff, FAA Academy, June 1992.

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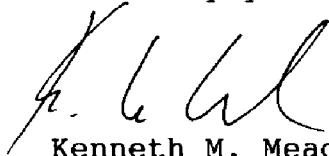
staff resources to evaluate every training course and program once every 3 years. FAA's Assistant Administrator for Human Resource Management told us that training evaluation is an area that needs to be addressed under TTMS.

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To obtain the information presented in this correspondence, we reviewed the initial Flight Plan and subsequent revisions to identify the number of projects and their planned completion dates and costs, and we analyzed FAA documents to determine each project's actual status and cost. We reviewed FAA documents on TTMS and examined how TTMS was being implemented in three FAA service organizations--Air Traffic, Airway Facilities, and Flight Standards Service. In 1993, these organizations accounted for about 80 percent of FAA's funding for technical training. During our review of FAA's Flight Plan and TTMS, we interviewed FAA's Assistant Administrator for Human Resource Management and FAA training officials at the Office of Training and Higher Education, FAA Academy, Air Traffic, Airway Facilities, and Flight Standards Service. We reviewed FAA's training policies and procedures and examined previous studies of FAA's training system, including reports by GAO and the Department of Transportation's Office of Inspector General. Finally, we coordinated our work with the Department of Transportation's Office of Inspector General, which was also examining various aspects of FAA's training.

We are sending copies of this correspondence to the Secretary of Transportation and the FAA Administrator. Please contact me on (202) 512-2834 if you or your staff have any questions.

Sincerely yours,



Kenneth M. Mead
Director, Transportation Issues

Enclosures - 2

FAA'S CENTRALIZED TECHNICAL TRAINING COSTS AND ENROLLMENTS,
FISCAL YEARS 1991 THROUGH 1995

Dollars in thousands

Service organization	FY 1991 actual	FY 1992 actual	FY 1993 actual	FY 1994 estimate	FY 1995 proposed
Air traffic	\$ 42,374	\$36,770	\$ 27,037	\$ 24,225	\$21,573
Airway facilities	34,367	36,275	35,472	36,092	33,865
Regulatory standards and compliance	33,454	35,158	32,125	26,163	22,835
Security	2,468	2,735	2,408	1,004	805
Airports, logistics, and instructors	2,675	3,281	3,619	2,850	2,448
Program administration and other support	9,307	12,435	13,321	14,241	12,594
Total cost	\$124,645	\$126,654	\$113,982	\$104,575	\$94,120^a
Total enrollment	29,069	28,422	21,661	21,800	23,200

^aIncludes about \$3 million for training in the maintenance of new equipment that was previously funded from the facilities and equipment account.

Source: GAO's presentation of FAA's data.

**PROJECT COST AND STATUS FOR
FLIGHT PLAN FOR TRAINING INITIATIVES**

Table II.1: Flight Plan Costs, Fiscal Years 1989 Through 1995

Dollars in thousands

Flight Plan initiative	1989 actual	1990 actual	1991 actual	1992 actual	1993 actual	1994 estimate	1995 proposed
Academic and industry ties	\$ 0	\$ 4,199	\$ 4,411	\$ 3,581	\$ 2,643	\$ 208	\$ 199
Air traffic screen	0	75	2,893	2,660	1,981	1,084	285
Center for Management Development	0	2,143	2,704	1,766	1,008	639	455
Curricula redesign	2,700	2,516	5,210	3,524	8,213	6,158	4,645
FAA Academy	0	0	0	0	0	0	0
Office of Training and Higher Education	150	1,009	1,355	1,129	1,179	1,135	1,156
On-the-job training	150	95	520	303	770	0	0
Recruitment	2,500	2,411	1,929	2,303	2,281	1,205	142
Total cost	\$5,500	\$12,448	\$19,022	\$15,266	\$18,075	\$10,429	\$6,882

Source: GAO's presentation of FAA's data.

Table II.2: Flight Plan Project Status, August 1994

Flight Plan initiative	Ongoing projects	Completed projects	Terminated projects	Total projects
Academic and industry ties	2	1	1	4
Air traffic screen	1	0	0	1
Center for Management Development	15	0	8	23
Curricula redesign	16	4	2	22
FAA Academy	0	0	10	10
Office of Training and Higher Education	2	1	1	4
On-the-job training	8	1	0	9
Recruitment	2	1	0	3
Total	46	8	22	76

Source: GAO's analysis of FAA's data.

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