



## **AVIATION RULEMAKING ADVISORY COMMITTEE (ARAC)**

### **FEDERAL AVIATION ADMINISTRATION**

December 12, 2019

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#### **ARAC MEETING 1:00 p.m.**

- Welcome and Introductions
  - Federal Advisory Committee Act (FACA) Statement
  - Ratification of Minutes
  - FACA Overview
  - DOT Announcement on ARAC – new members
  - Status Reports
    - ARAC
      - Airman Certification System Working Group – Mr. David Oord
        - ❖ Covering expanded tasks and proposed timelines (Interim Recommendations Due to FAA: 12/2019)
        - ❖ Expanded Tasks to include Sport Pilot and Recreational Pilot certificates (Interim Recommendations Due to FAA: TBD; ARAC Meeting: TBD)
      - Part 145 Working Group – Ms. Sarah McLeod
        - ❖ Preliminary Report (Due to FAA: 12/31/2020; ARAC Meeting: September 2020)
        - ❖ Final Report (Due to FAA: 12/31/2021; ARAC Meeting: September 2021)
      - Designated Pilot Examiner Working Group – Mr. Sean Elliott
    - Transport Airplane and Engine (TAE) Subcommittee – Mr. Keith Morgan
      - Flight Test Harmonization Working Group - Brian P. Lee
        - ❖ Topic 15 Pilot Induced Oscillation (Recommendations Due: 3/31/2020; ARAC Meeting: 3/19/2020)
        - ❖ Topic 16 Handling Qualities Rating Method (HQRN) (Recommendations Due: 3/31/2020; ARAC Meeting: 3/19/2020)
        - ❖ Transport Airplane Performance and Handling Characteristics, Phase 3 Tasking (Recommendations Due: 5/1/2020; ARAC Meeting: 3/19/2020)
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- Metallic and Composite Structures – Doug Jury
  - ❖ Expanded Taskings (Recommendations Due: December 2019; ARAC Meeting: 12/12/2019)
- Avionics System Harmonization Working Group (Recommendations Due: 6/30/2020; ARAC Meeting: 6/18/2020) – Clark Badie
- Ice Crystals Icing Working Group (Recommendations Due: 12/31/2020; ARAC Meeting: 12/10/2020) – Melissa Bravin and Allan van de Wall
- Flight Deck Secondary Barrier Working Group (Recommendations Due: September 2019; ARAC Meeting: 9/19/2019) – Wolfgang Koch and Brad Brown
- Any Other Business
  - FAA update on regulatory activities

ARAC agendas, meeting minutes, and reports are available on the FAA's committee website at [https://www.faa.gov/regulations\\_policies/rulemaking/committees/documents/index.cfm/committee/browse/committeeID/1](https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/committee/browse/committeeID/1).

# Introduction to the Federal Advisory Committee Act (FACA) Requirements



Federal Aviation  
Administration



# Federal Advisory Committee Act (FACA)

- FACA governs SOCAC's activities
  - FACA, Title 5 of the United States Code, Appendix 2
- FACA states that:
  - Unless specified by a law or presidential directive, advisory committees must be used solely for advisory functions;
  - Standards and uniform procedures should govern the advisory committee's establishment, operation, administration, and duration; and
  - Congress and the public must be kept informed of the advisory committee's purpose, membership, activities, and cost.
- FACA also includes requirements on:
  - Advisory committee procedures,
  - Meetings,
  - Publication of notices in the *Federal Register*,
  - Annual reports,
  - Federal officer or employee attendance, and
  - Recordkeeping requirements.



# Establishing a Federal Advisory Committee

- A notice to the public in the Federal Register is required when a discretionary advisory committee is established, renewed, or reestablished.
- Advance notice must appear at least 15 calendar days before the charter is filed.
- Requirement for advanced notice does not apply to advisory committee renewals, which may be published concurrently with the filing of the charter.
- A formal charter must be prepared and must be filed with the agency head, the Library of Congress, the appropriate standing committees of the Senate and the House of Representatives, and the CMS before the FAC can meet or take any action.
- The charter is informed by, and must be consistent with, the Membership Balance Plan that is prepared for each FAC.
- A FAC automatically terminates two years after its date of establishment unless the statutory authority used to establish the FAC provides a different duration or charter is renewed.



# How FACA Applies to Advisory Committees

- FACA requires that, when conducting meetings, the FAA must:
  - Prepare a notice of meeting for publication in the *Federal Register* at least 15 calendar days before the meeting.
  - Keep detailed meeting minutes.
  - Make documents available to the public at a single location for copying and inspection.
  - Certify the accuracy of meeting minutes.
  - Provide an annual report documenting the meetings, the number of recommendations received, the recommendations accepted in full, partial, and not accepted, travel, etc.



# Membership

- The Secretary will appoint all FACA membership to parent committees.
  - Secretary will approve the committee Chair and Vice Chair.
- Non-voting membership designations are prohibited unless otherwise required by statute.
- All nominations shall be reviewed by the FAA Ethics Official for proper classification prior to submission to OST.



# Member Responsibilities

- Committee members shall prepare all committee reports, recommendations, and other similar committee work products.
- The member is expected to attend meetings.
- The member may only speak with Congress and the media in his or her personal capacity.





# Designated Federal Officer (DFO) or DFO Designee Responsibilities

- (1) Perform the duties assigned to the DFOs pursuant to FACA and its implementing regulations;
- (2) Prepare required FACA committee documentation, including charters and membership balance plans, in accordance with Agency and GSA formatting guidelines;
- (3) Ensure that all individuals recommended for appointment to a committee are properly vetted;
- (4) Manage technical, administrative, and other arrangements for meetings;
- (5) Ensure detailed minutes of each FACA committee meeting, including ones that are closed or partially closed to the public, are kept, and ensure they are certified in accordance with 41 CFR 102-3.165;
- (6) Complete the Annual Comprehensive Review and keep the GSA FACA database up-to-date;
- (7) Manage committee records in accordance with General Records Schedule 6.2; and
- (8) Take annual FACA training.



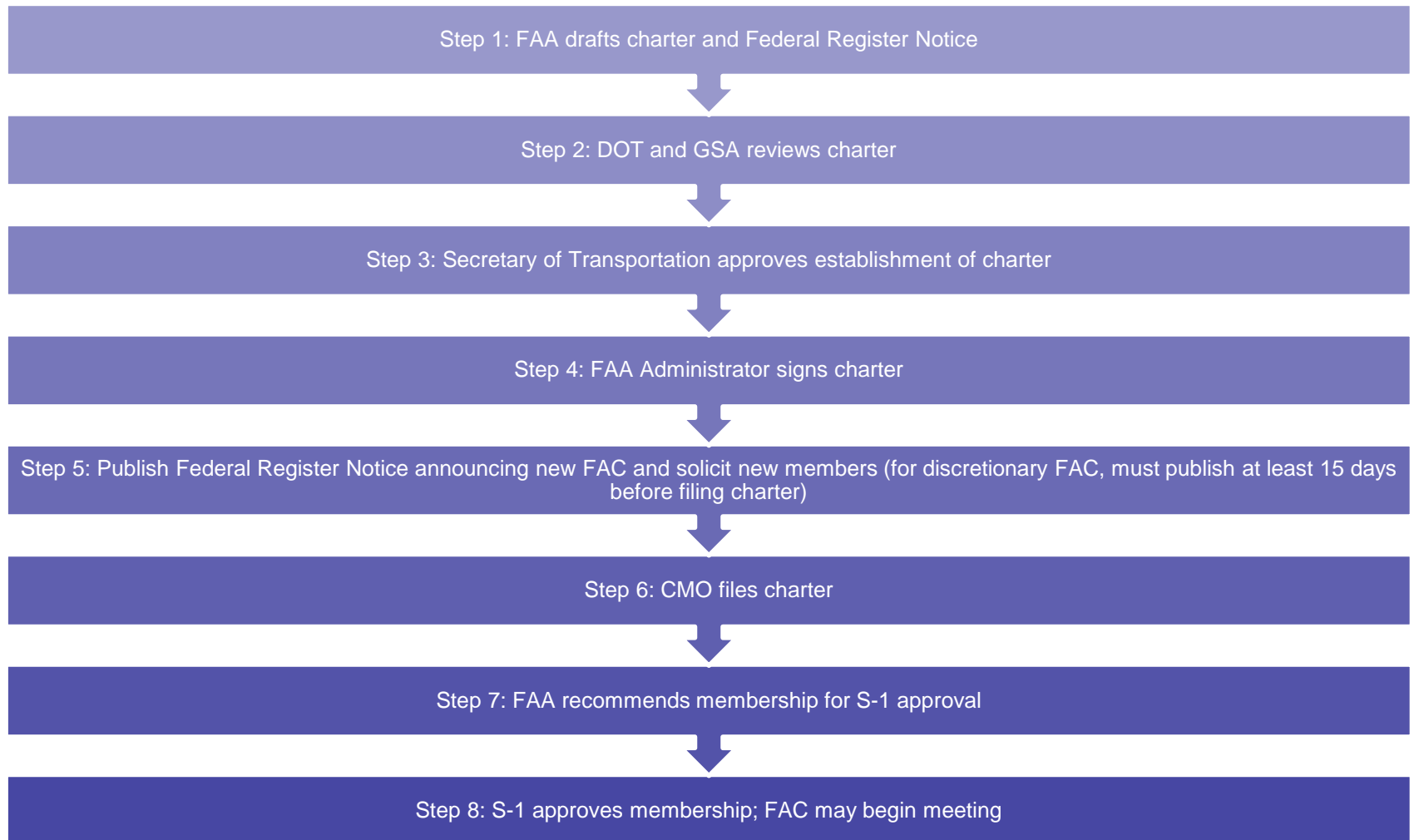
# Subcommittee

- FACA subcommittees must report back to the parent committee and must not provide advice or work product directly to the agency or to another subcommittee.
- All nominations must be reviewed by the FAA's Ethics Official before an individual is appointed to a subcommittee.
- Not required to hold public meetings or announce meetings in the Federal Register.
- Not required to take minutes.





# FAA FAC Approval Process



# Part 145 Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Sarah MacLeod and Ric Peri**

Working Group Chairs

December 2019 Meeting

# Members of the Part 145 Working Group

Paul Cloutier  
Working Group Representative

Brent Hart  
Analyst

Thuy Cooper  
Analyst

Justin Smith  
Director of Operations

Craig Fabian  
Regulatory Compliance Leader

Mark House  
Senior Business Process Manager

Sarah MacLeod  
Executive Director

FAA—Flight Standard Services  
Repair Station Branch

Federal Aviation Administration  
Office of Rulemaking

Federal Aviation Administration  
Office of Rulemaking

Quality Aviation Instruments, Inc.,  
D/B/A QAI

GE Engines

GE Engines

Aeronautical Repair Station Association

# Members of the Part 145 Working Group

Rick Tober	Triumph Group Operations
Director of Quality	
Tim Miller	Aviation Technical Services
Vice President / Safety, Quality & Technical Training	
Richard Macklosky	United Technologies Corporation
Manager, Regulatory Management Civil Aviation	
Jeff Eagle	United Technologies Corporation
Senior Regulatory Compliance Specialist	Pratt & Whitney
Howard Whyte	United Technologies Aerospace Systems DBA
Quality Fellow—Regulatory	Hamilton Sundstrand Worldwide Repair
Eric M. Monte	Rockwell Collins
Principal Quality Assurance Engineer	

# Members of the Part 145 Working Group

~~Michael Tharp~~

~~Senior Principal Engineer~~

~~Component Engineering~~

David Fitzsimmons

Program Manager

Rodney Markesbery

Program Manager

Regulatory Compliance

~~Ronald Witkowski~~

~~Director of Quality — Regulatory Compliance~~

Richard (Ric) Peri

Vice President Government & Industry Affairs

Sam Porter

Senior Quality Manager

~~Delta TechOps~~

Delta TechOps

Delta TechOps

~~Gulfstream~~

Aircraft Electronics Association

Sikorsky

A Lockheed Martin Company

# Members of the Part 145 Working Group

Joe Sambiase  
Director Airworthiness & Maintenance

General Aviation Manufacturers Association

Jeremy Bryck  
Senior Director 145 Maintenance

Air Methods Corporation

Justin Madden  
Legislative Affairs Director

Aircraft Mechanics Fraternal Association (AMFA)

Stephanie Branscomb  
Director of Operations  
Quality Manager

Wysong Enterprise

Gary Daniel  
Avionic Certification

Wysong Enterprise

Stephen R. Wysong  
President

Wysong Enterprise



# Members of the Part 145 Working Group

John Fox

Accountable Manager

Senior Manager, Quality Control

Steven Brewer

Manager Structure Engineering

Bill Hanf

Owner

Samuel Edwards

Administrative Manager

Jeffrey Orth

Senior Regulatory & Compliance Specialist

United Airlines, Inc.

Kalitta Air

Green Mountain Avionics

Boeing Commercial Airplanes

Boeing Global Services

# Recognized Observers to the Part 145 Working Group

Brian Koester  
Manager, Flight Operations & Regulation

Carol Giles  
Aircraft Maintenance and Systems  
Technology Committee Liaison

Art Smith  
Vice President-Chief Quality Officer

Steve Douglas  
Vice President  
Certification, Compliance & Safety

National Business Aircraft Association

National Air Transportation Association

AAR Corporation

Oliver Wyman - CAVOK

# SUMMARY OF TASKING

- Comprehensive review of internal and external guidance material – relate to laws and regulations – on certificating and overseeing all part 145 repair stations
  - ✓ Orders, notices, advisory circulars, job aids and safety assurance system (SAS) Data Collection Tools (DCTs)
  - ✓ Laws, executive orders
- Recommend improvements to guidance documents to ensure they—
  - ✓ Align with regulations, laws and executive orders
  - ✓ Annotate the applicable regulations, laws or executive orders
    - ✓ Are numbered to establish a relationship between the guidance and the underlying regulation
  - ✓ Communicate agency expectation of compliance to the public and FAA workforce in a comprehensive and consistent manner, with tools to ensure application and evaluation is based on performance-based oversight
  - ✓ Account for oversight of repair stations vis-à-vis amount, type, scope and complexity of the certificate holders' work and its size
- Develop a preliminary and final report containing the recommendations

# SCHEDULE

- Preliminary report within 24 months from the first meeting of the Part 145 Working Group (December 11, 2018 means no later than Friday, December 11, 2020)
- Final report will be submitted no later than 12 months after the preliminary report is forwarded to the FAA by ARAC (earliest week of December 13, 2021).
  - ✓ Working group meetings to conduct the study and to meet with SMEs are complete with the September face to face.
  - ✓ Next virtual meeting to review draft AMC overview
  - ✓ Next in-person meeting in early 2020

# STATUS OF TASKING

- Third face-to-face meeting September 2019
- Presentations by Subject Matter Experts
  - PASS
  - Flight Standards – AFS 500 – interface of policy with training
  - Experienced and in-experienced ASIs
- Completed the thorough review of:
  - Preamble language in final rules
  - Preamble language of historic rules
  - Current and historical internal and external guidance
  - Paring the SAS – DCTs with regulation
  - The history, philosophy and purpose of the SAS -- DCTs

# STATUS OF TASKING

- Developing basic problem statement from history, presentations from SMEs and task requirements.
- Reviewed template for addressing each section and paragraph of part 145 to explain its scope/meaning and acceptable means of compliance—worked on specific sections to develop understanding of assignment.
- Continue outlining information for preliminary report based upon SME presentations and development of acceptable means of compliance to bridge the gap and created consistency between regulation and guidance.

# AREAS of ARAC CONSIDERATION

Hopefully always none, unless otherwise advised.

# DPE Reform Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Sean Elliott, EAA Vice President**  
Working Group Chair

December 12<sup>th</sup>, 2019



# MEMBERS/OBSERVERS of DPE Reform Working Group

Jason	Blair	Independent	WG Member
Paul	Cairns	Embry Riddle Aeronautical University	WG Member
Lisa	Campbell	Air-Mods Flight Training Center	WG Member
Chris	Cooper	Aircraft Owners and Pilots Association	WG Member
MaryAnne	DeMarco	Coalition of Airline Pilots Association	WG Observer
Mark	Dilullo	Threshold Technologies, Inc.	WG Member
Jon	Dodd	Coalition of Airline Pilots Association	WG Member
Mark	Ducorsky	Independent	WG Member
Sean	Elliott	Experimental Aircraft Association	WG Chair
Dan	Fluke	Air Line Pilots Association	WG Member
Jonathan	Freye	National Air Transportation Association	WG Member
Stephen	Gatlin	Pan Am Internatioanl Flight Academy	WG Member
Lauren	Haertlein	General Aviation Manufacturers Association	WG Observer
Thom	Holden	Federal Aviation Administration	WG Member
John	Kovar	Federal Aviation Administration	WG Member
Zachary	Noble	Helicopter Association International	WG Member
Randy	Rowles	Helicopter Institute / HAI	WG Member
David	Sullivan	Independent	WG Member
Tim	Tucker	Robinson Helicopter Company	WG Member

Thom	Holden	Federal Aviation Administration	WG Support
Jay	Kitchens	Federal Aviation Administration	WG Support
John	Kovar	Federal Aviation Administration	WG Support
Trey	McClure	Federal Aviation Administration	FAA Lead Support
Susan	Parson	Federal Aviation Administration	WG Support
Robert	Reckert	Federal Aviation Administration	WG Support
Bruce	Rengstorf	Federal Aviation Administration	WG Support
Mallory	Woodcock	Federal Aviation Administration	WG Support

# SUMMARY OF TASKING

The DPE Reforms WG will:

- Provide advice and recommendations to the ARAC on the most effective ways to identify areas of needed reform with respect to regulatory and policy changes necessary to ensure an adequate number of designated pilot examiners are deployed and available to perform their duties to meet the growing public need.
- The Group should review any relevant materials to assist in achieving their objective.
- Review all regulatory and policies related to designated pilot examiners appointed under 14 CFR 183.23. Specific areas include, but are not limited to, 14 CFR part 183, 14 CFR part 61, FAA Order 8900.1, FAA Order 8900.2, and FAA Order 8000.95.

## SUMMARY OF TASKING (con't)

- Will make recommendations with respect to the regulatory and policy changes if necessary to allow a designated pilot examiner perform a daily limit of 3 new check rides with no limit for partial check rides and to serve as a designated pilot examiner without regard to any individual managing office.
- If the task could result in recommendations with substantive changes to policies and rulemaking, then the working group will consider the role of potential qualitative and quantitative costs and benefits, including impacts to resources, of these recommendations compared to their alternatives.
  - If available, the working group should provide preliminary cost and benefit information in the report.
- Develop a report containing recommendations on the findings and results of the tasks explained above.
  - The recommendation report should document both majority and dissenting positions on the findings and the rationale for each position.
  - Any disagreements should be documented, including the rationale for each position and the reasons for the disagreement.
- The working group may be reinstated to assist the ARAC by responding to the FAA's questions or concerns after the recommendation report has been submitted.

# SCHEDULE

- Full WG #1 meeting held October 29, 30, 31<sup>st</sup> in Washington, D.C.
- Three Subgroups Launched during the WG 1<sup>st</sup> meeting. Subgroups electronically meeting bi-weekly until tasks complete and ready for in person WG mtg #2
- Full WG #2 meeting scheduled for March 19-20 in Washington, D.C.
- Status reports schedule for each quarterly ARAC meeting until final report complete
- Final report back to ARAC due @ December 2020 meeting

# STATUS OF TASKING

- DPE Reform Work Group has completed its 1<sup>st</sup> full group meeting. Outputs include:
  - Full review of ARAC WG process, rules of WG, milestones, and timeline
  - Full review of current state elements for DPE selection, training, deployment, & oversight
  - Three subgroups identified and sub group chairs selected. Specifically tasked with developing recommendations and process around:
    - DPE Selection Process
    - Training Elements and Mentoring
    - Deployment/Oversight
  - Specific direction to think outside the box and consider future state/needs of certificate examining
  - No GEO boundaries
  - ODA Elements
  - Other models/parallel processes
- March 19-20, 2020 next full WG in person meeting to review progress of sub group recommendations and develop next steps for refinement

# AREAS of ARAC CONSIDERATION

- None at this time

# Transport Aircraft and Engines Subcommittee Status Report to the Aviation Rulemaking Advisory Committee

**Keith R. Morgan**  
Subcommittee Chair

12 December 2019

# MEMBERS of the Transport Aircraft and Engines Committee

Pratt & Whitney

ALPA

A4A

ASD

Airbus

Boeing

GAMA

AIA

Bombardier

NADA/F

Embraer

SRCA



# SCHEDULE

- 2019 Meetings:
  - Telecom March 20, 2019
  - Face-to-face May 15, 2019 (Washington)
  - Telecom July 24, 2019
  - Face-to-face Oct. 19, 2019 (Washington)
- 2020 Meetings:
  - Telecom January 28, 2020
  - Face-to-face May 5, 2020 (Washington)
  - Telecom July 28, 2020
  - Face-to-face October 27, 2020 (Washington)

# Active Working Groups

- Flight Test Harmonization
- Transport aircraft Metallic and Composite Structures
- Ice Crystal Icing
- Avionic Systems Harmonization
- Secondary Cockpit Barriers

# Proposed 2020 Report Submittal Schedule to ARAC

- March 2020
  - TAMCSWG SDC-SLP
  - TAMCSWG Structural Bonding
  - Secondary Barriers final report
- June 2020
  - FTHWG Vdf/Mdf
  - FTHWG Pilot Induced Oscillations
  - ASHWG final report
  - TAMCSWG Crack Interaction
- September 2020
- December 2020
  - ICIWG final report

# Flight Test Harmonization Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Brian P. Lee, Boeing**  
**Laurent Capra, Airbus**  
Working Group Chairs

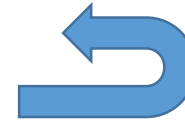
12 December, 2019

# MEMBERS of Flight Test Harmonization Working Group

Authorities	OEM's		Operators	Observers
FAA Joe Jacobsen Bob Stoney Paul Giesman	Airbus Philippe Genissel + SME's	Embraer Murilo Ribeiro + SME's	ALPA Rikki Gardonio Len Quiat	JCAB (Japan) Takahiro Suzuki Atsushi Fukui
EASA John Matthews Marco Locatelli	Boeing Paul Bolds- Moorehead + SME's	Gulfstream Mike Watson +SME's		CAAI (Israel) Yshmael Bettoun
Transport Canada Lee Fasken	Bombardier Tony Spinelli +SME's	Textron Kurt Laurie +SME's		Norwegian Airlines John Lande
ANAC (Brazil) Pedro Donato	Dassault Philippe Eichel +SME's			

# SUMMARY OF TASKING

- Transport Aircraft Performance and Handling Characteristics, Phase 3
- Long list of topics prioritized in Phase 1 (June, 2013 – June, 2014)
- Phase 2 Complete November, 2017; except
  - Wet Runway Stopping Performance: [now complete](#)
- Phase 3:
  - 15. Pilot Induced Oscillation
  - 16. Handling Qualities Rating Method (+17)
  - 17. ~~Failure Assessment Methodology~~
  - 18. Go-Around Performance
  - 19. ~~Use of Amber Band on Airspeed Tape~~ ([Sent to ASHWG](#); [Now dropped from consideration](#))
  - 20. Return-to-Land
  - 30. Directional Control Below Vmc on Slippery Surfaces -
  - 31. Definitions of Vdf/Mdf (esp. for limited airplanes)
- Strategic Considerations
  - Considered to be aggressive
  - FTHWG began work ahead of formal tasking
- [ASHWG: Low Energy Alerting](#)
  - [FTHWG is participating with ASHWG \(B. Lee is Liaison\)](#)



# PHASE 3 SCHEDULE

	1	2	3	4	5	6	7	8	9	10	11	12
	Wichita	Cologne	Seattle	Paris	Montreal	Toulouse	Melbourne	Cologne	Washington DC ?	Oslo	Savannah	Bordeaux/Istres?
	June 17	Sept 17	Dec 17	March 18	Jun-18	September 18	December 18	4-8 March 19	10-14 June 19	9-13 Sept 19	2-6 Dec 19	2-6 March 20
15 PIO					H			H	H	H*		
16 HQRM					H	H	H	H	H	H*		
18 GAR		P	P	*P		<del>Report 1 November</del>	Report 20 December					
20 Return to Land					P	P	P	*	Report 24 July			
30 Yaw Control	H	H		H*	Report 1 June							
31 Vdf/Mdf	H		H	H		H	H	*		<del>Report 1 October</del>		Report

(\*) means voting on requirements and guidance; final report will follow

P = Aircraft Performance  
H = Handling Qualities

30 month clock starts 1 November, 2017  
(so we've had a head-start)  
FTHWG intends to stay on this schedule as best we can  
(as opposed to stretching to 30 months from this date)  
Buffer at end of schedule for contingencies

Tasking End Date  
31 March, 2020  
(We won't use it if we don't need it;  
we are anticipating Phase 4 to follow)

# STATUS OF TASKING

- Phase 3: FTHWG considers activity on-track / on-schedule...with some caution at this point
  - Go-Around Performance (Topic 18) - **COMPLETE**
  - Return to Land - **COMPLETE**
  - Vdf/Mdf for protected aircraft
    - Recommendation Report will not be ready for ARAC in December, 2019.
      - Added Loads and Dynamics specialists as this topic extends into Subpart C
      - FAA participation is delayed by higher urgency tasks in Fall of 2019
    - Completion prior to the end of Phase 2 (31 March, 2020) at risk – most likely June 2020 for ARAC consideration
  - HQRM
    - Harmonization of this topic is proving more difficult and multi-faceted than originally envisioned; we didn't have the right population of expertise.
      - Task progress is on hold while we add SME's from Systems Safety and Flight Controls disciplines.
      - Schedule (March 2020) is at risk, but we need to get this right. (Already coordinated with FAA management. Planned re-start June, 2020)
  - Pilot Induced Oscillation
    - 5<sup>rd</sup> face-to-face meeting September, 2019; telecons continuing
    - At risk to finish before March, 2020 – most likely June 2020 for ARAC consideration
- Phase 4 Planning
  - Begun planning to discuss potential Phase 4 topics. Expect a prioritized list in December, 2019
- ASHWG: Low Energy Alerting
  - FTHWG is participating (B. Lee is the liaison)
  - Face-to-Face in late November
    - Draft report discussed by FTHWG at December meeting (last week); inputs back to ASHWG
  - Next telecom: January, 2020



# STATUS OF TASKING ACTIVITIES

- 13 August (HQRМ)
- 20 Aug (-)
- 27 Aug (PIO)
- 3 sept (Vdf/Mdf)
- →FTHWG-51 : 9-13 Sept 19 Meeting Oslo (Norwegian) (Topics 15 PIO-16 HQRМ)
  - 24 Sept (Vdf/Mdf)
  - 1 Oct (Vdf/Mdf)
  - 8 October, (PIO)
  - 22 October (Phase 4 Topics)
  - 29 October (Vdf/Mdf)
  - 5 November (Phase 4 Work Plan Review)
  - 12 November (PIO)
  - 19 November (Phase 4 Topics)
- →FTHWG-52 : 2-6 Dec 19 Meeting Savannah (Gulfstream) (Topics 15 PIO-16 HQRМ; Phase 4)
- →FTHWG-53 : 2-6 Mar 20 Meeting Bordeaux (Dassault)

Activity since  
24 July, 2019

2019:

TAE : 20 March, 15 May, 24 Jul, ~~5 Nov~~ 28 October

ARAC: 20 June, 19 Sept, 12 Dec

# AREAS for ARAC CONSIDERATION

- New request for participation from Boeing/Embraer joint venture awaiting approval from DOT
- New request for participation from ATR awaiting approval from DOT
- Request change of representative from JCAB

# Transport Airplane Metallic and Composite Structures Working Group

## Status Report, Extension Topics, Briefing to the TAE – November, 2019 meeting

**Doug Jury (Delta Air Lines)**  
Working Group Chair

October 29, 2019

# Members of the Working Group

- Industry WG voting members:

- |                             |                                |
|-----------------------------|--------------------------------|
| 1. Michael Gruber           | (Boeing)                       |
| 2. Chantal Fualdes          | (Airbus)                       |
| 3. Salamon Haravan          | (Bombardier)                   |
| 4. Benoit Morlet            | (Dassault Aviation)            |
| 5. Antonio Fernando Barbosa | (Embraer)                      |
| 6. Kevin Jones              | (Gulfstream)                   |
| 7. Toshiyasu Fukuoka        | (Mitsubishi Aircraft)          |
| 8. David Nelson             | (Textron Aviation)             |
| 9. Phil Ashwell             | (British Airways)              |
| 10. Doug Jury               | (Delta Air Lines) –Chairperson |
| 11. Mark Boudreau           | (FedEx)                        |
| 12. Eric Chesmar            | (United Airlines)              |

- NAAs: FAA (Walt Sippel, Larry Ilcewicz, Michael Gorelik, Patrick Safarian; EASA (Richard Minter, Simon Waite); ANAC (Pedro Caldeira, Marco Villaron, Fabiano Hernandes); TCCA (Jackie Yu); JCAB (Hiroshi Komamura – new participant)

# SUMMARY OF ORIGINAL TASKING

With the increased use of composite and hybrid structures recommendations regarding revision of the **fatigue and damage-tolerance requirements** & associated guidance material were previously provided in Final Report, dated 6/27/2018

Tasking was divided up into the following 12 focus areas:

1. Threat Assessment
2. Emerging material technology
3. Inspection Thresholds
4. Structural Damage Capability – Fail-safety
5. Aging, WFD & LOV (including ultimate strength & full-scale fatigue test evidence)
6. Testing (related to composite and hybrid materials including WFD test demonstration)
7. Repairs (bonding / bolting)
8. Modifications
9. EASA aging aircraft rulemaking and harmonization
10. Rotorburst
11. Disposition of cracking during full-scale fatigue testing
12. Accidental damage inspections included in the ALS conflicts w/ MSG-3 program

During final report submission and review by ARAC in September, 2018 three separate topics were raised as needing further evaluation and recommendation from this existing WG.

# SUMMARY OF TASKING – extended topics

Three additional items for rule & guidance recommendation development

1. Structural Damage Capability (SDC) for Single Load Path (SLP) structure:

- Develop requirements and guidance material for single load path (SLP) structure, which by definition has no SDC

2. Structural Bonding and “Weak Bonds”

- FAA requests further clarification from the working group on how to address disbonds and weak bonds as a manufacturing defect

3. Repeat Inspections & Crack Interaction

- Advisory Circular 91-82A provides evaluation considerations for establishing inspection thresholds and repeat intervals, including consideration of crack interaction with little guidance in AC. Based on this, the FAA is requesting information from the working group on how to address crack interaction when establishing inspection programs.

# SUMMARY OF TASKING – extended topics (continued)<sup>46</sup>

- Separate task groups (aka subteam) consisting of 4-8 WG members continue to work the three items
- Working Group face-to-face meeting in Atlanta, GA (Delta Air Lines TechOps facility): 10/8-11/2019

Recommendations will be in three separate reports

Overall progress is favorable

- SDC/SLP & structural bonding recommendations are on schedule.
- Crack interaction challenges were confirmed at face-to-face meeting and require more time to address due to a wider variety of engineering positions. WG did agree on a direction for developing recommendations.

# SUMMARY OF TASKING – extended topics (continued)

47

## Item 1: Structural Damage Capability (SDC) and Single Load Path (SLP) Structure

### Face-to-Face meeting status update

- Continued to develop recommendations on rule and guidance material
- Recommend no rule change - WG revisited original recommendation on impractical & will rescind original recommendation
  - WG could not reach consensus on a standard approach for demonstrating impracticality.
  - Each type certificate holder and regulator may have different understanding and expectations for what constitutes “impractical.” WG report will address this concern.
- Recommend guidance material changes. Report will—
  - Include criteria to address for certifying SLP structure
  - Include criteria to address for certifying integrally stiffened panels (ISP)
  - Address structural bonding acceptability related to SLP and ISP (relates to topic on structural bonding)
  - Include items to consider when developing Instructions for Continued Airworthiness
- ATL Action: report authoring
  - Full group/WG comments addressed/reconciled: 12/16
  - Full group completion (TAE submission ready): 1/21



# SUMMARY OF TASKING – extended topics (continued)

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## Item 2: Structural bonding

### Face-to-Face meeting status update

- No rule change proposed.
- Guidance changes under consideration:
  - AC 20-107B: additional modification to paragraphs: Material & Fabrication Development; Proof of Structure – Fatigue and Damage Tolerance; and Continued Airworthiness
  - AC 25.571-1D: subteam is reviewing existing recommendation for AC 25.571-1D for metal-to-metal bonding in original report for ensuring completeness. Expectation is that existing recommendations are sufficient (no change)
  - AC 21-26: reviewed but no changes proposed because the AC is outdated on the subject of structural bonding
  - Bonded Repair Size Limit (BRSL) FAA policy statement: recommend to revise AC 20-107B to incorporate BRSL intent explicitly
- Rationale for quality control document content
- ECD for report authoring (acceptable to subteam): 12/18
- Report OK by entire WG (TAE submission): 1/24

# SUMMARY OF TASKING – extended topics (continued)

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## Item 3: Crack interaction

### Face-to-Face meeting status update

- Rule change:
  - No – general consensus position as of now
  - Currently one dissenting position related to harmonization with EASA rule language – final position pending further discussion
- Guidance changes under consideration:
  - No voiced opposition with notional direction
  - Crack interaction subject by this WG considered to be a metallic-centric concern, and not for composite. Hybrid structures may need further consideration
  - Development of general verbiage relative to the circumstances/considerations when crack interaction need to accounted for
  - Examples of cracking scenarios
    - Actual field service examples, sanitized: images and descriptions;
    - Few cracking scenarios (schematics) may be offered as examples
  - EASA language from AMC 20-20 in AC 25.571-1D
  - Airbus, Embraer, Bombardier proposal language: Interaction to be considered in evaluation if service experience or test evidence shows that could exist.
- Report items (context and additional informational items shared with FAA and public supplemental to specific recommendations):
  - Tasking boundary between Widespread Fatigue Damage (WFD) scenarios discussion for report
  - Focus on repeat inspection intervals; excluding threshold and rationale behind it
  - Are recommendations warranted from safety perspective? Discussion about inclusion of AD surveys needs documentation of methodology and results, otherwise need to remove this position – also need some discussion about other DAHs not included in this WG (STC holders, etc).
- ECDs will be subject to agreement and comments received from WG members on content in draft
  - Working group draft report prepared by subteam for WG comments: 1/17/2020
  - Report ECD (with reconciled WG comments): TBD subject to prior milestones and ECDs and level of consensus achieved.

# Deliverable & Schedule

Deliverable: three reports containing:

- Recommendations on appropriate performance-based requirements
- Recommendations on any new guidance or changes to existing guidance
- Qualitative and quantitative costs and benefits of the recommendations

## Milestones:

•TAE Status 2	March 2019
•WG face to face meeting (San Francisco)	April 2019
•TAE Status 3	May 2019
•Second Face to Face, ATL	Oct 2019
•TAE Status	Nov 2019
•Three recommendation reports – submitted to TAE	
•1: Structural Damage Capability – Single Load Path	Jan 2020
•2: Structural Bonding	Jan 2020
•3: Crack Interaction	ECD (possibly March 2020)

## *Meeting cadence:*

- *Sub-teams (including NAA representatives) would meet more frequently*
- *Bi-weekly progress meetings (virtual) with FAA*
- *Full WG meetings (virtual) – monthly or as needed*

# Ice Crystal Icing Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Melissa Bravin**

**Allan van de Wall**

Working Group Co-Chairs

19 November 2019

# MEMBERS of ICI WG

Member Name	Organization	Role
Alan Strom	(FAA-ANE Standards) <u>FAA Representative</u>	FAA Representative
Keith Morgan	Pratt & Whitney	ARAC Representative
Melissa Bravin	Boeing Commercial Airplanes	WG Co-Chair – Airplane – P
Allan van de Wall	GE Aviation	WG Co-Chair – Engine – P
Tom Dwier	Textron Aviation	Airplane – P
Pierre-Emmanuel Arnaud	Airbus	Airplane – P
Bryan Lesko	Air Line Pilots Association	Other – P
Rikki Gardonio	Air Line Pilots Association	Other – B
Jon Saint-Jacques	A4A/Atlas Air	Other – P
David Dischinger	Honeywell	Engine – P
Keith Wegehaupt	Honeywell	Engine – P
Jim Loebig	Rolls-Royce	Engine – P
Roberto Marrano	Pratt & Whitney Canada	Engine – P
Shengfang Liao	Pratt & Whitney East Hartford	Engine – P
Christopher Baczynski	Mitsubishi MITAC	Airplane – P
Kohei Oyabu	Mitsubishi MITAC	Airplane – B
Brian Matheis	UTAS	Other (probe) – P
John Harvell	Rolls-Royce	Engine – P
Roxanne Bochar	Pratt & Whitney	Engine - P

Member Name	Organization	Role
Philip Chow	FAA	Consultant
Jeanne Mason	FAA	Consultant
Walter Strapp	Met Analytics Inc.	Consultant
Dan Fuleki	National Research Council Canada	Consultant
Ashlie Flegel	NASA	Consultant
Tom Ratvasky	NASA	Consultant
Terry Tritz	Boeing	Consultant
Bob Hettman	FAA	Non-voting role
Doug Bryant	FAA	Non-voting role
Eric Duvivier	EASA	Non-voting role
Julien Delanoy	EASA	Non-voting role
Fausto Enokibara	ANAC	Non-voting role
David Johns	TCCA-probes	Non-voting role
Eric Fleurent-Wilson	TCCA-engines	Non-voting role
Masato Fukushi	JCAB	Non-voting role
John Fisher	FAA	Non-voting role
Tom Bond	FAA	Non-voting role

# SUMMARY OF TASKING

- The ICIWG will provide advice and recommendations to the ARAC through the TAE Subcommittee on Appendix D to Part 33, and harmonization of §33.68 *Induction System Icing* requirements as follows:
  1. Evaluate recent ICI environment data obtained from both government and industry to determine whether flight testing data supports the existing Appendix D envelope.
  2. Evaluate the results carried out in Task 1 and recommend changes to the existing Appendix D envelope, as required.
  3. Compare available service data on air data probes from both government and industry probes on Appendix D, including any changes proposed in Task 2. Determine whether engine or aircraft data probe responses warrant the use of a different environmental envelope from those proposed in Task 2, or to the existing Appendix D envelope.
  4. Evaluate the results from Task 3 and recommend ICI boundaries relevant to aircraft and engine air data probes. If the working group proposes a different envelope for aircraft and engine air data probes, recommend if these should be included in the existing Appendix D, or create a new appendix to Part 33.
  5. Identify non-harmonized FAA or EASA ICI regulations or guidance. If the working group finds significant differences that impact safety, propose changes to increase harmonization that may also include icing environments other than Appendix D as a secondary objective.
  6. Recommend changes to the Advisory Circular AC20-147a, *Turbojet, Turboprop, Turboshaft and Turbofan Engine Induction System Icing and Ice Ingestion*, based on Task 1 through 5 results.
  7. Assist the FAA in determining the initial qualitative and quantitative costs, and benefits that may result from the working group's recommendations.
  8. Develop a recommendations report containing the results of tasks 1 through 6. The report should document both majority and dissenting positions on the findings, the rationale for each position, and reasons for disagreement.

# SCHEDULE

- ✓ April 30 – May 1 2019 – FAA, Burlington, MA
- ✓ July 9-11 2019 – Rolls-Royce, Indianapolis, IN
- ✓ November 6-8 2019 – Boeing, Seattle, WA
- **Teleconference January 7 2020**
- January 29-31 2020 – Honeywell, Phoenix, AZ
- ~~April 8-9~~ **May 5-6** 2020 – General Electric, Munich, Germany
- September 15-16 2020 – Pratt & Whitney, East Hartford, CT
- December 2-3 – EASA, Cologne, Germany
- *(if required)* February 2021 – Honeywell, Phoenix, AZ

# STATUS OF TASKING

- Meeting Status

- ✓ Successful kickoff meeting at FAA in Burlington
- ✓ July meeting: in-depth briefing from Walter Strapp on TWC, PSD
- ✓ Telecon (September) to review probe SAE AS5562 document / WG-89 status
- ✓ November meeting: requesting additional analysis from Strapp (FAA contractor), members to consider proposal to move 99<sup>th</sup> percentile total water content (TWC) line as per Boeing proposal (alternate statistical analysis of TWC data), members to continue in-service event identification for probes/engines, other minor action items

- Next Steps:

- Telecon 7 January to review action items from November 2019 meeting
- Meeting 29-31 January at HON (PHX)

- Goal of completion by December 2020



# AREAS of ARAC CONSIDERATION

- None

# Avionic Systems Harmonization Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Clark Badie**  
**Working Group Chair**

19 September 2019

# ASHWG New Task

## New task:

Identify and develop recommendations on low energy alerting requirements to supplement previous work

## Background:

ASHWG previously tasked to develop standards and guidance material for low speed alerting systems, that may complement existing low speed alerting requirements.

## Update:

As a result of the Asiana Flight 214 accident, NTSB recommended to the FAA to “develop design requirements for context-dependent low energy alerting systems for airplanes engaged in commercial operations” (NTSB Safety Recommendation A-14-043)

[https://www.nts.gov/\\_layouts/nts.recsearch/Recommendation.aspx?Rec=A-14-043](https://www.nts.gov/_layouts/nts.recsearch/Recommendation.aspx?Rec=A-14-043)

# ASHWG New Task

- Task Deliverable: Provide advice and recommendations to the ARAC through the TAE Committee in a report that addresses the following questions relative to new airplane designs, along with rationale.
  1. Do you recommend any changes to the existing low speed alerting requirements to provide additional pilot reaction time in cases where the airplane is both slow and close to the ground?
  2. Do you recommend any new or revised guidance material to define an acceptable low energy alert?
  3. After reviewing airworthiness, safety, cost, and other relevant factors, including recent certification and fleet experience, are there any additional considerations that the FAA should take into account regarding avoidance of low energy conditions?
  4. Is coordination necessary with other harmonization working groups (e.g., Human Factors, FlightTest)? If yes, coordinate with that working group and report on that coordination.
  5. Develop a report containing recommendations on the findings and results of the tasks explained above.
    - a. The recommendation report should document both majority and dissenting positions on the findings and the rationale for each position.
    - b. Any disagreements should be documented, including the rationale for each position and the reasons for the disagreement.

# ASHWG Summary

## New task:

Identify and develop recommendations on low energy alerting requirements to supplement previous work

## Status:

Meeting held on 27/28 June 2018 (webex)

Meeting held on 5/6 September 2018 (webex)

Meeting held on 13/14 November 2018 (in person)

Meeting held on 13 February 2019 (webex)

Meeting held on 1/2 May 2019 (in person)

Two telecons held in August 2019 (webex)

# May 2019 Meeting

## Team continued to refine draft report

Proposed change to 14 CFR 25.1303(c), Flight and Navigation Instruments

Add sub paragraph (3), to provide low airspeed (energy) alerting to the flight crew during the approach phase of flight

Proposed change to AC 25-7D, paragraph 32.2 (Flight and Navigation Instruments—§ 25.1303.)

Guidance for compliance/design

Guidance for evaluation/procedures

## List of additional considerations

Potential to address unstable approaches

Other future considerations for AC 25-7D

Alerting in all phases of flight

Primer on alerting timeline

# Next Steps

- Now: ASHWG internal circulation and update
  - General review
  - Specific assignments
- Telecon late September 2019
  - Completion of open assignments and concurrence on the draft for larger circulation
- Specific request for non-US regulatory authority review (EASA, ANAC)
- Coordination with FTHWG in Q4, 2019
- Face to face meeting in Q4, 2019
  - Objective to complete the proposal for TAEIG review by March 2020

Thank you to all of the working group members (current roster attached).....everyone from the working group has made a positive contribution to this task and pending report.

# Current Roster

Joe Jacobsen	FAA	<a href="mailto:Joe.Jacobsen@faa.gov">Joe.Jacobsen@faa.gov</a>
Bob Myers	Boeing	<a href="mailto:Robert.j.myers@boeing.com">Robert.j.myers@boeing.com</a>
Dave Leopold	Boeing	<a href="mailto:David.D.Leopold@boeing.com">David.D.Leopold@boeing.com</a>
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# AREAS of ARAC CONSIDERATION

- None

# Secondary Cockpit Barrier Working Group Status Report to the Aviation Rulemaking Advisory Committee

**Wolfgang Koch**

**Bradley Brown**

Working Group Co-Chairs

December 12, 2019

# MEMBERS of Secondary Cockpit Barrier Working Group

Member	Organization
Bill Cason	CAPA
Bill Petrak	FAA
Brad Brown (Co-chair)	Southwest Airlines
Brad Christensen	Safran Cabin
Cari Smith Allen	Alaska Airlines
Cesar Alberto	Embraer
Daniella Constantin	DeHavilland
Doug Lavin	IATA
Drew Jacoby Lemos	RAA
Ed Folsom	Pilot
Gary Cason	SWAPA
Gary Tomasulo	American Airlines
George Paul	NACA

Member	Organization
Jeff Gardlin	FAA
John Black	AFA
John Weigand	United Airlines
Kevin Woodward	Boeing
Leslie Riegle	AIA
Lowell Dimoff	TSA (FAMS)
Luize Avrigeanu	MITAC
Marie-Laure Moulard	Airbus
Paul McGraw	A4A
Rose Tancredi	TSA (FAMS)
Wolfgang Koch (Co-chair)	ALPA
Zhang Zhuguo	CAAC Shanghai Aircraft Cert Center

# SUMMARY OF TASKING

The Working Group is tasked with making recommendations on the following:

1. Identifying a full range of options to achieve the objectives of section 336 of P.L. 115-254 with key considerations to implement each option. This activity should include but not be limited to a review of existing secondary barrier methods.
2. Determining if the FAA's order should apply to airplanes produced for operations under parts in addition to 14 CFR part 121 (for example 14 CFR 129).
3. Providing initial qualitative and quantitative costs and benefits for recommended actions and alternative actions.
4. Providing implementation steps for the recommended options.
5. Developing a report containing recommendations on the findings and results of the tasks explained above.
  - a. The recommendation report should document both majority and, if applicable, any dissenting positions on the findings and the rationale for each position.
  - b. The recommendation report should document any disagreements, including the rationale for each position and the reasons for the disagreement.

# SCHEDULE

- September 5, 2019      Working Group formed
- October 3, 2019      Initial Teleconference of the Working Group
- November 4, 2019      Sub-working Groups formed & Sub-working Group Leads/members notified
- November 4-12, 2019      Sub-working Group activities lead by the sub-working group leads
- November 13-14, 2019      First face-to-face meeting (Washington, D.C.)
- November 29, 2019      Teleconference with FAA Office of Budget Costing
- December 20, 2019      Report writing subgroups provide first draft
- January 27-28, 2020      Second face-to-face meeting to review draft report (Location TBD)
- February 7, 2020      Final draft report comments due
- February 20, 2020      Final report completed for ARAC/TAE comment
- March 20, 2020      Present final report to TAE Subcommittee

# STATUS OF TASKING

- Working Group has split tasking into three sub-groups in order to meet the aggressive timeline: Technical, Implementation and Operations.
  - Technical focus: barrier strength, barrier location, dimensions, testing standard specification and design/certification costs
  - Implementation focus: regulation/advisory implementation date, installation techniques, maintainability, scope of regulation and supply chain costs
  - Operations focus: crew training, crew procedures and associated costs
- Each sub-group report/discuss to working group in order to meet all aspects of the tasking.
- Final discussions, formal recording of recommendations and majority/dissenting positions to take place at January face-to-face meeting

# AREAS of ARAC CONSIDERATION

- The aggressive timeline continues to be an area of concern given scope of tasking.
  - No formal requests at this time.