Research, Engineering and Development Advisory Committee (REDAC)
Holiday Inn Rosslyn Westpark Hotel
1900 North Fort Meyer Drive, Arlington, VA
Meeting Minutes

April 23-24, 2002

On April 23-24, 2002, the Federal Aviation Administration (FAA) Research, Engineering and Development Advisory Committee (REDAC) held a meeting at the Holiday Inn Roslyn Westpark Hotel, Arlington, Virginia. Attachments 1 and 2 provide the meeting agenda and attendance, respectively.

Welcome and Introductory Remarks

Mr. Chris Seher, Acting Director, Office of Aviation Research, substituted for Dr. Herm Rediess as the Designated Federal Official. Mr. Seher welcomed Committee members, guests and then read the public meeting announcement. REDAC Chair, Dr. Deborah Boehm-Davis thanked retiring member, Mr. Paul Drouilhet, for his outstanding leadership as Chairman of the Air Traffic Services Subcommittee and a member of the Full Committee. Mr. Drouilhet will continue to serve on the Air Traffic Services Subcommittee. Dr. Boehm-Davis also recognized newly appointed REDAC member, Ms. Thella Bowens, Senior Director for Aviation, Port of San Diego.

Meeting Objectives

In addition to the REDAC Subcommittee presentations and recommendations for the FY 2004 budget, the Committee:

- Examined the FAA's response to their February 4, 2002 letter to the Administrator.
- Discussed their recommendations to the FY 2004 budget.
- Examined the new performance-based budget.

The meeting agenda was altered slightly by Dr. Deborah Boehm-Davis to allow for the attendance of FAA senior executives. Attendees included, FAA Administrator, Jane Garvey, Associate Administrators, Mr. Steve Brown, Mr. Nicholas Sabatini, and Acting Assistant Administrator Ms. Louise Maillett. Mr. James Washington, Director, Air Traffic Systems Requirement Service and Mr. Pat Schaumbach, Associate Undersecretary of the newly formed Transportation Security Agency (TSA) attended.

Dennis DeGaetano Remarks

Mr. Dennis DeGaetano, Acting Associate Administrator for Research and Acquisitions, stated Mr. Charlie Keegan will become the new Associate Administrator for Research and Acquisitions and the transition will occur within a week.

Mr. DeGaetano also remarked that the Secretary of Transportation stated with Administrator Garvey departing in August, the naming of the Chief Operating Officer (COO) is made more politically sensitive. Both positions will likely be filled in tandem.

In addition, he commented on progress being made in several areas. Specifically, the FAA is:

- Enhancing the Terminal Business Units, under the direction of Mr. Bill Voss. This will occur over the next several weeks.
- Focusing energy on metrics to identify targets for program improvements. In the upcoming weeks and months, the FAA will publish these metrics.
- Enhancing the way the R&D activity is highlighted in plans for the Air Traffic Organization (ATO).
- Sensitive to realities of the FY 2003 budget and the pressures placed upon it by the TSA.

Subcommittee Recommendations

In February and March 2002, the six standing subcommittees reviewed FAA's R&D investment areas including air traffic services; airport technology; aircraft safety; aviation security; human factors; and environment and energy. After reviewing the respective investment portfolio proposed by FAA, each subcommittee generated recommendations on the portfolio. Each of the following subcommittee chairmen presented recommendations to the Committee. Attachment 3 provides the subcommittees' reports.

Subcommittee on Air Traffic Services	Mr. John Kern
Subcommittee on Aircraft Safety	Capt. Chester Eckstrand (for Dr. Louis Mancini)
Subcommittee on Airport Technology	Mr. Richard Marchi
Subcommittee on Environment & Energy	Mr. James DeLong
Subcommittee of Human Factors	Dr. John Hansman
Subcommittee on Security	Mr. John Klinkenberg

Louise Maillett Remarks

Ms. Louise Maillett, Acting Assistant Administrator for Policy, Planning and International Aviation thanked the Committee for the invitation and said that these meetings are useful to meet people and try to understand the issues beyond the FAA headquarters building. Ms. Maillett recognized Environment and Energy Subcommittee Chairman, Mr. James DeLong for his leadership talents. Ms. Maillett also stated that the FAA has created an International Business Plan for the whole agency that can be examined by interested parties.

Performance Based Budget for FY 2003 and FY 2004 Proposal

Mr. Chris Seher briefed the Committee on the Performance Based Budget for FY 2003 and FY 2004. Mr. Seher stated that the new budget is no longer in a Chapter format. Instead, the budget is now separated by goals of Safety, Security, Efficiency, and Environment.

Nicholas Sabatini Remarks

Mr. Nicholas Sabatini, Associate Administrator for Regulation and Certification, commented on the vital nature, importance, and contribution of the Committee's work to the overall FAA safety equation. Mr. Sabatini ensured that the FAA would continue to dialogue with the REDAC to help an already safe transportation system become even safer. He recognized Aircraft Safety Subcommittee Chairman, Dr. Louis Mancini for his outstanding efforts and announced the June 2002 collaborative FAA/Joint Aviation Authorities (JAA) Annual Meeting in Phoenix, Arizona.

Steve Brown Remarks

Mr. Steve Brown, Associate Administrator for Air Traffic Services, stressed the limited research resources of the agency, but noted that another reauthorization was underway. Mr. Brown commented that overall, the FAA is under funded for research. However, research pertaining to capacity issues has been fruitful. The FAA is trying to align the benefits of research to customer's needs and emphasized the continual need to align NASA and the FAA's research efforts.

Pat Schaumbach Remarks

Mr. Pat Schaumbach, Associate Undersecretary of the TSA, responded to the Committee's questions regarding the concept of "trusted travelers," the 100% screening of bags and passengers, the deployment of law enforcement officials at airports, and Transportation Worker Identity Cards.

Jane Garvey Remarks

FAA Administrator, Jane Garvey offered several opening remarks before fielding questions and comments from the Committee. Ms. Garvey spoke about the challenging and extraordinary seven months following the terrorist attacks on September 11, 2001. She noted that the FAA was in close communication and coordination with the newly formed Transportation Security Agency (TSA). She also stated that the relationship between the FAA and the TSA, with regard to research and development, required more clarity in the legislation. To that end, the FAA has prepared a technical amendment to the bill for Congress to consider. Maintaining a focus on safety and capacity issues in aviation will be paramount in the coming years. Ms. Garvey mentioned it might be a good idea to have Chris Bertram who is the AA for Financial Services give a presentation of the FAA budget.

On the issue of the end of her five-year term as Administrator (August 4, 2002), Ms. Garvey stated that the White House, Congress, and the Department of Transportation were all working to name her replacement. Ms. Garvey responded to a variety of questions from the Committee concerning the FAA Budget, the Trusted Traveler Concept, the need for a high-level advocate within the agency for research, the importance of a long-term research perspective, and the need to leverage aviation research with NASA, the DOD, and others.

Wednesday April 24

Opening Discussion

The Committee discussed the FAA's research issues, agenda, requirements, strategies, and priorities. Several members stated that the REDAC research and reporting processes should be re-examined to make it more effective.

Response to REDAC Recommendations

Mr. Seher presented the FAA's informal response to the REDAC's February 4, 2002 letter to Administrator Garvey.

Small Aircraft Transportation System (SATS) Terms of Reference

Mr. Ronald Swanda was unable to attend the meeting, therefore, the Terms of Reference Approval was postponed until the September REDAC. However, Mr. Seher commented that ran all-day meeting was recently held at the FAA Technical Center with the FAA and the General Aviation Manufacturer's (GAMA). At this meeting NASA and the FAA discussed SATS. Mr. Richard Marchi stated that there was a National Academy of Sciences report in draft, possibly commissioned by the Transportation Research Board, which is highly critical of SATS. Dr. Boehm-Davis noted that there was talk of creating a joint SATS Subcommittee with the FAA and NASA, but that there was a problem with regulatory issues.

Wake Turbulence Program

Mr. George Greene, FAA Field Manager at NASA Langley, briefed the Committee on the status of the wake vortex research program. Although there was general agreement on the increased budget for this program, the Committee did express concern over the increase coming at the expense of the weather program.

Committee Discussion of Recommendations

Dr. Deborah Boehm-Davis suggested that the next letter, be short and include main recommendations and an appendix. The following topics were discussed as potential recommendations: Attachment 4 reflects the Committee's final recommendations.

1. The need to support continuing moderate increases in FAA R&D funding.
2. The need to develop an effective mechanism allowing the REDAC to better influence high-level goals.
3. The need to find means to more effectively use R&D funding that is now constrained by restrictions associated with the F&E Appropriation.
4. The negative impact upon Human Factors research of constraints imposed since September 11, 2001.

5. The possible loss of visibility of R&D activities within the new FAA organization.
6. The need to commend FAA Associates for having attended this meeting and encourage continued participation in future meetings.
7. The possibility that the REDAC ATS Subcommittee and the RTCA Free Flight Steering Committee might better advance their common interests through better cooperation and communication; perhaps the ATS Subcommittee Chair might be appointed to membership on the RTCA Committee.

The members discussed forming a working group to resolve communication disconnects between the Safety, ATS, and Human Factors Subcommittees. This group would possibly have a formal report-back mechanism, overlapping committee membership, and periodic joint meetings. Dr. Boehm-Davis will work with members off-line to establish this working group.

Air Traffic Services Subcommittee Chairman, Mr. John Kern, working in association with Dr. Mark Rodgers and Mr. Ray LaFrey, will present a report to the Committee in September 2002 outlining research successes and failures in product development and implementation. Dr. Rodgers and Mr. LaFrey are scheduled to lead a discussion on the topic at NASA Ames in late July 2002. The NASA Ames discussion will focus on lessons learned.

Announcements:

- On May 5-8, 2002 a tech transfer meeting will be held at the FAA Technical Center in Atlantic City. The meeting will include demonstrations and papers.
- All REDAC members are invited to NASA Ames for the ATS Subcommittee meeting on July 23-25, 2002. Mr. Dallas Denery of NASA has also invited the RTCA Select Committee to this meeting.

Future Committee Activity

The next meeting of the REDAC is scheduled for all day September 17 and the morning of September 18, 2002 at this same location. The REDAC will then hold a joint meeting with NASA's Aerospace Technology Advisory Committee on the afternoon of September 18.

Adjourn

Dr. Boehm-Davis thanked the members for attending the meeting. The meeting was adjourned at 1:30 p.m.

Attachment 1

Research, Engineering & Development Advisory Committee (REDAC)
Holiday Inn Rosslyn Westpark Hotel
1900 North Fort Myer Drive, Arlington, VA
(703) 807-2000 FAX: (703) 522-7480

April 23-24, 2002

AGENDA

Day 1 – April 23

9:00 a.m. – 9:30 a.m.	Welcome and Introductory Remarks Farewell to Retiring Member – Mr. Paul Drouilhet	Dr. Deborah Boehm-Davis, Chair Dr. Herman Rediess, FAA
9:30 a.m. – 9:45 a.m.	Remarks	Mr. Dennis DeGaetano, FAA
9:45 a.m. – 10:00 a.m.	Meeting Process and Objectives	Dr. Herman Rediess, FAA
10:00 a.m. – 11:00 a.m.	Associate Administrators Remarks	Mr. Steven Brown, FAA Mr. Nicholas Sabatini, FAA
11:00 a.m. – 11:15 a.m.	BREAK	
	Subcommittee Recommendations	
11:15 a.m. – 11:55 a.m.	Subcommittee on Air Traffic Services	Mr. John Kern
11:55 a.m. – 12:35 p.m.	Subcommittee on Environment and Energy	Mr. James DeLong
12:35 p.m. – 1:35 a.m.	LUNCH	
1:35 p.m. – 2:15 p.m.	Remarks	Hon. Jane Garvey, FAA
2:15 p.m. – 2:55 p.m.	Subcommittee on Aircraft Safety	Mr. Chet Ekstrand
2:55 p.m. – 3:35 p.m.	Subcommittee on Airports	Mr. Richard Marchi
3:35 p.m. – 3:50 p.m.	BREAK	
3:50 p.m. – 4:25 p.m.	Subcommittee on Security	Mr. John Klinkenberg
4:25 p.m. – 5:10 p.m.	Subcommittee on Human Factors	Dr. John Hansman
5:10 p.m.	Adjourn	

Day 2 – April 24

10:00 a.m.	Reconvene Meeting	Dr. Deborah Boehm-Davis, Chair Dr. Herman Rediess, FAA
10:05 a.m. – 10:30 a.m.	Performance Based Budget for FY 2003 and FY 2004 Proposal	Dr. Herman Rediess, FAA
10:30 a.m. – 11:00 a.m.	**FAA Response to Committee Recommendations**	Dr. Herman Rediess, FAA
11:00 a.m. – 11:15 a.m.	Transportation Security Administration (TSA) and the REDAC	Dr. Herman Rediess, FAA
11:15 a.m. – 11:45 a.m.	Small Aircraft Transportation System (Ad hoc Subcommittee) –Terms of Reference Approval	Mr. Ron Swanda
11:45 a.m. – 12:15 p.m.	**Wake Turbulence Program**	Mr. George Greene, FAA/NASA Langley
12:15 p.m. – 1:15 p.m.	LUNCH	
1:15 p.m. – 2:45 p.m.	Committee Discussion on Recommendations	Dr. Deborah Boehm-Davis, Chair
2:45 p.m. – 3:00 p.m.	Review Future Committee Activity	Dr. Deborah Boehm-Davis, Chair
3:00 p.m.	Adjourn	

Attachment 2

Research, Engineering and Development Advisory Committee
April 23-24, 2002
Attendance

Members

Dr. Deborah Boehm-Davis, Chair	Dr. David Ashley	Dr. Mike Benzakein
Mr. James DeLong	Mr. Paul Drouilhet	Capt. Chester Ekstrand
Dr. John Hansman	Mr. John Kern	Mr. John Klinkenberg
Mr. Richard Marchi	Dr. John McCarthy	Mr. John O'Brien
Mr. Bob Pearce	Dr. Hans Weber	Dr. Andres Zellweger

Audience

Hon. Jane Garvey, FAA	Louise Maillett, FAA	Steve Brown, FAA
Nicholas Sabatini, FAA	Pat Schambach, TSA	Dennis DeGaetano, FAA
Jim Washington, FAA	Joseph Hetrick, BAE	Steve Luckey, ALPA
Michael Ganley, Airbus	Steve Bradford, FAA	Doug Farrow, FAA
Cathy Bigelow, FAA	George Greene, FAA	Ira Haber, CSSI, Inc.
Tony Freck, GE Aircraft Engines	Paul Dykeman, FAA	Mike Gallivan, FAA
Virgenia Embrey-Brock, FAA	Warren Fellner, Titan	Rebecca Deloney, FAA
Barbara AHemus, Kinghorn, Hilbert & Associates	Benji Neuman, NASA	Jerry Chambers, American Airlines
Amanda VanSicker, Kinghorn, Hilberg & Associates	Chuck Johnson, NASA	Mike Werbowetzki, SEATEK
Terry Persall, SETA II	Dennis Filler, FAA	Dallas Denery, NASA
Matt Hampton, DOT	Steve Brown, FAA	Bill Edmunds, ALPA
Lori Lehnerd, NASAO	Pat Schambach, TSA	Mari Peterson, SRI
Fidel Cornell, DOT/IG	Gloria Kulesa, FAA	Paul Polski, TSA
Marla Samerstein, APA	Tammy Jones, FAA	Walter Hett, WHA
Sieg Poritzky, Consultant	Quon Kwan, FTA	Jim White, FAA
Randy Stevens, FAA	Tom Proeschel, FAA	Richard Young, AVMET
Chuck Ruehle, FAA	John Rekstad, FAA	Peter Toman, FAA
Tony Vanchieri, TSA	Chris Seher, FAA	Mark Rodgers, FAA
David Slenzak, Kinghorn, Hilberg & Associates	Jim Washington, FAA	Roy Reichenbach, Consultant
Glenn Roberts, MITRE	David Smith, FAA	William McGovern, FAA
Marshall Potter, FAA	Steve Pansky, FAA	Nick Stoer, Consultant
Colin Drury, University of Buffalo	Rosanne Marion, FAA	Rick Zelenka, Boeing
Carl McCullough, FAA	Pat Marsha, FAA	George Marania, FAA
Paul Murphy, BAE	Ray LaFrey, MIT	Patrick Lewis, FAA
Vic Lebacqz, NASA	Jim Jones, FAA	John McCarthy, NRL
Ken Ward, FAA	Kevin Petty, AVMET	Karen Stewart, FAA
June Lidder, BAE	John Rekstad, FAA	Joanne Hopkins, SRI Int'l
Sharon Moreland, FAA	Paul Jones, FAA	Andrew Lacher, MITRE
Gloria Dunderman, CSSI, Inc.	Denise Davis, FAA	April Gessner, CSSI, Inc.

Attachment 3

Recommendations on FAA's 2004 R&D Investments

Report from the Subcommittee On Aircraft Safety
Chairman: Mr. Chet Ekstrand

SAS Update
SAS overall pleased with safety research portfolio

- **Building the right Subcommittee membership for oversight of safety research.**
- **Continuing visits to develop familiarity with industry and government research facilities.**
- **Strong interaction with sponsors and researchers to improve program direction and content.**
- **Strong participation from FAA executives.**

Purpose

- **Present budget forecast**
- **Provide SAS program feedback**
  - **program enhancements**
  - **above target budget recommendations**

  future direction

General Comments

- **Aircraft Safety R&D is over-arching and at the very center of the FAA's research program.**
- **Opportunities for matching funding from industry exist and should be pursued.**
- **Recommended more active involvement of industry in process of developing research requirements.**
- **Flight Crew HF research urgently needed but must be integrated with ATC/ATM community.**
- **User community should be involved in assessment of planned research and need for research.**
- **FAA should submit issue of "Toxicity Detection and Elimination" to TSA for review and, with input of affected industry, develop an action plan.**
- **All research should be reviewed periodically for continued relevance and total expenditure.**

Report from the Subcommittee on Human Factors
Chairman: Dr. John Hansman

Questions for April Meeting

- **Portfolio content (Planning White Sheets FY04)**
  - **What is missing**
  - **What is not needed**
- **Partnerships**
- **Process**
- **Additional guidance and recommendations**

Committee Activities

- **White sheet review**
- **March meeting at Embry-Riddle Aeronautical University**
  - **"04" Program**
  - **"04" Supplemental**
  - **Focus review on GA and vertical flight**
  - **Security HF not included in review**
- **E-mail discussion list**

Portfolio Content

- **Proposed "04" program elements generally appropriate**
  - **Consistent with prior years**
- **Missing elements**
  - **Continuing need for investment in longer range issues (i.e., past OEP)**
  - **Phasing of requirements too late to be most effective**
  - **Integration issues and interoperability**
    - **With more coupled systems (i.e., air-ground) human will become the final arbiter of inconsistencies. Lack of a comprehensive human-system integration plan.**
  - **Portfolio weak in maintenance HF (change in progress)**

Supplemental "04" Elements

- **"Overguidelines" elements discussed**
  - **Air-Ground Integration**
  - **Terminal Area Safety**
  - **General Aviation**
  - **Chemical - Biological Security**
  - **Bioaeronautics**
- **All elements had technical merit**
  - **No single element dominated**
- **Basis for "overguidelines" initiatives unclear**
  - **How compelling must the case be?**
  - **Tension with existing program basis**

General Aviation Review

- **Significant improvement in requirements-research connection**
- **Investments paying off:**
  - **HF expertise at requirement-generation level**
  - **Project summary-requirement database**
- **Emergent issue: requirements often too late to be most effective.**
  - **Hypothetical example: Research data needed to support display certification decisions or actions,**
    - **Requirement identified after applicant submits**
    - **Research data cannot be generated instantly if not available**
    - **Basis not available to reject marginal interface**
    - **Precedent set for sub-optimal system**
    - **Motivates need for anticipatory efforts (proactive role for AVR)**

Partnerships

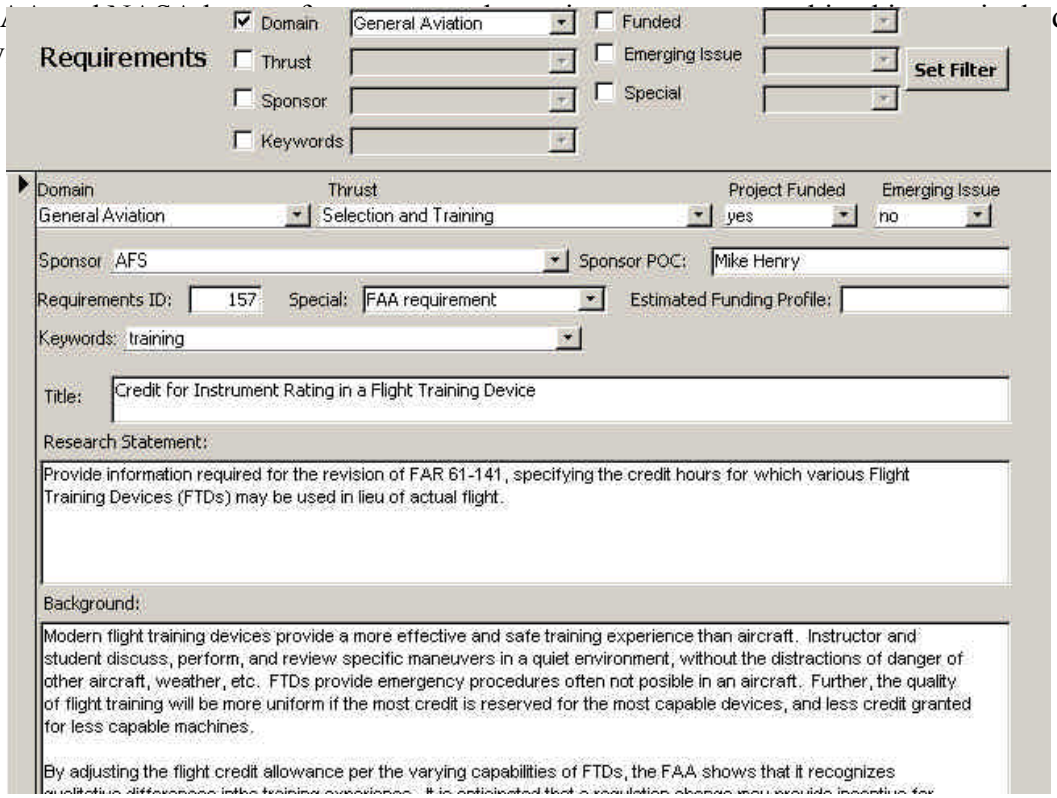
- **NASA--good relationship in HF**
- **Shared requirements - Program Database**
- **Co-sponsored meetings - Interagency IPT (100+)**
- **Cross-funded projects & technical collaboration**
- **FAA HF personnel at NASA (Ames and Langley)**
- **Industry**
- **Concern that industrial HF capability declining (e.g., Honeywell Research Center closing)**
- **Increased reliance on FAA, NASA and university**
- **International collaboration**
- **ICAO, JAA, Eurocontrol, Transport Canada, Iceland**
- **TSA (Some connection but needs to evolve with TSA)**
- **Military (Data and specific focus areas such as NVG)**

Process

- **HF Annual Report an excellent supplement to program "White Sheets"**
- **Appropriate level of detail on technical elements, prior work and context**
- **Program Summary - Requirements database is an excellent management tool**
- **HF Team should be commended**
- **Should be considered for other areas**
- **Interaction with other subcommittees**
- **HF crosscutting with Safety, ATS, Security**
- **Member and AAR cross participation (Safety, Security)**
- **Monitor and report HF issues to maintain comprehensive perspective**
- **Need to interact with security subcommittee**

AAR-100 Program Management Database

- F database w



Additional Guidance, Recommendations and Issues

- **Researcher access to operational environments post 9/11**
  - **Jumpseats**
  - **ATC facilities**
  - **Operating areas**
- **Monitoring unintended HF consequences of new security procedures.**
- **Shift of R&D areas to F&E has restricted ability to issue grants (security waiver)**
- **Need for requirements to anticipate needs and to look foreword.**
- **Need for core work and research to develop experimental hypothesis and test plans to maximize return on investment in large development and demonstration efforts (such as Safe Flight 21 and OEP Simulation Plan)**
- **New avionics training and certification requirements**
- **Utilize GA as cost-effective HF evaluation domain. Leading indicator for air transport. Lower barrier for incorporation.**
- **Identify operational responsibility for cross-cutting integration, interoperability and risk assessment of interacting systems (e.g. Air-Ground, WAAS,…)**
- **Critical mass is being obtained in HF within agency. Needs to be maintained in any restructuring and the PBO.**

Report from the Subcommittee on Airports
Chairman: Mr. Richard Marchi

•Subcommittee met at Tech Center on 3/13
•Support $3.28 M increase to $19.550 M
–$1.880 M for prototype radar-based wildlife hazard alerting system.
–$650 K for off-peak pavement maintenance research
–$250 K to investigate corrosion of electrical cables by deicing fluids
–$500 K to develop standardized GIS for ALP's

Report from the Subcommittee on Environment and Energy
Chairman: Mr. Jim DeLong

- Subcommittee supported the basic aviation environmental research program for noise and emissions as proposed by the FAA for fiscal year 2004.

- Subcommittee endorses the FAA proposal for an additional $15M above the basic research program to both supplement the NASA Quiet Aircraft Technology (QAT) project and to sustain the FAA's Center of Excellence for Aircraft Noise Mitigation.

- The Subcommittee recommends that the development of the System for assessing Aviation's Global Emissions (SAGE) be expedited without detriment to the other emissions related projects.

- The Subcommittee endorses increased funding to ensure that version 2 of the SAGE model, including an economics module, is validated and delivered in sufficient time to influence decision making associated with the work program for the seventh meeting of the ICAO CAEP.

- The Subcommittee recommends that future FAA budget requests encompass funding necessary to acquire data to characterize particulate matter emissions from aircraft engines, in accordance with procedures agreed by the Society of Automotive Engineers (SAE) E31 Committee.

Report from the Subcommittee on Air Traffic Services
Chairman: Mr. John Kern

1. The FAA, with assistance from RTCA, will continue to develop the Operational Evolution Plan for 2002-2010 time frame. The Subcommittee recommends that FAA identify the key R&D issues and key enabling technologies that should be addressed now for the 2010-2020 time frame. We further recommend that a REDAC working group be formed to develop those issues and report their findings by the winter 2003 REDAC meeting. Key issues thus far:

   1. Develop Future Operational Concept
   – What will be the air-ground balance of responsibility?
   – What will be the long-term evolution of the4 NAS?
   – R&D Plan, etc.

   2. Most future concepts call for more automated ATS functions
   - Will the human continue to be the safety net?
   - If so, how can future systems be built to enhance the humans ability to take over when the automation fails or can't sole problem.

2. The Subcommittee is concerned about the increased FAA attention to near-term problems. With the establishment of the PBO, there is an opportunity to provide new leadership and focus for research in the ATM area; this notion and others were included in the February 4, 2002 REDAC letter of the Administrator Garvey. The Subcommittee reiterates the need for the FAA/PBO to include an organization or function that is responsible for planning the evolution of the NAS, and recommends that organization also be responsible for managing Air Traffic Services related R&D.

3. The Subcommittee is concerned about the significant engineering and human factors difficulties encountered during the operational implementation of certain FAA R&D products. The Subcommittee recommends a working group be formed to review recent programs (including those perceived as unsuccessful and successful), to identify obstacles and risks to successful implementation, and to identify methods to avoid such problems in the future. It is proposed that this be accomplished by a joint working group comprised of member from the REDAC ATS and Human Factors Subcommittees, and other subject matter experts, and that they report their findings and recommendations at the Fall 2002 REDAC Committee meeting.

4. The aviation weather and wake vortex research activities are both important to civil aviation. The Aviation Weather Research program continues to provide major operational benefits; and, recent progress in waked vortex research indicates the potential for substantive benefits in the near-term. The Subcommittee therefore recommends that the FY 2004 Aviation Weather Research program be supported at the requested base level, the Wake Vortex Program component be supported at an additional $3M above the $1M in the base (equal to the FY02 enacted level), and that the overall requested ATS R&D funding be raised accordingly.

5. The Subcommittee observes that, with few exceptions, separation standards have not significantly changed in the last several decades in spite of significant improvements in radar surveillance and navigation. The Subcommittee recommends that the FAA examine existing separation standards associated with ATC procedures and determine areas where such standards can be reduced. It would also be useful to provide the Subcommittee with a white paper that summarizes the basis for the current minimum separation standards.

6. The movement of funds from R&D to F&E has disallowed grants to universities. It is recommended that FAA be allowed to use F&E for research grants to universities as well as to FAA Center of Excellence.

Attachment 4

Dr. Deborah A. Boehm-Davis
Chair, Research, Engineering and Development Advisory Committee
Professor of Psychology, George Mason University,
4400 University Drive, ARCH Lab MSN 3F5, Fairfax, Virginia 22030-4444

July 11, 2002

The Honorable Jane F. Garvey
Administrator
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Dear Ms. Garvey:

I am delighted that you were able to join us at our Federal Aviation Administration (FAA) Research, Engineering and Development (REDAC) Advisory Committee meeting this April. The Committee members have enjoyed their discussions with you over the years and they will miss you as you move on to new adventures.

On the basis of our meeting, we have developed a number of recommendations that cut across all subcommittees.

- We recommend that FAA develop a mechanism for evaluating the extent to which your research is directed toward satisfying specific – typically near term - requirements versus supporting anticipatory – typically longer term - needs that will allow you to meet the goals outlined in your strategic plan. Further, we recommend that FAA be proactive in developing a more effective process for integrating individual research projects into an overall program that focuses on aviation as an integrated system.
- We recommend that FAA develop mechanisms to foster an increased level of awareness and support for research from line management of the operational side in addition to that already felt by researchers.
- We would like to encourage serious thought be given to the placement of the chief research officer as the FAA goes through their re-organization processes. Research is of central importance in achieving the long-term goal of a safer and more effective aviation system. The committee recommends that serious thought be given to creating a senior executive position with the responsibility and authority to ensure integration and coordination of research across the operational elements.
- The movement of money from R&D to F&E creates several impediments to the conduct of research. The committee would like the opportunity to work with you to inform Congress of the difficulties created by funding R&D out of F&E funds.

In addition, individual subcommittees developed recommendations for your office. Those recommendations are presented in the attachment.

The Committee would like to note that the subcommittee on Security has met with senior managers from the Transportation Security Administration (TSA) and that, in accordance with a request from both agencies, it will continue to report to both TSA and FAA. Finally, the Committee would like to reiterate some comments from our previous meeting. Although the Committee recognizes the need to invest more heavily in security research, engineering, and development as a result of the events of September 11, it remains concerned that any funding directed towards those activities not be diverted away from other areas.

Finally, the committee valued the participation of several associate administrators in the most recent meeting. We look forward to a continued and fruitful dialogue with these members of your senior management team in future meetings.

I am interested in discussing these proposals with you at your earliest convenience. The Committee continues to be dedicated to providing you with advice and recommendations on any R&D issue that you may need us to review.

Sincerely,

Deborah Boehm-Davis, Ph.D.
Chair
FAA Research, Engineering and Development Advisory Committee

Attachment

Airports Subcommittee

- Supports continued operation of the National Pavement Test Facility
- Supports continuing research to prepare for introduction of new large aircraft
- Supports research in wildlife control and mitigation
- Supports continued research into visual guidance, lighting and marking, and reductions in runway incursions
- Supports research into airport planning and design, but believes the research should be refocused on terminal security issues resulting from the events of 9/11

Subcommittee on Environment and Energy

- Subcommittee supported the basic aviation environmental research program for noise and emissions as proposed by the FAA for fiscal year 2004.
- Subcommittee endorses the FAA proposal for an additional $15M above the basic research program to both supplement the NASA Quiet Aircraft Technology (QAT) project and to sustain the FAA's Center of Excellence for Aircraft Noise Mitigation.
- The Subcommittee recommends that the development of the System for assessing Aviation's Global Emissions (SAGE) be expedited without detriment to the other emissions related projects.
- The Subcommittee endorses increased funding to ensure that version 2 of the SAGE model, including an economics module, is validated and delivered in sufficient time to influence decision making associated with the work program for the seventh meeting of the ICAO CAEP.
- The Subcommittee recommends that future FAA budget requests encompass funding necessary to acquire data to characterize particulate matter emissions from aircraft engines, in accordance with procedures agreed by the Society of Automotive Engineers (SAE) E31 Committee.

Subcommittee on Aircraft Safety

- Clarification should be provided by AVR-1 on purpose of FAA-sponsored research.
- A process should be put in place for industry review and comment on TCRG recommendations prior to submission to FAA leadership.
- Research related to flight crew needs is indeed urgently needed, but that it must be fully integrated with research done by the ATC/ATM community.
- The issue of aircraft related "Toxicity Detection and Elimination" should be submitted to TSA for review and, with input of affected industry, developed into an action plan.
- Numerous opportunities for matching funds from industry are available and should be pursued.

Subcommittee on Air Traffic Services

- Supports an examination of existing separation standards associated with ATC procedures and determine areas where standards can be reduced
- Supports aviation weather program being funded at base level

- Recommends that the wake vortex program be supported at an additional $3M above the $1M in the base, without drawing from other programs

Subcommittee on Human Factors

- Pointed to a lack of a comprehensive human-system integration plan
- Pointed to a continuing need for investment in longer-range issues
- Suggested that the requirements database held by AAR-100 is a useful tool that might be considered for other areas within the FAA
- However, requirements are often identified too late in the process to be most effective; there is a need to anticipate future needs
- Supports research to allow for the development of new avionics training and certification requirements
- Needs to be maintained in any restructuring and the PBO