

# **FAA Office of NextGen (ANG)**

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## **Research, Engineering, and Development Advisory Committee (REDAC) Meeting**

Subcommittee on Aviation Safety

Mike Paglione  
DFO – Designated Federal Official (Acting)  
Aviation Research Division, ANG-E2

March 1-2, 2022

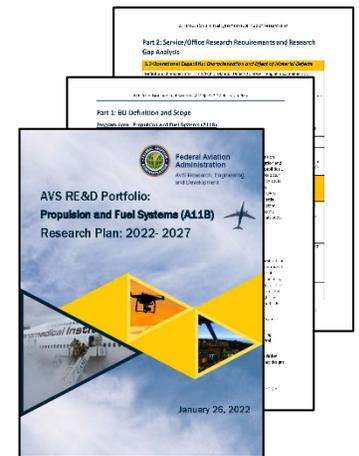
# Overview

- Meeting Logistics – Virtual (Zoom) Meeting
- Purpose
- Agenda
- Roles and Responsibilities
- Meeting Goals

# Housekeeping – Virtual Meeting



- Breaks & lunch built into schedule but times are targets
- Please keep microphone on mute until talking
- Be mindful this is a public meeting
- Can utilize chat feature to post and capture questions
- Electronic Files
  - Sent *Agenda* and *Read-ahead-materials* to SAS members and FAA
  - Anyone missed and need a copy of these files  
please email: [Kristen.CTR.Piotrowski@faa.gov](mailto:Kristen.CTR.Piotrowski@faa.gov)





# Subcommittee on Aviation Safety

## Purpose

- Objective:

Provide advice to the Administrator through the REDAC regarding needs, objectives, plans, approaches, content, and accomplishments for the FAA research program.

- Goal:

Help the FAA establish the best possible safety R, E, & D program within the constraints of FAA's available resources.



# Subcommittee on Aviation Safety Day 1 of 2

## Tuesday

- **Location:** Virtual meeting
- **Zoom:** Click to Join:  
<https://faavideo.zoomgov.com/j/1615829158>  
Passcode: 701578
- **Phone Audio Only:**
  - Call 1-888-924-3239;
  - Enter Meeting ID: 161 582 9158
  - Passcode: 701578

*Please remember you can mute or unmute yourself by pressing \*6.*

## March 1 (Tuesday)

0845	0900		Arrival to virtual meeting
0900	0915	Opening Remarks	Shelley Yak
0915	0930	Opening remarks/Purpose of the Meeting	Mike Paglione
0930	0945	SAS Chair Opening & Report on REDAC Meeting	Terry McVenes
0945	1000	SAS Membership discussion/ defining a good F&R	Mike Paglione/Terry McVenes
1000	1015	Comfort Break	
1015	1100	Overview of August 2021 F&Rs	Mike Paglione/Terry McVenes
1100	1130	F&R action – briefing on Landscapes use in the development of R&D portfolio	Jon D. Schleifer
1130	1200	Update on FY2024 research portfolio/revised process	Mark Orr
1200	1300	Lunch	
1300	1315	Introduction to the review of FY2024 portfolio	Mark Orr/ Mike Paglione
1315	1430	Domain: Aircraft Safety Assurance <ul style="list-style-type: none"> <li>• Fire and Safety Research</li> <li>• Propulsion and Fuel Systems (including Aircraft Catastrophic Failure)</li> <li>• Advanced Materials/Structural Safety</li> <li>• Continued Airworthiness (Structures)</li> <li>• Continued Airworthiness (Systems)</li> </ul>	Questions from SAS members
1430	1445	Comfort Break	
1445	1515	Domain: Digital Systems and Technologies <ul style="list-style-type: none"> <li>• Digital System Safety</li> </ul>	Questions from SAS members
1515	1600	Domain: Environment and Weather Impact Mitigation <ul style="list-style-type: none"> <li>• Aircraft Icing</li> <li>• Alternative Fuels for General Aviation</li> </ul>	Questions from SAS members
1600	1630	SAS F&R discussions and feedback (Day 1)	SAS members
1630	1645	First Day Review – Homework Assignments	Mike Paglione/Terry McVenes
1645		Adjourn	



# Subcommittee on Aviation Safety Day 2 of 2

## Wednesday

- **Location:** Virtual meeting
- **Zoom:** Click to Join:  
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Passcode: 701578
- **Phone Audio Only:**
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  - Passcode: 701578

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## March 2 (Wednesday)

0845	0900		Arrival to virtual meeting
0900	0930	Review of homework from first day	All
0930	1000	Domain: Human and Aeromedical Factors <ul style="list-style-type: none"> <li>• Aeromedical Research</li> <li>• Flight deck/Maintenance/System Integration Human Factors</li> </ul>	Questions from SAS members
1000	1030	Domain: Aviation Performance and Planning <ul style="list-style-type: none"> <li>• System Safety Management/Terminal Area Safety</li> <li>• Unmanned Aircraft Systems</li> </ul>	Questions from SAS members
1030	1045	Comfort Break	
1045	1130	AFWERX Agility Prime and Dual-Use Aviation Technology	Tom Meagher, Lt Col, USAF
1130	1200	Aviation Cybersecurity	Dan Diessner
1200	1300	Lunch Break	
1300	1330	FAA Budget Update	Beth Delarosby
1330	1430	Physiological Monitoring of Aircrew for Prediction and Detection of Performance Impairment	Dr. Crowley
1430	1500	Insights in the AAM	Greg Bowles
1500	1515	Comfort Break	
1515	1545	Update on Boeing's perspective on aviation technology trends	David Polland
1545	1615	SAS F&R discussions and feedback (Day 2)	SAS members
1615	1645	Closing remarks	Terry McVenes/ Mike Paglione /Mark Orr
1645		Adjourn	

# Designated Federal Official (DFO) Responsibilities



- Approve all of the Advisory Committee's meetings.
- Prepare and approve all meeting agendas.
- Attend all committee meetings, and
- Adjourn any meeting that he/she determines is in the best interest of the public to do so.

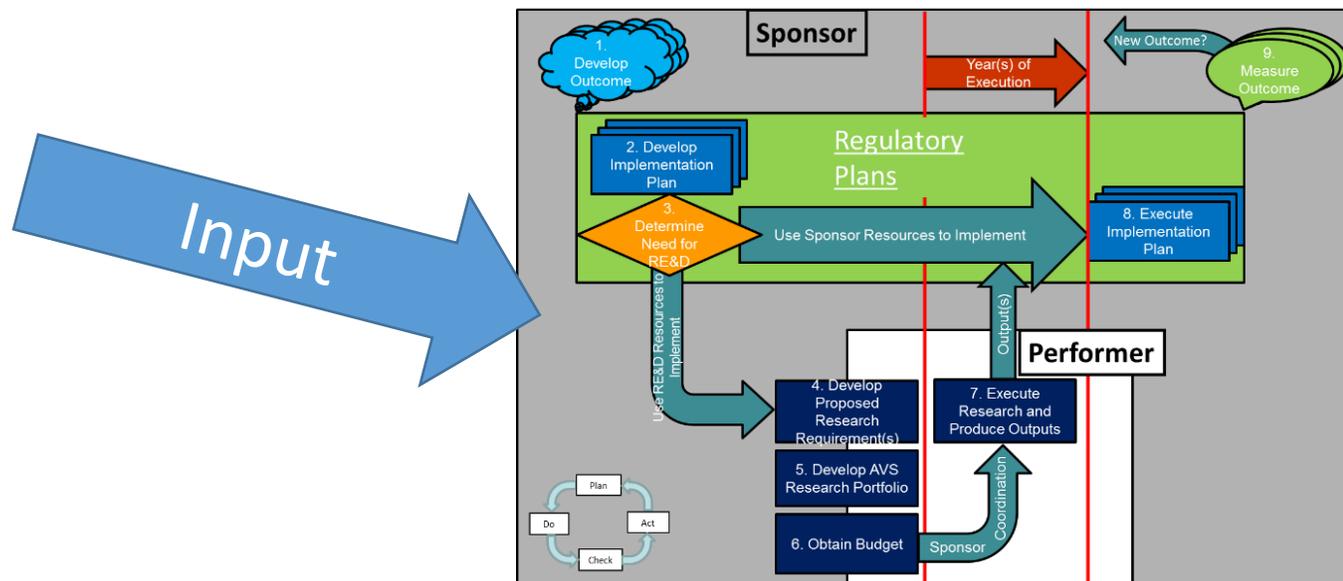


# REDAC Subcommittee on Aviation Safety Meeting Goals



Winter/Spring: To review the FY24 proposed portfolios to provide strategic guidance to the FAA for use during the preparation of the portfolio.

- Summer/Fall: To review the planned FY22 portfolio to provide feedback, advice, and recommendations during the FAA portfolio review.



# FAA Research & Development Domain Areas

## Aircraft Safety Assurance



Fire Safety



Aircraft Structures



Propulsion & Fuel Systems

## Digital Systems & Technologies



Digital Systems



Digital Technologies



Cyber Security

## Environment & Weather Impact Mitigation



Weather



Icing



Environmental & Energy / Fuels

## Airport Infrastructure and Technologies



Airport and Terminal



Pavement

## Aerospace Performance & Planning



System Safety Management



Air Traffic Management



Emerging Operations

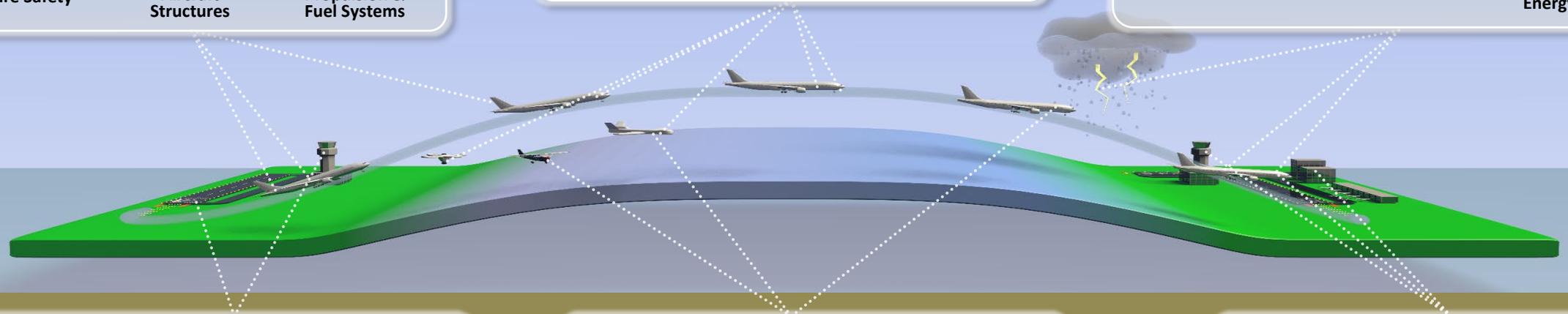
## Human & Aeromedical Factors



Human Factors



Aeromedical Factors



# FAA R&D Lifecycle: Propeller Chart\*

**Aviation Safety R&D Strategy**

Phase	Products	Research Sponsor	Research Manager
I	Research needs; safety impacts; priorities; and timelines plans;	Lead	Participate
II	Budget Narratives (BN); AMRP; NARP; Research project execution and spend plans	Participate	Lead
III	R&D products/deliverables; Project Status: PMRs, monthly reports, schedule progress; Course Corrections	Participate	Lead
IV	New and/or updated Standards; Guidance & Regulatory materials to impact aviation safety	Lead	Participate



\*Memorandum of Agreement (MOA) Between AVS and ANG for Aviation Safety R&D, January 2021.



# Aircraft Safety R&D : FY24 Budget Lines (BLI)

BLI	Program Area	Research Sponsoring Service/Office* <i>(Bold indicates REDMT member BLI Team Chair)</i>	Research Execution Office <i>(Bold indicates the primary BLI fiduciary)</i>
A11A	Fire Research and Safety	<b>AIR</b>	<b>ANG-E2</b>
A11B	Propulsion and Fuel Systems	<b>AIR</b>	<b>ANG-E2</b>
A11C	Advanced Materials/Structural Safety	<b>AIR</b>	<b>ANG-E2</b>
A11DA	Aircraft Icing	<b>AIR, AFX</b>	<b>ANG-E2</b>
A11DS	Digital System Safety	<b>AIR</b>	<b>ANG-E2</b>
A11E	Continued Airworthiness	<b>AIR</b>	<b>ANG-E2</b>
A11G	Flightdeck/Maintenance/System Integration Human Factors	<b>AIR, AFX, AVP</b>	<b>ANG-C1, AAM</b>
A11H	System Safety Management/Terminal Area Safety	<b>AFX, AOV, AVP</b>	<b>ANG-E2</b>
A11J	Aeromedical Research	<b>AIR, AAM, AFX</b>	<b>AAM</b>
A11L	Unmanned Aircraft System Research	<b>AIR, AFX, AAM, AOV, AVP, AUS</b>	<b>ANG-C2</b>
A11M	Alt Fuels for GA	<b>AIR</b>	<b>ANG-E2</b>

**\*NOTE:** The S/Os listed are the ones that are CURRENTLY sponsoring research in each of these BLIs. In practice, any of the six AVS offices can sponsor research in any of these BLIs, and within the A11L BLI AUS acts as the AVS sponsor representing other FAA offices like APL.

# Phase 1: FY24 Aircraft Safety R&D 5 Year BLI Plans (1 of 2)

- S/O's define set of needed “Operational Capabilities” per BLI
  - Ability to do something in the aerospace ecosystem.
  - For aviation safety research, it is a desired future ability that cannot be realized until one or more knowledge gaps are addressed.
  - For example, “ability to prevent or minimize the effects of inflight or post-crash fire on crew/passenger survivability given evolving aircraft technology”
- Each knowledge gap framed as a research question, which in turn drives a research project that is designed to answer the question.



# Phase 1: FY24 Aircraft Safety R&D

## 5 Year BLI Plans (2 of 2)

- Outcomes: how the sponsor will measure achievement of the targeted operational capability, *e.g. Reduction in the occurrence of inflight fire accidents and improved post-crash survivability*
- Outputs: describes what specific products the research project will deliver to the sponsors, *e.g. Reports, datasets, and instructional videos that describe new and updated aircraft materials flammability test methods in support of regulatory actions*
- At high-level, the BLI Plans organized into 4 Parts:
  - **Part 1:** BLI Definition & Scope
  - **Part 2:** Service/Office Research Requirements & Research Gap Analysis
  - **Part 3:** RE&D Management Team Programming/5-year Outlook
  - **Part 4:** BLI Team Members

# REDAC BLI Forecast and Assessment

## Forecast (Future Outlook)

Aerospace Emerging Technology Trends / Innovations to Watch	FAA Readiness
1. <For this BLI, what is the REDAC's forecast of the top 5 aerospace technology trends / innovations that the FAA will need to address during this decade>	<Given the current research program, is the FAA well prepared or appropriately preparing to be able to certify?>
2.	<1 – Poor 2 – Fair 3 – Good 4 – Very good 5 – Excellent>
3.	
4.	
5.	

## Assessment (Current Outlook)

Criteria	Grade
Relevance of operational capabilities	<1 – Poor 2 – Fair 3 – Good 4 – Very good 5 – Excellent>
Timeliness of outputs relative to need	
Innovativeness	

### Comments and Questions

1. <List REDAC comments and questions for FAA research sponsors and performers>

2.

3.

4.

5.

# For more information...

- Research Engineering and Development Advisory Committee (REDAC) Subcommittee on Aircraft Safety (SAS), all March 2022's meeting materials will be published, see [www.faa.gov/go/redac](http://www.faa.gov/go/redac)
- Videos from researchers, FAA's YouTube channel, [Faces in Aviation Research](#)
- Reports and publications, US Department of Transportation's National Transportation Library, ROSAP collection, [FAA Technical Library](#)
- FAA Technical Center Showcase and R&D tab, [FAA TC Showcase](#)

# THANK YOU!

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