

# **Engine/APU Halon Replacement Industry Consortium – Halon Alternatives for Aircraft Propulsion Systems (HAAPS) - Update**

*October 17-20, 2022*

*International Aircraft Fire and Cabin Safety Research Conference*

*By (Alan Macias) Boeing GBM of HAAPS*

# HAAPS Charter and Statement of Work

- Define common non-halon fire extinguishing solution(s) for use in engine/APU fire zones that...
  - is compliant to basic industry and regulatory requirements
  - meets multiple OEM (airframe, engine, APU, nacelle, etc.) requirements
  - meets multiple governmental agency regulatory requirements;
  - provides a viable business solution for Consortium partners; and
  - is production-ready
- Engage...
  - Primary Stakeholders = Airframer OEMs
  - Firex Agents/System Suppliers, Airlines, engine companies, nacelle suppliers, airworthiness authorities, etc.
  - A focal point, facilitator & fiscal/contracting “Managing Entity” (ME)

# HAAPS Organization

## Halon Alternatives for Aircraft Propulsion Systems (HAAPS)

Joint  
Collaboration  
Agreement  
(JCA)

*Technical Direction*

### Governing Members

Airbus

Boeing

Bombardier

Embraer

Textron, Inc.

OAI\*

\*non-voting

### Administrator Ohio Aerospace Institute



- Fiscal, legal representative
- Day-to-day Administrative & Contract Mgmt.
- Facilitator

### Governance Board (GB)

- Strategy, Advocacy
- Consortium Oversight
- Approve Participants
- Budgets, Funding Allocation
- Define Project Requirements / Selection
- Product Integration

### Project Teams

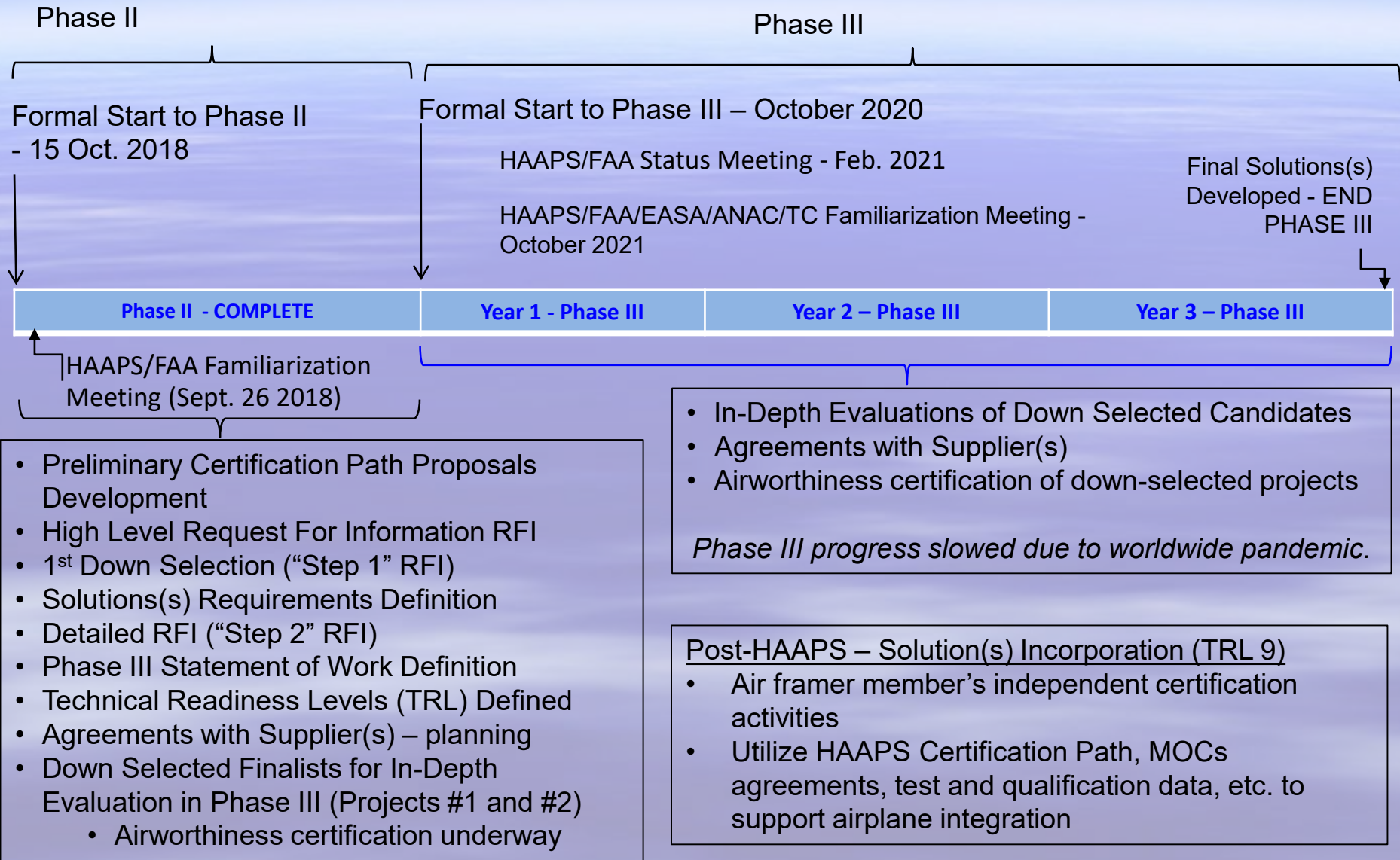
- Established by GB
- Prepare proposals in response to GB defined requirements and relevant funding opportunities
- Resources, cost share commitment (as appropriate)
- Execute funded projects
- Share results through GB

**Negotiated  
Agreements**  
(as appropriate)

### Industry and Advisor Members

- Airworthiness Certification Authorities
- Environmental Regulatory Authorities
- Aircraft Operators
- Aircraft Component OEMs
- Extinguisher System Suppliers
- Universities
- Consultants
- Other Stakeholders

# HAAPS Critical Milestones





# Phase III – Down-Selected Projects

- Project #1 – KSA<sup>®</sup> Powder
  - Project Lead – Airbus
  - A320neo Engine airworthiness certification project in progress
    - FAA Issue Paper and EASA CRI discussions underway
    - Certification tests to start in Q4 2022
- Project #2 – CF<sub>3</sub>I
  - Project Lead – Boeing
  - 737MAX Engine and APU airworthiness certification projects in progress
    - FAA Issue Paper and EASA CRI discussions underway
    - Est. certification complete 2023

# Contacts, Announcements & History

- Ohio Aerospace Institute (OAI) <http://www.oai.org/>
  - Don Bailey, HAAPS Project Manager [DonBailey@oai.org](mailto:DonBailey@oai.org), Phone: 440- 962-3050
- OAI's HAAPS Press Release – Phase I
  - <http://web1.oai.org/oaiweb.nsf/wnews/B16B96B2AFB1763D85257DD9004F0B28?OpenDocument&sc=2>
- OAI's HAAPS Press Release – Phase II
  - [https://www.prnewswire.com/news-releases/haaps-consortium-seeks-replacement-for-halon-1301-300817203.html?tc=eml\\_cleartime](https://www.prnewswire.com/news-releases/haaps-consortium-seeks-replacement-for-halon-1301-300817203.html?tc=eml_cleartime)
- ICCAIA Support of HAAPS Consortium
  - <http://www.aia-aerospace.org/news/iccaia-supports-international-consortium-seeking-alternatives-to-halon-fire-suppressant/>
- IASFPWG Meeting, Cologne, Germany, May 22-23, 2013 – Consortium Proposal
  - <https://www.fire.tc.faa.gov/pdf/systems/May13Meeting/BennettMacias-0513-ICInterestEgineAPU.pdf>
- Halon Alternatives Research Corporation (HARC) sponsored Aviation Stakeholder's Meeting Chicago, Illinois, U.S.A., 11 June, 2013 – Consortium Proposal
- 2013 ICAO Assembly recognized consortium commitment , Resolution 31/1: Halon replacement ([link](#))

**Thank you!**