STATEMENT OF JOSEPH M. DEL BALZO, ACTING ADMINISTRATOR OF THE FEDERAL AVIATION ADMINISTRATION, BEFORE THE HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION, SUBCOMMITTEE ON AVIATION, CONCERNING THE ADVANCED AUTOMATION SYSTEM. MARCH 10, 1993.

Mr. Chairman and Members of the Subcommittee:

I am pleased to appear before you today to discuss the status of the FAA's Advanced Automation System program, which we refer to as the "AAS" program.

The AAS program is a key element of the FAA's Capital Investment Plan (CIP), which represents a variety of technological efforts to modernize our air traffic control system. The CIP is an outgrowth of our earlier National Airspace System (NAS) Plan, commenced in the early 1980's as the largest and most complex Federal technology-modernization effort ever in the Federal civil sector. This effort was begun to replace the tube type technology--which was the norm in our aging air traffic control system--with modern technology capable of providing the improved productivity and safety benefits needed to meet growing air traffic demands. Several years ago, over 90 projects were transitioned from the NAS Plan to the CIP, which is a continually-revised 10 year plan for capital improvements determined necessary to meet changing and projected demands on our air traffic control system.

Much has been accomplished to date under the NAS Plan and the CIP. Over 96% of the projects are under contract, and 43% of the

projects are completed. These plans have brought us improvements like the ASR-9 radar, operational at 47 airports, which provides better radar targets and improved weather detection; and the Low-Level Windshear Alert Systems that have been installed at 110 sites to provide hazardous weather alerts to controller personnel. Today's system offers a reliability and productivity unavailable a decade ago, when our planning efforts began in earnest. But much remains to be accomplished not only for the short-term, but in terms of additional planning for future improvements to the system.

One important lesson we learned along the way was the need to improve our acquisition processes, and several years ago we took strong action to do that. We have introduced greater discipline and structure into our procurement activities. I believe we have made important advances in this vital area, but I also recognize that continued focus and vigil are needed to see that we continue that progress. Our goal in each case, of course, is to develop, buy, and install the right equipment on time and on budget.

One thing that separates much of our work from other agencies is that the safety of our Nation's air transportation system must be foremost in our mind from conception of a project through installation and use by our controllers and technicians or by pilots. Every major technological conversion we make to our air traffic control system must work perfectly from a safety standpoint from the first moment; further, those changes must be

essentially "invisible" to the system users. The painstaking process of initial and operational testing of new equipment sometimes, despite our wish for earlier payoffs, may account for added--but necessary--delay. There are also times that new technological breakthroughs provide real opportunities for improvements to what we earlier conceived, and we must alter course to take advantage of those chances. And, as we sometimes find, some of the projects we have undertaken prove considerably more complicated and difficult than either our experts or private sector experts believed to be the case; this is particularly true in the computer software area, where virtually every major procurer of technology reliant on extensive software development experiences unanticipated problems.

These factors mean that our acquisitions success in terms of time and cost has been somewhat of a mixed bag throughout the extraordinarily demanding task of revamping our entire air traffic control system. And this has proved to be the case as well in the AAS program, as I will describe in a moment. First, though, I would like to briefly highlight what the AAS program is.

The AAS program is the cornerstone of our current modernization efforts. The AAS contract was awarded in 1988, and was at that time the largest automation contract ever awarded in the civil sector. AAS will provide the capacity to handle projected air traffic load well into the 21st century. It offers increased productivity and safety benefits, increased reliability, and the

adaptability to take advantage of new capabilities offered by satellite technology.

In developing the AAS program, we have worked with the aviation user community, and have actively involved working FAA controllers and technicians. The involvement of the aviation community and our air traffic controllers is critical to producing the right products. Early controller involvement has resulted in many changes that will improve our final product. Although user involvement in these early stages has resulted in requirements changes to the program, we believe it has been best to introduce needed changes early on rather than fielding a system that is not acceptable to our workforce or that must be changed later on.

There are five components to the AAS program. The first element is the Peripheral Adapter Module Replace Item (PAMRI), which substitutes for several pieces of existing equipment at our air traffic centers. PAMRI provides higher data transmission rates for radar site interfaces, and will permit the later introduction of data from additional radar sites to a particular facility. It will support full air traffic control operations under the present system, while providing the needed redundancy to support transition to the second phase of the AAS program--the Initial Sector Suite System (ISSS).

The ISSS component will introduce new air traffic control work stations into our air traffic facilities that control en route

flight. It will rely principally on the automation capacity afforded by our earlier acquisition and installation of improved main frame computers in all of our air traffic centers. These "Host" computers have performed extremely well since their completion in 1988.

Each work station or "sector suite" will consolidate controller functions now performed at several scopes or workplaces into one suite. Improved data portrayal will be available to our controllers through much enhanced displays that offer higher resolution, color, and better depicted weather information. Electronic flight data, in lieu of handwritten paper strips, will also be available. The sector suite configuration, along with communications improvements, will enable us to simply and speedily reconfigure airspace within an air traffic center to respond to staffing or workload requirements. It also enables a supervisor to monitor on one screen air traffic activity at any control station under that supervisor's authority. Today, a supervisor must walk around the control room in order to observe air traffic activity.

The ISSS portion of the AAS program provides the needed platform for the subsequent achievement of a variety of user benefits that are offered by other elements of the AAS program. Remaining elements of the overall AAS program include: TAAS--Terminal Advanced Automation System--new equipment and software for the terminal operational environment; TCCC--Tower Control Computer

Complex--new software and selected hardware upgrade for airport control tower operations; ACCC--Advanced Computer Complex--new software and selected hardware upgrade for consolidated air traffic operations; and AERA--Automated En-Route Air Traffic Control to facilitate fuel savings and other efficiencies in the en route air traffic environment.

When AAS is completed, computers will perform many existing controller functions that can be done more efficiently and precisely by automation, freeing controllers to perform functions that humans can do better. For example, the AERA portion of the AAS will evaluate radar data to combine aircraft locations, altitudes, and velocities along with wind speed predictions. Looking ahead as much as 20 minutes into the future, it will scan for potential conflicts with other aircraft, highlighting in bright red the potential collision course on the controller's display. AERA will then rank potential course corrections for the controller who will decide what action to take. This will help tremendously in assigning aircraft more direct and fuel efficient routes, saving time and money.

As I mentioned earlier, our success in the overall AAS program to date has been mixed. PAMRI is a real success story, with the last system to be implemented this April, ahead of schedule. And our user teams and the creation of the Development Demonstration Facility have been invaluable in helping to assure that fielded products will be useable, acceptable, and appropriate to the

task. But we have experienced problems with ISSS, as I will describe.

About 2 years ago, FAA and IBM modified the AAS contract, which resulted in a 19-month delay for ISSS. Five months of the delay were due to FAA changes in requirements and the remaining 14 months resulted from software development difficulties encountered by IBM. This past November, IBM advised us that it would experience an additional 14 month slippage in the program due to significant software development problems.

Following that notice, we acted promptly to insist upon a proposed plan from IBM to cure this problem, to set course corrections, and firm up a schedule. IBM responded with an initial proposed cure plan. A senior-level FAA team was appointed to work directly with IBM officials to see that this plan was strengthened to meet our requirements. IBM has recently provided us with its "cure" plan, which is under technical review within the FAA. On a separate track, IBM has already taken a number of positive actions, which they will describe today, to respond to the problems encountered with the ISSS program. They now have a much-strengthened management focus on this program along with a greater resource commitment. IBM has also strengthened its internal audit of ISSS as well as its testing procedures.

FAA has taken several major steps to change the way we have done business with the AAS program. Our review of the problems

encountered with the program indicates to us that we previously did not exercise sufficient, continuing top-management focus on the program; that we have generally taken far too long to respond to technical issues or problems raised by IBM; and that we were not providing adequate top-level attention to requirements changes in the program. The recent changes we have instituted address all these issues.

We have restructured our management of the AAS program to provide program support and oversight at the top. A program director for the overall AAS program now reports directly to the Administrator. The program director is empowered to make decisions on issues affecting requirements, except where schedule or cost of the program will be affected by a requirements change. That authority is reserved to the Administrator. The program director will be accountable for cost containment and keeping the program on schedule. The FAA's Acquisition Review Council, chaired by the Administrator, will review the status of the AAS program at least every two weeks, and more often if necessary.

We are also establishing separate program managers for the different segments of the AAS program. We have already selected the program manager for the ISSS segment. The segment program managers will report directly to the AAS program director, who will have responsibility for overall direction and program coordination.

The FAA has now established a dedicated ISSS team on site at IBM. The team includes representatives from our air traffic and airways facilities organizations, as well as a contracting officer. This team is fully empowered to resolve issues as they arise, eliminating the decision-making delays of the past where it simply took too long for us to come to grips with technical problems. We have worked our way through nearly 100 open items in the last several weeks, leaving two major technical issues on the table.

Another key step we have taken is to fix the requirements for ISSS. We need to assure that we have everything our controllers need under this program, but we also need to provide a steadier target for IBM to work toward. We need to separate the "nice to haves" from the "need to haves," and we are doing that. Toward this end, we have established an operational suitability action team.

We plan to freeze requirements for the ISSS by April 1. I want to stress that this freezing of requirements does not mean that there will be no additional changes to the system. Based on prior experience, I am sure that operational testing of ISSS will highlight some aspects of the system that need tweaking or changing before full-scale deployment can begin. We are, however, committed to maintaining much closer control over any requirements changes than was the case before. I would also add that there may be requirements, which we believe are needed, but which can be deferred until after an operational system is fielded. In those

cases, sticking to the schedule will take top priority. Schedule and cost considerations will be much greater drivers of this program than before. I can assure you that we are committed to fielding an operational system in Seattle in October 1996, and that we will do all we can to make that goal a reality.

So far, I have discussed what we have done to address problems with the ISSS segment of AAS. I would like to briefly touch on the status of the rest of the AAS program. As I mentioned earlier, the terminal AAS or TAAS will introduce new equipment and software into the terminal operational environment. The lastest TAAS milestone demonstration was successfully concluded this February. However, delivery of TAAS will be delayed by 7 months due to the ISSS delay.

The tower control computer complex--TCCC--and the area control computer complex--ACCC--are unaffected by the ISSS slippage. Funding restrictions, however, have decreased activity in these segments, and we are reviewing the impact of these restrictions on program schedules.

With respect to AERA, we are currently reviewing what actions we need to take to make AERA available as soon as possible after completion of ISSS. AERA, as I mentioned earlier, offers significant benefits to the user community. Therefore, we plan to bring it on line at an earlier phase of the program than was first conceived. This is a high priority with us.

In closing, Mr. Chairman, I would like to emphasize the importance we place on the AAS program, and the need for its timely completion. AAS is an investment in our air transportation infrastructure that is needed to take the aviation industry into the 21st century. We deeply regret the recent slippage we have encountered in the program. The steps we have taken reflect our commitment at the top to provide a much improved foundation for managing the program in a way that will keep it on budget and on schedule. I assure you that we will not relent in these efforts.

That completes my prepared statement. I would be pleased to respond to questions you may have at this time.