

September 1988**FAA STAFFING****Recruitment, Hiring,
and Initial Training of
Safety-Related
Personnel**

RESTRICTED—Not to be released outside the General Accounting Office except on the basis of the specific approval by the Office of Congressional Relations.



United States
General Accounting Office
Washington, D.C. 20548

**Resources, Community, and
Economic Development Division**

B-232095.1

September 2, 1988

The Honorable James L. Oberstar,
Chairman
The Honorable William F. Clinger, Jr.,
Ranking Minority Member
Subcommittee on Investigations and
Oversight
Committee on Public Works and Transportation
House of Representatives

At your request, we have been examining the Federal Aviation Administration's (FAA) recruitment and screening policies for air traffic controllers, aviation safety inspectors, and maintenance technicians. This report discusses FAA's progress in meeting its staffing goals and describes the employment qualifications, recruitment, hiring, and initial training programs for each work force. It also discusses initiatives FAA has underway to change these programs.

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 15 days from the date of this letter. At that time, we will send copies to interested congressional committees, the Secretary of Transportation, and the Administrator, FAA. We will also make copies available to others upon request. At your request, we are continuing to evaluate air traffic field training, the FAA Academy's training programs, and FAA's overall management of technical training for these work forces.

This work was conducted under the direction of Kenneth M. Mead, Associate Director. Major contributors to this report are listed in appendix I.

A handwritten signature in cursive script that reads 'J. Dexter Peach'.

J. Dexter Peach
Assistant Comptroller General

Executive Summary

Purpose

The Federal Aviation Administration (FAA) employs over 26,000 people in critical safety functions as air traffic controllers, aviation safety inspectors, and maintenance technicians. In recent years, the Congress has set mandatory staffing levels for controllers and recommended staffing goals for other employees because of its concern that FAA does not have enough fully trained staff to adequately ensure safety.

At the request of the Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, GAO examined, among other things, (1) whether FAA is meeting its staffing goals for fiscal year 1988 and (2) current recruitment, hiring, and initial training processes for these work forces, and problems with these processes.

Background

Applicants for air traffic controller positions must pass an aptitude test and meet certain age, medical, and security qualifications. They must also successfully complete an 11-week program of instruction and testing—called screening—at the FAA Academy in Oklahoma City. FAA uses this process to eliminate individuals who do not demonstrate the aptitude to control air traffic before placing individuals at an FAA field facility. Historically, 56 percent of those who enter controller training fail or withdraw without reaching full performance level.

Aviation safety inspectors, who are responsible for overseeing airlines' compliance with safety regulations, are hired on the basis of the quality of their recent aviation experience. Inspectors are hired from a central candidate register and are required to pass an initial training program at the FAA Academy.

Maintenance technicians are responsible for maintaining and repairing the nation's air traffic control equipment. They are hired directly by FAA regions to fill local vacancies and obtain their initial training in the field.

Results in Brief

FAA expects to meet its inspector and maintenance staffing targets for fiscal year 1988 but will not meet its mandated goal for full performance controller staffing. FAA is attracting fewer high quality controller candidates than in the past, and training losses are affecting the agency's ability to meet staffing goals.

FAA does not have a national recruitment policy other than meeting staffing targets designated by the Congress. FAA's current recruitment process relies on individual regions, is not centrally coordinated, and is

not targeted towards those candidates most likely to succeed as air traffic controllers. FAA is experiencing more trainee attrition at its busiest facilities than at lower level facilities. Better field placement of FAA Academy graduates could help reduce this attrition by matching a graduate's demonstrated performance level with a facility's air traffic activity. FAA intends to implement proposals that would significantly change its controller training program.

Principal Findings

Shortfalls in Controller Candidates

FAA will not meet the congressionally mandated goal of 10,450 full performance level controllers by the end of fiscal year 1988. As of June 30, 1988, it was 1,137 controllers short of that goal and expects that by year-end it will still be 518 short. Rapidly increasing the number of full performance level controllers is difficult because it takes almost 3 years of training to reach that status.

Currently, it takes about 100 applicants to produce 1 full performance level controller. Research indicates that applicants who score high on the controller aptitude exam have the best chance of succeeding. Without a systematic, targeted national recruitment effort, however, it is difficult to attract sufficient high-scoring candidates in some labor markets because of competition from industry. The eventual failure of applicants during Academy screening is costly to the government.

Controller Hiring Process to Be Streamlined

Once applicants are recruited, they wait, on average, 11.5 months to enter the Academy while pre-employment processing, especially medical and security clearances, is completed. FAA is instituting new programs to track the status of controller applicants and expedite the processing of the most promising new hires. Streamlining the hiring process is important because FAA has already lost more than 2,500 top candidates to other employers. GAO supports FAA's efforts to reduce the processing time for new hires.

Controller Placement Policy

FAA's field placement decisions do not adequately factor in the likelihood that an individual can succeed at an assigned facility. According to FAA policy, an individual's Academy performance, along with organizational and personal needs, should be considered in field placement. However,

regions are not always using Academy scores to guide their field placements. During fiscal years 1986 and 1987, 42 percent of the lowest-scoring graduates were placed in the nation's busiest facilities because of (1) regional practices such as preassigning students to facilities before they entered the Academy and (2) efforts to staff numerous vacancies at these busy facilities. Low-scoring graduates are failing the training program at busy facilities, and such placements undermine an individual's chances of becoming a full performance level controller. FAA's own research shows that high-scoring Academy graduates satisfactorily complete training at busy field facilities and that low-scoring graduates will remain with the agency longer if they begin their careers at less busy facilities and gain experience.

FAA has a study underway to identify pay and benefit incentives to attract controllers to its busiest facilities. It will take time to implement a new incentive system, and these facilities are likely to continue to experience staffing shortages in the meanwhile. FAA plans to implement recommendations from two contractors and an agency task force to reorganize and modernize its controller training program.

Inspector Staffing

During the first quarter of fiscal year 1988, hiring for both inspectors and maintenance technicians was frozen until the Congress passed final appropriations legislation. FAA has been incrementally increasing its inspector work force and plans to meet the funded level of 2,088 inspectors by the end of fiscal year 1988. However, as of July 2, 1988, it had 1,957 inspectors and was behind planned hiring levels. FAA is experiencing delays in processing new inspectors, but these delays are not yet as significant as those for controllers.

FAA is in the process of redesigning its inspector training program and expects to implement new requirements by fiscal year 1990. It continues to experience backlogs of initial training for inspectors. However, these backlogs have been reduced from 1986 levels. Because the FAA Academy can train a limited number of new inspectors each year, backlogs are expected to continue as FAA hires new inspectors.

Maintenance Staffing

Maintenance staffing has declined 2.6 percent from levels at the end of fiscal year 1987. As of June 30, 1988, FAA had 8,438 field maintenance employees compared with a staffing target of about 8,700 employees. Maintenance staffing is not keeping pace with attrition in part because of a hiring freeze during the first quarter of fiscal year 1988.

FAA plans to streamline its current initial technician training. It is experiencing increased demand for technician training as it both hires and trains new employees on existing equipment and moves to a modernized air traffic control system. The FAA Academy has been unable to meet all requests for maintenance training.

Recommendations

To improve FAA's recruitment and retention of controllers, FAA needs a coordinated recruitment and placement program. GAO recommends that the Secretary of Transportation direct the Administrator, FAA, to develop a national recruitment strategy targeted to those individuals most likely to have the potential to be controllers.

GAO recognizes that in placing Academy graduates FAA has to consider such factors as personal and organizational needs. However, to the extent practicable, GAO recommends that the Administrator, FAA, consistent with the agency's own field placement policy, place Academy graduates at field facilities according to their performance during the screening program.

GAO makes an additional recommendation concerning the controller interview process in chapter 2.

Agency Comments

GAO discussed the matters in this report with FAA officials. They concurred with the facts presented, and their comments have been incorporated where appropriate. However, as requested, GAO did not obtain official agency comments on a draft of this report.

Contents

Executive Summary		2
Chapter 1		10
Introduction	Congressional Staffing Mandates	10
	FAA's Personnel Organization	11
	Objectives, Scope, and Methodology	12
Chapter 2		15
Air Traffic Controller Recruitment, Hiring, and Screening	FAA Cannot Meet Full Performance Controller Goal	15
	Requirements for Employment as a Controller	16
	Recruitment Program for Controllers	18
	FAA Plans to Streamline Hiring Process for Best Controller Candidates	20
	Academy Screening Program for Controllers	23
	Placement Program for Controllers	28
	Controller Training	31
	Conclusions	34
	Recommendations to the Secretary of Transportation	34
Chapter 3		36
Recruitment, Hiring, and Initial Training of Aviation Safety Inspectors	Requirements for Employment as an Aviation Safety Inspector	36
	Recruitment Program for Inspectors	37
	Hiring Process and Inspector Staffing Levels	38
	Initial Training Program for Inspectors	41
	Conclusions	44
Chapter 4		45
Recruitment, Hiring and Initial Training of Maintenance Technicians	Requirements for Employment as a Maintenance Technician	45
	Recruitment Program for Maintenance Technicians	46
	Hiring Process for Maintenance Technicians	47
	Changes Planned for Technician Training Program	48
	Conclusions	50
Related GAO Products		53
Appendixes	Appendix I: Major Contributors to This Report	52

Tables

Table 2.1: Controller Qualification Requirements	16
Table 2.2: Initial OPM Rating Compared With Academy Pass Rates—FY 1986 and FY 1987	17
Table 2.3: FAA Academy Pass/Fail Rates—FY 1976 to FY 1987	26
Table 2.4: Academy Screening Capacity and Expansion Requirements	28
Table 2.5: Field Attrition Rates—FY 1981-87	32
Table 3.1: Planned Aviation Safety Inspector Qualification Requirements	37
Table 3.2: Average Applicant Processing Time for Selected Specialties	39
Table 3.3: Aviation Safety Inspector Hiring and Attrition—FY 1987 and FY 1988	40
Table 4.1: Electronics Technician Qualification Requirements	46
Table 4.2: Field Maintenance Hiring and Attrition—FY 1988	48

Figures

Figure 1.1: FAA's Major Work Forces	10
Figure 2.1: The Road to a Full Performance Level Controller	19
Figure 2.2: Applicant Processing—Controllers	22
Figure 2.3: Controller Training Process	24
Figure 2.4: Controller Candidates Screened at the Academy Since FY 1979	27
Figure 2.5: Placement in Field Facilities—FY 1986-87	30
Figure 3.1: Aviation Safety Inspector Initial Training Program	42
Figure 3.2: Initial Inspector Training Backlogs at the FAA Academy	43
Figure 4.1: Proposed Changes to Initial Technician Training Program	49

Contents

Abbreviations

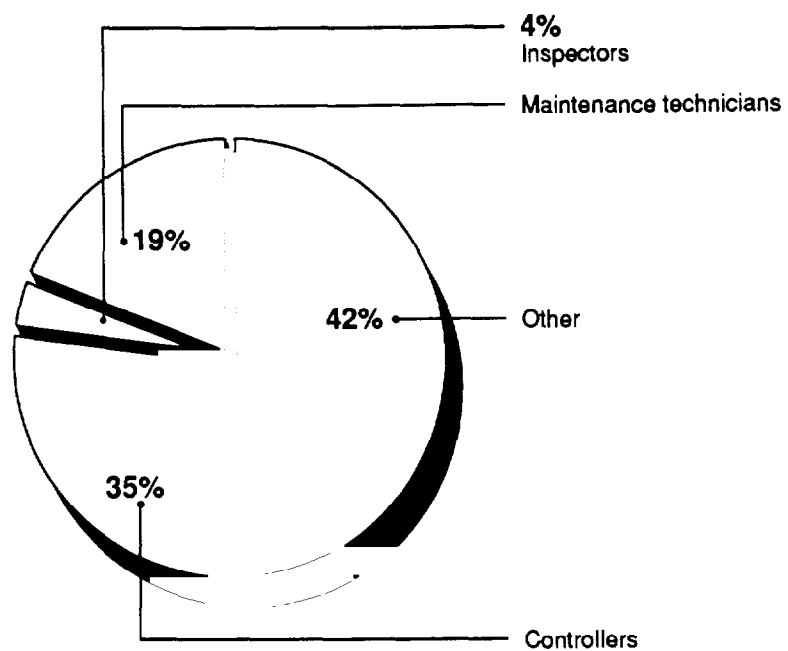
FAA	Federal Aviation Administration
GAO	General Accounting Office
OMB	Office of Management and Budget
OPM	Office of Personnel Management
RCED	Resources, Community, and Economic Development Division
SAFE	Safety Activity Functional Evaluation

Introduction

Of the 44,000 FAA employees, about 60 percent are air traffic controllers, aviation safety inspectors, and maintenance technicians. (See fig. 1.1.) These employees are responsible for the most critical safety functions in FAA—monitoring the flow of air traffic, regulating the operation of air carriers, and maintaining the sophisticated equipment that makes up the nation’s air traffic control system.

In response to congressional concern about the adequacy of FAA’s staffing to carry out these missions, FAA has been increasing staffing for these work forces. This report discusses how the agency recruits, hires, and initially trains controllers, inspectors, and maintenance technicians.

Figure 1.1: FAA’s Major Work Forces



Congressional Staffing Mandates

In December 1987 the Congress designated specific fiscal year 1988 staffing targets for each of these three FAA work forces. This was the third year that the Congress has established controller targets in the law, specifically a controller work force of 15,900—10,450 of whom should be full performance level controllers.¹ In addition, a House and

¹A full performance level controller is certified on all positions of operation within a given area.

Senate conference committee (hereafter referred to as the conference committee) recommended that FAA have 2,198 aviation safety inspectors and the full-time equivalent of 8,551 field maintenance employees by the end of fiscal year 1988. The conference report directed that FAA give the "highest priority to meeting these staffing levels" and that substantial shortfalls from these levels be promptly reported to the House and Senate Committees on Appropriations. In May 1987 the Secretary of Transportation waived the fiscal year 1988 goal for full performance level controllers in accordance with the provisions of the 1988 Appropriations Act (see ch. 2).

In setting these target levels, the House and Senate Appropriations Committees noted a number of concerns about FAA's staffing efforts. For example, the Senate Appropriations Committee expressed concern about chronic staffing shortages at certain air traffic facilities and questioned whether incentives are needed to attract and retain personnel. The House Appropriations Committee saw increased staffing as a step in the right direction but requested that FAA reassess its maintenance staffing needs.

FAA's Personnel Organization

FAA's human resource activities are administered in headquarters by the Associate Administrator for Human Resource Management. The Associate Administrator oversees and guides FAA's human resource management activities. Within headquarters, the Office of Personnel and Technical Training is responsible for personnel management, staffing and pay policies, recruitment, placement, and technical training.

In addition, each of FAA's nine regions has a Human Resource Management or Personnel Management Division that serves as the principal organization for all personnel-related matters. This organization has primary responsibility for implementing the personnel and training policies established at FAA headquarters.

There are no specific FAA orders related to recruitment or hiring policies. Recruitment is mentioned in FAA's organizational orders as a unit responsibility, as discussed above.

In fiscal year 1988, FAA's total human resource management budget was \$223 million. Funding for recruitment has been a small but increasing part of this budget. FAA began using classified advertising in 1985 with a budget of about \$35,000. As FAA's staffing requirements have increased, more advertising has been needed. In fiscal year 1987, FAA spent a total

of about \$744,000 for advertising and recruitment—\$108,000 by headquarters and the regions, and \$636,000 by the FAA Academy's Special Examining Division. Most of this funding was spent on newspaper and magazine advertisements and on a television advertisement for air traffic controllers—"Discover Today's FAA." Regions have also done some special advertising for hard-to-fill locations.

The FAA Academy

The FAA Academy, located at the Mike Monroney Aeronautical Center in Oklahoma City, Oklahoma, is responsible for providing or arranging technical training for FAA's work forces. There are three separate training branches for the work forces we reviewed: the Air Traffic Branch, Aviation Standards Branch, and Airway Facilities Branch.

In addition, the Special Examining Division of the Academy, an Office of Personnel Management (OPM)-delegated special examining unit, has responsibility for evaluating the qualifications of applicants for controller and inspector positions to see whether they meet FAA's requirements. This Division also maintains an inventory of eligible controller and inspector candidates and processes new employees who report to the Academy's air traffic screening program. (See ch. 2.)

Civil Aeromedical Institute

The Civil Aeromedical Institute, a division of FAA's Office of Aviation Medicine, is also located at the Aeronautical Center. This organization conducts research and education programs on the human factors involved in aircraft accidents and is responsible for the medical certification of airmen. Since 1960, it has also studied controller selection, training, placement, and attrition. In 1976, this organization was given responsibility for (1) maintaining the data base on all controller trainees and (2) statistical research (validation) to ensure that FAA's screening did not discriminate against minorities. The Civil Aeromedical Institute's research has led to changes in the way controllers are selected and initially trained at the FAA Academy.

Objectives, Scope, and Methodology

On September 21, 1987, the Chairman and Ranking Minority Member, Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, requested that we examine FAA's recruitment, screening, and training programs for three major work forces: air traffic controllers, aviation safety inspectors, and maintenance technicians. In subsequent discussions with subcommittee staff,

we agreed to (1) determine whether FAA is likely to achieve its congressional staffing goals; (2) describe FAA's current recruitment, hiring, and screening or initial training processes, and any problems with these processes; and (3) identify FAA's plans to change these processes.

To determine whether FAA is likely to meet its staffing targets, we compared on-board staffing levels from FAA's Centralized Personnel Management Information System and other sources with hiring plans for fiscal year 1988, where they were available. We discussed staffing problems with headquarters and FAA Academy officials.

In looking at FAA's recruitment and hiring processes, we reviewed its existing advertising materials, vacancy announcements, and other documentation to understand what is used for recruitment purposes. We used data from the Civil Aeromedical Institute on average hiring times for controllers, and determined the availability of qualified controller candidates and the hiring times for inspectors from data maintained by the Special Examining Division. We also met with OPM to discuss FAA's planned changes to its hiring process.

In examining FAA's initial training programs, we relied heavily on data obtained from the FAA Academy. For example, in describing the controller screening programs, we used data on trainee attrition and field placements. Although we did not independently verify the personnel data in this report, we did discuss with users the Civil Aeromedical Institute's procedures to track Academy graduates to obtain their opinions concerning the data's accuracy, timeliness, and completeness. Our work included a limited review of FAA's internal controls related to hiring and training. We reviewed DOT's internal control reports submitted in response to the Federal Managers Financial Integrity Act of 1982, which did not identify any control weaknesses in these areas. However, we noted weaknesses in the way FAA counts its inspector staffing, as discussed in chapter 3.

In addition, we reviewed the task orders, and interim and final reports from the contractors reviewing FAA's air traffic training program and available documentation from past reviews of the inspector training program. In April 1988 contractor representatives and members of an FAA task force briefed us on the results of their evaluations of training. We discussed all of these issues with officials at FAA headquarters in Washington, D.C., and at the FAA Academy and Civil Aeromedical Institute in Oklahoma City.

Chapter 1
Introduction

As requested, we did not obtain official written agency comments on this report, but did discuss its contents with FAA officials in headquarters and at the FAA Academy. They concurred with the facts presented, and their comments have been incorporated where appropriate.

Our work was conducted from December 1987 through March 1988, with selected staffing data updated as of June 1988. This audit was performed in accordance with generally accepted government auditing standards.

This report summarizes the results of our briefing to subcommittee staff on April 6, 1988. Chapter 2 discusses air traffic controllers, chapter 3—aviation safety inspectors, and chapter 4—maintenance technicians.

Air Traffic Controller Recruitment, Hiring, and Screening

FAA is finding it difficult to increase the ranks of its full performance level controllers quickly, primarily because of the time required to hire and train applicants. Currently, it takes an applicant about 4 years—1 year waiting to be hired and almost 3 years in training—to reach the full performance level.

Several initiatives are currently planned to address this problem. For example, FAA is streamlining its hiring process in hope of reducing the current pre-employment time from an average of 11.5 months to 2 months. Contractors have also recommended ways to shorten the training period through the use of new technologies and different teaching methods. However, it is likely to be some time before these initiatives can take effect.

Failure rates from the current program are also a cause for concern. FAA loses one candidate for each controller who reaches full performance level. To better ensure that more candidates successfully complete its training, FAA needs to improve the quality of the candidate who enters the FAA Academy. Further, to the extent practicable, Academy graduates should be placed where they are more likely to succeed. We believe one way for FAA to increase its chances of having a more successful controller hiring and placement program is through the establishment of a national recruitment strategy.

FAA Cannot Meet Full Performance Controller Goal

While the Congress has mandated that FAA achieve a full performance controller work force of 10,450 by the end of fiscal year 1988, FAA recognizes that it cannot meet this objective. There are three factors that affect meeting this goal: (1) on-board full performance controller staffing levels, (2) the ability to recruit and hire qualified candidates, and (3) the training time required to reach the full performance level.

In December 1987, when the Congress established new controller staffing targets, FAA had 8,988 full performance level controllers. To reach 10,450 by the end of fiscal year 1988, FAA would have had to promote or certify 1,462 controllers at the full performance level. According to the Secretary of Transportation's May 23, 1988, waiver letter, FAA could not attain the statutorily required number without compromising its qualifications standards and imposing a moratorium on controller reassignments. As of June 30, 1988, FAA had 9,313 full performance level controllers—1,137 short of its fiscal year goal. FAA expects that by the end of fiscal year 1988 it will have 9,932 full performance controllers.

FAA cannot increase its full performance staffing quickly. Planning for such an increase needs to begin several years ahead of time, since the entire process now takes about 4 years—from the time an applicant takes the controller aptitude test to achieving full performance status.

Requirements for Employment as a Controller

The process of determining whether an applicant is suitable for employment as an air traffic controller currently relies on a combination of OPM, Special Examining Division, and FAA regional actions.

The initial step in becoming an air traffic controller is to pass the OPM controller aptitude test. OPM conducts these tests periodically, and FAA's controller vacancy announcement has been open since April 1, 1986. Applicants who pass the OPM test with a minimum score of 70 and meet other qualifications, as shown in table 2.1, are maintained on registers at the Special Examining Division of the FAA Academy. Applicants are asked to designate one FAA region as a first choice and can choose up to two other regions as additional geographic preferences. For each of FAA's nine regions, the Special Examining Division maintains a register of applicants who have designated the region as their first choice. When a region is ready to hire, it requests a list of the "top" candidates on its register. "Top" candidates are those who have scored 90 or above on the OPM aptitude exam. This list—called a certificate—is forwarded to the region from the Special Examining Division. As discussed below, FAA has been experiencing problems hiring sufficient numbers of top candidates.

Table 2.1: Controller Qualification Requirements

Basic qualifications

- High school education or equivalent.
- 3 years of general work experience (or college).
- 18 to 30 years old.
- Qualification on aptitude tests.
- Medical (and psychiatric) qualification.
- Security qualification.
- Additional rating points for
 - demonstrated job knowledge
 - veteran's preference.

Special requirements

- Job contingent on successful completion of
 - FAA Academy screening
 - field training.

Employment as a controller is contingent on passing the Academy's 11-week screening program as well as successfully completing on-the-job

training in the field. The Civil Aeromedical Institute, which is responsible for monitoring and validating this screening program, has found that more candidates ages 20 to 22 pass the Academy program than do other candidates. FAA already has a maximum age requirement (30) for controller candidates and is considering reducing the requirement for 3 years of general work experience to attract even younger candidates. The average age of students entering the Academy is 26 years old.

Few High-Scoring Applicants Available in Some Regions

Applicants are more likely to successfully complete the controller screening program if they pass the OPM aptitude test with a high score. At least 65 percent of those students who entered the Academy during fiscal years 1986 and 1987 with an OPM test score of 90 or better successfully completed the program. Those scoring less than 90 had about a 50-percent chance of passing the Academy. (See table 2.2.) While the OPM test predicts Academy performance, it is not as good at predicting a person's likelihood of reaching full performance level. FAA uses Academy performance to indicate this likelihood.

Table 2.2: Initial OPM Rating Compared With Academy Pass Rates—FY 1986 and FY 1987

Pass rate figures in percent	
OPM Score	Pass Rate
95-110	76
90-94	65
85-89	51
80-84	50

Note: The total population was 3,017 students.

Source: Civil Aeromedical Institute.

Although FAA prefers to draw from applicants with scores of 90 or better on the OPM test, some regions have been referred candidates with scores below 90. In these cases, higher-scoring candidates were not available. For example, between October 1986 and November 1987, about one-third of the 256 candidates referred to the New England Region had OPM test scores lower than 90. In January 1988, of 77 candidates referred to the Southwest Region, none had scored 90 or above. According to FAA officials, there have been fewer high-scoring applicants since 1986 because of a tighter labor market, competition from industry, and fewer people in the eligible age group of 18 to 30 years old.

In addition, because of the limited availability of high-scoring candidates, some regions have had to hire candidates with lower test scores

who have a higher probability of not passing the Academy. According to a January 1988 FAA contractor study, between October 1985 and June 1987, the Northwest Mountain Region had 92.5 percent new hires who had scored 90 or above as compared with 71.2 percent of the Eastern Region's new hires. From August 1981 to August 1987, FAA hired about 6,000 candidates—out of almost 17,900 new hires—with OPM test scores lower than 90. These 17,900 new hires represented about 7 percent of the individuals who had taken the OPM controller aptitude test during that period.

Recruitment Program for Controllers

FAA does not have a national recruitment program. The program that currently exists is not centrally coordinated and is not targeted towards those candidates most likely to become air traffic controllers. For each controller who successfully completes its training program, FAA has lost one candidate through failure or withdrawal. On average, it takes 100 applicants to result in 1 full performance level controller. (See fig. 2.1.)

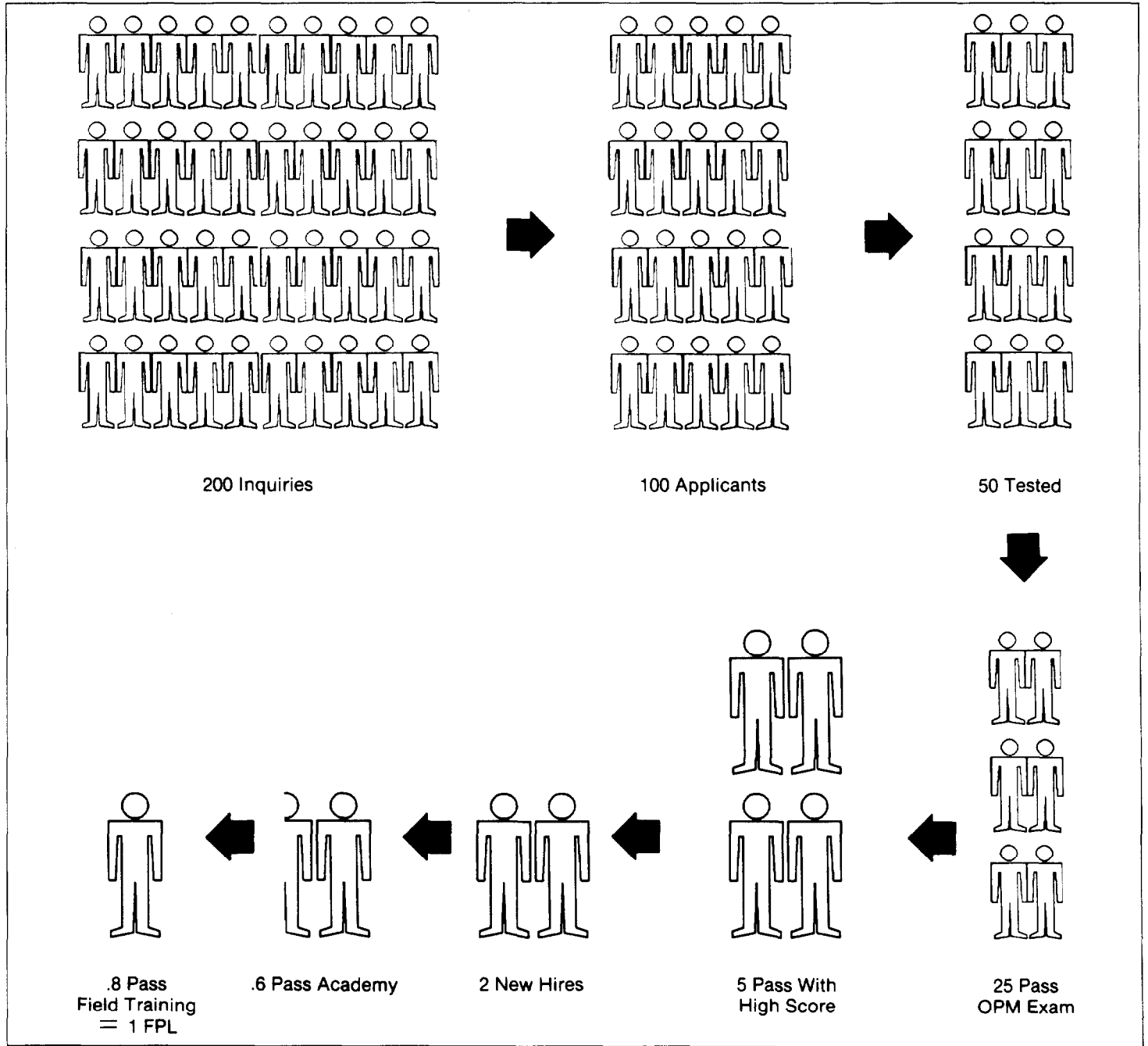
Controller Recruitment

FAA does not have a recruitment strategy—there are no orders, procedures, or written policy statements on recruitment. To encourage people to take the OPM test, FAA regions employ various recruiting methods. Regions also decide for themselves how often recruiting activities take place and the locations and types of candidates contacted during recruiting visits.

We found that headquarters does not really know what recruitment activities are occurring in the field, but it has hired a contractor to examine field recruiting practices. The contractor's report, which is expected to be completed in August 1988, will, among other things, identify individuals who have successfully completed the controller training program and will describe how FAA could target its recruitment to individuals like these.

Headquarters officials know that some regions have developed special recruitment programs to attract applicants. The New England Region, for example, has a Special Act Award, commonly referred to as a "bounty program," whereby FAA employees are awarded \$100 for every new controller candidate they refer who is hired by FAA. The Southern Region has a special program to reach black applicants through recruitment at traditionally black colleges, and the Western Pacific Region has a program that focuses on attracting Hispanic applicants.

Figure 2.1: The Road to a Full Performance Level Controller



Headquarters officials told us that because FAA has not had to go looking for people in the past, recruitment has not been a priority and that only

one region has maintained a recruitment staff. A March 1988 study by an FAA contractor found that larger recruiting staffs are needed both in headquarters and the field, and stated, "Many highly motivated people . . . are working diligently to draw high quality candidates into the controller work force, but more needs to be done."

We found that although FAA employs over 44,000 people, only 3 are involved with recruiting at the headquarters level. These staff in the Office of Personnel and Technical Training are also responsible for all staffing policies; employment qualifications; FAA's Employment Handbook; special employment programs such as part-time, summer, and rehired annuitant employment; special emphasis hiring programs; and veterans programs.

Advertising Programs

To improve its public image and broaden its appeal, FAA has developed a TV advertising spot—"Discover Today's FAA"—and is preparing brochures on specific occupations to be used in college and job fair recruitment efforts. According to FAA officials, FAA's total recruitment budget has been limited when compared with other agencies with technical skill requirements. As part of a new hiring process discussed below, called the Modular Applicant Testing Examining and Screening Program, FAA is developing computer software that will allow interested individuals to respond to questions to determine whether they should consider taking the OPM exam or are unlikely to have the aptitude to pass the test.

FAA Plans to Streamline Hiring Process for Best Controller Candidates

FAA recognizes that its hiring process for those passing the OPM test is a problem because of the length of time it takes to bring a controller on board. On average, it takes about 11.5 months from the time the Special Examining Division receives applicants' OPM test results to their entry into the Academy. This processing time has been as long as 18 months. According to FAA officials, this process has caused FAA to lose good controller candidates to other employers.

A 1983 FAA analysis showed that between August 1981 and July 1983, 4,424 applicants declined or failed to reply to an FAA job offer. About 57 percent of these, or 2,500 candidates, had scored 90 and above on the OPM test. This analysis attributed many of these losses to the lengthy hiring process. Although a more recent study has not been made, according to a Special Examining Division official, FAA continues to lose over

half of the most qualified candidates because of its lengthy hiring process.

According to FAA officials, the length of this pre-employment processing time is mostly due to security clearances. Currently, controller candidates must have a completed security clearance (National Agency Check and Investigation clearance) before reporting to the FAA Academy. OPM does these clearances, and because FAA employees are handled on a first-come, first-serve basis, along with other government employees, delays in receiving final clearances have been common.

Further, good candidates may never be interviewed to begin the hiring process. Regions request certificates as vacancies occur, and the number of times a certificate is requested varies. In fiscal year 1987, regions requested certificates from seven to nine times, and up to 3 months went by between requests. Thus, good candidates who have taken the exam may not be contacted for several months, during which time they have obtained other employment.

Plans for Streamlined Hiring

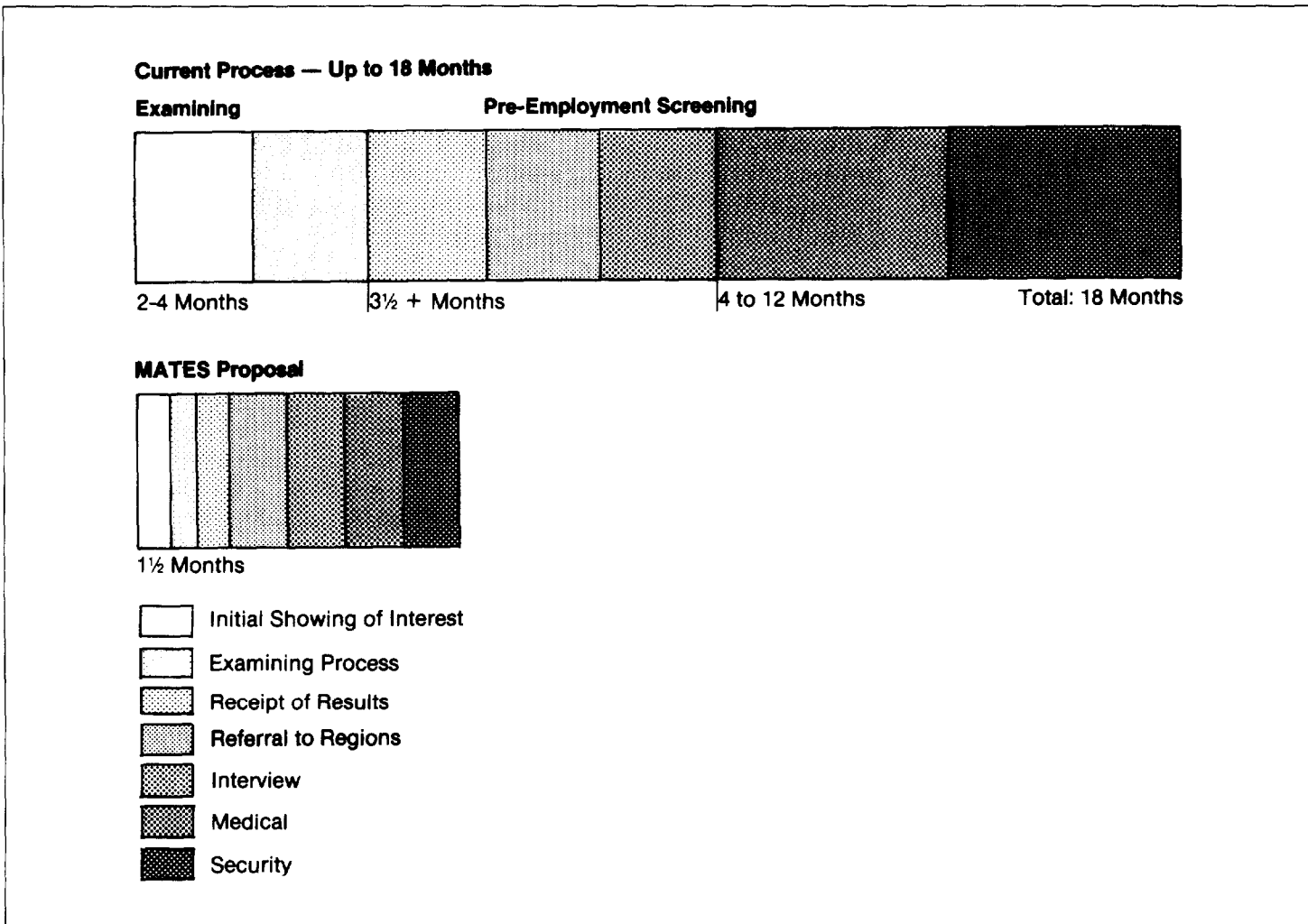
To reduce the time it takes to determine the suitability of controller candidates and to hire them, FAA has designed a new program to streamline its processes, especially for those who score 90 or above on the OPM test. This program, called the Modular Applicant Testing Examining and Screening Program, will be introduced in August 1988, and will

- allow FAA, rather than OPM, to test and initially score aptitude exams on site to reduce the time it takes an applicant to receive test results;
- provide for more frequent administration of the OPM test, including weekend and walk-in testing;
- allow FAA to do pre-employment checks with law enforcement agencies that will permit a high-scoring candidate to begin the Academy screening program and defer completion of the final security clearance; and
- expedite medical history checks for applicants with prior military experience.

FAA officials anticipate that this streamlined hiring process will reduce the time it takes to hire candidates to about 2 months for those scoring 90 or above. (See fig. 2.2.) FAA is focusing on high-scoring candidates in an effort to quickly hire the best candidates; applicants scoring less than 90 will be processed using existing procedures and will not be put on this "fast track" for their medical and security clearances.

OPM officials agree that many of FAA's changes should reduce the processing time normally lost to mail, processing backlogs, and other delays. FAA has approved 40 positions from Air Traffic, Human Resources, and other FAA offices for this program. If it proves successful, FAA plans to extend aspects of this streamlined process to other occupations, such as aviation safety inspectors.

Figure 2.2: Applicant Processing—Controllers



Source: FAA.

We support FAA's efforts to reduce the time it takes to process qualified controller applicants. Streamlining the hiring process should increase the pool of qualified applicants, and improve the opportunity regions have to hire high-scoring applicants.

Field interviewers will play a critical role under FAA's new process. They will be responsible for evaluating applicants and will take their fingerprints to help expedite the security process. Currently, FAA provides interviewers with a guidebook that is used to assess whether applicants seem suited for air traffic control work. This 1984 guidebook is out-dated—it does not reflect data from the Civil Aeromedical Institute's research that could help interviewers identify characteristics of controllers who have successfully completed the controller training program such as age, background, and OPM test scores. FAA recognizes that this guidebook may need to be revised depending on the outcome of its contractor recruitment study.

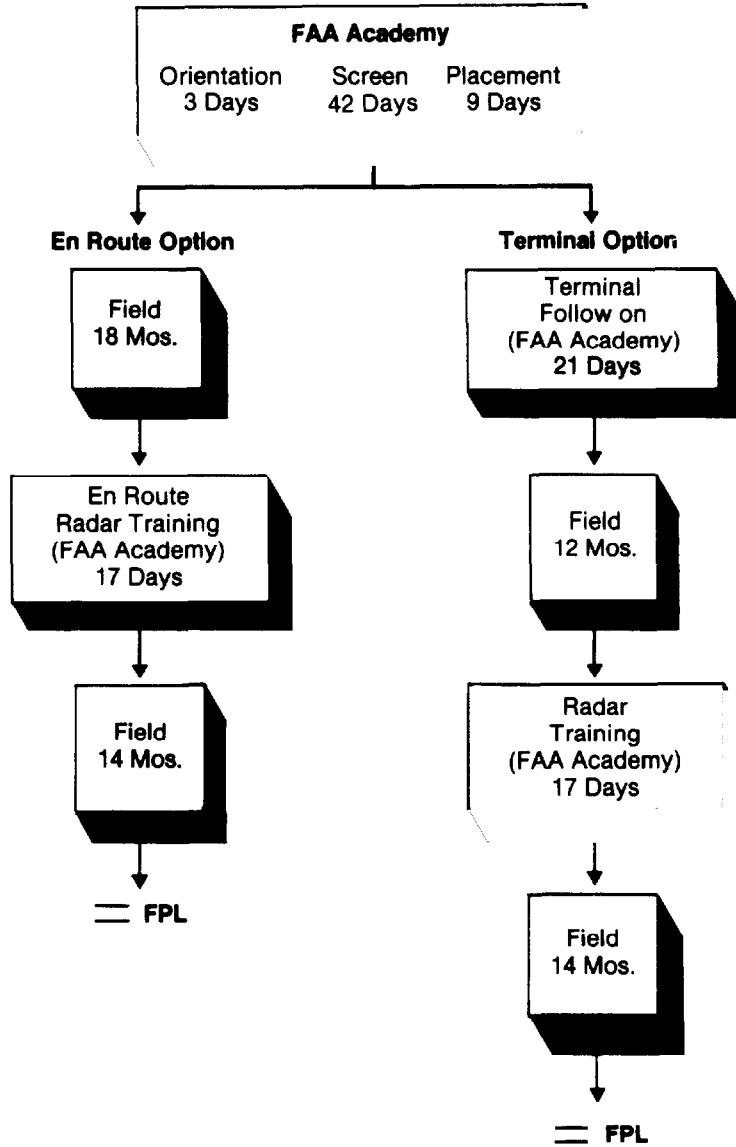
Research by the Civil Aeromedical Institute also raises some questions about how well candidates are evaluated during the interview process. About 10 percent of students withdraw from the Academy program. A large number of these candidates explain their leaving by saying "air traffic control is not for me." In addition, an FAA contractor reported in March 1988 that many students arrive at the Academy unaware of the nature of the job and that although interviewers make recommendations on whether or not an applicant should be hired, these recommendations have been "ignored or overturned" by the regions. Headquarters officials do not know how interviewers are selected or who actually is doing interviews and therefore has requested that this be determined as part of its ongoing contractor study of recruitment.

Academy Screening Program for Controllers

Controller selection or screening is currently done in two phases. The first phase, discussed earlier, is the OPM aptitude test. The second phase is the Academy's 11-week screening program. The objective of this screening is to eliminate the majority of those who do not have the potential to become full performance controllers.

At the completion of this screening, Academy graduates are placed in the field to begin what FAA considers to be its controller training program—instruction at field facilities, a return to the Academy for radar training, and final training in the field. (See fig. 2.3.) On average, it takes 2.8 years to become a full performance level controller, from Academy entry to completion of training.

Figure 2.3: Controller Training Process



The FAA Academy has ample capacity to increase the number of students screened in fiscal years 1988 and 1989. Academy capacity has not contributed to FAA's shortfalls in full performance level staffing.

Controller Screening at the Academy

To reduce attrition and emphasize better placement of Academy graduates, FAA changed the sequencing of its Academy program in October 1985.¹ All students now enter the same screening program—called the generic screen—before a decision is made on the basis of an individual's Academy score, on which specialty to enter.² All students go through 3 days of general orientation and 8 weeks of instruction and testing—screening—at the Academy. At the end of this period, students are interviewed by regional representatives and given their specialty or “option” placement and facility assignment. They then undergo 2 additional weeks of general instruction on topics such as aviation weather, emergency procedures, and facility organization.

Overall, even with the 1985 changes to the screening program, pass rates at the Academy remain at about the 60-percent level, with a 2-percent improvement from the period August 1981 to October 1985. (See table 2.3.) Given the FAA Academy's estimated per student cost of about \$8,700 for the 11-week Academy program, we determined that student failures during fiscal year 1987 cost the government about \$6.6 million.

¹FAA's former program was sequenced so that students underwent placement first, followed by Academy instruction, and then testing.

²Three specialties or “options” are available: en route, terminal, or flight service. The en route option places controllers at one of 20 centers throughout the United States that guide aircraft en route between airports. The terminal option prepares controllers to work at one of about 400 FAA-controlled airports throughout the United States. The flight service option prepares students for a career as a flight service specialist providing weather and routing information to pilots.

Chapter 2
Air Traffic Controller Recruitment, Hiring,
and Screening

Table 2.3: FAA Academy Pass/Fail Rates—FY 1976 to FY 1987

Fiscal year	No. of entrants	Passed		Failed		Withdrawn	
		No.	%	No.	%	No.	%
Pre Strike							
1976 ^a	1,053	978	92.9	56	5.3	19	1.8
1977	1,872	1,422	76.0	361	19.3	89	4.8
1978	1,768	1,176	66.5	479	27.1	113	6.4
1979	1,833	1,245	67.9	449	24.5	139	7.6
1980	1,268	701	55.3	423	33.4	144	11.4
1981 ^b	468	300	64.1	119	25.4	49	10.5
Total	8,262	5,822	70.5	1,887	22.8	553	6.7
Post Strike							
1981 ^c	717	406	56.6	222	31.0	89	12.4
1982	5,643	3,416	60.5	1,669	29.6	558	9.9
1983	3,062	1,720	56.2	1,082	35.3	260	8.5
1984	1,888	1,044	55.3	640	33.9	204	10.8
1985	2,223	1,267	57.0	737	33.2	219	9.9
Total	13,533	7,853	58.0	4,350	32.1	1,330	9.8
Generic Screen							
1986	1,970	1,222	62.0	540	27.4	208	10.6
1987	2,370	1,394	58.8	752	31.7	224	9.5
Total	4,340	2,616	60.3	1,292	29.8	432	10.0

^aJan. 13, 1976, to Sept. 30, 1976

^bOct. 1, 1980, to June 30, 1981

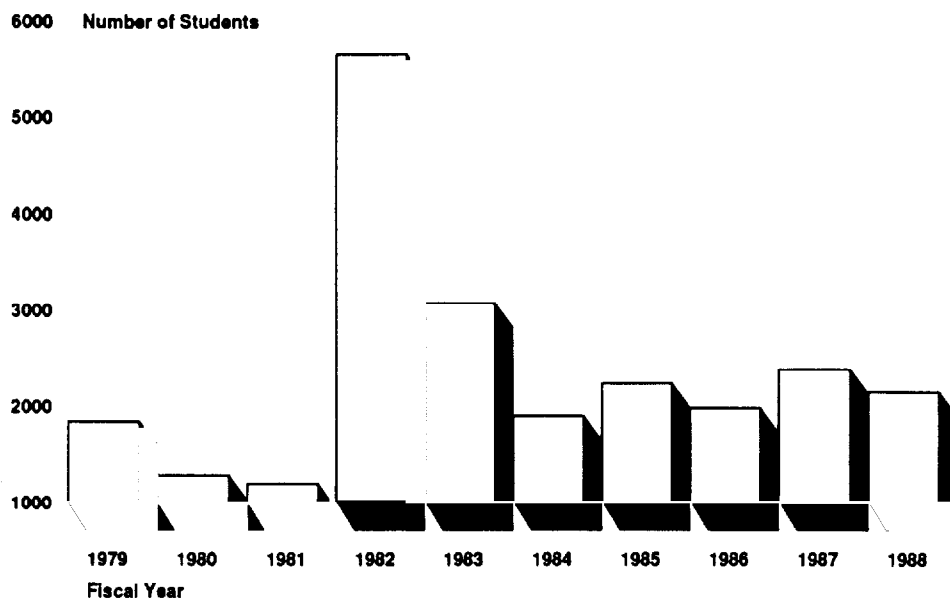
^cAug. 11, 1981, to Sept. 30, 1981

Source: Civil Aeromedical Institute.

Ability of FAA Academy
to Increase Controller
Screening Capacity

The FAA Academy has demonstrated its ability to respond to fluctuating hiring and screening work loads. For example, in 1982, after the air traffic controllers' strike, the Academy screened over 5,600 controller candidates by operating 24 hours a day. In fiscal year 1988, the Academy plans to screen 2,136 candidates. (See fig. 2.4.)

Figure 2.4: Controller Candidates Screened at the Academy Since FY 1979



Source: FAA Academy

According to an Academy official, the Academy has had difficulty in determining both the actual number of students to be screened and the number of instructors needed because of changes in headquarters' estimates of training. For example, in June 1987 FAA had planned for the Academy to screen 3,006 candidates for fiscal year 1988. In August, headquarters reduced this number to 2,808 candidates. With the planned hiring of about 600 military controllers, FAA now plans to screen only 2,136 candidates.

The Academy's Air Traffic Branch has 162 instructors on board and capacity to screen 3,438 candidates. Although changes have created an excess of 60 instructors for this fiscal year, Academy officials told us that these instructors will be used for course revisions and development. To expand the screening program beyond current capacity, more instructors and classroom space would be needed. As shown in table 2.4, to increase beyond 3,870 students would require building an additional laboratory and adding shifts.

Table 2.4: Academy Screening Capacity and Expansion Requirements

No. of students	Required instructors	Constraints
2,136	102	None
3,006	143	None
3,438	164	Availability of instructors may be difficult but possible.
3,870	184	Unlikely to achieve this number of instructors.
4,006	204 (183 full-time)	Must build one extra laboratory. Availability of instructors probably impossible. Two shifts for placement phase. Regions need to double enrollments.
4,734	204	Above constraints plus equipment availability problem.

Source: FAA Academy.

Placement Program for Controllers

Assessments of the former Academy screening program by the Civil Aeromedical Institute found that Academy screening scores were valid predictors of field training success. However, regions were not always using Academy scores for systematic placement at field facilities to reduce field attrition. A major objective of changing the sequencing of the screening program in 1985 was to reduce field training attrition and improve the chances of getting a new hire all the way through the system to the full performance level. We found that field placements of Academy graduates continue to be a problem.

Deciding Controller Field Placement

A 1984 FAA order on controller placement specifies that organizational needs, Academy scores, and a personal interview be used to determine an Academy graduate's field assignment. Placement decisions are to be made "in the best interests of FAA" using all three of these factors. However, some regions are not using all of these factors in field placement decisions. Specifically, Academy scores have not always been considered in placing graduates.

The Civil Aeromedical Institute's data show that field attrition is correlated with Academy scores and facility level. According to a March 1987 study,

"students with higher Academy scores were more likely to do well in higher level facilities than students with lower scores. At the same time, students with lower scores tended to do well in lower level facilities and were more likely to be employed with the Agency for a longer period of time than if they had been placed in higher level facilities."

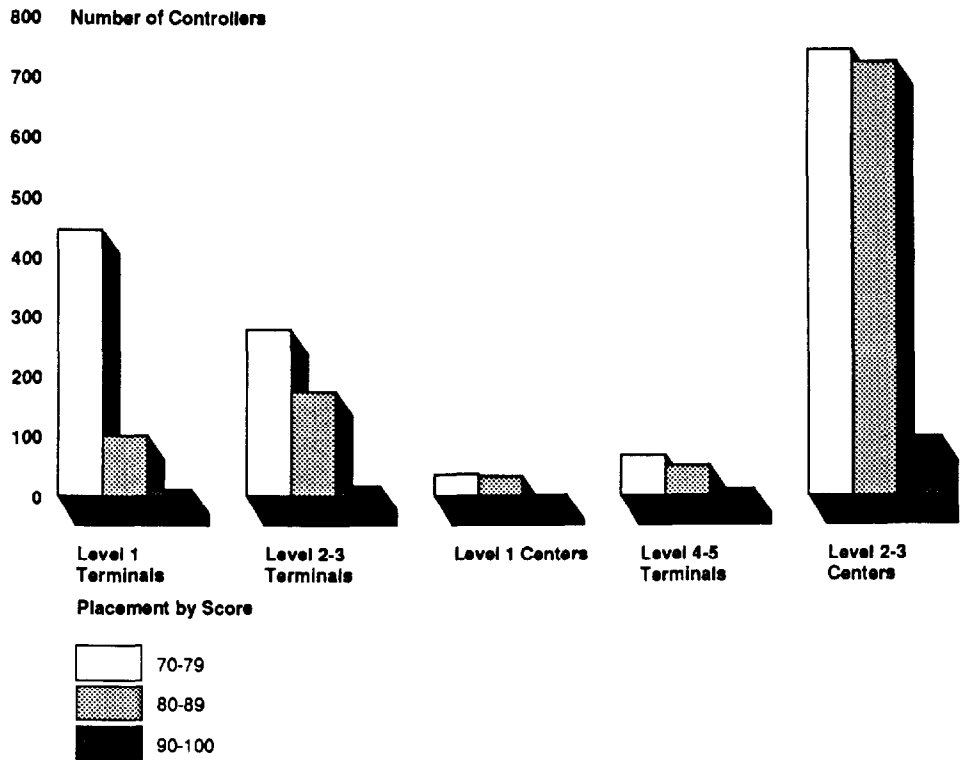
FAA had estimated that field attrition could be reduced by at least 6 percent by placing graduates with higher Academy scores in higher level facilities, especially en route centers. FAA is confident that graduates of the Academy screen "can become effective controllers if they are allowed sufficient time for development." Therefore, regions are encouraged to use Academy scores to guide their determination of where a student should be placed.

In fiscal year 1986, the Civil Aeromedical Institute found that three of FAA's nine regions did not regularly use Academy scores in placing graduates. The Civil Aeromedical Institute found that these regions allowed top graduates to choose their facility placement and preassigned students to a facility before they got to the Academy. In addition, FAA had to fill a large number of vacancies in en route centers during fiscal year 1986. As a result, a number of low-scoring graduates were placed in some of the nation's busiest facilities and, conversely, some of the highest-scoring candidates were placed in the lowest activity terminals. Specifically, seventy-three individuals with scores of 70 to 71 were placed in the nation's busiest facilities (levels 4 and 5 terminals, and levels 2 and 3 en route centers),³ and 15 students with scores of 90 or above were placed in the lowest activity terminals (levels 1 to 3).⁴ Similarly, in fiscal year 1987, 18 of 75 students with scores of 90 or above were placed in low activity terminals, and 41 percent of the lowest-scoring graduates were placed in the busiest facilities. (See fig. 2.5.) Overall, 42 percent of the lowest-scoring graduates (scoring 70 to 74) have been placed in high activity facilities during the past 2 fiscal years.

³Seventy is the lowest passing score for the Academy screening program. Prior to the 1985 change in the sequencing of this program, these individuals would have failed the en route screening program.

⁴FAA facilities are classified or grouped from least busy to busiest. There are five classifications or levels of terminals and three levels of centers. These facility levels are based on hourly traffic density. For example, level 4 terminals have an hourly density factor of 60 to 99.9 radar approaches; level 5 terminals have an hourly density factor of 100 or more radar approaches.

Figure 2.5: Placement in Field Facilities—FY 1986-87



Source: Civil Aeromedical Institute.

These placements have already resulted in losses to FAA. Of those 1986 graduates who scored 70 to 74 and were placed in en route centers, 20 percent (32 students) had failed or switched to the terminal option by the end of 1987. On the other hand, only 2 percent (1 graduate) scoring 90 or above had switched to a lower option; none had failed or withdrawn. Placing low-scoring graduates at busy facilities undermines their chances of successfully completing training and is counterproductive for the agency and the individuals.

FAA is faced with the problem of retaining Academy graduates and maximizing their utility to the agency. If, as FAA and others believe, it is difficult to attract top graduates to the busiest facilities, additional incentives may be needed. In this regard FAA is currently examining the need for a different pay structure for controllers. This study is expected to be completed in fall 1988 and should lead to legislative proposals to

change the current classification and compensation system for controllers. The Department of Transportation has also initiated planning for a demonstration project to test whether financial incentives, such as recruitment and retention differentials for difficult-to-staff positions, will resolve staffing problems. FAA could also emphasize its career progression (merit promotion) program to ensure movement from lower level to higher level facilities as a controller gains experience. In this way high-scoring graduates would still be expected to move up to the busiest facilities and, perhaps, lower-scoring graduates who obtain field experience would be equally successful at busy facilities.

Controller Training

After leaving the FAA Academy, controllers go to the field to begin site-specific, on-the-job training.⁵ Field training includes lab and classroom training, and a return to the Academy for 17 days of radar training. The field facility portion of this process takes approximately 26 months for terminal controllers and 32 months for en route center controllers, as previously shown in figure 2.3.

Controller training is expensive as well as time-consuming. FAA estimates that the entire training program costs \$98,303 for a terminal controller and \$158,404 for an en route controller. Field training failures increase costs because replacements must also be trained.

Field Training Attrition

In addition to losing 40 percent of its students at the Academy, FAA has experienced substantial losses during training in the field. Between 1981 and 1986, field attrition averaged about 16 percent, with somewhat higher attrition in centers (17.3 percent) than in terminals (13.2 percent.)

FAA allows controllers who are unable to pass field training at their initial facility to “switch down” to a lower option. This policy is based on the assumption that those who graduate from the Academy have the potential to succeed at some FAA facility. While this practice increases retention rates, it does not help more complex centers and terminals, which must begin training new controllers for those who fail, withdraw, or transfer to less difficult facilities. As shown in table 2.5, while about 16 percent of the candidates who passed the Academy failed or withdrew from field training between 1981 and 1986, another 15.6 percent

⁵Controllers placed in the terminal option complete an additional 21-day training program at the Academy before reporting to their field facilities.

**Chapter 2
Air Traffic Controller Recruitment, Hiring,
and Screening**

of those initially assigned to an en route center switched to another center or to the terminal option; and 10.4 percent of those assigned to a terminal switched to a lower level facility or to the flight service option. Between 1981 and 1986, FAA's total loss to initial facilities—from field training failures, withdrawals, and facility and option switches—has been 32.9 percent for the en route option and 23.6 percent for the terminal option.⁶

Table 2.5: Field Attrition Rates—FY 1981-87

Year of graduation	Total Grads	FPL		In training		Switched facility		Switched option		Losses to FAA ^a		Losses to option ^b	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
En route													
1981-82 ^c	2,138	1,296	60.6	6	0.3	29	1.4	430	20.1	377	17.6	807	37.7
1983	734	418	56.9	23	3.1	14	1.9	122	16.6	157	21.4	279	38.0
1984	691	361	52.2	78	11.3	22	3.2	83	12.0	147	21.3	230	33.3
1985	900	184	20.4	473	52.6	17	1.9	64	7.1	162	18.0	226	25.1
1986	908	2	0.2	765	84.3	23	2.5	30	3.3	88	9.7	118	13.0
1987	2,731	0	0.0	712	97.4	2	0.3	6	0.8	11	1.5	17	2.3
Terminal													
1981-82 ^c	1,681	1,218	72.5	5	0.3	179	10.6	44	2.6	235	14.0	279	16.6
1983	1,024	774	75.6	4	0.4	80	7.8	15	1.5	151	14.7	166	16.2
1984	314	230	73.2	6	1.9	28	8.9	9	2.9	41	13.1	50	15.9
1985	366	288	78.7	25	6.8	16	4.4	2	0.5	35	9.6	37	10.1
1986	314	145	46.2	130	41.4	11	3.5	1	0.3	27	8.6	28	8.9
1987	844	50	5.9	759	89.9	15	1.8	1	0.1	19	2.3	20	2.4

Note: Training status as of December 2, 1987.

^aThese losses include training failures and withdrawals for reasons other than performance.

^bThis column is the sum of the losses and switched options columns. It represents the total number of personnel that are lost to an option.

^cAug. 11, 1981, to Sept. 30, 1982.

Source: Civil Aeromedical Institute.

FAA Evaluating Controller Training Program

In fiscal year 1988, FAA evaluated, both internally and through private contractors, its controller training program. Internally, in November 1987, FAA formed the FAA Technical Training Review Group to examine how well it manages its technical training for controllers, inspectors, and maintenance technicians. This task force had a broad charter—to look

^bTraining status as of December 2, 1987. Data on 1987 graduates have not been used in our analysis because most of these controllers have not yet reached the phases in field training where failure/switches occur.

at training requirements, training costs, material acquisition, delivery and preparation of training, and staffing for the administration of training. The task force found that FAA “lacks an adequate policy” for and management commitment to technical training. It concluded that unless technical training is drastically revamped, FAA will not be able to meet the needs of a modernized air traffic control system. The task force report recommended changes in the way FAA’s training functions are organized, staffed, and funded, including elevating the leadership of training by creating a Director of Training.

In addition to this special evaluation of training, FAA contracted with a private firm to examine its controller training programs. Two projects were undertaken—to design the next generation of the air traffic training system and to examine the current management of controller training. The prime contractor’s report, issued in April 1988, contains many recommendations related to improving FAA’s use of simulation and computerized training, developing new curricula for field training in both terminals and centers, and improving course development. Like the internal FAA task force, this contractor also recommended organizational changes to elevate the status of training within FAA. A subcontractor focused on issues affecting the program’s overall management, including the cost, efficiency, time, and quality of current controller training. Its May 1988 final report recommends, among other things, that FAA reorganize its air traffic training structure, implement a management information system to monitor training, and strengthen its training evaluation process. FAA has requested \$7.5 million in its fiscal year 1989 budget to implement recommendations from these contractors and modernize air traffic training.

Other suggestions have been made to change controller training—letting universities train applicants for air traffic control, or changing the emphasis of the Academy program from weeding out applicants to training. These options have the potential to reduce costs to the federal government. However, both Academy and Civil Aeromedical Institute officials are opposed to such changes because they run contrary to research demonstrating that controlling aircraft is to a large degree an aptitude rather than a taught skill. Changing the controller screening program to a training program could also contradict congressional direction. In 1976 the House Committee on Government Operations directed FAA to start a program at the FAA Academy “designed to provide early and continued screening to insure prompt elimination of unsuccessful trainees.”

Conclusions

Although FAA has made numerous changes over the years to enhance its controller selection process, additional changes could improve FAA's ability to maintain a high quality work force. For example, FAA does not have a national recruitment strategy. FAA's existing recruitment process relies on individual regions and is not centrally coordinated.

Recruitment and hiring are especially important for FAA because only a limited group of people have the aptitude to be air traffic controllers. FAA's recruitment should include targeting groups that have a demonstrated aptitude for controller work and establishing minimum requirements for the frequency of regional recruiting efforts, applicant testing, and updating of registers. FAA has a contractor study underway that should help it to identify how to develop a targeted program.

In addition, because field interviewers play a critical role in the recruitment of controller candidates, they should have the best information available to help them assess which applicants seem best suited for air traffic control work. The current FAA interviewers' guidebook is outdated and does not reflect data from the Civil Aeromedical Institute's research.

We recognize that FAA is currently examining ways to provide incentives for difficult-to-staff facilities that may help alleviate some of the problems of field placement. Implementation of such an incentive system, however, will take time. In the meantime, FAA is likely to continue to experience field training losses that do not benefit either FAA or the individual who has embarked on a controller career. We believe that FAA could reduce field training failures and reduce the number of controllers switching options and facilities if it emphasized the placement of controller graduates according to their Academy scores. Such emphasis is consistent with FAA's current field placement policy.

Recommendations to the Secretary of Transportation

To improve FAA's recruitment and retention of controllers, we recommend that the Secretary of Transportation direct the Administrator, FAA to:

- Develop a systematic and coordinated national recruiting strategy targeted to those individuals most likely to have the potential to be a controller. As part of such a strategy, FAA could, for example, specify standard minimum requirements for the frequency of testing and updating controller registers, canvassing schools, and job fairs.

- Integrate the results of the Civil Aeromedical Institute's research on Academy failures and withdrawals into its training and guidebook for interviewers so that they can better assess an applicant's qualifications.

FAA is currently examining incentives, including changes to its pay structure, that may help in the long term to ensure that its facilities are effectively staffed. However, implementation of new incentives will take time. During this time FAA will continue to lose controller candidates. We recognize that in placing Academy graduates FAA has to consider such factors as personal and organizational needs. However, to the extent practicable, we recommend that the Administrator, FAA, consistent with the agency's own placement policy, place Academy graduates at field facilities according to their performance during the screening program.

Recruitment, Hiring, and Initial Training of Aviation Safety Inspectors

FAA has been increasing its inspector staffing for the past several years. In December 1987 the conference committee recommended that FAA have 2,198 aviation safety inspectors by the end of fiscal year 1988. However, given full-time equivalent funding,¹ FAA has set its staffing target at 2,088, or 95 percent of the recommended total. FAA officials expect to meet this level by the end of the fiscal year. However, because the Congress did not pass its 1988 appropriation until December, FAA imposed a freeze on hiring during the first quarter of fiscal year 1988, which has caused inspector hiring to fall behind planned levels.

Beginning in mid-summer 1988, FAA plans to use new qualification requirements and a new interview guide in hiring inspectors. By the end of fiscal year 1991, FAA hopes to meet its staffing standard of 3,048 inspectors.

The Academy has a backlog for initial inspector training. Although smaller than in past years, this backlog will continue because a training backlog was carried over from fiscal year 1987, and scheduled training for fiscal year 1988 will not cover both last year's backlog and planned new hires. FAA plans a number of changes to its inspector training program as a result of Project SAFE.²

Requirements for Employment as an Aviation Safety Inspector

Inspectors administer, evaluate, and enforce safety regulations and standards for the operation and maintenance of aircraft used in civil aviation. Inspectors generally work in four specialties: air carrier operations, air carrier airworthiness, general aviation operations, and general aviation airworthiness.³ Under Project SAFE, FAA reviewed inspector job requirements. As a result of this review, FAA found that the knowledge, skills, and abilities needed to perform an inspector's tasks were not adequately reflected in the existing job qualifications statement, which was last updated in 1975. New qualification requirements for these positions

¹Full-time equivalent positions represent the number of employees actually employed in a 12-month period. Positions may not be filled all 12 months of the year on a full-time basis because of attrition, leave, etc.

²Project SAFE (Safety Activity Functional Evaluation) was initiated on February 13, 1984, by the Secretary of Transportation. It is a review of FAA's regulation of the National Airspace System, including the effectiveness of the inspector work force.

³Operations inspectors deal with the airmen and air carrier operations (such as procedures and management); airworthiness inspectors certify and examine the maintenance and repair of aircraft. FAA generally reports information on its inspector staffing using four categories, although inspectors also work as avionics airworthiness inspectors and manufacturing inspectors. FAA is changing the titles of its inspector positions to operations, maintenance, avionics, and manufacturing inspectors.

are planned for mid-summer 1988. Among other things, the new qualifications require more recent specialized experience, such as pilot experience. (See table 3.1.) FAA is also reviewing how the skills needed to perform an inspector's job can be better incorporated into inspector training programs.

Table 3.1: Planned Aviation Safety Inspector Qualification Requirements

Basic qualifications

Not more than two separate incidents involving violations of federal aviation regulations in the last 5 years.
Valid state driver's license.
No chemical dependencies or drug abuse that could interfere with job performance (medical certificate required for some positions).
High school education or equivalent.
Specialized experience for some positions with special requirements as to recency of this experience.
Basic security clearance.
Additional rating points for
quality of experience
veteran's preference

Special requirements

Job contingent on successful completion of Academy initial training.

The interview process is the primary screen for employment suitability because FAA's qualifications are very specific. A mandatory pre-employment interview must be conducted using guidance provided by headquarters' Office of Personnel and Technical Training. FAA has a new pre-employment interview guide to accompany its new qualifications and plans to train field interviewers on the use of this new guide in late 1988.

Recruitment Program for Inspectors

Recruitment is not centralized, although there is a national vacancy announcement for inspectors. FAA regions and the Special Examining Division of the FAA Academy recruit prospective inspectors as needed. According to Academy officials, inspector recruitment efforts have been limited. They have included attending trade shows (such as air shows and conventions) and advertising. Some advertisements, particularly television public service announcements, are not specifically for inspector positions and are presented along with other occupations as part of FAA's general theme—"Discover Today's FAA." FAA has advertised for inspectors in a technical magazine and career guidance documents.

FAA has had a contractor study inspector selection, including the possible need for aptitude testing similar to the controller aptitude test. FAA considered a test for an applicant's writing and communications skills

but decided not to pursue aptitude testing at this time. According to a headquarters official, use of the new qualifications standards may preclude the need for a formal pre-employment test.

Currently, FAA is developing brochures that provide information specifically on the inspector occupation. These brochures are expected to be ready for use in late summer 1988. FAA has also developed software that provides information about its inspector positions. This software is similar to the computer software planned for those interested in becoming controllers. The Special Examining Division is developing a videotape and posters on inspectors for use in recruitment displays.

Hiring Process and Inspector Staffing Levels

FAA's current hiring process for inspectors is taking longer than expected, but not as long as the controller hiring process. Because of an agencywide hiring freeze during the first quarter of fiscal year 1988, FAA's hiring has fallen behind planned levels. It will be difficult for FAA to meet its 1988 inspector staffing target unless significant hiring is undertaken in the last quarter of the year.

Hiring Process

To be considered for employment, candidates complete a qualifications statement and send it to the Special Examining Division. This office reviews the application to see if it meets FAA's qualification requirements. The inspector specialties require specific professional aviation experience. Qualified applicants are rated according to the quality of their experience. It takes about 90 calendar days, compared with the Division's standard of 75 days, from the day an application is received until a qualified applicant is placed on a register for 1 year of eligibility.⁴ A Special Examining Division official stated that processing delays have resulted from additional work load. Headquarters officials told us that they intend to increase the Special Examining Division's staffing to meet the increased work load.

To fill vacancies, regions request a list of certified candidates from the Special Examining Division. The Division will provide three certified candidates for every vacancy. Applicants currently list three regions where they would be available to work, and all choices are considered equal. The Special Examining Division refers a qualified applicant to one region at a time for consideration. Under the new qualifications standards, applicants will be asked to select up to nine geographic areas.

⁴Qualified candidates can also extend their application for up to 1 year.

The hiring process after an applicant is placed on the register is also time-consuming. However, unlike controllers, security clearances do not delay this process because FAA has up to 1 year to obtain a final clearance. The average time between a region's request for a certificate to a candidate's scheduled date to begin work was 53 days in fiscal year 1986 and 94 days in fiscal year 1987. The time period also varied by region in 1987, from 43 days in the Northwest Mountain Region to 181 days in the Southern Region; and, as shown in table 3.2, by specialty. Except for delays in the Southern Region, Academy and headquarters officials did not know why these processing times have increased. The Southern Region, whose time averaged 19 days to hire air carrier operations inspectors in 1986, increased to 348 days in 1987. This increase, according to headquarters officials, was due to the 1987 reorganization of the region's field offices.

Table 3.2: Average Applicant Processing Time for Selected Specialties

Inspector specialty	Average days	
	FY 1986	FY 1987
General aviation operations	49	80
Air carrier operations	49	115
General aviation airworthiness	59	104
Air carrier airworthiness	54	76
Overall average	53	94

Source: FAA.

Current Staffing Levels

FAA's inspector staffing has been below projected needs in its staffing model or standard, and its budget requests have incrementally increased inspector staffing to reach the standard. FAA is in the process of updating its inspector staffing standards;⁵ however, FAA officials anticipate that by 1991 FAA will have reached its staffing standard of 3,048 inspectors. For fiscal year 1988, the conference committee recommended inspector staffing of 2,198, the level FAA had requested. However, on the basis of available funding, FAA set its inspector staffing goal at 2,088, or 95 percent of this level.

Given FAA's estimated attrition and a staffing level of 1,926 at the end of fiscal year 1987, FAA needed to hire 259 field inspectors to reach its staffing target of 2,088. As of the beginning of July, FAA had hired 169 inspectors, bringing its on-board inspector staffing to 1,957, which was

⁵Aviation Safety: Needed Improvements in FAA's Airline Inspection Program Are Underway. (GAO/RCED-87-62, May 19, 1987).

**Chapter 3
Recruitment, Hiring, and Initial Training of
Aviation Safety Inspectors**

31 above end-of-1987 levels. FAA's hiring has been affected by a hiring freeze that FAA had imposed on all positions except controllers while awaiting its final 1988 appropriation. The hiring freeze was in effect from November 20, 1987, to January 5, 1988. As shown in table 3.3, hiring in FAA's New England and Southwest Regions has not kept pace with attrition, and overall attrition is exceeding FAA's estimates for the fiscal year.

Table 3.3: Aviation Safety Inspector Hiring and Attrition—FY 1987 and FY 1988

Region ^a	FY 1987		FY 1988 ^b	
	Hires	Attrition	Hires	Attrition
Alaska	17	4	3	2
Central	20	10	7	7
Eastern	25	16	20	12
Great Lakes	26	9	38	11
New England	19	4	0	4
Northwest Mountain	18	25	32	19
Southern	34	29	23	15
Southwest	26	13	11	13
Western Pacific	41	25	32	15
Total	226	135	166	98

^aDoes not include European Office and Aeronautical Center hires and attrition.

^bFY 1988 data as of July 2, 1988.

Source: FAA.

FAA does not have adequate controls over the collection and reporting of its inspector data. Adequate internal controls require supervision to ensure that documented procedures are followed.⁶ Both inspector staffing and training data are collected from regions by telephone rather than from FAA's official personnel data system. The individuals reporting this information have not, in some cases, followed headquarters instructions; these errors were not caught in a timely manner by headquarters; and, as a result, we identified inconsistencies in FAA's publicly reported data. We discussed this problem with FAA officials who were aware of the need to reconcile conflicting data in its manual reporting system. FAA plans to modify its official personnel data system in the future to provide more accurate estimates of inspector staffing.

⁶Internal controls that federal agencies are required to follow are set forth in our Standards for Internal Controls in the Federal Government, published in 1983 pursuant to the Federal Manager's Financial Integrity Act of 1982.

FAA estimates that it loses 6 general aviation inspectors or 7 air carrier inspectors to attrition for every 10 inspectors hired. For fiscal year 1988, FAA has experienced almost as many inspector resignations as retirements. Headquarters officials told us that competition from industry for these experienced personnel has increased attrition.

An FAA review of hiring from May 1986 to September 1987 showed that the agency has concentrated its hiring in the last quarter. For example, in fiscal year 1987, 52 percent of inspector hiring occurred in the last quarter, 30 percent of it in the last month. FAA headquarters officials view concentrated last-quarter hiring as damaging FAA's credibility with the Congress. By waiting until the end of the year to hire, according to this headquarters analysis, FAA casts doubt on its need for additional inspectors. Also, end-of-year hiring has affected support services such as inspector training. Headquarters officials have attributed last quarter hiring to budgetary delays in determining final funding levels. For fiscal year 1988, regions received their final budget allocations in February.

In late January 1988, the Associate Administrator for Aviation Standards issued a fiscal year 1988 plan for inspector staffing. Headquarters has been monitoring staffing on a monthly basis since mid-1986. The Aviation Standards Division will continue to monitor staffing in each region and report to the Associate Administrator so that appropriate adjustments can be made in accordance with the plan. To prevent concentrated hiring in the last quarter of the fiscal year, the hiring plan calls for almost all inspector hiring to occur from February through July. As of July 2, 1988, FAA had planned to have about 2,071 field inspectors and was behind this level by 114 inspectors.

Initial Training Program for Inspectors

The initial inspector training program at the FAA Academy ranges from 6.6 to 10 weeks, depending on the specialty. (See fig. 3.1.) FAA reported that at the end of fiscal year 1987, about 78 percent of all inspectors were "fully qualified" because they had completed both this mandatory initial training program and on-the-job training.⁷

Initial training is designed to familiarize inspectors with FAA's policies and to provide formal training on communication and negotiation skills. It is a pass/fail program. While figures on initial training failures are not tracked, headquarters and Academy officials have estimated the failure

⁷Data on inspector training reported in FAA's annual report on safety enforcement cannot be broken down to compare with field inspector staffing data.

rate at between 1 and 5 percent. In many cases, inspectors spend several months working in the regions before receiving initial training.

Figure 3.1: Aviation Safety Inspector Initial Training Program

Air Carrier Operations	General Aviation Operations	Air Carrier Airworthiness	General Aviation Airworthiness
Includes Orientation Turbojet Evaluation (B727) Accident Investigation Indoctrination Compliance and Enforcement	Includes Orientation Indoctrination Pilot Testing/Certification Procedures General Aviation Air Taxi Certification Compliance and Enforcement Accident Investigation	Includes Orientation Indoctrination Compliance and Enforcement Accident Investigation	Includes Orientation Indoctrination Air Taxi Compliance and Enforcement Accident Investigation
Total Program 7.0 Weeks	Total Program 10.0 Weeks (With 1 to 5 Week Break)	Total Program 6.6 Weeks	Total Program 9.5 Weeks

Source: FAA.

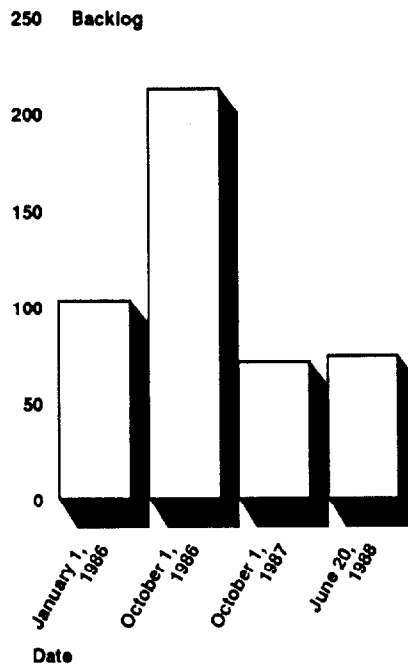
Training Backlogs

Training backlogs have been a problem since FAA increased its efforts to hire inspectors, although the backlog is down from a high of 213 in October 1986. Backlogs will continue because a backlog of 71 was carried over into fiscal year 1988, and, with at least 259 needed new hires, planned initial training will not be able to include all those who need training. As of June 20, 1988, the Academy had an initial training backlog of 74 (see fig. 3.2).

The Academy's Aviation Standards Branch has the capacity to train either 8 or 16 new inspectors per class, depending on specialty. Since fiscal year 1986, FAA has trained about 300 inspectors annually. To significantly increase this capacity would require additional aircraft and instructors. According to Academy and headquarters officials, it is difficult to obtain qualified instructors because inspectors must often accept a lower grade and stop their career progression in the field to come to the Academy.

FAA does not plan to expand the Academy's training capacity. A headquarters official explained that it would not be prudent to significantly increase the Academy's capacity for a few years only to reduce instructor levels when FAA reaches its inspector staffing goals.

Figure 3.2: Initial Inspector Training
Backlogs at the FAA Academy



Source: FAA Academy.

Planned Training Initiatives

Project SAFE found that inspector training is inadequate because of FAA's problems in keeping up with fast-changing technology. It criticized the timing and sequencing of inspector training, attributing these problems to the absence of an FAA standard for determining who goes to training and when. As a result, FAA has drafted a 5-year inspector training plan. This plan describes a training concept to be implemented by 1990 for all inspectors. The plan includes updating FAA's initial training courses and introduces the use of aviation laboratories by 1990. To enhance standardization, inspectors will be required to return to the Academy for initial training as they progress through each career level.

After completing initial training, inspectors return to the field for on-the-job training to test and apply the skills learned in initial training. On-the-job training consists of review, observation, and evaluation of every job task an individual is required to perform. FAA plans to expand its on-the-job training program and require that this training reflect actual job tasks assigned to each individual.

Inspectors are also required to have recurrent and specialized support training to ensure currency. Recurrent training updates and enhances skill levels through periodic review of all procedures. FAA plans to require a minimum of 20 hours of recurrent training per fiscal year. Specialized support training includes flight training and other training that helps to maintain an inspector's level of expertise. We are examining recurrent and specialized support training in our ongoing review of the FAA Academy's training programs.

Conclusions

FAA is increasing its inspector work force and expects to meet its fiscal year 1988 staffing goal of 2,088 inspectors. However, as of July 2, 1988, FAA was behind planned hiring levels. As a result, meeting its mandated staffing level will be difficult. Also, FAA can anticipate some concentrated end-of-year hiring, which has created problems in the past. While FAA has experienced some processing delays in hiring inspectors, these delays are not as lengthy as the time required to hire controllers.

Requests for initial inspector training will continue to be backlogged because the Academy's training capacity is currently limited to about 300 new inspectors a year. However, these backlogs have been reduced from past levels. Over the next 2 years, FAA will be implementing several changes to its training programs to help standardize inspector training.

Recruitment, Hiring and Initial Training of Maintenance Technicians

The Congress increased funding for fiscal year 1988 maintenance staffing above the level FAA had requested, and the conference committee recommended that the agency reach a level of 8,551 full-time equivalent field maintenance employees by the end of the fiscal year. Given concentrated hiring at the end of fiscal year 1987 and planned hiring for the remainder of this year, FAA expects to reach this employment level. However, current hiring is not keeping pace with attrition because of a hiring freeze earlier in the year. As of June 30, 1988, FAA's on-board maintenance staffing level was 8,438, a 2.6-percent decline from the end of fiscal year 1987.

FAA plans to streamline its initial training program for technicians. The FAA Academy is experiencing difficulty in meeting requests for maintenance training. It needs to provide training on new systems as well as on old equipment, and these requirements have increased the Academy's work load significantly since fiscal year 1986.

Requirements for Employment as a Maintenance Technician

Maintenance technicians are responsible for maintaining and repairing the electronic and support equipment that make up the nation's air traffic control system. They are generally employed to work in two areas: electronics or environmental. Electronics technicians make up about two-thirds of the maintenance work force and work in one of four specialties: communications, navigational aids, radar, or automation. Environmental technicians maintain the supporting power systems for FAA's equipment.

FAA's pre-employment requirements for maintenance technicians are less stringent than those for the other work forces we examined. No medical qualifications are required, and candidates can be brought on-board for non-sensitive positions without a full security clearance. There is no aptitude test or pre-screening for maintenance technicians. (See table 4.1.)

**Table 4.1: Electronics Technician
Qualification Requirements**

Basic qualifications

High school education or equivalent.
2 years of general work experience (or college) and 1 year specialized electronics
experience.
Basic security clearance.
Additional rating points for
demonstrated job knowledge
veteran's preference.

Special requirements

None.

The quality of an individual's electronics experience is the primary consideration for employment as an FAA electronics technician. Although employment is not contingent on passing a screening or initial training program, technicians can only reach fully qualified or journeyman status after extensive formal and on-the-job training, and by meeting the certification requirements for specific systems or pieces of equipment.¹

**Recruitment Program
for Maintenance
Technicians**

Both regions and facilities recruit maintenance technicians. FAA officials believe that because technicians are hired to meet specific needs in field locations, there is no need for a national recruitment effort. There is no national announcement for technician vacancies, and regions work with area OPM offices to get announcements out as needed to fill vacancies. Regional offices' ability to establish a close working relationship with OPM is critical to the success of FAA's recruitment efforts.

Maintenance technicians will also be included in FAA's planned advertising program, discussed in chapter 2, and will have their own recruitment brochures. To overcome problems in recruiting, some FAA regions have advertised directly for maintenance technicians in local newspapers. For example, in July 1986 the Eastern Region advertised in New York City newspapers and was successful in hiring many respondents.

¹Certification confirms that a technician possesses the necessary knowledge and skills to determine the operational status of particular equipment.

Hiring Process for Maintenance Technicians

Unlike hiring for controllers and inspectors, FAA has not been delegated nationwide authority to evaluate applicants for maintenance positions. OPM performs these functions in response to the requests of individual FAA regions.

The time required to hire an electronics technician is, in general, shorter than for the other work forces. OPM spends the largest amount of time in announcing vacancies, assessing applicants' qualifications, and compiling a list of qualified candidates—called a certificate. To shorten this time, some regions either provide subject matter experts to assist OPM or have received delegated examining authority to process their own certificates. For example, the Great Lakes Region assisted OPM in assessing candidates' qualifications for certificates to expedite its 1987 hiring.

Regions have also received direct hire authority to fill vacancies in some areas. For example, in addition to using local advertising, the Eastern Region obtained direct hire authority to fill vacancies in the New York City area.

Staffing Levels

Beginning in April 1987, FAA lifted an 18-month hiring freeze and increased its efforts to hire maintenance technicians. In fiscal year 1987, FAA hired a total of 837 field maintenance employees for an on-board staffing level of 8,667 as of September 30, 1987. This hiring included over 300 electronics technicians, many of whom were hired during the month of September.

FAA's hiring level was 361 more than its 1987 attrition so that it could begin to have a pipeline of trainees to replace future losses. The maintenance work force is one of the oldest in the federal government and, as discussed in our recent report,² FAA faces a problem in hiring and training technicians in anticipation of numerous retirements.

During the first 9 months of fiscal year 1988, attrition has exceeded FAA's hiring efforts. FAA hired 180 field maintenance employees while losing 460 (see table 4.2.), for an on-board staffing level of 8,438 as of June 30, 1988. From November 1987 to January 1988, most field maintenance hiring was frozen. As a result, FAA experienced a decline of over

²FAA Staffing: Challenges in Managing Shortages in the Maintenance Work Force (GAO/RCED-87-137, Sept. 25, 1987).

**Chapter 4
Recruitment, Hiring and Initial Training of
Maintenance Technicians**

2 percent in its maintenance work force because attrition exceeded hiring during this period. During January, maintenance staffing fell particularly sharply because of retirements, with 157 losses to 17 new hires. However, because of the extensive hiring accomplished at the end of 1987 and plans for the remainder of this fiscal year, headquarters officials do not believe that these retirements and the hiring freeze will negatively affect FAA's reaching its maintenance staffing goal.

Table 4.2: Field Maintenance Hiring and Attrition—FY 1988

Region	Fiscal year 1988 ^a	
	Hires	Attrition
Alaska	9	10
Central	25	25
Eastern	24	53
Great Lakes	23	63
New England	8	25
Northwest Mountain	10	39
Southern	23	85
Southwest	28	84
Western Pacific	30	76
Total	180	460

^aData as of June 30, 1988.

Source: FAA Personnel Management Information System.

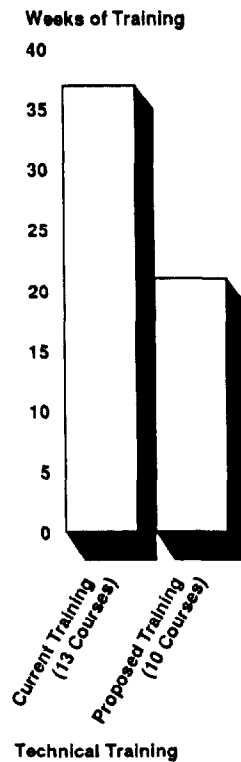
FAA is completing a recruitment and training plan for the maintenance work force through 1992. This plan describes regional recruitment needs and strategies, affirmative action plans, placement policies, and planned hiring for fiscal year 1989. It identifies a number of concerns to be studied by FAA, including problems with high-cost areas or hard-to-fill positions and the need to update the classification standards for electronic technicians.

Changes Planned for Technician Training Program

Most electronics technicians must complete standard prerequisite courses in math and electronics during their first year of employment with FAA. Currently, these courses are done through self-paced, computer-based instruction at the field office or through correspondence courses. In late 1988 FAA plans to streamline these courses from 13 courses in 37 weeks to 10 courses in 21 weeks. (See fig. 4.1.) FAA has changed some fundamental courses in math and electronics from correspondence to computer-based courses to (1) reduce field work load requirements and make training more efficient and (2) enhance basic

instructional material for FAA's new technology, which uses solid-state circuitry and electronics.

Figure 4.1: Proposed Changes to Initial Technician Training Program



Source: FAA Academy.

After completing these initial courses, technicians take courses either at the Academy or on microcomputers for specific equipment in their specialty. This training is followed by on-the-job training with hands-on practice on equipment in the field. After completing this on-the-job training, technicians must pass both a written and actual performance exam on each system before being certified.

FAA Academy officials expressed concern about their ability to handle training for the new systems resulting from FAA's modernization efforts. To meet this demand, the Academy estimates that it will need a new

building at an estimated cost of \$31 million and 25 additional instructors. Currently, the FAA Academy's Airway Facilities Branch has about 198 instructors.

The Academy is already experiencing difficulty in finding sufficient instructors to meet planned work load. For example, in fiscal year 1988 the Academy could not meet about 10 percent of requested training. Through 1992 the Academy is scheduled to receive 31 new pieces of equipment. We will be examining the effect of the Academy's ability to provide training for new and existing systems in our ongoing review of the FAA Academy's training programs.

Conclusions

Although FAA's current maintenance staffing is 229 employees below end-of-fiscal-year 1987 levels, headquarters officials believe that the agency will meet its 1988 staffing target. Employment requirements for maintenance technicians are less stringent and the hiring process less burdensome than for the other work forces we examined.

On the basis of regional input, headquarters has developed a recruitment and hiring plan that could serve as a valuable management tool in forecasting staffing and training needs. FAA is facing a major challenge in providing training to both new technicians and the existing work force, given the number of new electronics systems that will be introduced during its modernization of the air traffic system. The FAA Academy was unable to meet all requests for maintenance training in fiscal year 1988.

Major Contributors to This Report

Resources,
Community, and
Economic
Development Division,
Washington, D.C.

Kenneth M. Mead, Associate Director, (202) 275-1000
Victor Rezendes, Associate Director
Thomas J. Barchi, Group Director
Mary K. Cheston, Evaluator-in-Charge
Charles R. Chambers, Evaluator
Carol Herrnstadt Shulman, Reports Analyst

Kansas City Regional
Office

Virgil N. Schroeder, Regional Management Representative
Gary L. Nelson, Regional Assignment Manager
Mary T. Graves, Evaluator
Cheryl Baker, Secretary

Related GAO Products

FAA Staffing: Improvements Needed in Estimating Air Traffic Controller Requirements (GAO/RCED-88-106, June 21, 1988).

FAA Staffing: FAA's Definition of Its Controller Work Force Should Be Revised (GAO/RCED-88-14, Oct. 23, 1987).

FAA Staffing: Challenges in Managing Shortages in the Maintenance Work Force (GAO/RCED-87-137, Sept. 25, 1987).

Aviation Safety: Needed Improvements in FAA's Airline Inspection Program Are Underway (GAO/RCED-87-62, May 19, 1987).

FAA Staffing: Air Traffic Controllers' Work Load and Operational Performance (GAO/RCED-87-138FS, May 6, 1987).

FAA Staffing: The Air Traffic Control Work Force Opposes Rehiring Fired Controllers (GAO/RCED-87-32BR, Oct. 9, 1986).

Aviation Safety: Serious Problems Concerning the Air Traffic Control Work Force (GAO/RCED-86-121, Mar. 6, 1986).

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office
Post Office Box 6015
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are \$2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.

United States
General Accounting Office
Washington, D.C. 20548

Official Business
Penalty for Private Use \$300

First-Class Mail
Postage & Fees Paid
GAO
Permit No. G100
