

**Meeting Minutes of the
Federal Aviation Administration
Research, Engineering and Development Advisory Committee**

April 8 & 9, 1997

On April 8 and 9, 1997, the Federal Aviation Administration (FAA) Research, Engineering and Development (R,E&D) Advisory Committee held a meeting at the Maritime Institute of Technology in Linthicum Heights, Maryland. Attachments 1 and 2 provide the meeting agenda and meeting attendance, respectively.

DAY ONE -- April 8, 1997

Welcome and Introductory Remarks

Dr. Andres Zellweger, Executive Director and designated federal official of the Committee, read the official public meeting announcement notice. He acknowledged Mr. Carl Schellenberg, the Deputy Associate Administrator for Air Traffic Services, who represented the operational side of FAA.

Mr. Ralph Eschenbach, Chairman, introduced four new members to the Committee: Dr. David Crow, Senior Vice President of Engineering at Pratt-Whitney; Mr. James Pierce, Chairman and Chief Executive Officer of ARINC; Dr. Robert Helmreich, Professor of Psychology at the University of Texas at Austin; and Mr. John Olcott, President of National Business Aircraft Association (NBAA).

Mr. Eschenbach announced that Dr. Zellweger will retire from FAA on May 1 to assume a position at Embrey-Riddle Aeronautical University as Dean of the graduate program for research. He praised Dr. Zellweger for developing a strong centralized research and development (R&D) program in Aviation Research and presented an award to Dr. Zellweger from the Committee.

Mr. Eschenbach remarked that he and Dr. Donohue had testified before Congress about two weeks ago. He explained that Congress is very interested in what the Committee is doing and is taking a serious look at the Committee's work. Mr. Eschenbach observed that FAA also is interested in, and receptive to, the Committee's recommendations, especially recommendations on its planned research and development investments.

Dr. George L. Donohue, Associate Administrator for Research and Acquisitions, welcomed the new members to the Committee. He discussed the Secretary of Transportation Rodney E.

Slater's vision of aviation as a major economic artery into the next century which is similar to what the highway system was in the latter half of the 20th century. Dr. Donohue remarked on the challenges in making this vision a reality. Recent airline analysis and independent analysis confirm that a major problem in air traffic capacity will occur between 2002-2004. Radar and radio separation will increasingly become inadequate for the expected air traffic capacity as we enter the 21st century which will necessitate the move to satellite-based systems. The Gore Commission recommended a modernized air traffic system prior to 2005. Introducing technology, safety, and capacity improvements into the system in such a short time-frame creates sociological, fiscal, and technical challenges. With approximately 400,000 aircraft in the world, equipage is a major challenge in the transition to new ground and cockpit technology by 2005. Over the next 3-5 years, research must shift from development to field testing. Flight 2000 (formerly Halaska) is an approach to transitioning to a modern air traffic system by establishing beta test sites in Alaska and Hawaii. The beta sites will provide a cognitive approach to introducing new technology and procedures and will allow a phased transition into the modern air traffic system. Dr. Donohue asked for the Committee's input on the Flight 2000 program and challenged all segments of the aviation community to work together to build consensus on financing, inserting technology, and transitioning to a modern air traffic system by 2005.

NAS R&D Panel Report

The NAS R&D Panel was chartered to review the content and management of FAA's current research and development program against the proposed National Airspace System (NAS) architecture. The purpose of the review was to identify issues that required resolution in order to complete the architecture and to explore opportunities for increasing the program's effectiveness in enhancing the NAS. Mrs. Nancy Price Chaired the Subcommittee.

Mrs. Price presented the Subcommittee's report titled, "Subcommittee Report of the NAS ATM R&D Panel to the R,E&D Advisory Committee", dated March 25, 1997. The Committee unanimously approved the report.

Mr. Eschenbach, Dr. Donohue, and Mrs. Price agreed that the standing Subcommittee on Air Traffic Services (ATS), also Chaired by Mrs. Price, would continue the work of the NAS R&D Panel by reviewing the Flight 2000 program (formerly Halaska) over the summer. The Subcommittee would submit a report in September on the results of the Flight 2000 review.

Subcommittee for General Aviation (GA) and Vertical Flight

Mr. Eschenbach presented the proposed terms of reference for a GA and Vertical Flight Subcommittee to the Committee for vote. The Committee unanimously approved the terms of reference. Mr. Eschenbach appointed Mr. John Olcott and Mr. John Zugschwert to serve as

Co-Chairs of the Subcommittee.

The Subcommittee will investigate the current national transportation system as well as the proposed system architecture for the future national transportation system with respect to how these systems support GA and vertical flight. The Subcommittee plans to meet over the next year and a half and present its report at the September 1998 Committee meeting.

Dr. Donohue reminded the Committee that the Gore Commission made several specific recommendations related to GA. One of the recommendations dealt with making

advanced avionics affordable for GA aircraft. He asked the Subcommittee to consider the Gore Commission recommendations and to determine if the right things are being done to make GA safer.

Meeting Process

Dr. Clyde A. Miller, FAA's Research Division Manager, presented the objectives of the meeting. The principle objective was for the Committee to provide FAA feedback on the 5-year R,E&D investment portfolio for fiscal years (FY) 1999-2003. Specific emphasis was placed on FY 1999. FAA wants to know if the Committee believes it is investing in the right things with its limited FY 1999 R,E&D resources.

Dr. Miller requested that the breakout groups consider the following questions in their review of the investment portfolio:

§ Portfolio Content – Does the portfolio address the right outcomes, outputs, and timeframes?

§ Research Project Description (RPD) Funding – Which RPDs should receive more funding and which should receive less and why?

§ Target Area Funding – Which areas should receive more funding and which should receive less and why?

§ Partnerships – What specific opportunities exist to better leverage R,E&D investments with contributions from industry, academia, and other government agencies?

§ Response – Has FAA responded effectively to the guidance provided by your subcommittee?

§ Process – What should FAA do to improve the process it is using to engage the Committee in providing advice on its investment portfolio?

§ Additional Guidance and Recommendations – Whatever else the Committee would offer the Administrator to better focus R,E&D investments on community needs.

Program Briefings

The FAA presented its 5-year R&D investment portfolio for FY 1999-2003 to the Committee in six program areas: Air Traffic Services (ATS), Airport Technology, Aircraft Safety, Security, Environment and Energy, and R,E&D Management. For each program area, FAA presentations highlighted the program's mission, outcomes and outputs, long range views, and funding summaries. The presenters, in order of presentation, were as follows:

Ms. Paula Lewis	Air Traffic Services
Dr. Satish Agrawal	Airport Technology
Mr. Dave Smith	Aviation Security
Mr. George Marania	Aircraft Safety
Mr. Tom Connors	Environment and Energy
Mr. Randy Stevens	R,E&D Management

Subcommittee Breakout Groups

Mr. Eschenbach directed each of the standing subcommittees of the R,E&D Advisory Committee to meet in breakout groups to review and discuss FAA's proposed R&D investment portfolio. He suggested that the groups consider the questions presented by Dr. Clyde Miller in his briefing on the meeting objectives and process. The subcommittees were to develop recommendations to bring back to the plenary session to discuss with the full Committee. The subcommittee chairs for the breakout groups were as follows.

Ms. Nancy Price	Air Traffic Services
Mr. George Howard	Airport Technology
Mr. Robert Doll	Aircraft Safety
Dr. Dennis McLaughlin, Acting Chair	Aviation Security
Dr. Wesley Harris	Environment and Energy

The Subcommittee on Human Factors did not meet separately. Members from this Subcommittee participated in the breakout group for the Subcommittee on Aircraft Safety or the Subcommittee on Air Traffic Services to review the relevant human factors research and development in these areas.

Subcommittee Reports

The meeting reconvened in plenary session for the presentation of the subcommittees' recommendations. Each Subcommittee Chair presented a 10-minute briefing outlining their subcommittee's recommendations. The subcommittee recommendations are provided by

Attachment 3.

The meeting adjourned for the day at 5:00 p.m.

DAY TWO -- April 9, 1997

Introductory Remarks

Mr. Eschenbach convened the meeting in plenary session and announced the Committee's task for the day which was to make overall recommendations for FAA's proposed R&D investment portfolio.

Breakout Groups

Members met in three breakout groups. To provide a balanced perspective in each of the three groups, membership was assigned so that there were participants from each of the six standing subcommittees in each of the three groups. The groups were to consider all six program areas of the proposed portfolio and take into account the work done by the subcommittee groups in the previous day's session. Again, the breakout groups were asked to consider the questions posed by Dr. Clyde Miller in his presentation on the previous day on the meeting process and objectives. The following Committee members were appointed to Chair the three groups:

Ms. Nancy Price

Group 1

Dr. Wesley Harris

Group 2

Mr. Robert Doll

Group 3

Breakout Group Reports

Mr. Eschenbach reconvened the Committee in plenary session to review the reports and discuss the recommendations of each breakout group. The Chair from each group gave a report of his or her group's findings and recommendations. The reports from the three groups are provided by Attachment 4.

Committee Recommendations

The Committee discussed the recommendations received from the various breakout groups and conducted several votes to determine the highest priority recommendations that the Committee would provide by letter to the Administrator. The Committee members reached consensus on five recommendations which were as follows:

1. The Committee recommends that **FAA set the specific objectives and detailed**

operational concepts for free flight. This should include a plan and system architecture for the transition from the current NAS system to free flight. In support of verifying the free flight operational concept and transitioning to free flight, **FAA should develop a detailed plan, operational concept and architecture for the Flight 2000 demonstration and validation.** In particular, the fiscal year 1998-2003 R,E&D program should include a comprehensive, large-scale simulation effort to develop and validate the operational concepts. In order to meet the objectives of live operational testing starting in the fiscal year 2000, these simulation efforts must start in 1998. The ATS Subcommittee has been asked to evaluate the 1998 and 1999 research allocations and determine if any adjustments need to be made. This report will be submitted in September 1997.

2. The Committee strongly supports the Flight 2000 demonstration program. To accomplish Flight 2000 and the transition to free flight by the 2005 date suggested by the Gore Commission, **FAA must provide strong leadership within the Aviation Community** to insure stakeholder support and dedicate its R,E&D investments in air traffic services and related areas to achieving free flight and Flight 2000.

3. **The FAA should place more emphasis on the National Resource Specialists (NRS).** We recommend that FAA fill vacancies with well-qualified people who understand the role of the NRS. Furthermore, FAA should utilize the NRS to guide its research and development investments in aircraft safety and related areas including collaborative efforts with the National Aeronautics and Space Administration (NASA).

4. We recommend that **FAA consider diverting 20 percent of its planned investments in aviation security to high priority requirements for air traffic services research.** We do not feel that the money is being misused, but that it would be more in the National interest to support the Flight 2000 program and the transition to free flight.

5. The Committee strongly endorses the FAA's collaborative research and development activities with NASA. In the collaboration, **NASA's role should be focused strongly on basic research** that provides a technology base in FAA mission areas. **FAA's role principally should be in applied research** and development in support of its regulatory and air traffic services responsibilities.

These five recommendations on FAA's planned R&D investments will be provided by letter from Mr. Eschenbach, the Committee Chair, on behalf of the Committee, to the Administrator.

The next Committee meeting is planned for September.

The meeting adjourned at 3:00 p.m.

**Research, Engineering & Development (R,E&D) Advisory Committee
Maritime Institute of Technology
5700 Hammonds Ferry Road
Linthicum Heights, MD 21090
(410) 859-5700 Fax: (410) 859-0942**

April 8-9, 1997

AGENDA

Tuesday, April 8 - Classroom 1

- | | | |
|-------------|---|---|
| 8:00 am | Welcome and Introductory Remarks | Mr. Ralph Eschenbach, Chair
Dr. Andres Zellweger, FAA
Dr. George Donohue, FAA |
| 8:25 am | Vote on NAS R&D Panel Report | Mr. Ralph Eschenbach |
| 8:35 am | Vote on GA & Vertical Flight
Subcommittee Terms of Reference | Mr. Ralph Eschenbach |
| 8:45 am | Meeting Process and Objectives | Dr. Clyde Miller, FAA |
| 9:00 am | FY 1999 R,E&D Investment Portfolio | Dr. Clyde Miller, FAA |
| 9:45 am | BREAK | |
| | <u>Target Area Team (TAT) Reports</u> | |
| 10:00-10:50 | - Air Traffic Services | Ms. Paula Lewis, FAA |
| 10:50-11:20 | - Airports | Dr. Satish Agrawal, FAA |
| 11:20-12:00 | - Security | Mr. Dave Smith, FAA |
| 12:00 noon | Lunch - Maritime Cafeteria | |
| | <u>TAT Reports Continued</u> | |
| 1:00-1:50 | - Aircraft Safety | Mr. George Marania, FAA |
| 1:50-2:20 | - Environment & Energy | Mr. Tom Connor, FAA |
| 2:20-2:30 | - R,E&D Management | Mr. Randy Stevens, FAA |
| 2:30 pm | BREAK | |

- 2:45 pm Breakouts (5) - Subcommittee Meetings Committee Members
 - Air Traffic Services - Classroom #1
 - Airports - Room A302
 - Aircraft Safety - Room A303
 - Security - Room A305
 - Environment & Energy - Room A307
- 3:45 pm Subcommittee Reports (Plenary Session) Subcommittee Chairs
 [10 minutes per Subcommittee]
- 5:00 pm Meeting Adjourn
- 5:30 pm Cocktails DoubleTree Atrium Lounge
- 6:00 pm Dinner DoubleTree Atrium Cafe
 [participants must sign up by 12:10 pm in order to attend]

- **Wednesday, April 9 - Classroom 1**

- 8:00 am Plenary Session Mr. Ralph Eschenbach, Chair
 Guidance to Breakout Groups Dr. Clyde Miller, FAA
- 8:15 am Breakouts (3) - Investment Portfolio Committee Members
 Discussions
 Group 1 - Room A302
 Group 2 - Room A303
 Group 3 - Room A307
- 12:00 noon Lunch - Maritime Cafeteria
- 1:00 pm Breakout Group Reports Group Leaders
 (Plenary Session)
- 3:00 pm BREAK
- 3:30 pm Committee Recommendations
- 5:00 pm Adjourn Mr. Ralph Eschenbach, Chair

- **BREAKOUT GROUP ROOMS:**

Room # 302

Room # 303

Room # 305

Room #307

**RESEARCH, ENGINEERING AND DEVELOPMENT (R,E&D)
ADVISORY COMMITTEE**

**Maritime Institute of Technology
Linthicum Heights, MD**

April 8-9, 1997

LIST OF ATTENDEES

Dr. Andres Zellweger, Executive Director, R,E&D Advisory Committee

Mr. Ralph Eschenbach, Chairman

Dr. Satya Atluri

Mr. Viggo Butler

Mr. Frank Colson

Hon. Susan Coughlin

Mr. Robert Doll

Dr. Aaron Gellman

Ms. Angela Gittens

Dr. Wesley Harris

Dr. Robert Helmreich

Mr. George Howard

Ms. Margaret Jenny

Mr. Jean McGrew

Dr. Dennis McLaughlin

Mr. Jack Olcott

Mr. James Pierce

Mrs. Nancy Price

Mr. Michael Rioux
Mr. Edward Stimpson
Dr. Robert Whitehead
Mr. John Zugschwert

OTHER ATTENDEES

George Donohue, FAA	Clyde Miller, FAA	Lee Olson, FAA
Randy Stevens, FAA	Tom Proeschel, FAA	Ken Klasinski, FAA
Lonnie Bellamy, FAA	Vincent Capezzuto, FAA	Dave Sankey, FAA
Warren Fellner, FAA	Herb Schlickednaier, NASA	Tom Connor, FAA
Kathy Abbott, FAA	Tom Imricu, FAA	Edward Harris, FAA
Charles Beam, FAA	Paul Drouilhet, MIT/LL	Frank Earhardt, FAA
Satish Agrawal, FAA	Mike Dundon, FAA	Larry Cole, FAA
Craig Bolt, Pratt & Whitney	Robert Grove, II Morrow	Mike Hawthorne, FAA
Dina DeAnnuntis, FAA	Bernard Blood, Volpe	Dennis Goeddel, Volpe
Dot Buckanin, FAA	John Burks, NASA	Paul Dykeman, FAA
Ernie Dash, FAA	Tony Fainberg, FAA	Steve Bradford, FAA
Chuck Ruehle, FAA	John Loynes, FAA	Hugh Bergeron, FAA
Michael Hermes, MITRE	David Cherry, FAA	John Fielding, Raytheon
Edward Gervais, Boeing	Tony Freck, GE	Tom McCloy, FAA
Cathy Bigelow, FAA	Vivian Hobbs, Volpe	Charlie Huetner, NASA
Russ Benel, MITRE	Frank Tung, Volpe	John Rybka, FAA
Dave Smith, FAA	Susan VanNamee, FAA	Carl Shellenberg, FAA
Richard Young, FAA	Maureen Pettitt, FAA	Debra Winchester, FAA
Sig Poritsky, Consultant	Jim Poage, Volpe	Quentin Taylor, FAA
Julian Vinck, FAA	Thomas William, FAA	Herman Rediess, FAA
Rob Tucker, FAA	Barry Romney, FAA	Hick Stoer, Self
Stu Schreckengast, MITRE	Harold Smetana, FAA	Gary Skillicorn, FAA
Jim Wychmann, MIT	Paul Polski, FAA	Bob Wright, FAA
Arthur Sullivan, FAA	Art Pyster, FAA	Bill Swedish, MITRE
George Marania, FAA	Victor Ilenda, JHU	Dennis Kershner, JHU
Calvin Mitchell, FAA	Nelson Miller, FAA	J.C. Johns, FAA
Joe McCormick, Consultant	Charles Overbey, FAA	Paul Kelleher, FAA
Lawrence Nivert, FAA	Chuck Martin, FAA	Charlotte Long, FAA
Paul Jones, FAA	John McCarthy, NCAR	Paula Lewis, FAA
Hugh McLaurin, FAA	Ruth Martin, NASA	Ann Joyce, FAA
Karen Miles, Norman Dev.	Bob Luddy, NASA	Robert Dodd, Battelle
Mary Barboza, FAA	June Lidder, TRW	Paul Kelleher, TRW

Helen Kish, SRM
Gloria Dunderman, AMTI

Marcie Romagnoli, TRW

Carole Schmidt, AMTI

Breakout Group Reports From the Subcommittee Meetings

April 8, 1997

Includes Reports from the Following Subcommittee Groups:

**Air Traffic Services
Airport Technology
Aircraft Safety
Aviation Security
Environment & Energy**

Report from the Subcommittee on Air Traffic Services

Chair: Mrs. Nancy Price

Members:

Mr. Frank Colson

Hon. Susan Coughlin

Ms. Margaret Jenny

Mr. John Olcott
Mr. Michael Rioux
Mr. John Zugschwert

- n ATS R&D needs leadership.
- n ATS needs an operational concept and needs to be brought together with the lab.
- n Need Cost Benefit Analysis to support ATS investment decisions.
- n Need detailed roadmap for Flight 2000.
- n Flight 2000 needs leadership to develop structure and goals.
- n Subcommittee needs by the end of May:
 - § Flight 2000 definition (roadmap, structure, and goals).
 - § FY 1998 budget realignment to accomplish Flight 2000.
 - § FY 1999 budget focused on Flight 2000 requirements.
- n Subcommittee will report by end of September on how to adjust FY 1999 R,E&D ATS investments for Flight 2000.

Report from the Subcommittee on Airport Technology

Chair: Mr. George Howard

Members:

Mr. Viggo Butler

Ms. Angela Gittens

- n Non-Destructive Pavement Testing is not funded for FY 1999 at the 100 percent program level. The Subcommittee recommends that this RPD be included (No. 143) at an amount of \$150K.
- n The Subcommittee questioned the appropriateness of R&D funds for Airport Planning and Design (No. 132) but, after discussion with the FAA staff, agreed to its inclusion at a level of \$150K.
- n These recommendations preserve the G-7 FY 1999 total of \$7,029K. The Subcommittee would prefer to have \$350K added to the G-7 funding level for the inclusion of RPD 143.

n The Subcommittee recommends that the full R,E&D Committee address itself to the need for R&D funding at much higher levels and explore the potential for greater partnership with industry and the concept of user funding.

Report from the Subcommittee on Aircraft Safety

Chair: Mr. Robert Doll

Members:

Dr. Aaron Gellman

Dr. Robert Helmrich

Mr. Jean McGrew

Mr. Edward Stimpson

n There was insufficient time to cover the wide scope of R&D in this program area. The team does not feel comfortable with the limited time that we have had for discussion and debate.

n We will meet in Atlantic City during the Summer to discuss the research project descriptions (RPDs) in detail. A three-day meeting in August is planned.

n For the immediate future, we feel that the portfolio is reasonably balanced, but we expect some revisions after the August meeting.

n A major issue that has emerged is the level of participation to be expected from industry, DOD, and NASA in FAA research projects.

n We felt that the FAA response to the Subcommittee was adequate.

Report from the Subcommittee on Aviation Security

Acting Chair: Dr. Dennis McLaughlin

n Planned Subcommittee Meetings

§ February 13 and 14, FAA Headquarters, Washington, D.C.

§ April 17 and 18, Aviation Security Laboratory, William J. Hughes Technical Center, Atlantic City, N.J. (This is a security classified meeting.)

n Program Overview

§ This program has the fastest growing annual budget (doubling every 3 years for the past decade).

§ Its growth puts this program clearly in a different arena than all of the rest of the R&D programs.

§ In FY 1997, of the \$57M Aviation Security R&D budget, \$21M was allocated directly by Congress to Security.

- The \$21M allocation was intended to “shepherd” the security equipment infusion from the SEIPT program (\$144M).

§ Of the \$57M budget, about 20 percent is allocated for research and exploratory development.

- About a quarter of this (5 percent) is expended at the William J. Hughes Technical Center.

- The remainder is expended in prototyping, advanced development, and alpha and beta testing.

n R&D Categories:

§ Explosives/Weapons Detection

§ Airport Security

§ Aircraft Hardening

§ Human Factors

n Response to Questions:

§ Adequate Portfolio Content

- The portfolio requires one more level of detail that will include security classified information. James Pierce, our Chair, and Lyle Malotky, the Designated Federal Official (DFO), will preside over the meeting next week at the Technical Center.

§ Partnerships

- \$150M annually.

- 80 Partners.

§ Prior Subcommittee Recommendations

- Some attention should be given to assessing the threat of terrorist launched small missiles and the possible area of responsibility (perhaps this is in the DOD, FBI domain).

– Clarify information coming to the Subcommittee by combining RPDs.

§ The process is following a sensible approach.

Report from the Subcommittee on Environment & Energy

Chair: Dr. Wesley Harris

Members:

Capt. Patricia Andrews

Dr. Robert Whitehead

n What's Missing

The Environment and Energy 100 percent portfolio would be significantly strengthened by adding an accurate, user-friendly, comprehensive environmental impact simulation and modeling capability to its research agenda. This impact simulation/model would predict the affects of noise and emissions produced by aircraft inclusive of a wide range of conditions and critical limits. Based on proven scientific principles and facts and established engineering practices, the simulation and modeling tool should be used on a management enabler to guide and control investments in environmental impact research and development.

This comprehensive, robust environmental impact simulation and modeling capability would be an essential component in defining the FAA environmental impact investment roadmap. It would provide a guide to NASA as NASA develops and refines its emerging long range plan in aviation environment mitigation. Also, this tool would strengthen the partnership, and hence leverage, between the FAA and industry.

This add-on requires a funding increase of \$1.5M per year.

n RPD Funding

It is recommended that six (6) full-time equivalent (FTE) positions be added to the Environment and Energy Program Office. This added personnel would provide a much needed in-house expertise in environmental impact (noise and emissions).

n Response

All elements responded to satisfactorily.

Breakout Group Reports From the Investment Portfolio Discussion Groups

April 9, 1997

Includes Reports from the Following Groups:

Group 1

Group 2

Group 3

Group 1

Chair: Ms. Nancy Price

Members:

Mr. George Howard

Mr. James Pierce

Mr. Micheal Rioux

n AIR TRAFFIC SERVICES

§ System by 2005.

§ Identify RPD's

– System Integration Lab Including Operational Procedures, Certification,

Human Factors, Logistics, and Training.

- Baseline Plan for Evolution of NAS Concepts of Operation, Architecture, Functionality, Transition Mechanisms, Environmental, and Safety.
 - Increase ATS Portion of Budget to Support 2005 Objective.
 - Decrease Security Budget by 20 Percent.
 - Address Partnerships.
 - Ensure Allocated Funds are Effectively Used Toward 2005.
 - FAA
 - NASA
 - DOD
 - MITRE
 - International
 - Industry
- § Establishing Inter-Agency/Industry IPT's To Address R&D As A Single Goal.
- § Response to Subcommittee Recommendations,
- Well Done & Appreciated.
 - With Mailing of Materials in Advance,
 - It's Possible to Minimize Staff Presentations.
 - Should Focus on Questions, Issues, Concerns.

n AIRPORT TECHNOLOGY

- § Concur with yesterday's recommendations.
- § Additional Air Transport Association (ATA) input:
- Need to deliver products earlier time frame.

Runway friction - long term program but no product until 2002.

- \$20M in airport pavement research but limited devoted to runway traction. Focus more on winter friction testing and environmentally safe deicing fluids.
- Coordinate research with ongoing programs. Airport lighting should be coordinated with AMASS activities.
- Taxiway deviation study should be part of a new large aircraft verses figuring out how much larger taxiways should be.

n AIRCRAFT SAFETY

- § "Aging System" is missing.
- § Review items and determine if industry or NASA or DOD is researching projects. Where should research be done?

n SECURITY

§ No comments except to apply 20 percent of security budget to ATS.

n HUMAN FACTORS

§ Speed up and make decisions to put structure in place to make things happen.
(Earl Wiener Report).

§ Publicly state what's being done.

§ Continue to endorse recommendations of Abbott Report.

Group 2

Chair: Dr. Wesley Harris

Members:

Dr. Satya Atluri

Mr. Viggo Butler

Hon. Susan Coughlin

Mr. Jean McGrew

Mr. John Olcott

n Background

§ Air transportation is vital to economic development of the United States.

- Responsible for nearly \$800 billion in economic activity, per Wilbur Smith.
- Generates (conservatively) \$30 billion in tax revenues for the U.S. Government.
- Facilitates jobs in rural America.
- Links U.S. business into broad domestic and international markets.
- Provides an exportable product for U.S. providers of air transportation technology (ATM hardware, software).

§ Air transportation is vital to quality of life.

- Enables family members to visit often (because of low-cost fares).
- Provides companies with a capability of locating in rural areas, thereby providing jobs in rural areas.
- Increases property values in areas where good transportation is available.
- Eliminates boundaries, thereby linking geographically dispersed people.
- Provides nation with economic security needed to protect our way of life (future conflicts threatening our way of life and security will be economic, not military.)

n Central Theme

A more efficient, robust, modernized air traffic management system is absolutely necessary to avoid unacceptable delays and potential safety problems in U.S. aviation.

This system is “free-flight.”

n Observations/Requests

§ Leadership challenge

- Goal setting/identification of ‘free flight’ objectives.
- Fundamental review of R&D to transition to “free-flight.”
- Specific, detailed plan for Flight-2000.
- Impact of Flight 2000 on current FAA R&D plan.
- Impact of Flight 2000 as guidance to “free-flight.”
- FAA must set the world’s standards for “free-flight” technology/system.

n Technology Specific

§ Emission (high-altitude)

§ Security

§ Safety

§ Pavement technology

Group 3

Chair: Mr. Robert Doll

Members:

Mr. Frank Colson

Dr. Aaron Gellman

Ms. Angela Gittens

Dr. Dennis McLaughlin

n Flight 2000

§ Less complex political structure in U.S versus Europe. Advantage for our leadership in designing eventual technology structure.

§ We need to decide now what is the technology. Can't wait another 6 months for another engineering solution.

§ FAA must take the leadership role in making decisions.

§ Endorse choice of Alaska and Hawaii rather than trying in on East Coast.

§ Fastest conversion is needed from ground to Satellite.

§ Leasing program must be made available for the participants from a combination of government and the financial community.

n Partnerships

§ FAA relationships with NASA for the ASIST Program -NASA needs to keep its discipline, i.e, keep to 6.1, 6.2 levels of research. FAA needs to focus on 6.3. Industry needs to participate at all levels.

§ FAA is responsible to court DoD - needs to leverage DoD research more than in past.

§ NRS program - quality of people improved and all positions filled - role on the FAA /NASA boundary.

n Guidance

Shortage of qualified Aerospace personnel - especially in the MRO area. The academic side is about 180 degrees out of phase with cyclic rate of the aerospace industry. FAA needs to be proactive in fostering the aerospace career field.

n TAT Allocations

- Rapid rampup of security program is placing a stress on the program to effectively spend these funds.

n Process

§ Concern that the impact of NASA work and F&E was not fully explained.

§ The sudden change out of Subcommittee members caused a discontinuity - should be some overlap.

§ Every two years for a total program review is not frequent enough - annual is right.

§ The Subcommittees should be examined to ensure full representation of shareholders - but limit to 10-12. The FAA should examine ARAC for lessons learned.