Subcommittee on Airports' Report to the FAA Research, Engineering, & Development Advisory Committee

Presented by:
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April 12, 2023

Airports Subcommittee Meeting

- Hybrid meeting on March 7-8, 2023
- Reviewed the current Airport Technology Research & Development portfolio and research progress
- Briefed by the Airport Cooperative Research Program, Airport Asphalt Pavement Technology Program, and Airport Concrete Pavement Technology Program on complementary research areas
- Had specific research briefings on:
  - Airport firefighting research
  - Advanced air mobility systems and vertiports
  - Uncrewed aircraft systems, inclusive of detection and mitigation system research
  - Sustainable airport pavements
  - Airport environmental projects
  - Airfield pavement testing program

Airport Technology
Research & Development Program Overview

Safety & Planning RPAs		Pavement RPAs		Airport Noise, Environmental, and Innovation RPAs	
S1	Airport Planning & Design	P1	National Airport Pavement Testing Facility	N1	Airport Noise*
S2	Airport Safety Data Mining	P2	National Airport Pavement Materials Research Center	E1	Airport Environmental*
S3	Aircraft Rescue & Fire Fighting	P3	Field Instrumentation & Testing	I1	Airport Innovation
S4	Wildlife Hazard Mitigation	P4	Advanced Materials		
S5	Visual Guidance	P5	Pavement Design & Evaluation		
S6	Runway Surface Safety Technology	P6	Non-destructive Testing Technologies		
S7	Airport Safety & Surveillance Sensors	P7	Software Program Development and Support		
S8	UAS/New Entrants Integration	P8	Extended Pavement Life		

* The FAA Office of Airports and FAA Office of Energy & Environment co-manage the Airport Noise & Environmental RPAs.

RPA: Research Project Area

Observations

1. Congratulations to Jim Layton on his new permanent role as Manager of the Airport Technology Research & Development Branch (ATR) and designation of Murphy Flynn as the Manager of the Pavement Research & Development section.
2. Impressed by the speed at which research activities associated with uncrewed aircraft systems are proceeding and remain very interested in the results of research into the efficacy of UAS detection and mitigation systems, which will inform both airport operators and government agencies tasked with counter UAS responsibilities.
3. Pleased about ongoing coordination efforts with the Department of Homeland Security with respect to UAS detection and mitigation systems/
4. Agree with Branch staff that a succession plan is needed to ensure that institutional knowledge and expertise possessed by long-time Branch leaders are passed to a new generation of experts.
5. Seeking briefings on wildlife hazard mitigation, visual guidance, and airport safety data mining research at our Fall 2023 meeting.

Subcommittee Finding/Recommendation 1

Finding 1

The Subcommittee appreciated the overview of future research focus areas provided by Branch staff in its “Strategic Outlook for Research” (SOR) chart. However, the Committee suggests increasing the priority of certain research areas.

Recommendation 1

Subcommittee members recommend that the FAA consider the prioritizing research in the following areas and reflecting them in the Program SOR charts:

- Green pavement technologies—including use of recycled pavements, carbon capture technologies, and other methods reducing embodied carbon in airport construction, particularly pavement constriction—to the near term. Of particular concern is the compatibility of these technologies with FAA pavement mix specifications and standards.
- Standards, requirements, and operating parameters for automated and autonomous ground vehicle operations on the airside, both in movement and non-movement areas.

Subcommittee Finding/Recommendation 2

Finding 2

With the publication of the Military Performance Specifications (MilSpec) for fluorine-free foams (F3s) for use in aircraft rescue and firefighting (ARFF) applications by the Department of Defense in January 2023, there is increased interest and urgency regarding how and when to transition from aqueous film forming foam (AFFF) to F3 products. Since 2020, the FAA has been engaging a group of subject matter experts termed the “ARFF Advisory Group” to assess transition needs and facilitate the transition process.

The FAA Office of Airports engaged the Advisory Group—supplemented with additional airport representatives—in February and March to provide input for a F3 transition plan the FAA is preparing in response to requests from both the U.S. House of Representatives and U.S. Senate that accompanied the Consolidated Appropriations Act, 2023. While industry involvement in development of this plan is appreciated, continuing industry engagement will be needed beyond provision of responses to Congress to facilitate effective transition from AFFF to F3 at U.S. certificated airports.

Recommendation 2

The Subcommittee recommends that the FAA continue to engage the ARFF Advisory Group to provide subject matter expertise and guidance to facilitate the transition from AFFF to F3 products.

Subcommittee Finding/Recommendation 3

Finding 3

Both Program staff and Subcommittee members noted that it would be valuable to assess the effect joint spacing has on pavement life.

Recommendation 3

The Subcommittee recommends that Program staff consider incorporation of joint spacing as a variable in future concrete pavement testing cycles.

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