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November 8, 2005

The Honorable Marion C. Blakey
Administrator
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Dear Ms. Blakey:

On behalf of the Research, Engineering and Development Advisory Committee (REDAC), I want again thank you and the senior staff for engaging with the Committee at the September 20th meeting.

Regarding the 2008 budget requests, the Subcommittees generally agreed with the proposed efforts recognizing the limited funds available for research. The full committee did note the synergistic relationship between the FAA and NASA research particularly in areas related to Air Traffic Management, Aircraft Safety and the JPDO. If NASA refocuses it's efforts away from these areas then the FAA research program may not be adequate for the nations aviation needs. The committee recommends that the FAA continue to work closely with NASA to assure critical civil aviation research capability is maintained.

Regarding task focused efforts, the Subcommittee on Human Factors reported on the review of controller workforce development efforts and the Subcommittee on Air Traffic Services reported on study "Transitioning Air Traffic Management Research into Operational Capabilities". These documents will be forwarded to you under a separate cover.

Attached to this letter are specific recommendations from the Subcommittees on Aircraft Safety, Environment and Energy, and Air Traffic Services.

We stand ready to discuss these issues and recommendations or to assist you and the agency on other issues where you feel we can be of help.

Sincerely,

R. John Hansman
Co- Chair, Research, Engineering and Development Advisory Committee
Professor of Aeronautics and Astronautics
Director, MIT International Center for Air Transportation

Enclosure

Subcommittee Guidance for FY 08

Subcommittee on Aircraft Safety

Recommendation:

The subcommittee recommends that a procedure for identifying and funding R&D projects for emerging issues, not only issues causing past accidents be developed and implemented. The reason for performing safety R&D is to address potential problems which may lead to accidents in the future, and all of these can not be identified solely based on past accidents. We were routinely presented the unstated assumption that the world is not changing, and therefore past accidents are indicators of future accidents. This is valid in many operational scenarios that are relatively constant from year to year and of course should be used as one of the metrics for investing in safety research. However, in operational scenarios that are changing, we need insight into (and openness to) new issues. Many of these issues and potential safety concerns are the result of new technology being introduced into the system. Examples of issues mentioned at the meeting, that may create new safety concerns include copper-clad aluminum wiring, EMI issues with RFID tags, high ice-water engine icing encounters, etc. The committee also feels that a significant emerging issue is the future development and implementation of NGATS by JDPO. The safety-related issues relating to this transition should be identified now, and incorporated into the safety research portfolio in coordination with JDPO and ATS.

Recommendation:

The subcommittee recommends that a procedure for funding researcher-initiated R&D be developed and implemented. In the current process by which research is identified and prioritized the support of an FAA operational sponsor is required. While we support the current process for the majority of the research portfolio, the subcommittee feels that some percentage (15% was suggested) be reserved for researcher-initiated research projects. This could provide many benefits to the FAA and the aerospace community. It would facilitate the research on emerging issues as laid out in Recommendation 1, encourage innovation, improve flexibility and the ability to cooperate with NASA and other research organizations, and improve the participation of universities and the training of future engineers and scientist on FAA-oriented research. Such a program would also assist in attracting and retaining well-qualified research staff at the FAA.

Recommendation:

The subcommittee recommends that research be well connected with operational needs and that researchers and managers be able to articulate this connection. Most researchers were well aware of relevant R&D at other agencies, and operational impacts of their work. Not all presenters were inconsistent in very basic terms such as “large aircraft”, “air taxi”, “commuters” and “regional” vs. “commuter” service. Management and researchers in applied R&D should be in contact and well versed in the operational connectivity of their work.

Subcommittee on Environment & Energy

Issue 1: Achieving Budget and Portfolio Content Alignment with Key Agencies

The subcommittee noted that the needs to address the environmental challenges of the U.S. airspace system greatly exceed the available resources of any one agency. There is a shortage of funds and a critical need to achieve synergy of funding. This is particularly relevant of NASA, EPA, Department of Commerce (NOAA) and DoD.

Recommendation:

The FAA Administrator should seek to enhance collaboration in environmental research and development with NASA, EPA, DoC, and DoD through the Joint Planning and Development Office (JPDO) environmental Integrated Product Team (EIPT) as well as other appropriate forums. The Administrator should also ensure that there is representation from FAA's Office of Environment and Energy in the research and development advisory structure of each of these agencies.

Issue 2: Portfolio Content

The programs in the current FAA environment and energy research portfolio are the byproduct of years of discussion amongst all stakeholders; hence the portfolio has the right content to address short, mid-term needs and the FAA should continue ongoing projects in FY08. However, the subcommittee also identified additional needs and an overarching need to address the balance in FAA's environment investment in all budget categories.

Recommendation:

The subcommittee asked that FAA address fuel/energy and water quality issues and recommends that the FAA fund scoping studies on each of these areas. The FAA should also increase research funding to address particulate matter and hazardous air pollutants issues that are serious impediments to capacity growth. The FAA should also assess all of its environmental investments and determine an appropriate balance between near term mitigation activities and research.

Issue 3: Partnerships

The subcommittee noted that the FAA has a number of critical strategic partnerships to address environmental issues. There is a need to carefully consider the potential benefits of these activities and focus resources on high payoff opportunities.

Recommendation:

The Administrator should direct the Office of Environment and Energy to work with the Partnership for AiR Transportation Noise and Emissions Reduction (PARTNER) Center

of Excellence to strengthen its partnerships with domestic stakeholders and build new linkages with international partners. The FAA should also increase its involvement in the Intergovernmental Panel on Climate Change processes, with the goal of ensuring that the best science informs decisions. Finally, the FAA needs to expand education, communication, and outreach strategies to communicate the breadth of its efforts mitigating aviation's environmental impact to stakeholders. The FAA should also define metrics to measure success in such an endeavor.

Subcommittee on Air Traffic Services

Reducing separations standards is an important element of achieving increased NAS capacity, especially in terminal airspace. Two principal elements of required interaircraft separation, navigation accuracy and surveillance capability, have improved markedly since the current separation standards were established. It is important to understand how these improvements, plus other technology advances, can lead to a decrease in required interaircraft separation without any derogation of safety.

Recommendation:

Establish a working group which will examine the basis for current separation standards, review past and ongoing studies of separation requirements, and outline a recommended R&D program for the FAA to determine to what degree separation standards can be reduced using current technologies.

It is expected that this Working Group effort will require five or six one to two day meetings over a period of six months, and will culminate in a written report to the FAA via the REDAC.