INTRODUCTION

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Forecasts for future operations at major U.S. airports suggest that demand will far exceed the capacity now available. There also seems to be a strong consensus that the present programs in the public and private sectors will not meet this expected long-term growth. In response to these concerns, a special meeting on the future directions of airport and terminal-area operations was held in Washington, D.C. under the sponsorship of the National Academy of Sciences.

PURPOSE OF THE MEETING

The objective of the special meeting was to provide a forum for discussion of the key issues of concern in the terminal area. By bringing together key persons in aviation--system users, operators, manufacturers, regulators--and allowing wide-ranging discussions through a workshop format, it was hoped that the major needs of the system and key stumbling blocks would be identified, and new and innovative responses to them developed. Alternatively, if there are no approaches acceptable to the flying public and others involved, that would be a useful "result" of the meeting. While new and innovative ideas were sought, participants were urged to keep an eye on transition issues (how to "get there from here").

STRUCTURE OF THE MEETING

Attendance at the meeting consisted of 43 invited participants representing a broad cross-section of aviation, including industry, the FAA, aircraft operators (both air transport and general aviation), the military, airport operators, academia, and others. A list of the participants is provided in Exhibit 1. The meeting was divided into two key parts: speakers and workshop sessions. The purpose of the speakers was to raise questions and to stimulate the participants' thinking rather than to answer questions or to state policies. Nine speakers presented a wide spectrum of views on the subject. A complete list of speakers and their subjects can be found in the meeting agenda contained in Exhibit 2.

The participants were then divided into three groups that discussed the issues for several hours. A list of the participants in each group is provided at the end of each workshop session report. As a framework for discussion, the groups were given a set of questions to focus on:

- "What are the shortcomings of the current and future terminal area?"
  In order to seek solutions, it will be necessary to first define not only the current and future problems in the terminal area and on the airport surface, but also the causes of these problems.

- "What new or enhanced capabilities should be sought for the future?"
  The operational goals of the future terminal Air Traffic Control (ATC)
system must be defined. These goals should not be related to specific equipment but to concepts for improving ATC in the terminal area.

- "What problems can be expected in attempting to achieve these new and enhanced capabilities in the terminal area?" It will be necessary to identify the hurdles that must be overcome to attain improvements in ATC and more efficient use of airports and terminal airspace.

- "What new programs will be required?" Finally, it will be necessary to define the approaches that will achieve the operational goals. The suggested directions to be taken must have the potential for solving current and future problems with due consideration for safety, productivity, and efficiency.

The physical areas considered ranged from the transition area to terminal airspace to the airport surface, up to the gates. The participants were to consider communication, navigation, surveillance, and automation functions as they attempt to develop new ideas and concepts.

Following the workshop session discussions, the session leaders provided preliminary reports on the conclusions reached during the sessions.

The next section of this report presents a summary report of each session. Some additional inputs were received from individual participants after the seminar. These are presented in the following section. The last section of the report contains the presentation of the speakers that set the stage for the session discussions.

EXHIBIT I

PARTICIPANTS

Phillip H. Agee
John W. Andrews
Louis Atchitoff
John N. Barrer
Joseph D. Blatt
Rodman D. Bourne
Robert G. Buley
Malcolm A. Burgess
Franklin A. Cirino
D. William Conner
William J. Dunlay
Ralph L. Erwin
Heinz Erzberger
Lawrence Goldmuntz
Geoffrey D. Gosling
John M. Graham
E. H. Haupt
Raymond J. Hilton

Howard, Needles, Tammen & Bergendoff
MIT Lincoln Laboratories
FAA, Eastern Region
The MITRE Corporation
Consultant
FAA, Air Traffic Plans and Programs Branch
Northwest Airlines
FAA, System Studies and Advanced Concepts Division
American Airlines
Transportation Research Board
Peat, Marwick, Mitchell & Company
The Boeing Commercial Aircraft Company
NASA Ames Research Center
Economics and Science Planning
University of California, Berkeley
McDonnell-Douglas Aircraft Company
National Business Aircraft Association
Air Transport Association
J. Howell
William E. Howell
F. Jensen
Peter Jost
Phillip J. Klass
Edward C. Krupinski
John E. Lebron
R. J. LeFevre
John McKeeman
Jeff S. Mishler
Col. Robert B. Nicholson
Siegbert B. Poritzky
Eugene S. Rehrig
J. Donald Reilly
Peter Schauffler
David J. Shefte1,4
Armando C. Silva
Agam N. Sinha3,4
Arnold M. Sloane
George Smith
James Smith
H. Verstynen
Sylvia L. Waller
William E. Weiss
Melvin J. Zeltser

Airline Pilots Association
NASA Langley Research Center
Helicopter Association International
Airbus Industrie
Aviation Week and Space Technology
Airline Pilots Association
The MITRE Corporation
Allied Pilots Association
United States Army Air Traffic Control Activity
Aviation Planning Associates
United States Air Force
FAA, Office of System Studies and Cooperative Programs
FAA, Airport Capacity Program Office
Airport Operators Council International
Transportation Research Board
Transportation Research Board
The MITRE Corporation
The MITRE Corporation
Port Authority of New York and New Jersey
Miami International Airport
FAA, Airport Capacity Program Office
NASA Langley Research Center
Consultant
The MITRE Corporation
The MITRE Corporation

Notes

1. Chairman, TRB Committee on Airfield & Airspace Capacity and Delay
2. Secretary, TRB Committee on Airfield & Airspace Capacity and Delay
3. Organizer, Special Meeting on the Airport and Terminal-Area Operations of the Future
4. Member of the Organizing Committee, Special Meeting on the Airport and Terminal-Area Operations of the Future
EXHIBIT 2

AGENDA

SPECIAL MEETING ON THE AIRPORT AND TERMINAL AREA OPERATIONS OF THE FUTURE

Tuesday, October 7 - Wednesday October 8, 1986
Board Room, National Academy of Sciences

Tuesday

8:30 - 9:00  Gathering (Morning Coffee)
9:00 - 9:10  Introduction  Agam N. Sinha, The MITRE Corporation
9:10 - 9:30  Keynote  Phillip J. Klass
             Aviation Week & Space Technology
9:30 - 9:50  Terminal Automation:  Siegbert B. Poritzky, FAA
             FAA Progress to Date
9:50 - 10:05 Break

Industry Viewpoints

10:05 - 10:25  1. Airlines  Franklin A. Cirino, American Airlines
10:25 - 10:45  2. Operators  Arnold M. Sloane,
                    Port Authority of New York & New Jersey
10:45 - 11:05  3. Air Traffic Control  Rodman D. Bourne, FAA
                   McDonnell Douglas Corporation

Research Viewpoints

11:25 - 11:45  1. NASA  Heinz Erzberger, NASA Ames Research Center
11:45 - 12:30 Lunch
12:30 - 12:50  2. Academia  Geoffrey D. Gosling
                   University of California, Berkeley
12:50 - 1:10  3. FAA  Malcolm A. Burgess, FAA
1:10 - 1:20  4. Summary; Charge to the Workshop  Agam N. Sinha
1:20 - 1:30 Break; Assembly for Workshop Sessions  All
1:30 - 4:30 Workshop Sessions

Session Leaders

2. Geoffrey D. Gosling, University of California, Berkeley
3. John M. Graham, McDonnell Douglas

Wednesday

8:30 - 9:00 Gathering (Morning Coffee)

9:00 - 10:00 Finish Workshop Sessions

10:00 - 10:15 Break

10:15 - 11:15 Workshop Session Reports

11:15 - 11:30 Closing Remarks David J. Sheftel, Chairman, TRB Committee on Airfield and Airspace Capacity and Delay

11:30 Lunch

After lunch, the workshop session leaders and meeting organizers will have a short (20 minutes) meeting to discuss preparation of workshop reports.