STATEMENT OF J.W. COCHRAN, ACTING DEPUTY ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION, BEFORE THE SUBCOMMITTEE ON AVIATION AND TRANSPORTATION R&D, COMMITTEE ON SCIENCE AND TECHNOLOGY, HOUSE OF REPRESENTATIVES, SEPTEMBER 21, 1976

Mr. Chairman and Members of the Subcommittee:

We thank you for this opportunity to appear on behalf of the FAA's Research, Engineering and Development (R, E&D) Program. With me today are the key members of our engineering and development organization who will provide additional testimony before the Subcommittee: Mr. Albert Albrecht, Deputy Associate Administrator for Engineering and Development; Mr. Neal Blake, Deputy Director, Office of Systems Engineering Management; and Mr. Robert Wedan, Deputy Director, Systems Research and Development Service.

At the outset, let me say that Dr. McLucas has expressed his regrets that he could not personally appear before you today. Unfortunately, he had a longstanding commitment out of the Washington area. As you know, he has been involved with aeronautical research most of his life and now as the FAA Administrator, he has a heightened interest in assuring that our programs are responsive to the future needs of aviation.

Since we last appeared before you in February, the traffic growth rate has increased, further challenging us to continue providing a safe, efficient, and economically viable national airspace system. During the first six months of this year, the total air operations at the top 13 major

airports have increased by 4% when compared to the same six-month period for 1975. These increases mean that delays over 30 minutes have increased by one third over the same time period for last year. At the forecasted rate of growth for the next two decades, traffic will again double with similar delays unless we vigorously attack the problem through R, E&D today.

Mindful of these realities, we have initiated a responsive R, E&D program. Its objectives are to ensure that adequate capacity is available at a reasonable cost, that needed levels of safety are maintained in both aircraft and ATC operations, and that resource conservation and environmental protection are properly addressed. This program identifies the research, engineering, and development efforts we believe necessary to achieve a national airspace system that will meet the needs of the American traveling public over the next 25 years.

In looking to these challenges of the future we can see that today's system is becoming saturated. For example, today, ten major airports have delays we consider to be substantial. More importantly, of these ten, four have been forced to initiate quotas to enable them to cope with heavy traffic. Yet, only one new airport has been approved for construction in the foreseeable future. Certainly, we are pleased with Secretary Coleman's decision on the new St. Louis Airport to be built near Waterloo, Illinois, but even this facility won't be ready until 1992. Consequently,

our present upgraded third generation R&D program is aimed at relieving the majority of the forecasted hub airport congestion during the next two decades by significantly increasing their capacity.

In addition, the public's and our own increased awareness of the total environmental impact of aircraft and airport operations has prompted major changes in our future planning. For example, certain communities with noise problems have resorted to curfew at local airports. I am sure that the Subcommittee is aware that our own Washington National Airport is closed to jet operations daily from 11:00 p.m. to 7:00 a.m.

An integral part of our environmental responsibilities is a concern for conserving natural resources. Obviously, traffic delays account for most of the fuel wasted on the ground and in flight. Implementation of our current automation and navigation R, E&D programs could significantly reduce rising fuel consumption by minimizing these costly delays. With the steady increase in traffic growth and increases in fuel prices, the issue of fuel conservation will become even more critical by the turn of the century. Our advanced System Development and Technology Staff is currently exploring ways to optimize fuel usage in the next generation ATC system. Such concepts as advanced automation and airborne performance computers would permit more fuel conservative flight profiles. These and other fuel saving measures in all facets of aviation are being actively pursued now in

order to assure a viable future air transportation system. Our R&D programs are aimed at eliminating delays and ensuring unrestricted access to the system for all users.

We must begin today to plan beyond the UG3RD ATC system. Therefore, studies of air traffic control system operations for the post 1995 period need to be initiated. Despite the increased utilization of automation in the UG3RD program, the need for a less labor intensive system is becoming increasingly apparent. Through greatly advanced automation, we foresee the controller being able to "manage," rather than "control," more aircraft, more efficiently in the future ATC system. At the same time, airborne automation technology will provide the pilot with more information about his operating environment.

Even with a significant increase in ground and airborne automation, safety in the national airspace system will not be compromised. Safety is and will remain our foremost concern. Indeed, the advent of wide-bodied jets carrying more passengers at greater speeds has made it even more essential to further reduce risks. Accordingly, our research, engineering, and development efforts are and will continue to be focused on attaining the highest degree of safety practicable. Redundancy in the ground and airborne collision avoidance systems is but one example of these R, E&D efforts.

I would like to reemphasize the urgency for vigorously pursuing the FAA's R&D program. The major features of the UG3RD are designed to meet the needs of the 1980-1995 era. Many of these programs, such as the Microwave Landing System (MLS) , are currently peaking and entering the high cost prototype development phase. In fact, the advanced state of a newly developed Microwave Landing System was recently demonstrated to the International Civil Aviation Organization. Employing only MLS guidance data, a NASA Boeing 737 aircraft made several full automatic (hands off) landings. Mr. Chairman, I want to thank you for personally witnessing these MLS demonstrations. They represented the results of 15 years of intensive research and development in all facets of microwave guidance technology. A point to be made here is that the introduction of new technology into the ATC system requires some 15 to 20 years from concept formulation to field implementation. In view of these significant lead times, we believe it imperative to actively begin investigating the concepts that will be the basis for the post 1995 ATC system. Neal Blake will shortly be talking to you about our advanced development and engineering.

I appreciate having the opportunity to appear before you today. I would now like to introduce Mr. Al Albrecht, who will discuss our management structure and some new initiatives we have taken to improve our internal operations.