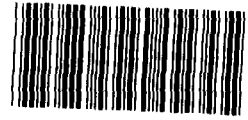


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Testimony



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Issues Related to FAA's Effectiveness

Statement of  
Kenneth M. Mead  
Director, Transportation Issues  
Resources, Community, and Economic  
Development Division

Before the  
Subcommittee on Aviation  
Committee on Public Works  
House of Representatives



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Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to appear before the Subcommittee to discuss several issues that relate to the effectiveness with which the Federal Aviation Administration (FAA) achieves its mission. To improve FAA's effectiveness, several proposals have been made that, among other matters, would remove the agency from the Department of Transportation. Some proposals also would exempt FAA from federal procurement and personnel regulations.

While our work has not addressed directly the issue of an independent FAA, we have reviewed FAA's effectiveness in modernizing the air traffic control (ATC) system and rebuilding its aviation safety work forces. Based on this work, our testimony today will primarily focus on the following:

-- FAA faces difficult challenges in modernizing the ATC system and rebuilding its safety work forces. Actions such as making FAA independent or exempting the agency from procurement rules will not in themselves be sufficient to meet these challenges. FAA needs to strengthen its technology development and systems acquisition process, prioritize its ATC modernization activities, and sustain recent initiatives in the human resource area. This needs to be done regardless of the agency's organizational placement. In addition, greater stability in top FAA leadership would help ensure that corrective actions are properly initiated and sustained.

- Funding needs for ATC modernization and FAA's work forces increased this year and will intensify greatly over the next several years. Ensuring that these needs are met without sacrificing the needs of other transportation modes is, in our view, a critical issue in the current debate over improving FAA's ability to carry out its mission.
- The Secretary of Transportation's initiatives to develop a national transportation policy illustrate a constructive and beneficial side of the placement of FAA within the Department of Transportation. Removing aviation, which is the fastest growing mode of transportation, from the Department could frustrate national transportation planning efforts.

We will discuss each of these points in turn and what the findings of our work suggest regarding improvements to FAA's ability to meet the challenges of the 1990s.

MODERNIZING THE ATC SYSTEM  
AND REBUILDING WORK FORCES

FAA is modernizing the ATC system through a program called the National Airspace System (NAS) Plan. Initiated in 1981, the plan provides for a complex and almost total overhaul of the system. Seven years into the plan, costs have more than doubled and significant schedule delays have occurred. FAA also has efforts underway on many fronts to improve and rebuild its safety work forces. Regardless of FAA's placement in or out of the Department of Transportation, sustaining these initiatives will be a major

challenge to FAA, and critical choices face the agency on the future of the maintenance technician work force.

#### ATC Modernization Issues

Our work shows that the delays experienced in developing systems are related to FAA and its contractors seriously underestimating the risk and complexity of developing highly automated systems. Furthermore, not having sufficient installation personnel has delayed the deployment of some equipment. Exempting FAA from federal procurement regulations or taking FAA out of the Department is not likely to solve these problems. Instead, FAA needs to address the following procurement-related issues.

#### Reducing Risk Through a Disciplined Acquisition Process.

Until recently, FAA did not follow recommended federal guidance designed to minimize risks in acquiring major systems. OMB Circular A-109 recommends a basic procurement principle of acquiring a costly or critical system in discrete phases so that agency top management can decide on whether and when to continue to the next phase of system development. According to the circular, these decisions should be in steps that allow for careful review of the system's concept, validation of its design, and demonstration and testing of its performance before committing to large-scale production. The \$1.1 billion Microwave Landing System project did not follow this approach, and production began before the number and location of sites was validated, benefits demonstrated, and

system prototype tested, as recommended by Circular A-109. Major delays and other problems were the result.

The delay in implementing the \$786 million Voice Switching and Control System illustrates FAA's underestimation of the complexity of what had to be done. A major reason for the delay in implementing this system is that FAA assumed its needs could be satisfied with off-the-shelf equipment. FAA later found that contractors could not meet requirements without performing extensive developmental work.

Requirements Definition. Common to many FAA acquisitions is that system requirements and related hardware and software were improperly defined at the outset. This happened because some FAA project managers perceived that design problems could be fixed at a later time, even if they required modification during field testing. For example, soon after FAA awarded two Advanced Automation System (AAS) demonstration contracts, the agency modified both contracts to add the requirement for color displays. This additional requirement affected both the program's cost and schedule. As exemplified by FAA's acquisition of flight strip printers, such situations can be costly and time-consuming because established designs have to be changed in the middle of production, and installed units in the field may have to be retrofitted.

Testing. FAA can improve the effectiveness of the modernization program by building in the time for testing systems before making commitments to buy equipment in significant quantities. Testing reduces the risk of acquiring systems that do

not work as expected, as well as the cost and time that otherwise might be needed for retrofitting. FAA has taken several encouraging actions in the testing area for some of its systems and, with appropriate follow through, this will reduce risks and increase confidence that new technologies will work in an operational environment.

Field Implementation. In the near future, FAA will be faced with a significant increase in the number of systems it must install in the field. However, despite being directed by the House Appropriations Committee to do so by February 1989, FAA has yet to establish the size of installation staff it will need. We believe that the staff size will be substantial if FAA is to have any chance of meeting its current schedules. Furthermore, FAA's reliance on contractor support requires a clear identification of contractor duties and interrelationships.

On the positive side, FAA headquarters plans to improve the guidance it provides to regions by establishing a "first site" concept. The first site associated with a given system will develop more detailed plans and, in turn, share them with other sites. The first-site concept should facilitate installation of the systems at subsequent sites.

Scope and Cost of ATC Modernization. FAA needs to come to grips with the expanding scope and cost of ATC modernization. We testified in April of this year that FAA's \$15.8 billion estimate to complete the NAS Plan does not reflect all projects needed to meet NAS Plan goals and objectives. We also pointed out that the

total cost of modernization may reach \$27 billion through the year 2000.<sup>1</sup> This is because more projects have been added, modernization projects characterized by FAA as non-NAS Plan have been defined, and additional changes to existing projects have been identified.

Our April testimony noted that the \$1.9 billion facilities and equipment request for fiscal year 1990, which represents a 41 percent increase over the fiscal year 1989 request, is an indication that a bow wave of funding needs for the modernization effort is beginning. Indeed, on the basis of information generated by FAA's systems engineering and integration contractor, FAA would have to request almost \$4.5 billion for facilities and equipment in fiscal year 1991 to meet current modernization schedules. We recommended that FAA revise its modernization plan to identify all needed projects and their benefits, costs, and schedules so that relative priorities can be set on the basis of mission need and safety considerations.<sup>2</sup> FAA has not yet responded to our recommendation, but the agency needs to set priorities if it is to responsibly manage the modernization program.

#### Rebuilding FAA's Work Force

We have reported over the last several years that management of FAA's safety work forces needs improvement in several areas, including recruiting, hiring and training. We are encouraged that

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<sup>1</sup>FAA Appropriation Issues (GAO/T-RCED-89-20, Apr. 4, 1989).

<sup>2</sup>Air Traffic Control: Continued Improvements Needed in FAA's Management of the NAS Plan (GAO/RCED-89-7, Nov. 10, 1988).

FAA has recently launched numerous initiatives in these areas. These initiatives are long-term in nature and will require continued management support if they are to be brought to fruition. Even with these initiatives and the progress it made this year in hiring and certifying new controllers, FAA is not likely to meet full performance level (FPL) controller staffing goals in the time frames established. The agency also faces a major policy decision on whether equipment maintenance will be done in-house or by the private sector.

Streamlined Recruiting and Hiring. To improve recruitment, FAA has announced efforts to identify, attract, and hire the most talented individuals available. FAA plans to establish a national recruitment team and is upgrading its advertising and recruitment materials. As we reported in September 1988, FAA has not had such a program in the past, relying instead on individual regions to meet its needs.<sup>3</sup>

FAA also has established a streamlined hiring process for controllers, and it plans to expand the process to other safety-related occupations. Under this program, the hiring process can be reduced to about 45 days from an average of about 1 year. FAA has hired 150 controller candidates through this "fast track" program since its implementation in September 1988.

FAA's efforts to improve recruiting are laudable; nevertheless, the agency has made limited progress in rebuilding

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<sup>3</sup>FAA Staffing: Recruitment, Hiring, and Initial Training of Safety-Related Personnel (GAO/RCED-88-189, Sept. 2, 1988).



the controller work force at the FPL level. As you know, FAA has sought waivers from meeting congressionally mandated goals for FPLs during each of the past 2 years and it is unlikely that current-year goals will be met. Furthermore, between now and the end of fiscal year 1990, FAA must increase the overall number of FPLs by 3,100. Providing quality training for such an unprecedented increase within such a short time is a major challenge for FAA.

To attract personnel to difficult-to-staff locations, FAA also proposed to implement a 5-year pay demonstration project in June 1989 that would provide up to 20-percent bonus pay for FAA employees at selected locations in the Chicago, Los Angeles, San Francisco, and New York areas. The objective of this project is to attract more experienced employees to these facilities, and reduce overtime. FAA also is studying its pay and classification system. This study is expected to result in proposals for a new compensation system later this year.

Recently, the House Appropriations Committee expressed its concern about the broader implications the demonstration project could have on the morale and job performance of controllers and other employees not covered by the project. The Committee has directed that the bonus pay be reduced to no more than 10 percent and that the project duration be decreased from 5 years to 2. The Committee also limited implementation to the Chicago Air Route Traffic Control Center and O'Hare facilities.

Training. Inadequate training can lead to tragic events. With this in mind, FAA has made a commitment to provide quality

training for its controllers. FAA plans to modernize its training programs by upgrading both its training curricula and technology. This modernization, long overdue, is expected to last through 1994. FAA also is studying the role of the FAA Academy in providing training and how best to provide that training. The agency's budget speaks to this increased awareness by requesting funds for greater use of training simulators and automation.

Our recent work on controller training substantiates the need for FAA to upgrade its training equipment and reduce the labor-intensiveness of its current training. FAA headquarters also needs to develop an adequate management information system to ensure that employees are receiving quality training.

Maintenance Work Force Staffing Shortages. We are concerned that FAA's field maintenance work force faces reduced staffing in fiscal year 1990. Because FAA has yet to develop an adequate pipeline of new hires to replace its existing maintenance work force, the agency faces a growing shortage of maintenance technicians. Because NAS Plan delays will require existing equipment to be used longer, the agency will soon need more maintenance technicians in order to provide adequate maintenance for the ATC system. This problem is becoming more urgent because over 50 percent of the current work force is eligible to retire by 1995. Unless sufficient numbers of maintenance technicians are recruited, hired, and trained, FAA may be required to contract for maintenance services rather than perform them in-house. It is clear that resolution of the maintenance work force staffing

shortage needs to be addressed regardless of whatever personnel rules apply to FAA or possible organizational changes.

#### FUNDING CONSIDERATIONS

Funding needs for ATC system modernization as well as FAA's work forces will intensify greatly over the next several years. Only one of the NAS Plan's 12 major systems--the Host computer--is totally operational. As more systems reach the implementation stage, more funds will be required. Further, most of FAA's work forces are being increased, in several cases substantially, and significant funding will be required to cover these increases. If FAA is to meet the challenges it faces, it will need to request and receive a predictable and sufficient flow of funds.

Due primarily to slower than expected progress in the NAS Plan, the balance in the Aviation Trust Fund, which is the funding source for capital development of the nation's air transportation system, currently exceeds outstanding commitments by almost \$7 billion. In that sense, the trust fund has a surplus. However, this surplus will be needed in the years ahead. Further, the various FAA work forces must compete for funding with other federal programs because (1) the trust fund does not take in enough revenue to cover all work force salaries and (2) the trust fund legislation significantly restricts the fund's availability to cover these costs. Therefore, an all-inclusive funding source for FAA operations, financed entirely by those who use the aviation system, does not exist.

Reports by the President's Aviation Safety Commission and the Congressional Budget Office provide analyses of the effects of a proposal for greater use of the Trust Fund to finance all FAA costs, including most work force salaries and expenses. This proposal corresponds closely to options we provided in two reports to the Congress.<sup>4</sup> The Aviation Safety Commission's report concludes that any significant change in the trust fund's role in financing FAA will quickly eliminate the annual surplus. Consideration, the report adds, will have to be given to changing the current tax and fee structure. While changes in the use and revenue base of the Fund clearly would require legislation, they could be accomplished in a way that retains congressional authorization and appropriation oversight.

We recognize that widespread concern exists that trust fund spending will be restricted due to the pressure to reduce the deficit, and that this concern could persist even if the fund were made available to finance all FAA operations. Concerns over the Aviation Trust Fund operations are not limited to that trust fund alone. Fiscal year 1989 budget documents show that over 150 trust funds existed government-wide in 1987. Other trust funds, including Social Security, also have surpluses, and surpluses in these trust funds are offsetting a portion of the huge deficit on the non-trust fund side of the unified budget.

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<sup>4</sup>Aviation Funding: Options Available for Reducing the Aviation Trust Fund Balance (GAO/RCED-86-124BR, May 21, 1986) and Transportation Issues (GAO/OCG-89-25TR, Nov. 1988).

In GAO's work on budget issues, we have become increasingly concerned about the extent to which trust fund surpluses "mask" the severity of the deficit on the non-trust fund side of the government's operations. Specifically, the \$150 billion total deficit reported for fiscal year 1987 does not reveal that the non-trust fund deficit was actually about \$223 billion, offset by trust fund surpluses for the year of almost \$73 billion. We have issued a report on this problem, and have included suggestions on structuring the budget to facilitate the kind of analyses needed to assure a proper budget relationship between trust and non-trust operations.<sup>5</sup>

FAA ORGANIZATIONAL CHANGES

AND NEED FOR STABLE LEADERSHIP

In April 1988, the Secretary of Transportation released the Report of the Secretary's Task Force on FAA Internal Reforms. In commenting on the regional FAA structure, the report stated that Associate Administrators with responsibility for major programs had no line authority over program implementation and operations. The report further stated that this resulted in inconsistent application of regulations and hindered FAA's ability to carry out program goals and concentrate resources effectively.

In response to this report, in July 1988, FAA announced a major realignment of its top management and regions. It established four Executive Directors and reduced significantly the

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<sup>5</sup>Budget Issues: Trust Funds and Their Relationship to the Federal Budget (GAO/AFMD-88-55, Sept. 30, 1988).

number of key officials reporting directly to the Administrator. Other changes included direct reporting by regional program division managers to the cognizant Associate Administrator, a relationship FAA calls "straightlining."

This organizational change is still undergoing implementation, and it is too early to conclude whether it will satisfactorily resolve problems identified by the Task Force. However, in our review of FAA's Research, Engineering, and Development program, we found that establishing a new management structure headed by an Associate Administrator and making other procedural changes were positive steps toward sharper focus of research goals and objectives.<sup>6</sup> For example, FAA now plans to convene interservice working groups to develop research requirements and budgets. This was not done previously. In addition, reforms to streamline the acquisition process are underway. FAA is implementing Task Force recommendations to increase the size of the procurement staff. FAA's Acquisition Office has recently been reorganized to permit the establishment of dedicated teams to support major acquisitions.

While these efforts may yield positive results, they have not allayed concerns about the instability and uncertainty occasioned by the frequent turnover of FAA Administrators. If the next Administrator is confirmed in June, FAA will have had three Administrators over the course of 5 years. Apart from questions about what effect this will have on the wide-ranging Impact 88

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<sup>6</sup>FAA Research, Engineering and Development Issues (GAO/T-RCED-89-21, Apr. 12, 1989).

agenda set by former Administrator McArtor, the turnover has occurred at a time when the agency faces what perhaps are the most difficult challenges in its history, including ATC modernization, work force shortages and aviation security.

BENEFICIAL SIDE TO

DEPARTMENTAL INVOLVEMENT

Much of the Congress' reasoning when it placed FAA within the Department 23 years ago was to promote a unified transportation department that would foster integrated planning and policy-making among the various transportation modes. While the extent to which this has been achieved is certainly open to debate, it is not clear to us how this objective would be achieved if aviation--the fastest growing mode of transportation--were removed from the Department. The current Secretary has recognized the need to develop a national transportation policy. Through such a policy, Secretary Skinner intends to provide "a strategic framework not only for identifying needs, but for allocating resources and understanding and promoting a competitive, deregulated economic environment." Planning for the nation's transportation needs at such a level can help identify opportunities for the cost-effective use of alternative modes such as high-speed ground transportation.

In terms of DOT oversight of FAA, we recognize that the appropriate level of departmental oversight can be a question of management philosophy, a function of the relationship between the FAA Administrator and the Secretary, and that instances have occurred when the Department's involvement in FAA affairs was not

considered constructive. However, we also have observed important instances where there was a beneficial and useful side to departmental intervention into FAA's affairs. These included critical safety issues as well as procurement and work force matters. Most recently, Secretary Skinner formed a task force to review the NAS Plan to ensure that scope and funding needs are clearly understood. We view this as a promising step toward recognizing the need to modernize the ATC system in manageable increments.

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In summary, Mr. Chairman, we are not in a position to say whether an FAA independent of the Department of Transportation will better deal with the problems in rebuilding safety work forces and ATC modernization. We do know that systemic improvements along the lines discussed in our testimony are needed in both the work force and modernization areas, regardless of FAA's organizational placement and whether or not the agency must abide by the procurement and personnel rules that apply to other agencies. Funding is likewise a critical issue, regardless of FAA's organizational status. Finally, we believe the importance of national transportation planning and the indispensable role of aviation in that process should be a threshold consideration in the dialogue over whether FAA should be a part of the Department of Transportation.