

## ADDITIONAL INPUTS FROM THE PARTICIPANTS

1. Franklin A. Cirino, American Airlines
2. William E. Howell, NASA Langley Research Center
3. Col. Robert B. Nicholson, U.S. Air Force
4. Peter Jost, Airbus Industrie

# American Airlines

October 28, 1986

Dr. Agam N. Sinha  
Session Organizer  
The MITRE Corporation  
7525 Colshire Drive  
McLean, Va. 22102

Dear Agam:

Thank you again for inviting me to speak and participate in the National Academy of Science Special Meeting on Airport and Terminal Area Operations of the Future. In response to your letter of October 17, may I respectfully suggest that the report of the meeting emphasize and separate short-term and long-term issues. We must not be blinded by future ultra sophisticated proposals to the point that we do not recognize the necessities to implement badly needed short-term improvements using present technology and already established principles. This separation of intent and purpose should be paramount in both this report and future actions of the National Research Council. I would suggest that both Computer Assisted Approach Spacing and an Automated Accounting System of runway occupancy time are short-term and badly needed system enhancements that can be instituted with present technology.

Sincerely,

  
F. A. Cirino

National Aeronautics and  
Space Administration  
**Langley Research Center**  
Hampton, Virginia  
23665-5225



Reply to Attn of 265

October 30, 1986

Dr. Agam N. Sinha  
The MITRE Corporation  
7525 Colshire Drive  
McLean, VA 22102

Dear Dr. Sinha:

In reply to your invitation to add personal comments to those of the session leaders, I have reviewed my notes and find that all necessary comments seem to be included; however, I would like to quickly summarize two comments which I found to be particularly interesting. These are, of course, biased by my interest in the research side of the capacity problem.

1. There were suggestions for the establishment of some form of independent board to advise new administrators and congressional bodies on R&D. I find this potentially very useful and probably should be studied in some depth. This might provide more continuity in the advanced R&D and ensure that useful concepts were pursued to appropriate end points.

2. While "more concrete" provides quick and effective capacity gains, there are further gains to be had from technological improvements to the operations of the system; i.e., controller aids possibly centered around time-based operational concepts. The controller operates today with only raw data while his counterpart in the cockpit has a wealth of processed data instantly and coherently displayed.

I wish to thank you and the organization for the opportunity to participate in the workshop; and if I can be of any further service, please do not hesitate to call.

Sincerely,

A handwritten signature in cursive script, appearing to read "W. E. Howell".

William E. Howell, Manager  
Advanced Transport Operating  
Systems Program Office



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS UNITED STATES AIR FORCE  
WASHINGTON, D.C.

18 NOV 1986

Dr Agam N. Sinha  
The MITAE Corporation  
7525 Colshire Drive  
McLean, VA 22102

Dear Dr Sinha

Thank you for including the Air Force in a most fascinating and worthwhile endeavor. I hope my input is of some use.

First, let me make an attempt at establishing some perspective by quoting from the September 86, ATCA Bulletin. "The fact that the controllers' strike, airline deregulation, and federal budget cuts all have taken place within the same time frame makes determination of the real causes for delays in our system difficult. However, we do know that major en route facilities which experienced a busy day with 4000 daily operations five years ago are now handling 7000 per day. Meanwhile, there have been virtually no increases in airport capacity over the past five years". ATCA goes on to reiterate that the bottlenecks in the system are due to a 60 percent increase in traffic (I believe they mean commercial traffic), insufficient airport capacity, and outdated equipment.

I think this assessment is fundamentally correct. The Air Traffic Control (ATC) system is limited by airport incapacity at destination. This is illustrated by the use of "gate hold" procedures where aircraft are held on the ground prior to departure rather than in airborne holding patterns near destination. I believe that the departure and en route portion of the ATC system are capable of handling today's traffic levels.

I think the ATC system suffers from lack of automation of the arrival flow as its second most constraining factor. As several conference speakers so stated, an automated system must be devised to begin sequencing aircraft according to relative performance characteristics towards the end of the en route phase. It seems to me that a great deal of attention has been given to automating the en route phase of flight. Certainly that is the easier of the tasks and was more doable with the available technology. But now an effort dedicated to the terminal phase must begin.

Twenty years ago, when the Air Force had to increase its pilot training output, it found it necessary to build additional runways at existing pilot training bases and to reactivate bases previously closed. There was no other way to achieve the necessary capacity. The same sort of investment must be made in civilian airports. Each commercially significant airport must be studied to determine what runway configuration is needed; shorter runways for commuter airlines will relieve the pressure on the long "jet" runway. By integrating microwave landing system installations, suitable, but differing, adjacent glide patch angles can be used to permit simultaneous parallel approaches, thereby increasing airport capacity. Determination of the airport runway configuration should consider the arrival and departure traffic flow.

I believe some reliever airports for general aviation will have to be built and equipped for all weather operations with MLS. This viable alternative to the major airport will further serve to segregate aircraft. It is a waste of resource to allow a small general aviation aircraft to delay a large commercial aircraft at

arrival. Let me go on to say here that I believe some segregation by aircraft type and/or terminal arrival automation is necessary before separation can safely be reduced to less than three miles on final approach under instrument meteorological conditions. The Air Force currently uses less than three miles predominantly in visual conditions and involving like-sized aircraft. Special training of aircrews and pilots is also involved.

Due to the safety resulting from modern reliable aircraft and a disciplined, capable air traffic system, air travel is now as routine as any other form of travel. Thus the demand for air travel and related facilities will continue to grow. Large investments to modernize the air traffic control and airport system are necessary and appropriate, and should be made for "operational" purpose and goals. The funding for this effort must be predictable to allow for efficient implementation of planned improvements.

The FAA as an organization can, as most sizeable government bureaucracies, be improved. I believe it would be unwise to dismember it or create a government corporation in its place.

The focus of the meeting on "airport and terminal operations of the future" was entirely upon the large commercial airports and the airline delays which are a favorite media topic. The combination of media publicity and associated political and special interest group pressure will ensure the National Airspace Plan is enacted. However, there should always be a NAS plan to ensure the nation's ATC system stays abreast of demand. The next air traffic system is likely to be comprised of space based navigation, surveillance and communications equipment.

In closing, I would like to point out that Department of Defense air traffic control facilities constitute about 25 percent of the national air traffic control system and control about 25 percent of the nation's air traffic. Much of that traffic is civilian. The upgrade of the FAA-run ATC system is funded by the Aviation Trust Fund. The DOD run ATC system will require substantial upgrades to ensure a properly interoperable NAS. Thus will be a difficult matter for DOD because such funding must be at the expense of armaments or other fundamental DOD requirements. The DOD will require full access to special use airspace and air traffic services for the foreseeable future. A balanced stewardship of the NAS is one of the most important FAA responsibilities.

Sincerely

*Robert B. Nicholson*

ROBERT B. NICHOLSON, Col, USAF  
Chief, Airspace and ATS Division  
Directorate of Operations



Headquarters  
BP N° 33, 31707 Blagnac Cedex, France

Telephone 61 93 33 33  
Telex AIRBU 530526 F

BLAGNAC, November 12, 1986  
AI/TM-042/86/PJ/SSO

Dr. Agam N. SINHA  
The MITRE Corporation  
7525 Colshire Drive  
McLean, VA 22102  
USA

Dear Dr. Sinha,

just coming back from a trip I found your letter inviting the participants in the TRB workshop for further comments.

Unfortunately I couldn't reach you on the phone to comply with the given timeframe but I nevertheless hope that a few remarks may reach you before the report will be issued.

- 1) Today's level of aircraft movements is not very much above that of the pre-deregulation days. Congestion increased as a result of deregulation and creation of hub-and-spoke airline networks.

When advocating the principle of free market entry and competition then, independently from political "feasibility" considerations, the price (i.e. in the form of peak hour pricing) should also be retained as a possible regulator between supply and demand. Another option would be the "do nothing" position with the risk of some sort of capacity imposed operational re-regulation of the industry.

- 2) Discussions assumed the status quo of the industry to be maintained, mainly with regard to a high-frequency hub-and-spoke system. Why do we exclude any possible changes ? For instance, mergers result in less competition between airlines at sensitive airports, a reduced need for high frequency schedules and an increased employment of bigger capacity aircraft. In addition passengers feel the convenience of flying direct rather than connecting at a hub.

.../...



Note :

This view is also shared by different airport authorities and organisation as a realistically achievable solution to meet the near term congestion problem and are retained as one assumption for long term investment decisions.

There are certainly other scenarios which are worthwhile to be examined ("what happens, if ...") before formulating final recommendations.

- 3) Growing aircraft fleets and aircraft sizes are likely to result in 30-50 % wide body share during peak hour movements in about 10-15 years from now. The problem will then most probably shift from terminal and runway capacity to apron, gate, parking space and passenger handling limitations at the major airports. In order to maintain a functioning air transport system it has to be assumed that in the future airport installations will always be able to handle any aircraft number and size mix. Given the constrained geographical expansion possibilities at major airports, is this a reasonable assumption ?
- 4) Many long term technical research programs are carried out here in Europe by institutes and universities as well. The worldwide interest in air transport technology plus limited funds everywhere should support the idea of increased international collaboration.

We heard about a lot of technological developments and long term research needs which should bring some relief to the growing airspace and airport congestion problem.

Such exercises will hopefully provide some constructive results in the long term. I still believe, however, that a somewhat more pragmatic approach to the whole problem area of airport and airspace congestion can yield short term recommendations needed already today and even more so over the months to come.

Sincerely yours

  
P. JOST