

GAO

Briefing Report to Congressional Requesters

April 1987

AIR TRAFFIC SYSTEM

Pilot Program to Contract Out Maintenance at Selected Facilities



038604

1

2

3

4

5

6



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

Resources, Community, and
Economic Development Division

B-225200

April 17, 1987

The Honorable Norman Y. Mineta
Chairman, Subcommittee on
Aviation
Committee on Public Works
and Transportation
House of Representatives

The Honorable John P. Hammerschmidt
Subcommittee on Aviation
Committee on Public Works
and Transportation
House of Representatives

This briefing report responds to your request that we review the Federal Aviation Administration's (FAA) proposed pilot test program to contract out for maintenance at selected air traffic control facilities. As agreed with your office, our review objectives were to (1) provide information on pilot test design and status, (2) evaluate the pilot test's potential for affecting air traffic safety and efficiency, (3) determine if the proposed pilot program would adequately test a contractor's ability to independently perform the maintenance function, and (4) assess FAA efforts to control and estimate pilot test costs. It was not within the scope of our review to evaluate the appropriateness, from a policy standpoint, of contracting out for maintenance in lieu of relying on the federal work force.

FAA's planning efforts for the test, begun in 1982, were suspended after the Department of Transportation's fiscal year 1987 funding request for the test was denied. FAA plans to go forward with these efforts if fiscal year 1988 funding is granted. Generally, we found that FAA's design for the proposed pilot test provides a reasonable framework for testing contractor performance, although some problems remain. Among our key findings are:

- Through the pilot test in three of FAA's nine regions, FAA will be able to determine the feasibility of contracting out "lower risk" facilities (i.e., those affecting lower air traffic volumes) on a nationwide scale. The pilot test will not provide the evaluative data needed to support a decision to contract out higher risk facilities.
- The test has some potential for accelerating attrition in FAA's maintenance work force. FAA is already experiencing staffing shortages in this work force due to (1) a high rate of retirements and (2) the lack of a pipeline of employees to replace those who are leaving.
- To most accurately test contractor performance, a contractor would be required to perform the maintenance function independent of FAA resources. However, FAA's proposed test would allow the contractor to use FAA resources, such as training facilities and supply and support equipment. FAA officials believe that trading off some of the contractor's independence is necessary to minimize risk to air traffic. However, they plan to account for such factors in assessing contractor performance.
- Complete cost estimates for the pilot test have not yet been developed. However, FAA is planning to take some actions to try to control pilot test costs, including the use of an FAA-prepared "silent bid" to help preclude underbidding by potential contractors.

We have divided our report into five sections. The first section summarizes the results of our work. The second section provides information on the design and status of the pilot test. Section 3 discusses the pilot test as it relates to FAA's responsibility for insuring air traffic safety and efficiency. Section 4 discusses FAA's effort to design a test that would adequately assess contractor performance. The fifth section discusses pilot test cost estimates and steps taken by FAA to control costs prior to implementing the pilot program.

- - - - -

We obtained information for this briefing report by reviewing FAA headquarters files on the proposed pilot test and by discussing the contents of these files with FAA

officials. In addition, we interviewed officials and technicians and reviewed pertinent documentation in the Eastern, Southern, and Great Lakes regions. We also visited locations that would participate in the pilot test.

The information in this report was first presented to your office in a briefing on February 26, 1987. As agreed with your office, we did not obtain official agency comments on a draft of this report; however, we did discuss its contents with Department of Transportation and FAA officials. These officials agreed with the information presented. Where appropriate, we have incorporated the views and comments of these officials.

As arranged with your office, we are sending copies of this report to the House and Senate Appropriations Committees; the Secretary, Department of Transportation; and the Administrator, FAA. Copies will also be made available to other interested parties upon request. If you have any additional questions or if we can be of any further assistance on this issue, please feel free to contact me at (202) 366-1743.


Kenneth M. Mead
Associate Director

C o n t e n t s

SECTION		<u>Page</u>
1	SUMMARY	6
	Background	6
	Pilot test design and status	6
	Impact on air traffic safety and efficiency	7
	Testing contractor ability	8
	Estimating and controlling costs	9
2	DESIGN AND STATUS: FAA'S PILOT PROGRAM	10
	Pilot test design	12
	Status	17
3	INSURING CONTINUED SAFETY AND EFFICIENCY OF THE NATIONAL AIRSPACE SYSTEM: FAA'S PILOT PROGRAM	20
	Designing a controlled approach	21
	Overseeing contractor performance	22
	Planning for contingencies	22
	Minimizing impact on staffing	23
4	MAINTAINING SAFETY WHILE TESTING CONTRACTOR ABILITY	28
	Including higher risk systems	29
	Balancing contractor independence with FAA responsibility	29
	Developing evaluative factors	30
5	ESTIMATING AND CONTROLLING COSTS	32
	Costs of the test to be examined	33
	Providing "reasonable cost" through silent bid	34
	Assuming full contractor liability	34
APPENDIX		
I	TENTATIVE NUMBER OF WORK YEARS TO BE CONTRACTED OUT IN EACH OF THE STATES TO BE AFFECTED BY FAA'S PROPOSED PILOT TEST	35

TABLE

2.1	Number of major facilities tentatively identified for pilot test	13
-----	--	----

FIGURE

2.1	Geographic area selected for pilot test	14
3.1	Maintenance technical staff hiring and separations	24

ABBREVIATIONS

AF	airway facilities
DOT	Department of Transportation
FAA	Federal Aviation Administration
GAO	General Accounting Office
IFR	instrument flight rules
NAS	National Airspace System
OMB	Office of Management and Budget
OPM	Office of Personnel Management
VFR	visual flight rules

SECTION 1

SUMMARY

BACKGROUND

FAA's proposed pilot test, for which the Department of Transportation (DOT) has requested fiscal year 1988 funding, is an initiative that responds to the administration's emphasis on privatization. The pilot test would be used to (1) assess the performance and cost-effectiveness of private sector maintenance and repair at selected air traffic control facilities in three of FAA's nine regions and (2) determine the feasibility of contracting out this function for selected facilities nationwide. If the pilot test is successful, FAA will use pilot test cost and performance data in conducting the cost analysis required under Office of Management and Budget Circular A-76 to support any decision to extend contract maintenance beyond the pilot test.

PILOT TEST DESIGN AND STATUS

FAA began planning a contracting out strategy in 1982, with a focus on developing a large scale approach that would test the feasibility of using a single, major contractor to maintain and repair various air traffic control facilities. As designed, the pilot test would contract out the work load of approximately 430 employees in FAA's Eastern, Southern, and Great Lakes regions. Employees who would be displaced because of the pilot test would be given the option to relocate to other positions within FAA; to retire, if they are eligible; or to leave the agency for employment elsewhere. FAA expects that some of these employees would be hired by the contractor for the pilot test.

The test, expected to last 5 years, would cost about \$130 million, according to FAA officials. FAA's preliminary estimate is that the pilot test may cost as much as \$17 million more than FAA would spend to perform the maintenance functions with its own technicians. This additional amount would cover various administrative costs and a projected 9-month transition during which both the contractor and FAA are on-site. During this transition FAA personnel would provide side-by-side guidance and orientation to ensure that contractor supervisory personnel are familiar with maintenance and reporting requirements. FAA and contractor officials would also jointly inventory the equipment to verify its condition.

DOT's fiscal year 1988 budget submission requests \$15 million in initial funding for the pilot test. Congress denied DOT's request for fiscal year 1987 pilot test funding. The House Committee on Appropriations said that the pilot test should be deferred because of the need to provide additional funding to FAA to continue the existing field maintenance staff level. The Senate

Committee on Appropriations denied funding for the pilot test, concluding, among other matters, that system maintenance at all facilities is a federal responsibility. FAA has since suspended its planning efforts. According to FAA officials, the agency is prepared to complete its planning and go forward with its request for proposals if fiscal year 1988 funding is granted.

IMPACT ON AIR TRAFFIC
SAFETY AND EFFICIENCY

In developing a strategy for contracted maintenance, FAA recognized the need to assure that contracting out would not degrade maintenance. This reflected FAA's awareness that shortfalls in maintenance, especially for critical system components, could increase the risk of unacceptable aircraft delays and possibly compromise air safety. FAA sought, therefore, to design a pilot test that would maintain safety and efficiency within the National Airspace System (NAS).

With the pilot test, FAA did not plan to immediately contract out maintenance at all facilities. Instead, FAA selected three of FAA's nine regions and, in general, limited facility selections to those which FAA considered to be on the lower end of the risk scale; that is, the selected facilities are generally associated with lower volumes of air traffic. FAA also provided for a 9-month transition period in which both FAA and contractor personnel would be on-site before the contractor assumed full maintenance responsibility at the facilities involved.

FAA has provided for a 5-year period to conduct the test. According to FAA officials, the first 2 to 3 years would be used to assess contractor performance. If the contractor does not perform satisfactorily during the pilot test, FAA would need approximately 2 more years to completely resume maintenance with its own employees, according to agency officials.

The 5-year test period is designed to allow for an orderly transition back to FAA maintenance. FAA officials recognize, however, that more immediate, unforeseen events could occur. Therefore, FAA plans to require from the contractor detailed contingency plans addressing the contractor's response to events such as weather related emergencies or employee strikes. FAA officials view a complete contractor failure as a remote possibility given the corporate commitment FAA expects to gain from contracting out to a single, major contractor. Nevertheless, the content of contractor proposals for dealing with contingencies will be a critical factor in controlling and managing the risks associated with contract maintenance.

The pilot test is designed to maintain current safety and efficiency levels and minimize any risks associated with contracting out. However, our review indicates that the test might

potentially accelerate attrition in a work force that, due to the high number of retirement-eligible employees, is already losing many workers. It is possible that some eligible employees might retire from FAA regardless of whether the pilot test is conducted. However, it is also possible that some employees might choose to retire from FAA--and collect retirement pay and benefits--to work for the contractor instead. In addition, we found that, in general, maintenance technicians have responded negatively to the idea of contract maintenance and that lower morale can be expected if the pilot test is conducted. Our interviews with technicians indicate that the pilot test could lead to more employees leaving, including those employees who are not eligible for retirement.

FAA officials believe that the agency can effectively manage the impact that pilot test implementation may have on staffing; however, they recognize that this potential for accelerated attrition could complicate the transition period. For example, if technicians in the pilot test regions decide to leave FAA before the contractor assumes full maintenance responsibility, FAA could face a shortage of FAA technicians during the transition period. No detailed planning for this period has yet been done. Before suspending its planning efforts, FAA had just begun to assess what the staffing and operational impacts of the transition period might be. FAA intends to continue its planning for the transition period if the pilot test is authorized.

TESTING CONTRACTOR ABILITY

FAA designed the pilot test with the intention of assessing whether the contractor would be able to perform maintenance functions independently. FAA also sought to address, however, overriding safety concerns when designing the test. Therefore, the contractor's ability to maintain and repair both simpler, lower risk systems as well as selected higher risk ones would be assessed. These "higher risk" systems are considered by FAA to be on the lower end of the risk scale due to the low volume of commercial air traffic they affect. FAA could use pilot test results to extend contracted maintenance to lower risk systems nationwide; however, results would not be used to decide on contracting out maintenance for high risk systems, such as long range radar facilities, which support high volumes of air traffic daily.

FAA has also designed the pilot test to allow the contractor use of FAA resources such as training materials and supply/support equipment throughout the test. FAA officials believe these ties to FAA are necessary and unavoidable, in order to ensure current safety levels. However, these ties may also complicate FAA's assessment of contractor performance since the availability of certain FAA resources may positively or negatively influence contractor performance. For example, because the contractor will depend on FAA for certain supply/support equipment, some of which

will be shared with FAA's maintenance work force, contractor performance could be negatively affected if the equipment is not quickly available. FAA plans to account for such variables in assessing contractor performance and in determining associated costs and/or benefits.

ESTIMATING AND CONTROLLING COSTS

Estimating costs is an integral part of designing most programs. At this stage of FAA's planning, however, complete cost estimates for the pilot test have not been developed. The present cost analysis is preliminary and may not reflect all costs, particularly those associated with the transition period. If planning for the pilot test is resumed, FAA would prepare a more complete, up-to-date cost estimate, FAA officials said.

FAA has taken some actions to try to control pilot test costs before implementation. These include provisions for a silent bid by FAA during the contract award period. This silent bid is intended to preclude underbidding by potential contractors and to provide a measure of what would be a reasonable cost for the work to be contracted out. In addition to the silent bid, FAA envisions full contractor liability for general and aircraft-related accidents, and assumes no liability limits. However, the liability issue is subject to negotiation, so FAA's ability to control costs in this area is unknown.

SECTION 2

DESIGN AND STATUS: FAA'S PILOT PROGRAM

- FAA has developed a pilot program to test private sector maintenance of selected air traffic facilities; FAA has been developing its strategy since 1982.
- Proposed pilot test would involve
 - 5-year test period,
 - three of FAA's nine regions,
 - both visual flight rule and instrument flight rule systems,
 - the workload of approximately 430 employees,
 - 9-month overlap between contractor and FAA maintenance work force, and
 - cost-benefit evaluation during test period.
- Proposed pilot test would occur against backdrop of increasingly high attrition in FAA maintenance work force.
- Congress denied fiscal year 1987 funding request; FAA has suspended pilot test planning.
- Fiscal year 1988 budget re-submits request for pilot test funding.

SECTION 2

In response to the administration's emphasis on using the private sector, when cost effective, to perform work carried out by federal government employees, FAA has designed a pilot program to test the feasibility of using the private sector to maintain and repair air traffic control facilities.¹ This maintenance and repair function, currently performed by about 7,500 technicians and engineers who are members of FAA's Airway Facilities (AF) work force,² has been identified by the Office of Management and Budget (OMB) as being a commercial activity which could be performed by the private sector.

The pilot test represents a lengthy, intensive effort by FAA to develop a contracting-out approach which would respond to the administration's emphasis on privatization. FAA has been developing a strategy for contracting out this maintenance function since 1982. Various working levels, from field management to headquarters personnel, provided input to the resulting pilot test design. The extensive analyses documented by these FAA groups included not only an evaluation of how FAA has managed and performed this maintenance function, but also a review of comparable contractor activities at the National Aeronautics and Space Administration and the United States Air Force.

These analyses also document various options for contracting out system maintenance. Chief among the options considered, and the one advocated by OMB, was an equipment-by-equipment approach. Under this approach, all new NAS equipment procurements would include provisions for several years of maintenance by contract so that contract costs could be compared to FAA in-house maintenance costs. FAA decided against this approach, citing the fact that contractor interface problems would result from the award of multiple contracts. This approach was also projected to be more costly and more difficult to manage than engaging one or a very small number of contractors on a national basis. In the past, FAA has experienced problems with this equipment-by-equipment approach when contractors subcontracted out their maintenance activities.

1 As defined by FAA, a facility is the total electronic and electric power distribution system and the structure used to house these systems. A facility may include a number of systems, subsystems, or equipment; e.g., an air route traffic control center, or a single piece of equipment such as an airway beacon.

2 The AF work force is responsible for the operation of both electronic equipment (radar, computers, navigational aids) and the environmental systems and physical plant which support this equipment. Training for a full performance level technician takes from 2 to 6 years, depending on a trainee's experience and specialty.

In some cases, these subcontractors lacked the level of experience and expertise needed to quickly restore failed systems.

PILOT TEST DESIGN

In designing the pilot test, FAA's goals were to

- maintain current levels of air traffic safety within the NAS;
- develop a test of sufficient size and complexity to attract a single, major contractor with the appropriate resources, management structure, and corporate commitment to insure the continued safety and reliability of the NAS; and
- provide the FAA with a reasonable opportunity to relocate displaced personnel and retain within its work force the expertise with which to respond to national and regional emergencies, unsatisfactory contract performance, or job actions such as a strike.

Facility selections and
targeted work load

In designing the pilot test, FAA chose to contract out all maintenance--both electronic and environmental--for a combination of visual flight rule (VFR) and instrument flight rule (IFR) systems within a selected geographical boundary. A work load of approximately 500 authorized positions, or approximately 430 full-time equivalents,³ was targeted by FAA for inclusion in the pilot. FAA limited the pilot test geographically to facilitate contract administration and performance evaluation and to permit the concentration of contractor resources. For the pilot test, FAA selected those sites where a contractor could assume total responsibility for system maintenance and repair. In designing the pilot, FAA sought to preclude both FAA and contractor employees working at the same facility. Both VFR and IFR systems were included to provide the contractor with an adequate cross-section of systems representing the various types of equipment being maintained by the AF work force. Of the approximately 21,000 facilities that comprise the NAS, approximately 500 facilities have been tentatively identified for inclusion in the pilot test, as shown in table 2.1.

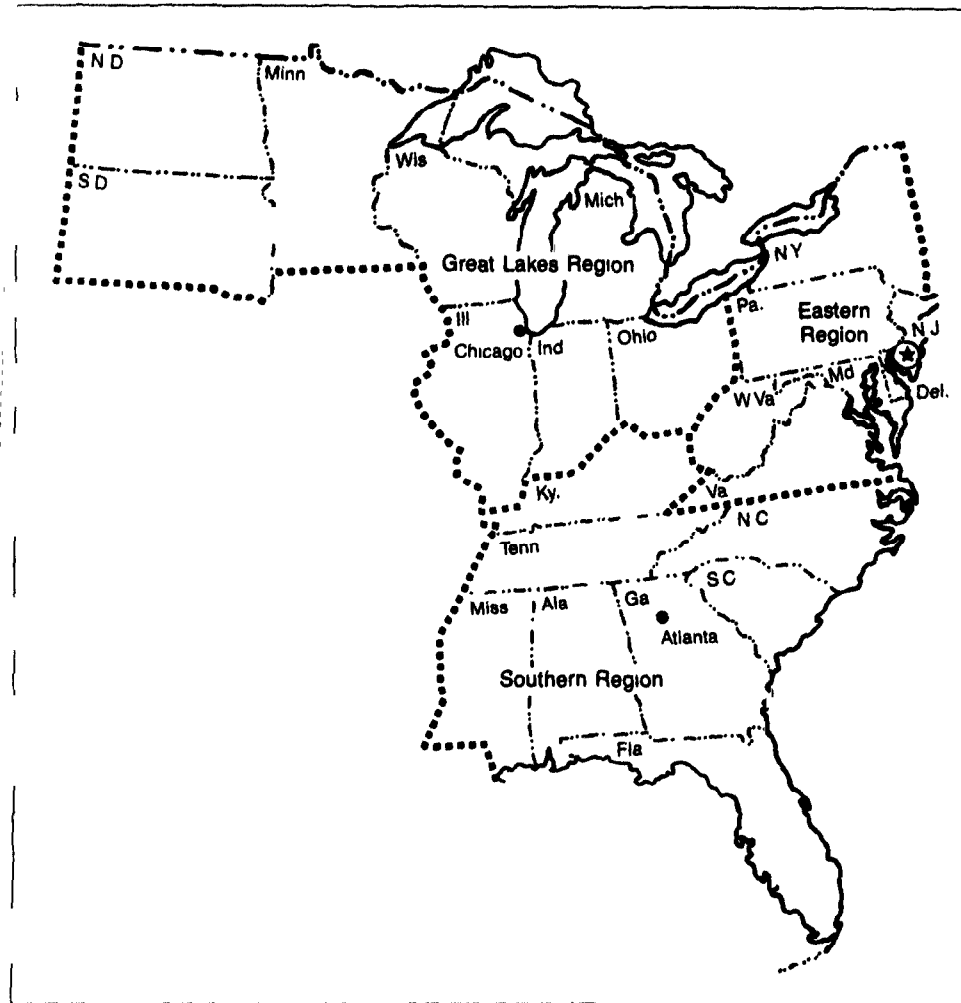
Table 2.1: Number of Major Facilities Tentatively Identified for
Pilot Test

Air Traffic Control Tower	77
Airway Terminal Building	117
Flight Service Station	64
Instrument Landing System	171
Remote Center Air/Ground Communications Facility	23
VHF Omnidirectional/Tactical Air Navigation Facility	<u>76</u>
TOTAL	<u>528</u>

3 Full time equivalents equal employee work years.

Figure 2.1

Geographic Area Selected for Pilot Test



Source: DOT, FAA

In an effort to minimize the safety risk, however, FAA officials limited system selection to those they consider to be on the lower end of the risk scale. In general, these systems are located at low activity airports with visual flight rule towers, at certain non-towered airports, and at selected flight service stations. The proposed pilot test would include some more sophisticated systems such as Instrument Landing Systems. While the safety risk associated with these more sophisticated systems is still considered by FAA to be generally low, including these more sophisticated systems would allow FAA the opportunity to test contractor performance on both simpler and more complex equipment. As discussed in section 3, the pilot test does not include high risk systems such as long-range radar facilities.

The pilot test is expected to last 5 years and is designed for implementation in three of FAA's nine regions--Southern, Eastern, and Great Lakes, as shown in figure 2.1. These three regions were selected because they are contiguous and have a high enough concentration of employees to meet the targeted 500 authorized positions of the pilot test. The work load of approximately 150 positions would be contracted out in both the Eastern and Great Lakes regions. The Southern region would contract out the work load of approximately 200 positions. Appendix I shows the tentative list of states to be affected by the pilot test and associated work years to be contracted out.

Transition period

Once the contract is awarded, the pilot test would begin with a projected 9-month transition or overlap period in which both FAA and contractor personnel are on-site. During this period, the contractor, under FAA direction and guidance, is expected to become familiar with the facilities to be contracted out. This transition period would allow the contractor and FAA to inventory these facilities and verify the respective condition of each. At this time, FAA would provide technical familiarization only. FAA would expect the contractor to provide all training for his or her work force.

Before contractor personnel can assume full facility maintenance responsibility, they must be "certified." Certification (which is also required of FAA personnel) is a formal process to confirm that the employee possesses the necessary minimum knowledge and skills to determine the operational status of a particular system. Therefore, the transition period would include the granting of certification authority, after which contractor personnel can assume full facility maintenance responsibility. To this end, FAA plans to initially certify and designate up to 50 contractor employees to serve as "contractor certifiers/examiners." These personnel would be made available immediately after contract award. FAA would retain the responsibility of administering all examinations to be passed

before certification is granted. The rationale for this is based on FAA's need to protect the integrity of the tests and the examination process.

FAA-supplied resources

In an effort to insure the continued safety of the NAS and to design a pilot test which would allow FAA to take back the maintenance functions to be contracted out, if necessary, FAA would supply certain FAA resources to the contractor. In addition to the transition-related assistance discussed above, the pilot test is also designed to provide the contractor access to equipment at FAA's training academy for the contractor's training purposes throughout the test. FAA would also provide one copy of available training materials for courses which the FAA uses in training its work force.

Besides these training and certification resources, FAA also plans to provide depot supply support to the contractor for spares replenishment, hand tools, and other specialized equipment. Certain items such as specialized test equipment would be shared by the contractor and the FAA.

Cost-benefit evaluation

During the 5-year test period, FAA plans to perform a cost-benefit evaluation to determine if the contractor can provide at a lower cost the same service as that FAA already provides. At the time of our review, the Transportation Systems Center, under contract to FAA, was in the process of developing the evaluative factors suitable for use in conducting this evaluation. If the pilot test is successful, these evaluative factors will serve as a basis for conducting the cost analysis required under OMB Circular A-76. The results of this analysis would then support a decision as to whether the pilot test's contract strategy should be extended beyond the three test regions.

The pilot test and current and projected staffing levels

Anticipating reduced work loads from new technology by the 1990's, FAA has allowed attrition to reduce the AF work force. From a high of about 11,200 in fiscal year 1979, field maintenance staff (which includes all clerical and supervisory personnel) numbered 8,306 at the end of fiscal year 1986. As discussed in section 3, FAA has not been able to hire technicians in sufficient numbers to replace those who have left the agency. FAA now faces critical staffing shortages. Furthermore, the AF work force is recognized by FAA as being an aging one, and attrition is expected to be a continuing problem. FAA demographic data show that about 36 percent of the technical personnel in this work force--about 2,800 technicians and engineers--could retire by 1990.

According to FAA officials, the projected staffing effect of the pilot test, based on demographic analyses of the AF work force and the experience of contractors who have previously contracted for government operations, is that after contract award, approximately 200 employees from the three participating regions would elect relocation within the FAA. Another 200 eligible affected employees would elect either voluntary retirement or discontinued service retirement consistent with Office of Personnel Management (OPM) regulations, and as many as 100 would elect termination. An estimated 100 to 150 from these latter two groups are expected to become a part of the contractor's work force.

According to the terms of the labor agreement presently in effect between FAA and the technicians' bargaining unit, and in accordance with current OPM regulations, qualified AF employees whose jobs are affected by the pilot test would receive priority consideration for FAA positions within their respective regions. In some circumstances, FAA recognizes it may be necessary to transfer displaced employees to other regions to take advantage of existing vacancies as efficiently as possible.

Affected employees also have the right of first refusal to employment openings of the contractor in positions for which the employee qualifies. Under the terms of the above mentioned labor agreement, FAA must insure that any contract awarded shall include a provision that the contractor give bargaining unit employees displaced as a result of the conversion to contract performance the first opportunity for reemployment in positions for which they are qualified.

STATUS

FAA has suspended its planning for the pilot test as a result of the fiscal year 1987 appropriations process. The Department of Transportation's fiscal year 1987 budget submission requested \$10 million to fund the initial costs of the pilot test. In the fiscal year 1987 appropriations, however, no funds were granted for the test.

1987 budget submission rejected

The House Committee on Appropriations allowed no funding for the pilot test but sought to continue AF field maintenance staffing at the fiscal year 1986 level of 8,327 full-time equivalents. The Committee's report stated that because of the need to provide additional funding of approximately \$6.8 million to continue the existing field maintenance staff level, initiation of the pilot test should be deferred.

The Senate Committee on Appropriations also provided no funding for the pilot test, citing the Committee's view that system

maintenance at all facilities is a federal responsibility, and that selected facilities or regions should not be singled out for a pilot program. In addition, the Committee noted that concerns about the rate of attrition versus the realization of new technology gains might lead FAA to seek augmentation of the existing maintenance work force until such factors stabilized. The Committee requested that FAA reassess this area and report on "realistic field maintenance needs" in the fiscal year 1988 budget.

Subsequently, the Conference Committee denied any funding for FAA's pilot test but stated further that this action ". . . shall not prohibit the augmentation of the existing field maintenance workforce if it is determined to be essential for the safe operation of the air traffic control system." The Committee did not define what it meant by the term augmentation.

Initially, FAA was confused as to how the appropriation language affected contracting out for maintenance, according to FAA officials. Specifically, FAA officials were unsure what the Congress meant by augmentation of the existing work force. As a result, FAA sought legal clarification. On December 12, 1986, FAA's Chief Counsel rendered an opinion which concluded that while FAA may not carry out the pilot test, ". . . FAA may employ contractors . . . to augment existing maintenance staff . . . if such contracting is determined to be essential for safe operation of the air traffic control system" rather than in the pilot program FAA has designed to test the efficiency of contracting out an FAA function. This opinion defined augmentation as increasing the work force.

As of February 25, 1987, FAA had no firm plans to augment the work force through contractors. At the time of our review, FAA officials did not believe such augmentation was essential to air safety. FAA officials told us, however, that in preparation for the fiscal year 1988 appropriations hearings, the agency is considering possible strategies for augmenting the work force with contractors. FAA is also resubmitting its request that the Congress fund its pilot test in fiscal year 1988.

Suspension of pilot test planning

Based on the Chief Counsel's opinion discussed above, FAA has suspended its 1987 planning efforts for the pilot test. Although FAA has written the performance work statement and was prepared to meet its goal of issuing the request for proposals in April 1987, work on FAA's management plan detailing FAA's contractor oversight responsibilities has ceased. This plan was scheduled to be finalized by March 1987. FAA has also ceased the planning efforts related to the cost-benefit analysis and the transition period, including determining the impact of OPM reduction-in-force regulations.

FY 1988 budget re-submits
funding request

The fiscal year 1988 President's budget requests \$15 million to initially fund the pilot test. No reductions in employees are projected for fiscal year 1988, but FAA expects that 431 full-time equivalents would be reduced in fiscal year 1989, reflecting the work load to be contracted out under the pilot test.

As of February 25, 1987, a final analysis of total costs to conduct the pilot program had not been developed by FAA; however, FAA estimates the total cost of the pilot test to be approximately \$130 million over the 5-year period. This \$130 million includes the initial \$15 million requested for the pilot test program. This initial funding is expected to partially cover the transition period--the projected 9 months when FAA and the contractor overlap each other to conduct facility inventory and familiarization--and the administrative costs associated with the pilot test. FAA initially estimates that the agency could incur a maximum of about \$17 million in increased costs to conduct the pilot test as opposed to performing these maintenance activities in-house.

If the pilot program is funded as requested in the fiscal year 1988 budget submission, FAA will be in a position to immediately resume its planning for the program, according to FAA officials. Before the fiscal year 1987 appropriations process denied funding, the expected date for contract award was May 1988. FAA officials believe that if the pilot test is funded with fiscal year 1988 appropriations, the earliest FAA could award a contract would be August 1988.

SECTION 3

INSURING CONTINUED SAFETY AND EFFICIENCY
OF THE NATIONAL AIRSPACE SYSTEM: FAA'S PILOT PROGRAM

- To assure that existing maintenance standards are not lowered, FAA has designed a controlled approach to testing contractor performance.
- FAA plans to use a detailed management plan in overseeing contractor performance.
- FAA would require potential contractors to submit contingency plans to deal with emergencies.
- Pilot test may accelerate attrition in the maintenance work force.

SECTION 3

In developing a strategy for contracting out maintenance, FAA has sought to maintain current levels of air traffic safety and efficiency within the NAS. FAA's Air Traffic Service has stated its concern that to contract for maintenance of major critical components and equipment directly associated with the air traffic system could increase the risk of unacceptable delays and possibly compromise air safety. In an effort to ensure that contracting out would not lower existing maintenance standards and the associated dependability and reliability of air traffic systems, FAA has designed a controlled approach to testing contractor performance. FAA plans to use a detailed management plan to enhance contractor oversight and to require a contractor's contingency plan for dealing with unforeseen events, such as a strike. FAA has sought to minimize the impact of the pilot test on FAA's maintenance work force but recognizes that the pilot may accelerate attrition in this work force.

DESIGNING A CONTROLLED APPROACH

In an effort to assure that existing maintenance standards are not lowered as a result of contracting out, FAA has designed a controlled approach to testing contractor performance. The overall approach can be characterized as "walking before running." The proposed pilot test would include a limited number of locations and systems in order to minimize the risks associated with contracting out this maintenance function. The pilot test would also include a transition period during which FAA can insure that contractor employees meet FAA's training and certification requirements.

Location and system selections

FAA's proposed pilot test would be limited to approximately 500 authorized positions in three of FAA's nine regions. Further, the test would generally include maintenance functions associated only with what FAA considers to be lower risk facilities. The facility selections include a mix of VFR and IFR systems at low activity airports and at selected flight service stations. While some of the more sophisticated IFR systems, such as Instrument Landing Systems and Remote Center Air/Ground facilities, are included in the facility selections, according to FAA officials, the facilities of this type which would be contracted out support relatively low volumes of commercial air traffic. As discussed further in section 4, these more sophisticated systems would not provide a basis for extending contracted maintenance to high risk systems affecting large volumes of air traffic daily.

Transition period

FAA envisions up to a 9-month transition period during which both FAA and contractor personnel would be on-site. This overlap between FAA and contractor personnel is designed to insure that the transition to contracted maintenance is orderly and that contractor personnel meet FAA's personnel certification requirements. During this period, contractor personnel will be required to demonstrate through FAA's established certification process that they possess the necessary knowledge and skills to determine the operational status of a particular system. By retaining responsibility for administering all certification examinations, FAA should be able to insure that only qualified personnel who have received adequate training will be maintaining and repairing the contracted-out systems.

OVERSEEING CONTRACTOR PERFORMANCE

Because oversight of contractor performance is key to minimizing risk, FAA has recognized the importance of writing a detailed management plan to clearly define the relationship between the contractor and FAA. This plan would specify FAA's oversight responsibilities and provide FAA officials with written guidance on their respective roles and responsibilities in overseeing contractor performance. FAA officials believe that this type of plan, which FAA has not used before, will be essential to insuring high levels of contractor performance. As discussed in section 2, because FAA has suspended its planning efforts, this detailed management plan has not been completed; however, a draft overview of this plan had been completed at the time of our review.

In addition to FAA's management plan, oversight will also be facilitated by the contractor's staffing plan to be required by FAA. This plan would address work load distribution for all facilities, proposed work center locations and field level management structure for accomplishing the work, and numbers and skills of the contractor's work force. This staffing plan would enable the agency to minimize and control the use of subcontractors. In the pilot program, FAA plans to limit the use of subcontractors to maintaining and repairing environmental equipment such as engine generators and air conditioning systems.

PLANNING FOR CONTINGENCIES

Also related to minimizing risk is FAA's requirement that the contractor develop a contingency plan to address the contractor's response to unusual events which might disrupt normal service, i.e., power failures, employee strikes, and adverse weather conditions. This contingency plan would also reflect how the contractor would continue to perform required tasks under conditions of national emergencies or times of heavy administrative

leave. The contingency plan would be important to FAA's ability to manage contractor performance during unusual events.

FAA's request for proposals will require that potential contractors submit their proposed contingency plans as part of their bid packages. These plans would then be evaluated by FAA for contract award. Because FAA has not yet issued its request for proposals, we could not review the content of these plans. The actual content of these plans will be critical to FAA's ability to control and manage risks associated with the pilot.

In conducting the pilot test, FAA also runs the risk that contractor performance will not be satisfactory during the test period. FAA has provided for this contingency by designing the pilot program as a 5-year test. FAA would use the first 2 to 3 years to assess contractor performance. If the contractor's performance is not satisfactory, FAA officials said, approximately 2 more years would be needed to completely resume maintenance with FAA employees at contracted-out facilities. FAA officials believe that this 2-year period would allow FAA to provide for an orderly transition, through appropriate hiring and training initiatives, back to FAA maintenance.

The risks associated with the pilot test are manageable and acceptable, according to FAA officials. FAA believes that complete contractor failure is highly unlikely because a major contractor will be required. According to FAA officials, the limited number of positions associated with the pilot program enhances the ability of FAA to resume the contractor's maintenance functions, if necessary. If contractor failure did result in a critical situation, however, FAA officials said, congressional action would be required; this action might result in rehiring annuitants and/or contractor technicians and, if necessary, temporarily shutting down lower priority facilities.

MINIMIZING IMPACT ON STAFFING

The pilot test was designed with the intent of minimizing the impact it would have on the work force. FAA designed the pilot to preclude the possibility of any FAA employee actually losing his or her job. Although employees who do not choose to retire and/or work for the contractor might be faced with relocating to another position within FAA, no employee would be without employment as a result of the pilot test. Thus, FAA believes that the impact of the test on the work force in the three test regions has been kept to a minimum.

The pilot test's impact on the overall work force, however, may be a concern given FAA's projected maintenance work force situation. If the pilot test is implemented, it may in fact

Figure 3.1: Maintenance Technical Staff Hiring and Separations



accelerate the attrition rate. For example, the pilot test will give some retirement eligible employees within FAA the opportunity to work for a contractor as a "second career" while also collecting retirement pay and benefits. While some of these retirement eligible employees would have retired from FAA regardless, the pilot test may offer a pay incentive to others who would like to continue employment during their "retirement" years.

In planning the pilot test, FAA officials assumed that FAA would be able to sustain a level of personnel recruitment that would offset the staffing shortages projected for the coming years. FAA has not been able to do this. As shown in figure 3.1, separations of maintenance technical staff have outnumbered hiring about 3.5 to 1 from fiscal years 1981 to 1986. As of September 30, 1986, FAA had a pipeline of approximately 400 trainees on board to offset the potential future attrition of as many as 2,800 technicians and engineers by 1990. As discussed in our upcoming report on AF staffing, the FAA now faces critical staffing shortages as a result of not sustaining adequate hiring levels.

Although FAA officials believe that the net effect of the pilot test would be to make approximately 200 employees in the three test regions available for performing maintenance elsewhere in FAA, they said that the precise effect of the pilot test is unknown at this time. On the basis of our interviews with technicians, we believe that the pilot test could lead to increased separations even among those technicians who are not retirement eligible. For example, an environmental technician whose job would not be affected by the pilot test, and who at the time of our interview had submitted his resignation, told us that the existing contracted maintenance in his sector had demeaned his responsibilities and was a key factor in his decision to resign. We also interviewed several technicians with fewer than 8 years of government service who expressed interest in working for the pilot test contractor; one sector manager stated that technicians are currently leaving FAA early in their careers because of their uncertainty about the future.

FAA believes the impact on staffing will be manageable and acceptable. The transition period could be complicated, however, by the pilot test's potential to accelerate attrition and by the projected decline in staffing levels.

Impact of transition period

Although FAA has suspended planning for the transition period, further planning would be needed to provide for a smooth transition, according to FAA officials. This planning would address how FAA would meet existing OPM regulations. These regulations contain certain time periods associated with (1) notifying FAA employees that their positions will be contracted out and (2) allowing them a period of time to decide whether they will

relocate or leave the agency to retire and/or seek employment elsewhere.

Depending on the timing of these actions, FAA could be faced with a situation in which technicians will have already left the agency and staffing shortages will exist before the contractor assumes full maintenance responsibility. These shortages could even occur outside the three test regions. That is, although FAA expects that the contractor would generally hire technicians from the test regions, it is possible that technicians from non-test regions would also be hired. FAA believes these staffing shortages could be temporarily filled by FAA employees from other locations until the contractor assumed responsibility for all contracted out facilities.

Morale

FAA's 1986 attitude survey of more than 29,000 employees shows that, overall, field maintenance employees are highly negative about contracting out. In the survey, approximately 81 percent of the field work force responded negatively to questions concerning contracting and morale; about 15 percent gave neutral responses, with only the remaining 4 percent responding positively.

Technicians we interviewed in the Eastern, Southern, and Great Lakes regions generally responded negatively to the idea of contracting out maintenance. Their concerns typically focused on their inability to get detailed information on the pilot program and the ability of the contractor to maintain equipment to existing standards. While field managers think contracting out can be done successfully, they expressed concerns about the potential of eventually contracting out maintenance of higher risk facilities, such as long-range radar, as a result of the pilot program.

FAA officials said that an increased negative impact on morale will likely occur upon implementing the pilot test. During the transition period, the work force in the three pilot regions would be confronted with retirement or relocation options. In the test regions, technicians would help to inventory facilities and hand over equipment and facilities to the contractor's employees. A decline in technicians' already low morale is expected as a result of these transition activities.

SECTION 4

MAINTAINING SAFETY WHILE TESTING CONTRACTOR ABILITY

- The pilot test would not include high risk systems.

- Some relatively sophisticated systems would be included.

- To minimize safety risk, contractor independence would be balanced with FAA's responsibility.

- FAA would develop evaluative factors to assess contractor performance.

SECTION 4

In planning for the pilot test, FAA's primary consideration was maintaining the safety and efficiency of the NAS. FAA has also sought to develop a pilot test which would allow for a fair assessment of a contractor's ability to perform this maintenance function. FAA recognizes that the agency's responsibilities for air traffic safety would have to be balanced against this "fair test" requirement.

INCLUDING HIGHER RISK SYSTEMS

As discussed in section 3, FAA has generally limited the pilot test to those systems considered by FAA to be of lower risk within the NAS. Recognizing, however, that testing contractor performance on only the lowest risk systems would not indicate the contractor's potential for performing satisfactorily on the higher risk systems, FAA's proposed pilot test is designed to include some more sophisticated, higher risk systems. FAA officials point out, however, that even though the test would include these "higher risk" systems, the particular systems selected are still considered to be on the lower end of the risk scale because they affect relatively low volumes of air traffic. The inclusion of the more sophisticated systems, according to FAA officials, would better allow FAA to evaluate the potential for contracting out maintenance at some higher risk systems. The pilot test will not provide, however, all the evaluative data necessary for extending contract maintenance to high risk systems, such as long-range radar facilities, which affect high volumes of air traffic daily. According to FAA officials, the pilot test will provide some data which would indicate whether there is any potential for contracting out maintenance of high risk systems. Any decision to actually contract out maintenance for these systems would be the result of another evaluative effort.

BALANCING CONTRACTOR INDEPENDENCE WITH FAA RESPONSIBILITY

In designing the pilot test, FAA assumed that the contractor would hire experienced FAA technicians. Because few private sector technicians have specific experience working on FAA equipment, the contractor would depend on beginning the contract with a contingent of experienced FAA technicians. Further, the lengthy training and certification requirements associated with new, off-the-street hires would delay the contract's implementation and add to the cost and length of a transition period, according to FAA planning documents. The contractor's ability to recruit trained personnel from within the FAA technician and retiree ranks minimizes the impact of these training and certification requirements.

As discussed in section 2, the contractor will depend on FAA for certain resources related to training, certification, supplies

and support. Ideally, a contractor should be largely independent of an agency's resources; such independence precludes the linkage between contractor success or failure and materials/services an agency provides. Because of the unique services provided by the AF work force, however, FAA officials believe there is no way around this linkage during the pilot test. And with respect to training and certification, in particular, this linkage allows FAA to assure that qualified technicians are employed by the contractor, thus minimizing the safety risk.

DEVELOPING EVALUATIVE FACTORS

Quality of contractor performance would be the primary factor in deciding whether maintenance at similar facilities will be contracted out nationwide after the pilot test, according to FAA officials. The FAA has emphasized in various planning documents that the selected contractor must not only perform the required activities at a cost lower than that of the in-house work force, but must also demonstrate that facilities for which the contractor has maintenance responsibilities will perform to the same standards required for FAA-maintained facilities.

FAA's intent is to measure contractor performance against prescribed performance standards, some of which are currently used to measure performance of the field maintenance work force. FAA is in the process of developing a comprehensive set of evaluative factors to be used in assessing contractor performance. To the extent possible, these factors would control the variables associated with the contractor's use of FAA-supplied resources. FAA officials believe that although the contractor's use and dependence on FAA-supplied resources complicates certain aspects of fairly assessing contractor performance and evaluating associated costs and benefits, the evaluative factors being developed would allow for a fair test. Certain administrative requirements related to conducting this evaluation are still under consideration. Among these are the requirements for (1) extending FAA's present reporting systems to all pilot test facilities and (2) restructuring cost center codes for pilot test reporting purposes.

SECTION 5

ESTIMATING AND CONTROLLING COSTS

--Cost estimates would be examined if pilot test planning is resumed.

--Proposed silent bid should help preclude underbidding by potential contractors.

--FAA plans to require full contractor liability.

SECTION 5

FAA does not yet have a complete, up-to-date estimate of pilot test costs. At the time that FAA suspended planning, the cost projections did not represent FAA's best estimates of what actual pilot test costs might be. If planning is resumed, FAA intends to develop a better projection of pilot test costs, according to FAA officials.

FAA has taken some steps to try to control pilot test costs before implementation. These include (1) determining what the in-house costs would be to perform the functions to be contracted out under the pilot test and (2) assuming full contractor liability during the pilot test period. Actual contractor liability may be negotiable, however.

COSTS OF THE TEST TO BE EXAMINED

FAA's current cost projections may not represent the actual costs of the pilot test. For example, FAA's current estimate of what the contractor will pay employees is not based on a review of pay/benefits under similar contracts, FAA officials said. In addition, the actual length and associated costs of the transition period are not yet completely analyzed. FAA officials said that the transition period is complicated by OPM regulations concerning the reduction-in-force aspect of the pilot test. As discussed earlier, at this stage of FAA's planning, the details of what FAA must do to meet the requirements of these regulations are not yet worked through.

FAA cites cost risks associated with the transition period. According to FAA documents, the contractor may take longer than the planned 9 months to fully assume the maintenance responsibilities, thus necessitating a longer transition period during which FAA technicians would remain on-site before handing over facilities to the contractor. The result would be increased costs, according to the documents. FAA officials believe that once the request for proposals is issued there will be adequate time to finish planning a smooth transition. They admit, however, that currently the staffing, length, and cost implications of the transition period are not clear.

The administrative costs of the pilot would also be the subject of further analyses. Certain costs would be incurred in conducting the evaluation. If FAA's reporting systems must be expanded, for example, the agency will incur some increased costs associated with these additional reporting requirements. Current cost analyses do not reflect in any detail the potential for such an increase.

PROVIDING "REASONABLE COST"
THROUGH SILENT BID

To preclude the possibility of underbidding or low buy-in by potential contractors, FAA intends to be a silent bidder on the pilot program's request for proposals; that is, the FAA will enter a bid in response to the request for proposals and thus compete against the other bids submitted by prospective contractors. If potential contractors submitted very low bids, FAA would have a basis for deciding that these low bids do not represent a "reasonable cost" of performing maintenance. If potential contractors' bids are higher than FAA's silent bid, FAA would not conduct the pilot test.

According to FAA officials, this silent bid would help prevent a contractor from under-pricing the work in order to buy in early with the intent of raising prices later on in the contract period. FAA's silent bid will be based on an independent analysis of how much it would cost FAA to perform the maintenance work to be contracted out under the pilot test. FAA officials believe that the results of this analysis will enable the agency to determine if the contractors' bids reasonably represent expected costs.

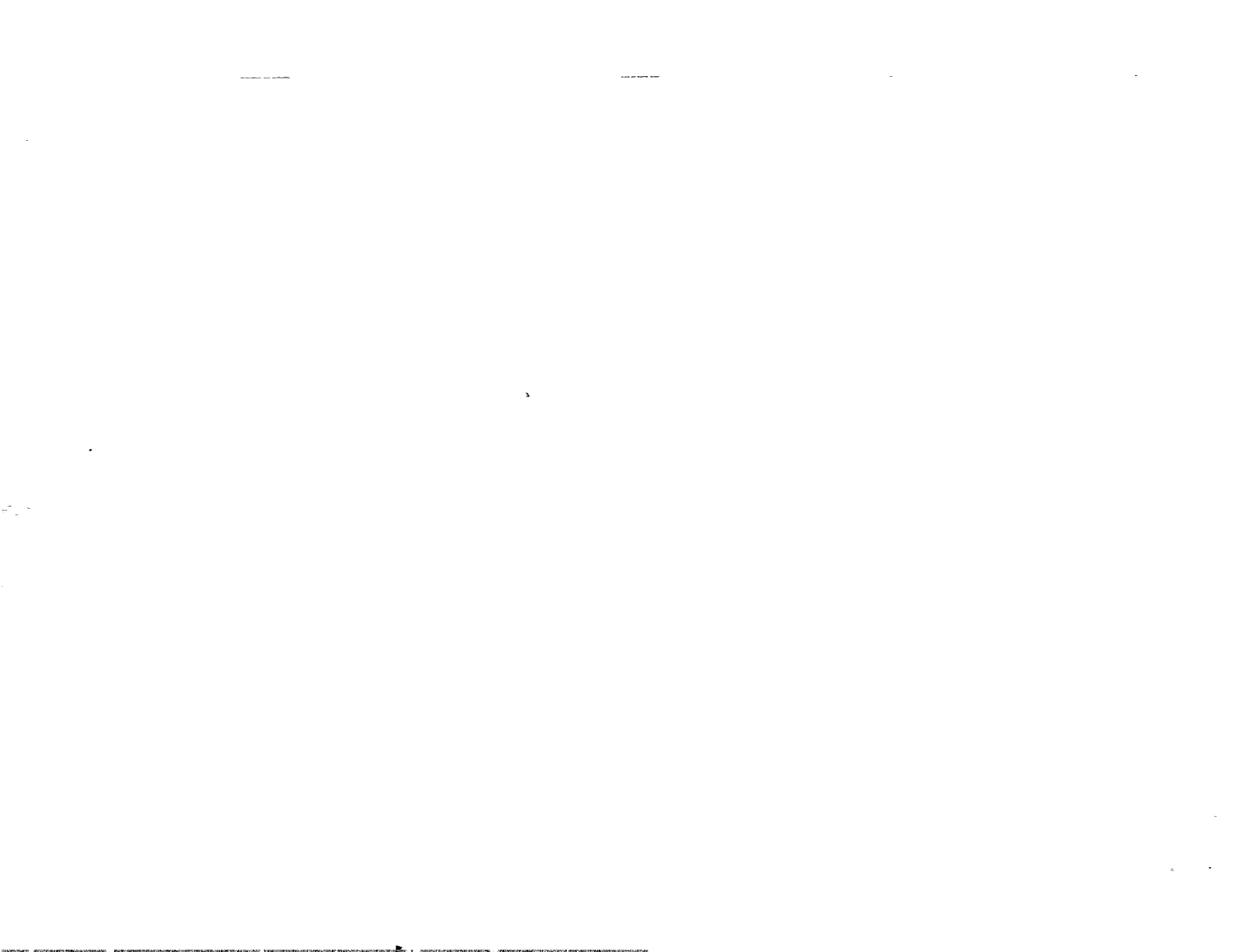
ASSUMING FULL CONTRACTOR LIABILITY

In the pilot test, FAA intends to require full contractor liability for equipment and aircraft-related accidents, and assumes no liability limits. However, FAA officials recognize that the high cost of a contractor's liability insurance may preclude unlimited liability and that in all likelihood this issue will be subject to negotiation.

TENTATIVE NUMBER OF WORK YEARS TO BE CONTRACTED OUT
IN EACH OF THE STATES TO BE AFFECTED BY FAA'S PROPOSED PILOT TEST

<u>State</u>	<u>Tentative Number of Work Years</u>
Alabama	19.572
Delaware	2.991
Florida	57.402
Georgia	30.193
Illinois	27.038
Indiana	6.984
Kentucky	11.083
Maryland	7.931
Michigan	31.900
Minnesota	15.967
Mississippi	19.867
Montana	.092
New Jersey	6.964
New York	33.584
North Carolina	20.658
North Dakota	10.149
Ohio	16.144
Pennsylvania	33.590
South Carolina	8.793
South Dakota	5.462
Tennessee	10.025
Virginia	18.879
West Virginia	23.481
Wisconsin	17.847
 TOTAL	 <u>436.596</u>

(341124)



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

Address Correction Requested

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