Advanced Aviation Advisory Committee

Public eBook

Public eBook
June 30, 2022 AAAC Meeting
William F. Bolger Center and Virtual

Advanced Aviation Advisory Committee

June 30, 2022 AAAC Meeting

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Virtual Meeting Logistics

- We ask that everyone remain muted during the presentations. After each briefing, there will be an opportunity for the AAAC members to engage in discussion and ask questions.
- Because of the large size of the group we ask that you first raise your hand using the Zoom command on your dashboard. An FAA moderator will be monitoring the dashboard and call on you to begin speaking.
- This AAAC meeting is being livestreamed and recorded. It will be made available for future viewing on the FAA's YouTube channel.
- To access the livestream links, go to either of these websites: https://www.facebook.com/FAA or https://www.youtube.com/FAAnews

FAA Designated Federal Officer, Presenters, and Speakers

Name	Title	Org.
1. Jay Merkle	Executive Director, UAS Integration Office (DFO)	FAA
2. Bradley Mims	Deputy Administrator	FAA
3. Robert Pearce	Associate Administrator, Aeronautics Research Mission Directorate (ARMD)	NASA
4. Abby Smith	Deputy Executive Director, UAS Integration Office	FAA
5. Keri Lyons	Technical Officer, Airports	FAA
6. Gary Kolb	UAS Stakeholder & Committee Officer, UAS Integration Office	FAA

FAA/DOT Observers and Stakeholders

Name	Title	Org.
1. Laurence Wildgoose	Assistant Administrator, Office of Policy, International Affairs and Environment	FAA
2. Shannetta Griffin	Associate Administrator, Airports	FAA
3. Claudio Manno	Associate Administrator, Security and Hazardous Materials Safety	FAA
4. Marc Nichols	Chief Counsel	FAA
5. Tim Arel	Acting Chief Operating Officer, Air Traffic Organization	FAA
6. Winsome Lenfert	Deputy Associate Administrator, Airports	FAA
7. Tonya Coultas	Deputy Associate Administrator, Security and Hazardous Materials Safety	FAA
8. Vinn White	Senior Advisor, Office of the Secretary of Transportation	DOT
9. Ryan Steinbach	Aviation Policy Coordinator	DOT
10. Sabrina Saunders-Hodge	Director, Research, Engineering, and Analysis, UAS Integration Office	FAA
11. Leesa Papier	Executive Director, Security and Hazardous Materials Safety	FAA
12. Jessica Orquina	Acting Manager, UAS Integration Office	FAA
13. Adrienne Vanek	Director, International Division, UAS Integration Office	FAA
14. Martha Christie	Deputy Director, Safety & Integration Division, UAS Integration Office	FAA
15. Elizabeth Forro	Special Assistant, UAS Integration Office	FAA
16. Kamisha Walker	Management Assistant, UAS Integration Office	FAA
17. Deandra Brooks	Senior Communications Specialist, UAS Integration Office	FAA

Advanced Aviation Advisory Committee

June 30, 2022 AAAC Meeting

Public Meeting Agenda
Time: 10:00 a.m. to 2:30 p.m. Eastern Time
Location: Franklin Building, Bolger Center

	Start	Stop	
1.	10:00 am	10:05 am	**FAA – Greetings & Logistics**
2.	10:05 am	10:10 am	**DFO – Read Official Statement of the Designated Federal Officer**
3.	10:10 am	10:15 am	**DFO – Review of Agenda and Approval of Previous Meeting Minutes**
4.	10:15 am	10:20 am	**FAA – Opening Remarks**
5.	10:20 am	10:25 am	**Chair – Opening Remarks**
6.	10:25 am	10:50 am	**FAA – Response to Task Group #12: Integrating UAS Operations into K-12 Curriculums Recommendations**
7.	10:50 am	11:15 am	**FAA – AAM Infrastructure Update**
8.	11:15 am	11:35 am	**Task Group #13 – Strategic Framework for Advanced Air Mobility Near-Term Operations Interim Recommendations**
9.	11:35 am	12:50 pm	**LUNCH BREAK**
10.	12:50 pm	1:00 pm	**FAA – Deputy Administrator Remarks**
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12.	2:00 pm	2:20 pm	**Chair – New Business/Future Agenda Topics**
13.	2:20 pm	2:25 pm	**FAA – Closing Remarks/Final Thoughts**
14.	2:25 pm	2:30 pm	**Chair – Closing Remarks/Final Thoughts**
15.	2:30 pm	2:30 pm	**Chair – Adjourn**

Questions/Comments: Contact Gary Kolb, UAS Stakeholder & Committee Officer (gary.kolb@faa.gov or 202-267-4441).

Advanced Aviation Advisory Committee

AAAC Membership – As of 3/14/2022

Stakeholder Group	Members
Designated Federal Officer	**Jay Merkle**, Executive Director, UAS Integration Office, Federal Aviation Administration
Acting Chair	**Houston Mills**, Vice President, Flight Operations and Safety, United Parcel Service (UPS)
Airports and Airport Communities	**Seleta Reynolds**, General Manager, Los Angeles Department of Transportation **Dr. Paul Hsu**, Founder and Chair, HSU Educational Foundation **Jeffrey Brown**, Aviation Chief Operating Officer, Port of Seattle
Labor (controllers, pilots)	**VACANT** **Joseph DePete**, President, Air Line Pilots Association (ALPA)
Local, State, Tribal and/or Territorial Government or Appropriate International Entity	**David Greene**, Bureau of Aeronautics Director, Wisconsin Department of Transportation **Bob Brock**, Director of Aviation and UAS, Kansas Department of Transportation **Mark Colborn,** Senior Corporal, Dallas Police Department **Michael Leo**, Captain, New York City Fire Department
Navigation, Communication, Surveillance, and Air Traffic Management Capability Providers	**Mariah Scott**, Executive Director, Verizon Robotics **Matt Parker**, President, Precision Integrated Programs **VACANT**
Research, Development, and Academia	**Robie Samanta Roy**, Chief Operating Officer, Electra.aero **VACANT**
Traditional Manned Aviation Operators	**Mark Baker**, President and Chief Executive Officer, Aircraft Owners and Pilots Association **Lorne Cass**, President**,** Aero NowGen Solutions, LLC **Molly Wilkinson**, Vice President, Regulatory Affairs, American Airlines
UAS Hardware Component Manufacturers	**Brad Hayden**, Founder and Chief Executive Officer, Robotic Skies **Christian Ramsey**, President, uAvionix Corporation
UAS Manufacturers	**James Burgess**, Chief Executive Officer, Wing (an Alphabet company) **Michael Sinnett**, Vice President Product Development and Strategy, Boeing Commercial Airplanes **David Carbon**, Vice President, General Manger, Amazon Prime Air **Adam Bry**, Co-founder and Chief Executive Officer, Skydio
Corporate UAS Operators	**Greg Agvent**, Senior Director of National News Technology, CNN **Todd Graetz**, Director, UAS Program and Machine Vision Systems, BNSF Railway
Citizen UAS Operators	**Kenji Sugahara**, Chief Executive Officer and President, Drone Service Providers Alliance **Vic Moss**, Owner, Moss Photography

Advanced Aviation Advisory Committee

Stakeholder Group	Members
UAS Software Application Manufacturers	**Jaz Banga**, Co-Founder and Chief Executive Officer, Airspace Systems, Inc. **Chris Anderson**, Chief Operating Officer, Kittyhawk
Agricultural Interests	**Brandon Torres Declet**, Chief Executive Officer, Meteor **VACANT**
Advanced Air Mobility	**Dr. Jaiwon Shin**, Chief Executive Officer, Supernal **Dr. Catherine Cahill**, Director, Alaska Center for Unmanned Aircraft Systems Integration (ACUASI) **VACANT** **VACANT**
Community Advocate	**VACANT**
Industry Associations or other specific areas of interest as determined by the AAAC DFO	**Brian Wynne**, President and Chief Executive Officer, Association for Uncrewed Vehicle Systems International **Thomas Karol**, General Counsel, National Association of Mutual Insurance Companies **David Silver**, Vice President for Civil Aviation, Aerospace Industries Association **Lee Moak**, Founder & Chief Executive Officer, The Moak Group

FAA – INITIAL RESPONSE TO TASK GROUP #12: INTEGRATING UAS OPERATIONS INTO K-12 CURRICULUMS

REPORT TO ADVANCED AVIATION ADVISORY COMMITTEE (AAAC):

FAA Initial Response to AAAC Task Group #12 Recommendations for Integrating Uncrewed Aircraft Operations Into K-12 Curriculums

FAA Report
June 30, 2022

AAAC TASKING: Develop Recommendations on How to Integrate Advanced Air Mobility and Unmanned Aircraft Operations into K-12 Curriculums

On June 23, 2021, Task Group 12 Co-Leadership of Members Dr. Paul Hsu (President, HSU Educational Foundation) and Mr. Brian Wynne (President, Association for Uncrewed Vehicle Systems International) accepted the request from AAAC Chairman Houston Mills (Vice President UPS) to undertake this tasking in order to help shape the development of the next generation's workforce.

AAAC OPPORTUNITY: Leverage expanding interest in UAS operations into K-12 curriculums. AAAC Task Group 12 focused on the opportunity to:

- Develop the next generation of innovative thinkers, leaders, and operators.
- Encourage investments and continued education in STEM related fields.

AAAC FINDING: Increasing Number of Technicians and Pilots Required Over the Next Ten Years

AAAC Task Group 12 projects the number of students needed to graduate high school and enter into the workforce in the U.S. as unmanned aircraft systems (UAS) – or drone – technicians or pilots is approximately 56,000 in 2022 or 1.5% of the graduating class. This number grows to approximately 85,000 students or 2.3% of the graduating class of 2023.

AAAC RECOMMENDATIONS:

On February 23, 2022, Task Group 12 delivered the following recommendations in a report to the FAA.

TG12 Recommendations

AAAC TG12 Aviation-STEM integration in K-12 curricula

	PHASE 1 YEARS 1-3	PHASE 2 YEARS 4-6	PHASE 3 YEARS 7-10
Make Content & Resources Readily Accessible	1) Make today's resources visible 2) Formal mentors 3) Existing national registry	→	
Build Connections for Action and Cultural Transformation	4) Pledge to America's Future Advanced Aviation Workforce 5) Cultural transformation-Eliminate gender bias in Aviation STEM 6) Team with Collegiate Training Initiative to identify curricula SMEs 7) Formation of interagency working group	→	
Deliver Aviation-specific Curricula	8) NIST UAS training evaluation standards 9) FAA-Department of Education program modeled after CTE CyberNet 10) K-12 STEM programs for extracurricular programs	→	

It is suggested that the FAA set Phase 2 and 3 milestones to track progress over the 10 year period.

Recommendation #1: Expand access to resources for teachers and students by leveraging existing tools that are offered by the FAA, are nationally reaching, and are publicly available – including website tools, sample lessons, FAA educational safety week initiatives and utilization of TRUST for outreach to all classrooms.

Recommendation #2: Guide the development of a formal network of UAS educational volunteer mentors and flying sites.

Recommendation #3: Provide collected *national* & *State/regional existing resource* libraries to the FAA in appendix of the recommendation. Propose that the FAA continue to collect these resources and build them into an online repository that can be accessed by educators to research and leverage for building curricula

Recommendation #4: Call for public private partnership - The Pledge to America's Future Advanced Aviation Workforce, to encourage industry partners to participate in K-12 education through funding, mentorship and driving relevant content demand.

Recommendation #5: Facilitate a change in attitudes to address gender bias in STEM fields through education**.**

Recommendation #6: Leverage the resources of the FAA UAS Collegiate Training Initiative (UAS-CTI) to instruct and inform educators as they build programs.

Recommendation #7: Form an interagency working group with the Department of Education and ongoing industry advice with clear objectives.

Recommendation #8: Recognize and endorse standards developed by National Institute of Standards and Technology to quantitatively evaluate various system capabilities and remote pilot proficiency.

Recommendation #9: Create a grade 8-12 aviation-specific STEM curricula modeled on CTE CyberNet.

Recommendation #10: Increase support for extracurricular programs to address K-12 aviation-specific STEM needs.

FAA RESPONSE:

The FAA is committed to providing the safest, most efficient aerospace system in the world. We strive to reach the next level of safety and efficiency and to demonstrate global leadership in how we safely integrate new users and technologies into our aviation system. Our success depends on everyone's commitment to diversity, equity, inclusion, and accessibility in the worldwide community

The FAA has reviewed the recommendations provided by the Advanced Aviation Advisory Committee (AAAC) related to Task Group #12 – Integrating Uncrewed Aircraft Operations in K-12 Curriculum and we want to thank the AAAC and all Task Group #12 members for their dedication to this task, thoughtful recommendations, and stewardship of the drone and advanced air mobility (AAM) communities.

The FAA agrees with AAAC regarding the need to embrace the opportunity to leverage the expanding interest in the operations and evolution of AAM and drones as one of several components of a comprehensive strategy to develop the next generation of innovative thinkers, leaders, and operators in the aerospace community. We are putting a laser focus on developing a robust and diverse pipeline of professionals for the aerospace industry of the future.

Additionally, per Sections 602 and 612 of the FAA Reauthorization Act of 2018, the FAA formed two federal advisory committees to provide recommendations on how to encourage more women and youth to pursue aviation and aerospace careers. In April 2022, we received recommendations from the Women in Aviation Advisory Board (which can be viewed here: https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/document/information/documentID/5483) and we expect to receive the report from the Youth Access to American Jobs in Aviation Task Force later in 2022.

The FAA plans to use findings from this recommendation report, along with the two mentioned above, as the basis for a comprehensive plan.

In recent years, the FAA has undertaken a variety of ad hoc efforts related to STEM and the workforce of tomorrow. In particular, hawse have focused resources on the FAA STEM AVSED program (https://www.faa.gov/education/about), Adopt-a-School program, and Airport Design Challenge.

Additional efforts include:

- FAA-sponsored UAS Center of Excellence: Alliance for System Safety of UAS through Research Excellence (ASSURE) STEM Initiatives to reach youth in underserved communities: https://assureuas.org/projects/stem-iv-conduct-science-technology-engineering-and-math-outreach-to-minority-k-12-students-using-unmanned-aircraft-systems-uas-as-a-learning-platform/
- Drone Safety Day – FAA's annual national drone safety event https://www.faa.gov/uas/events/drone_safety_day .
- Buzzy the Drone Video Series
- DronePros Program: FAA-trained volunteers across the U.S. partnered with FAASTeam to promote safety in their local area through events and presentations.

- FAA UAS Collegiate Training Initiative (UAS-CTI): https://www.faa.gov/uas/educational_users/collegiate_training_initiative
- Aviation Career Education (ACE) Academy: https://www.faa.gov/education/ace_academy

This is just the beginning. As the FAA continues to increase our focus on student outreach, we will continue to build these existing programs and work closely with stakeholders throughout industry, government, academia, and non-profits to avoid duplication of efforts and collaborate to maximize the success of all our efforts.

The FAA is appreciative of the work the AAAC has put into this tasking and their dedication to educating the aerospace workforce of tomorrow and expanding access to aerospace careers through the advancement of diverse and well-qualified individuals and students across our country and around the world. To make sure that the FAA's path forward on this important endeavor is holistic, we are working to create a comprehensive plan, based on the recommendations provided by the AAAC and the other two federal advisory committees considering these very crucial questions.

Below, we are also providing an initial, high-level responses on each AAAC Task Group 12 recommendation. Please note that this is preliminary and we will provide our final responses at a future AAAC meeting.

Recommendation #1: Expand access to resources for teachers and students by leveraging existing tools that are offered by FAA, are nationally reaching, and are publicly available – including website tools, sample lessons, FAA educational safety week initiatives, and utilization of TRUST for outreach to all classrooms.

- The FAA appreciates the AAAC's recognition of the agency's existing resources and tools.
- The FAA is committed to making informational resources available and accessible.
- The FAA will leverage existing programs:
    - **Workforce Development Grant Programs for Aviation Maintenance and Pilots**. The FAA has established two workforce development grant programs for aviation maintenance and pilots. For both FY20 and FY21 each grant program is allotted **$5M** annually for a total investment of **$20M**.
        - The FY21 application deadline is June 2022: https://www.faa.gov/about/office_org/headquarters_offices/ang/grants/awd/awards
    - **Aviation Career Education (ACE) Academy:** https://www.faa.gov/education/ace_academy which provides unique summer aviation STEM education programs for elementary, middle, and high school students. For FY22, 74 FAA co-sponsored aviation summer camps are scheduled in 26 states.

- **Drone Safety Day:** For the past three years, Drone Safety Awareness Week was held. This year, Drone Safety Day was held June 18th and we encouraged individuals, businesses, and state, local, and tribal governments to participate in and/or host drone-related events.

Recommendation #2: Guide the development of a formal network of UAS educational volunteer mentors and flying sites.

- The FAA agrees with Recommendation #2 and will leverage existing structures, such as the two listed below, and, as needed, add to these as we formalize the network. :
  - The FAA STEM AVSED program has 1,890 FAA Employee Outreach Representatives from all lines of business across the Agency who volunteer to support outreach activities:

FY 22	92 events to date reaching	11,548 students
FY 21	169 events reaching	16,445 students
FY 20	655 events reaching	69,289 students
FY 19	639 events reaching	64,429 students

  - The FAA DronePros program is comprised of over 170 FAASTeam volunteers who work closely with the FAA to promote safety in their local area across the U.S. These volunteers are interviewed and trained by the FAA and are provided with equipment and materials to help them plan events and give presentations.

Recommendation #3: Provide collected *national* & *State/regional existing resource* libraries to the FAA in appendix of the recommendation. Propose that the FAA continue to collect these resources and build them into an online repository that can be accessed by educators to research and leverage for building curricula

- Thank you to the AAAC for providing the extensive list of resources included in the recommendations report.
- The FAA UAS-CTI partners with the National Center for Autonomous Technologies (NCAT) to host a repository of drone resources and curriculum materials for educators: https://ncatech.org/uas-cti/. We will leverage this repository, and expand, as needed to have a robust online reponsitory.

Recommendation #4: Call for public-private partnership - The Pledge to America's Future Advanced Aviation Workforce, to encourage industry partners to participate in K-12 education through funding, mentorship and driving relevant content demand.

- The FAA agrees – the only way we will meet this challenge is if we work together.
- The FAA's STEM AVSED program works with a number of partners:
  - NASA
  - Youth Aviation Adventure
  - Civil Air Patrol

- Experimental Aircraft Association
- National Association of State Airport Officials
- Organization of Black Aerospace Professionals
- Women In Aviation, International
- Academy of Model Aeronautics
- National Coalition of Certification Centers
- NASA Challenger Centers
- Real World Design Challenge
- Team America Rocket Challenge (AIA)
- Dream Soar (Shaesta Waiz)
- Smithsonian Air and Space

- The FAA UAS-CTI currently has 90 participating schools and continues to grow.

- The FAA will continue to pursue public-private partnerships as appropriate.

Recommendation #5: Facilitate a change in attitudes to address gender bias in STEM fields through education**.**

- The FAA is committed to diversity, equity, inclusion, and accessibility in the aerospace and worldwide communities.
  - We need all voices at the table.
  - Words matter. Using gender-neutral language that promotes inclusion, facilitates a diverse community.
- Thank you to the AAAC for your recommendations on Gender-Neutral Language for the Drone Community.
  - In November 2021, we hosted the FAA Inclusive Language Summit.
  - In December 2021, as a highly visible sign of our efforts in this field, we officially changed the full name for NOTAM from Notice to Airmen to Notice to Air Missions.
- We are continuing to work to assure everyone is welcomed into the aerospace community.

Recommendation #6: Leverage the resources of the FAA UAS Collegiate Training Initiative (CTI) to instruct and inform educators as they build programs.

- There are 90 schools participating in the FAA's UAS Collegiate Training Initiative program (UAS-CTI). The UAS-CTI is made up of 4-year, 2-year, and technical colleges and it focused on preparing students for careers in drones.

- The FAA engages with participating UAS-CTI institutions, general industry, local governments, law enforcement, and regional economic development entities to address labor force needs. This collaboration will ensure that UAS-CTI school graduates have the knowledge and skills needed to pursue a successful career in the drone industry. Public 2-year colleges that participate in UAS-CTI will also be designated as members of the Consortium for Small Unmanned Aircraft Systems Technology Training. The FAA invites members of this consortium to participate in annual meetings and share best practices.

- Many UAS-CTI schools have a connection with STEM programs in their communities. From hosting drone camps to offering bridge programs for high schools students to receive college credits, these schools embrace the importance of preparing for the next generation of the drone workforce.

- The FAA UAS-CTI partners with the National Center for Autonomous Technologies (NCAT) to host drone resources and curriculum materials for educators: https://ncatech.org/uas-cti/

- FAA grants for aviation workforce development have been awarded to a number of UAS-CTI schools to develop programs, curriculum, and train-the trainer for secondary schools.

Recommendation #7: Form an interagency working group with the Department of Education and ongoing industry advice with clear objectives.

- We need to all work together to meet this challenge.
- The FAA participates in interagency working groups focused on STEM, but will consider how we can broaden our collaboration across federal government, as well as with State, local, tribal, and territorial government agencies.

Recommendation #8: Recognize and endorse standards developed by National Institute of Standards and Technology to quantitatively evaluate various system capabilities and remote pilot proficiency.

- We collaborate with NIST on drone research to develop and test remote pilot proficiency standards and will continue with research and standard organizations, as well as related stakeholders to support emerging entrants.

Recommendation #9: Create a grade 8-12 aviation-specific STEM curricula modeled on CTE CyberNet.

- We understand that to meet the need for future drone and other aerospace professionals, educators need more resources.
- We know we will all have to work together to meet this need.
- We are working with our Know Before You Fly (KBYF) educational campaign partners to develop, assemble, and distribute drone kits to schools and educational organizations.
    - The FAA issued a request for proposal for KBYF partners to develop, assemble, and distribute drone kits to schools and other educational organizations. We look forward to seeing this program grow.
- We understand other organizations have existing curricula and initiatives related to the objectives of this recommendation.
    - Leveraging resources from across the community will be an important part of our comprehensive plan.

Recommendation #10: Increase support for extracurricular programs to address K-12 aviation-specific STEM needs.

- As with our response to Recommendation #1, the FAA appreciates the AAAC's recognition of the agency's existing resources and tools.
- As mentioned previously, the FAA is committed to making resources available AND accessible.
- We are committed to supporting educators and programs to address the need to educate the drone and aerospace professionals of tomorrow.
- As we finalize our comprehensive plan, we will leverage existing programs and dedicate resources to provide additional materials as needed.

In conclusion, thank you again for your hard work, dedication, and recommendations. Also, thank you for all the initiatives and efforts your organizations are already working on in this space.

To move forward, we intend to use the robust recommendations you have provided, along with recommendations from the Women in Aviation Advisory Board and Youth in Aviation Task Force, to build a comprehensive plan to meet these challenges.

We look forward to working with all of you on these efforts.

ADVANCED AVIATION ADVISORY COMMITTEE

Federal Aviation Administration

Advanced Aviation Advisory Committee

June 30, 2022

Housekeeping

- Meeting is being livestreamed on the FAA's YouTube, Twitter and Facebook pages.
- Meeting is also being recorded and will be made available for future viewing.
- Please remain muted during the presentations.
- After each briefing, there will be an opportunity for the members to engage in discussion and ask questions.
- Please raise your hand using the Zoom command on your dashboard and an FAA moderator will call on you to speak.
- FAA team is monitoring the livestream, if you have any problems during the meeting, please reach out in the comments.

ADVANCED AVIATION ADVISORY COMMITTEE

June 30, 2022

Federal Aviation Administration

Official Statement of the DFO

PUBLIC MEETING ANNOUNCEMENT

Read by: Designated Federal Officer Jay Merkle

Advanced Aviation Advisory Committee

June 30, 2022

In accordance with the Federal Advisory Committee Act, this Advisory Committee meeting is OPEN TO THE PUBLIC. Notice of the meeting was published in the Federal Register on:

June 08, 2022

Members of the public may address the committee with PRIOR APPROVAL of the Chair. This should be arranged in advance.

Only appointed members of the Advisory Committee may vote on any matter brought to a vote by the Chair.

The public may present written material to the Advanced Aviation Advisory Committee at any time.

Agenda

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14.	2:25 pm	2:30 pm	**Chair – Closing Remarks/Final Thoughts**
15.	2:30 pm	2:30 pm	**Chair – Adjourn**

ADVANCED AVIATION ADVISORY COMMITTEE

June 30, 2022

Opening Remarks from DFO

Jay Merkle

Designated Federal Officer

FAA Advanced Aviation Advisory Committee

Federal Aviation Administration

ADVANCED AVIATION ADVISORY COMMITTEE

June 30, 2022

Opening Remarks from AAAC Chair

Houston Mills

Acting Chair

FAA Advanced Aviation Advisory Committee

Federal Aviation Administration

ADVANCED AVIATION ADVISORY COMMITTEE

Federal Aviation Administration

FAA Initial Response to Task Group #12: Recommendations for Integrating Uncrewed Aircraft Operations into K-12 Curriculums

Abby Smith
Deputy Executive Director
FAA UAS Integration Office

Background

AAAC Tasking: Develop Recommendations on How to Integrate Advanced Air Mobility and Unmanned Aircraft Operations into K-12 Curriculums

- Thank you Task Group #12!
- Awesome Co-Chairs: Dr. Paul Hsu, Chairman, HSU Educational Foundation and Brian Wynne, CEO, AUVSI.

AAAC Opportunity: Leverage Expanding Interest In UAS Operations Into K-12 Curriculums

- Develop the next generation of innovative thinkers, leaders and operators.
- Encourage investments and continued education in STEM related fields.

AAAC Finding: Increasing Number of Technicians and Pilots Required Over the Next Ten Years

- Drone technicians / drone pilots needed to enter the U.S. workforce:
  - 2022: 56,000 or 1.5% of the graduating high school class.
  - 2023: 85,000 or 2.3% of the graduating high school class.

TG12 Recommendations

AAAC TG12 Aviation-STEM integration in K-12 curricula

	PHASE 1 YEARS 1-3	PHASE 2 YEARS 4-6	PHASE 3 YEARS 7-10
Make Content & Resources Readily Accessible	1) Make today's resources visible 2) Formal mentors 3) Existing national registry	→	→
Build Connections for Action and Cultural Transformation	4) Pledge to America's Future Advanced Aviation Workforce 5) Cultural transformation-Eliminate gender bias in Aviation STEM 6) Team with Collegiate Training Initiative to identify curricula SMEs 7) Formation of interagency working group	→	→
Deliver Aviation-specific Curricula	8) NIST UAS training evaluation standards 9) FAA-Department of Education program modeled after CTE CyberNet 10) K-12 STEM programs for extracurricular programs	→	→

It is suggested that the FAA set Phase 2 and 3 milestones to track progress over the 10 year period.

Summary of FAA Initial Response Report to AAAC

We are committed to providing the safest, most efficient aerospace system in the world.

- Our success depends on everyone's commitment to diversity, equity, inclusion, and accessibility in the world community.

We agree that expanding interest in drones and AAM presents an opportunity to excite and develop the next generation of innovative thinkers, leaders and operators in the aerospace arena.

And, we're putting a laser focus on developing a robust and diverse pipeline of professionals for the aerospace industry of the future.

Summary (cont.)

Thank you to the AAAC for your dedication and thoughtful recommendations!

For your awareness, in accordance with FAA's Reauthorization Act of 2018 we formed two federal advisory committees that are also considering similar questions around expanding access to aerospace careers for diverse and well-qualified individuals:

- Women in Aviation Advisory Board (WIAAB): FAA received official recommendations in April 2022 accessible via: https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/document/information/documentID/5483.
- Youth Access to American Jobs in Aviation Task Force (YIATF): FAA expects official recommendations later in 2022.

Ultimately, we intend to use findings from all three reports for a comprehensive plan.

Additionally, we are committed to a way forward to address all unique AAAC recommendations.

Summary (cont.)

Here is a list of recent or current ad hoc STEM activities:

- FAA's Science Technology Engineering and Math Aviation and Space Education (STEM AVSED) Program FAA sponsored UAS Center of Excellence: Alliance for System Safety of UAS through Research Excellence (ASSURE) STEM initiatives
- Drone Webinar Series
- Drone Safety Day
- Buzzy the Drone Video Series
- Know Before You Fly (KBYF)
- DronePros Program
- Adopt-a-School
- FAA UAS Collegiate Training Initiative (CTI)
- National FAA Employee Associations/Coalitions/Forums (Support STEM)
- Aviation Career Education (ACE) Academy

Make Content and Resources Readily Available

Recommendation #1: Expand access to resources for teachers and students by leveraging existing tools that are offered by FAA, are nationally-reaching, and are publicly-available – including website tools, sample lessons, FAA educational safety week initiatives and utilization of TRUST for outreach to all classrooms.

Our Response:

- We are committed to making resources available AND accessible.
- We will leverage existing programs:
  - **Workforce Development Grant Programs for Aviation Maintenance and Pilots**: The FAA has established two workforce development grant programs for aviation maintenance and pilots.
  - Aviation Career Education (ACE) Academy
  - Drone Safety Day
- We will dedicate resources to provide additional materials, as needed.

Make Content and Resources Readily Available

Recommendation #2: Guide the development of a formal network of UAS educational volunteer mentors and flying sites.

- We understand mentors and volunteers are needed to inspire future generations of the aviation community.
- Currently, we have 1,890 FAA Employee Outreach Representatives (ORs) through our STEM AVSED program.
- Also, Our FAASTeam DronePros program has volunteers across the U.S. and we are working to increase the number of DronePros in local communities.
- We agree that a more formal network is needed, thank you.

Make Content and Resources Readily Available

Recommendation #3: Provide collected *national* & *state/regional existing resource* libraries to FAA in appendix of the recommendation. Propose that the FAA continue to collect these resources and build them into an online repository that can be accessed by educators to research and leverage for building curricula.

Our Response:

- Thank you for gathering and sharing these resources with us and the drone community!
- We all benefit from shared information.
- Our UAS Collegiate Training Initiative (UAS-CTI) is working to grow the resources and curricula available to educators.

Build Connections for Action & Cultural Transformation

Recommendation #4: Call for public private partnership - The Pledge to America's Future Advanced Aviation Workforce, to encourage industry partners to participate in K-12 education through funding, mentorship and driving relevant content demand.

Our Response:

- We agree – the only way to meet this challenge is if we work together!
- Our STEM AVSED program works with several partners:
  - NASA, Youth Aviation Adventure, Civil Air Patrol, Experimental Aircraft Association, National Association of State Airport Officials, Organization of Black Aerospace Professionals, Women In Aviation, International, Academy of Model Aeronautics, National Coalition of Certification Centers, NASA Challenger Centers, Real World Design Challenge, Team America Rocket Challenge (AIA), Dream Soar (Shaesta Waiz), Smithsonian Air and Space
- Our UAS-CTI program has **90** schools and continues to grow.
- We welcome your support.

Build Connections for Action & Cultural Transformation

Recommendation #5: Facilitate a change in attitudes to address gender bias in STEM fields through education.

Our Response:

- We are committed to diversity, equity, inclusion, and accessibility in the aerospace and world communities. We need all voices at the table.
- Words matter. Using gender-neutral language that promotes inclusion facilitates a diverse community.
  - Thank you to the AAAC for your recommendations on Gender-Neutral Language for the Drone Community!
  - In November 2021, we hosted the FAA Inclusive Language Summit.
  - In December 2021, we officially changed the full name for NOTAM from Notice to Airmen to Notice to Air Missions.
  - There is ongoing work to change additional gendered language in FAA.
- And we continue to work towards an environment where everyone is welcomed into the aerospace community.

Build Connections for Action & Cultural Transformation

Recommendation #6: Leverage the resources of the FAA UAS Collegiate Training Initiative (CTI) to instruct and inform educators as they build programs.

Our Response:

- Our UAS-Collegiate Training Initiative (UAS-CTI) has **90** participating schools.
- We partner with the National Center for Autonomous Technologies (NCAT) to provide a repository of drone curriculum resources for educators.
- We are working to expand our UAS-CTI program and look forward to working with these schools to educate the aerospace workforce of tomorrow!

Build Connections for Action & Cultural Transformation

Recommendation #7: Form an interagency working group with the Department of Education and ongoing industry advice with clear objectives.

Our Response:

- Again, we need to all work together to meet this challenge.
- We participate with interagency working groups that focus on STEM, and must consider how to broaden collaboration across the federal government, as well as engage with state, local, tribal and territorial governments to help train tomorrow's aerospace professionals.

Deliver Aviation – UAS Specific Curricula

Recommendation #8: Recognize and endorse standards developed by National Institute of Standards and Technology to quantitatively evaluate various system capabilities and remote pilot proficiency.

Our Response:

- We collaborate with NIST on drone research to develop and test remote pilot proficiency standards and will continue with research and standard organizations, as well as related stakeholders to support emerging entrants and proficiency levels.

Deliver Aviation – UAS Specific Curricula

Recommendation #9: Create a grade 8-12 aviation-specific STEM curricula modeled on CTE CyberNet.

Our Response:

- We understand that to meet the need for future drone and other aerospace professionals, educators need more resources.
- And, we know we will all have to work together to meet this need!
- We are working with our KBYF partners to develop, assemble, and distribute drone kits to schools and educational organizations.
- We understand other organizations have existing curricula and initiatives related to the objectives of this recommendation.

Deliver Aviation – UAS Specific Curricula

Recommendation #10: Increase support for extracurricular programs to address K-12 aviation-specific STEM needs.

Our Response:

- As mentioned previously, we are committed to making resources available AND accessible.
- And, we are committed to supporting educators and programs to address the need to educate the drone and aerospace professionals of tomorrow.
- We will dedicate resources to provide additional materials as needed.

Conclusion

- Thank you for your hard work, dedication, and recommendations.
- And, thank you for all the initiatives and efforts your organizations are working on in this space!
- Our written response is included in the eBook for this meeting.
- We are committed to making resources available and accessible to help build a diverse and skilled aerospace community.
- We are prepared to dedicate resources, where needed, to support these efforts.
- We intend to use the robust recommendations you provided, along with recommendations from the Women in Aviation Advisory Board and Youth in Aviation Task Force, to build a comprehensive plan to meet these challenges.
- And, we look forward to working with all of you on these efforts!

Questions?

ADVANCED AVIATION ADVISORY COMMITTEE

Federal Aviation Administration

FAA AAM Infrastructure Update

Keri Lyons
Technical Advisor
FAA Office of Airports

The FAA's current regulatory framework will support industry's efforts to achieve near-term operations.

Baseline and Context for Conversations

- The vision of AAM is an aviation transportation system that will use highly automated aircraft to transport passengers or cargo for hire.
- AAM is not a single technology, but rather a collection of new and emerging technologies being applied to the aviation system, particularly in new aircraft types.

Notional Use Cases Include:

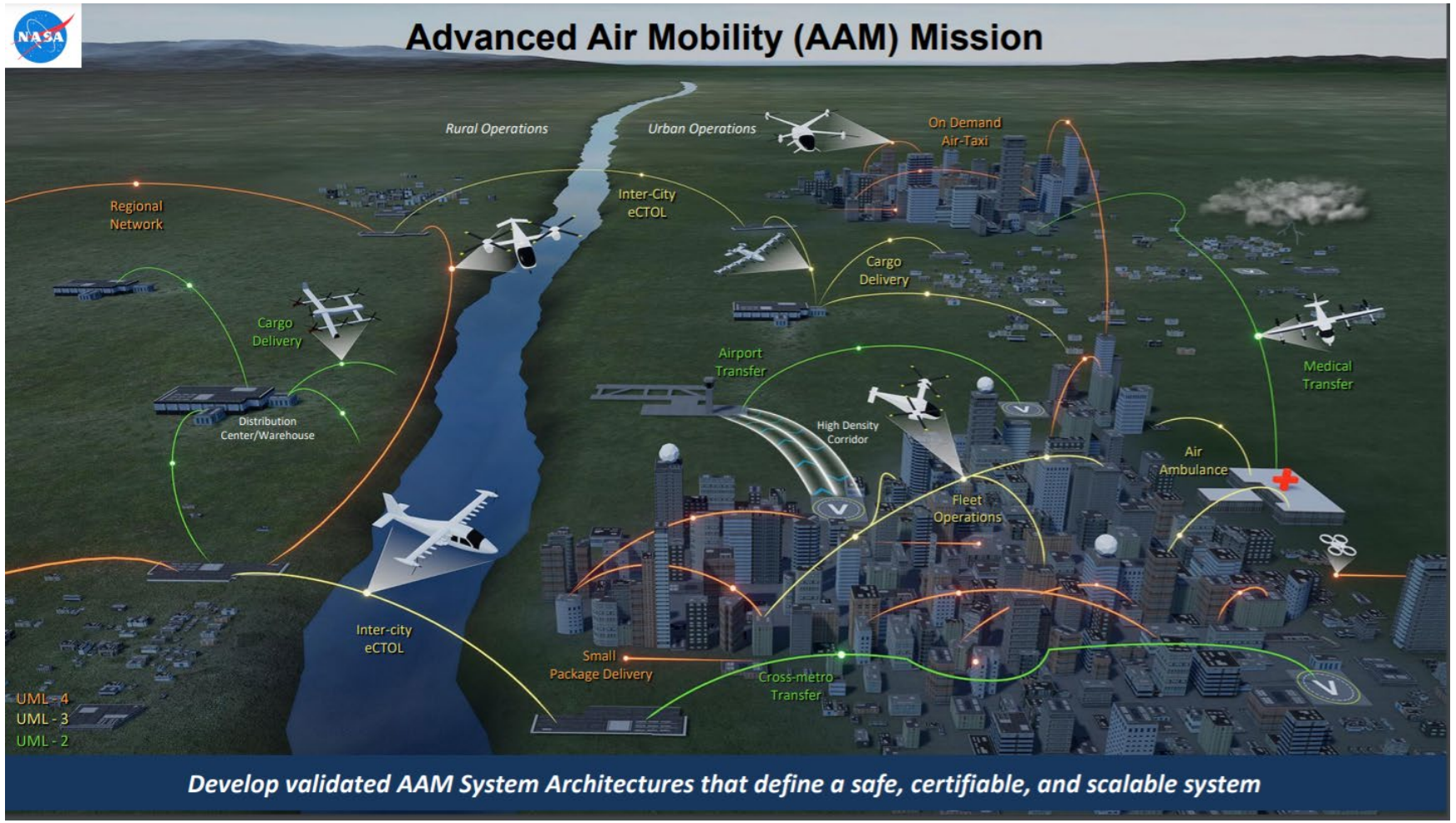
Urban Air Mobility (intra-city)

Regional Air Mobility (inter-city)

Public Services (fire, air ambulance, search & rescue)

Cargo Delivery (large aircraft)

Private & Recreational Vehicles


Advanced Air Mobility (AAM) Mission
Rural Operations
Urban Operations
On Demand Air-Taxi
Regional Network
Inter-City eCTOL
Cargo Delivery
Cargo Delivery
Airport Transfer
Medical Transfer
Distribution Center/Warehouse
High Density Corridor
Air Ambulance
Fleet Operations
Inter-city eCTOL
Small Package Delivery
Cross-metro Transfer
UML - 4
UML - 3
UML - 2
Develop validated AAM System Architectures that define a safe, certifiable, and scalable system

Industry Snapshot: What Do We Expect?

Expectations for most initial AAM operations:

- Multi-rotor and fixed wing aircraft capable of vertical takeoff and landing (VTOL).
- Aircraft design will be approved by the FAA (Type Certification).
- Piloted operations occurring under existing regulatory framework, no current plans for new regulations.
- Electrically powered aircraft (eVTOL), and various levels of aircraft automation.
- Will either use existing airport/heliport infrastructure (w/modifications), or new ‘vertiport’ locations at greenfield/brownfield sites.
- Operational exemptions or waivers may be required to address unique aircraft performance characteristics (ex: energy reserves).
- Will utilize currently defined airspace and existing air traffic control procedures.

What Does Maturity Look Like?

- Highly Automated Aircraft and Ground Infrastructure
- Simplified Vehicle Operations (SVO) or Uncrewed
- High Density Vertiports
- Mesh of Smart Transportation Networks

The FAA's Office of Airports (ARP)

Our Mission

- World leaders in creating a safe and efficient system of airports.

Our Vision

- Advancing the safest, most efficient airport system in the world.

Our Core Values

- Integrity – Collaboration – Innovation.

Key Functions of the FAA's Office of Airports

- Airport safety certification and oversight
- Establish airport safety standards
- Airport planning guidance and support
- Environmental review and noise compatibility
- Airport financial assistance programs
- Grant assurance compliance
- Airport technology research and development

FAA Vertiport Standards - Background

AC 150/5390-3, Vertiport Design, cancelled in 2010 due to lack of compatible aircraft.

Standards needed to address facilities required for the boarding and charging of passengers and cargo by AAM aircraft.

- Performance based to support various VTOL and STOL aircraft.
- Facilities may have a wide variety of configurations depending on the level of throughput that is expected and the characteristics of the aircraft those facilities will support.

FAA Vertiport Standards – Future Standards

Operational standards will include:

- Landing area design and layout/geometry
- Approach/departure paths
- Load bearing requirements
- Electric propulsion and charging stations
- Visual aids for piloted aircraft
- Safety requirements for piloted aircraft
- Noise requirements

Dimensional standards will:

- Depend on an aircraft's critical dimensions (CD) and performance capabilities

How Will FAA Develop Vertiport Standards?

FAA's Airport Technology Research and Development Branch is leading our multi-year vertiport research.

- Started in 2019 with a Request for Information (RFI) seeking information from industry regarding VTOL aircraft design and specifications, concepts of operations, infrastructure design, and takeoff and landing profiles.
- Industry initially reluctant to share data due to intellectual property concerns.

FAA's Vertiport Research – Approach

- Investigate VTOL aircraft technologies and determine the maturity of each technology.
- Evaluate the performance and characteristics of VTOL aircraft to help develop design standards and guidance.
- Initial research focused on VTOL aircraft. Larger VTOL and STOL aircraft are being considered.
- Research steps include: literature review; conceptual testing and simulation; and operational testing.

FAA's Vertiport Research - Partnerships

FAA collaborates with NASA as part of the National Campaign and other AAM efforts.

FAA and the Department of Energy's National Renewable Energy Laboratory (NREL) established an agreement to conduct an 18-month vertiport electrical infrastructure study focusing on key areas:

- Vertiport charging needs;
- Cybersecurity concerns; and
- Hazards evaluations.

How Are We Addressing Early Adopters?

FAA's performance-based Advisory Circular won't be completed until late 2024 / early 2025.

Using initial data from the vertiport research, FAA decided to issue interim guidance to address early vertiport infrastructure and electric charging proposals.

- For this reason, the draft Engineering Brief (EB) was limited in scope and prescriptive.
- The draft EB was made available on www.faa.gov in February 2022.
- FAA also provided public notification via Federal Register Notice and hosted an Industry Day in March 2022.

Existing regulation (14 CFR parts 77 and 157) allow for the notification and processing of vertiport and charging station proposals.

- FAA encourages proponents to file an FAA Form 7480-1 for new vertiports; file Form 7460-1 for other infrastructure on existing facilities.
- Federally-obligated airports must also submit an update to their Airport Layout Plan.

What Is in Draft Engineering Brief 105?

The EB will serve as interim guidance while we work toward the performance based Advisory Circular.

- Prescriptive interim guidance with an emphasis on safety-critical areas

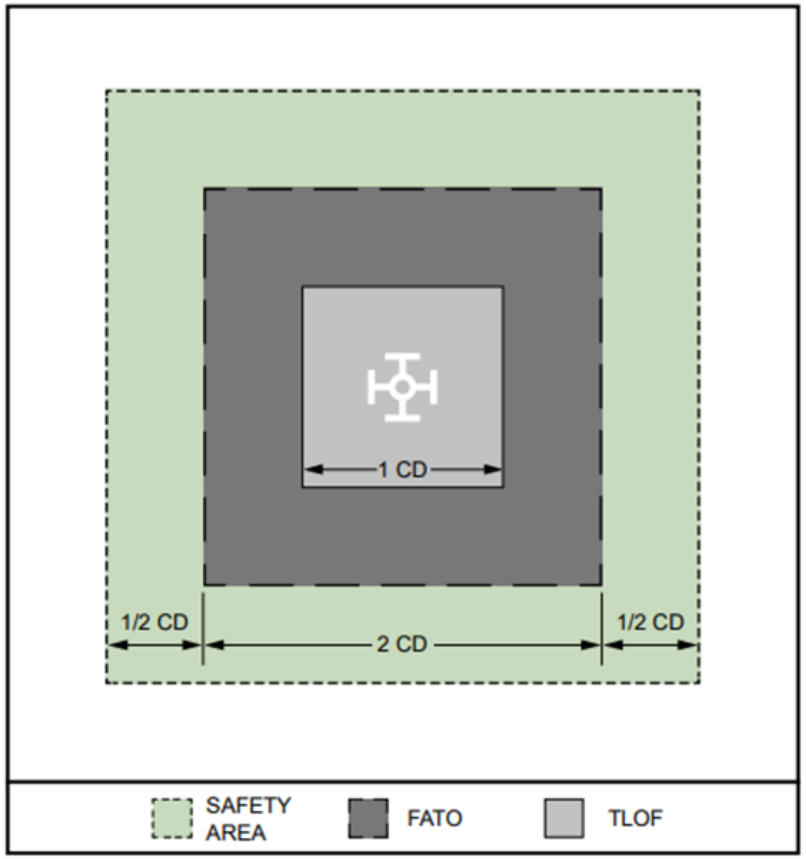
Uses a ‘composite’ or ‘reference’ aircraft that is based on data received from 9 leading VTOL manufacturers.

Characteristics	Requirement
Propulsion	Electric battery driven
Propulsion Units	2 or more
Battery Packs	2 or more
MTOW	7000lbs. or less
Aircraft Length	50 ft. or less
Aircraft Width	50 ft. or less
Operating Conditions	**Requirement**
Operation Location	Land based (ground or elevated) no amphibian/float operations
Pilot	On board
Flight Conditions	VFR
Performance	**Requirement**
Hover	HOGE in normal operations
Takeoff	Vertical
Landing	Vertical
Downwash/Outwash	Must be considered in TLOF/FATO sizing and ingress/egress areas to ensure no endangerment to people/property in the vicinity, and no impact to safety critical navigational aids and surfaces, supporting equipment, nearby aircraft, and no impact to overall safety

DISCLAIMER: Requirements may change in final EB.

Source: ***Draft*** Engineering Brief 105, Vertiport Design

Vertiport EB Recommendation
TLOF: 1 CD
FATO: 2 CD
Safety Area: 3 CD ($^1/_2$ CD to each side)
Size for 50 ft. aircraft: 150 ft.



TLOF – Touchdown and Liftoff Area
FATO – Final Approach and Takeoff Area

Source: ***Draft*** Engineering Brief 105, Vertiport Design

What are FAA's Next Steps?

- FAA plans to issue the final EB later this summer.
- Vertiport research will expand into areas such as hydrogen fueling infrastructure.
- There are a lot of moving parts to AAM. FAA is working quickly to establish standards.
- Expect a crawl/walk/run approach; leveraging existing standards where possible.
- We will continue to collaborate with industry and international partners.

FAA's Office of Airports Contacts

- Shannetta Griffin, P.E., Associate Administrator for Airports
- John Dermody, P.E., Director, Office of Airport Safety and Standards
- Keri Lyons, Technical Advisor, Office of Airport Safety and Standards

Questions?

ADVANCED AVIATION ADVISORY COMMITTEE

Federal Aviation Administration

Task Group #13 – Strategic Framework for Advanced Air Mobility Near-Term Operations Interim Recommendations

David Silver, Vice President for Civil Aviation,
Aerospace Industries Association
Seleta Reynolds, General Manager,
Los Angeles Department of Transportation

Task Group 13 Membership

Co Leads: David Silver, AIA & Seleta Reynolds, LA DOT

Cathy Cahill, ACUASI
Lorne Cass, Aero NowGen Solutions, LLC
Karina Perez, AIA
Mark Reed, ALPA
Vas Patterson, ALPA
Danielle Rinsler, Amazon
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Timothy Toerber- Port of Seattle
Mark Colborn, Retired Reserve, Dallas PD
Brad Hayden, Robotic Skies, Inc
Andrew Giacini, Skyports
Jonathon Freye, Supernal
Nathan Trail, Supernal
David Oord, Wisk

Task Group 13 Overview

Provide feedback to the FAA's Strategic Framework for Advanced Air Mobility (AAM) Near-Term Operations

- Is FAA asking the right questions?
- Scope: near-term operations only (2024-2028).
- TG 13's feedback will help inform FAA on a work plan.

TG 13 Operated under the following AAM definition

- Advanced Air Mobility (AAM) is the umbrella term referring to a range of emerging innovation in aviation. It includes Urban and Regional Air Mobility (UAM and RAM), passenger and cargo operations, and employs a range of electric and autonomous technologies, including but not limited to eVTOL and uncrewed aircraft, that promise to increase the safety, expand the utility of, aviation in our daily lives.

TG 13 met three times

- Expanded membership to non-AAAC members after the first meeting.
- Sought clarification from FAA on the scope of the task group.
- Assigned subgroups to respond to each section.

TG 13 will request additional time to finish the final report

- However, we recommend that FAA start work on the areas covered in the next sections.

Aircraft

Interim Recommendations

The TG13 Aircraft Subgroup made several comments, suggestions, and recommendations around:

- Role and engagement of the FAA's Center for Emerging Concepts and Innovation (CECI);
- CECI's early innovation engagement (EIE) steps and gates;
- FAA Line of Business (LOB) coordination; and
- The FAA's decision point to produce a defined approach to establish AAM aircraft certification.

Airspace

Interim Recommendations

- Safe integration over segregated airspace was the appropriate direction of the Framework.
- Training and certification of AAM pilots should be proportional to operational risk.
- The FAA should continue it's cooperative work with the FCC and National Telecommunications Information Administration to provide protected spectrum for UAS, including AAM.

Operations

Interim Recommendations

- Consider requirements that operators employ Safety Management System (SMS) principles as foundational.
- Determine what changes, if any, are required to airmen training and qualification requirements.
- Consider the unique and evolving ‘system management’ requirements for crewed and uncrewed ops.
- Develop operational control criteria needed for crewed and uncrewed AAM operations including NAS status (e.g., NOTAMS), weather minima as appropriate, and new flight rules to complement legacy ‘VFR/IFR’ requirements.
- Solicit AAM-related standards development which support performance-based operations in a future integrated NAS from ASTM, RTCA, SAE, etc. such as the tailored framework as proposed by ASTM AC377.

Infrastructure

Interim Recommendations

- Briefing the industry on the applicability of environmental reviews, process, and timelines.
- Collaboration with industry address downwash and structural integrity concerns (as noted in Vertiport Engineering Brief) that may limit access to existing infrastructure.
- Identify and discuss possible bottlenecks (e.g. Part 77 reviews).
- Implement performance based standards that will accept the use of innovative technology to enhance highly localized weather reporting data for the purpose of meeting applicable operational regulations.

Community

Interim Recommendations

- **Topics that were omitted from the Framework:**
  - Local Awareness and Coordination.
  - Funding Sources (e.g., AAM studies and infrastructure).
  - Roles and Responsibilities for FAA and other jurisdictions.
- **Remember that AAM includes UAM and RAM.**
- **Env. Review:** minimize for low volume initial operations.
- **Community Engagement:** engagement is more than notification; need coordination and dialogue.
- **Market Survey:** focus on organic scalability; don't redo industry forecasts for AAM.

Next Steps

TG 13 is requesting more time to finish the final report.

- Is there anything else FAA wants to request from TG 13?

Questions?

Lunch Break

ADVANCED AVIATION ADVISORY COMMITTEE

June 30, 2022

Remarks from Deputy Administrator

Brad Mims

Deputy Administrator

FAA

Federal Aviation Administration

ADVANCED AVIATION ADVISORY COMMITTEE

Federal Aviation Administration

NASA Programs Update

Robert Pearce
Associate Administrator
Aeronautics Research Mission Directorate, NASA

National Aeronautics and Space Administration

NASA Aeronautics Update to the FAA Advanced Aviation Advisory Committee

Robert Pearce, Associate Administrator
Aeronautics Research Mission Directorate
June 30, 2022

Strategy, Organization and Vision

NASA Aeronautics – Vision for Aviation in the 21st Century

ARMD continues to evolve and execute the Aeronautics Strategy *https://www.nasa.gov/aeroresearch/strategy*

6 Strategic Thrusts

- Safe, Efficient Growth in Global Operations
- Safe, Quiet, and Affordable Vertical Lift Air Vehicles
- Innovation in Commercial Supersonic Aircraft
- In-Time System-Wide Safety Assurance
- Ultra-Efficient Subsonic Transports
- Assured Autonomy for Aviation Transformation

U.S. leadership for a new era of flight

ARMD PROGRAMS

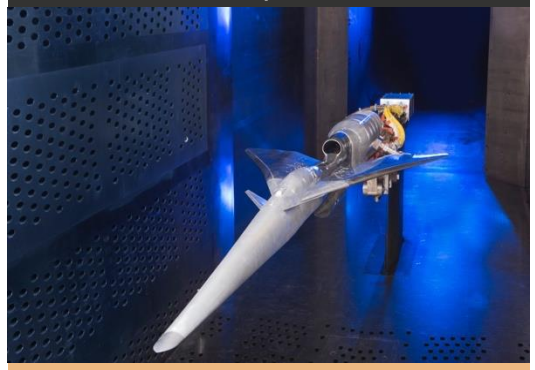
Airspace Operations and Safety Program

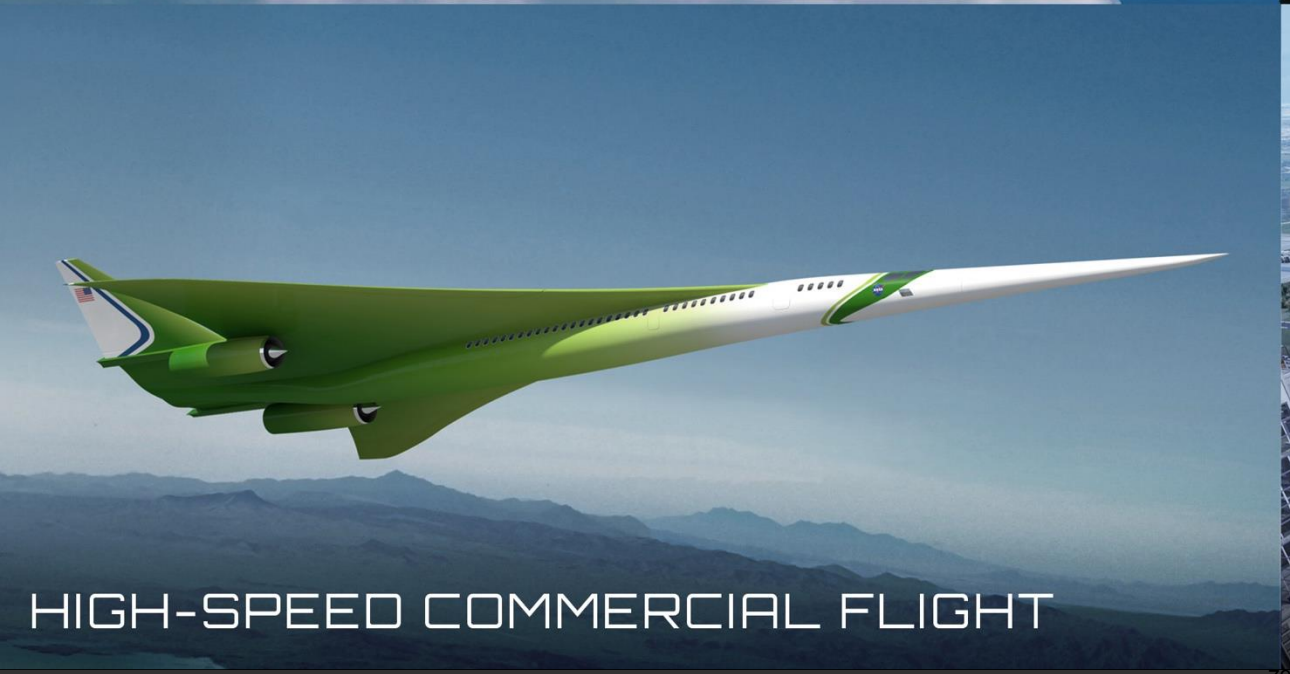
Advanced Air Vehicles Program

Integrated Aviation Systems Program

Transformative Aeronautics Concepts Program

Aerosciences Evaluation and Test Capabilities Portfolio





Four Transformations for Sustainability, Greater Mobility, and Economic Growth

Successful UAS/NAS and UAS Traffic Management Project Completions

Airspace Operations and Safety Program

Integrated Aviation Systems Program

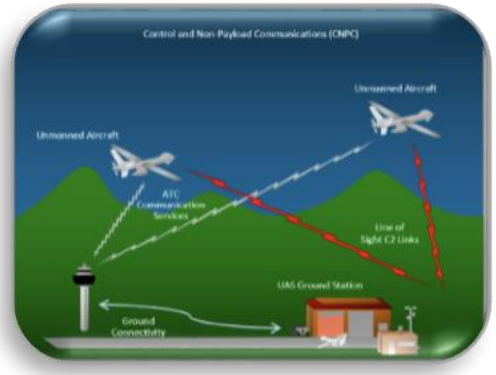
UAS/NAS

Vision

- Enable UAS commercial missions through the development of standards based on research findings which were validated in a relevant environment

Significant Accomplishments

- UAS-NAS contributed leadership and significant research findings and technical expertise to RTCA SC228 to support the development of MOPS for Detect and Avoid (DAA) and Terrestrial Command and Control (C2)
- UAS-NAS No Chase COA (NCC) leveraged MOPS to demonstrate safe compliance to FAR Part 91.113 without a chase aircraft
- UAS-NAS helped define DAA Well Clear (DWC) for different UAS in different airspaces
- An enduring Live, Virtual, Constructive Distributed Environment (LVC-DE) was developed to support safe testing of unmanned and autonomous aircraft in an environment representative of the NAS



UAS in the NAS Closeout TIM: https://nari.arc.nasa.gov/uas-nastim

UAS Traffic Management

Vision

- Define and safely enable future airspace operations (2025+) of small UAS in the NAS

Significant Accomplishments

- Demonstrated the feasibility of highly automated, low altitude UAS traffic management
  - Workshops and working groups develop use cases and scenarios
  - Collaboratively develop data interfaces and protocols to support use cases
  - Demonstrate use cases via collaborative simulations and flight tests
  - Incorporate industry leaders in flight tests to nurture their development and show state of art

- Delivered validated requirements to the FAA and industry
  - Technical Memos and internal documentation provided in Tech Transfers to FAA and publicly
  - Field-tested Application Programming Interfaces published
  - Supporting analysis of test results via TM and conferences

UTM Closeout Technical Interchange Meeting (TIM): https://nari.arc.nasa.gov/utm2021tim

UAS-NAS and UTM along with FAA leadership catalyzed the UAS industry and advanced the opportunities for industry commercialization for all sizes of UAS operating in all altitude regimes

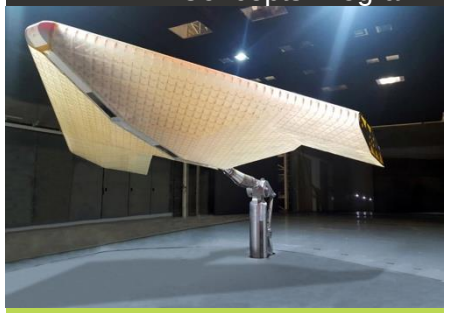
Advanced Air Mobility Mission

Airspace Operations and Safety Program

Advanced Air Vehicles Program

Integrated Aviation Systems Program

Transformative Aeronautics Concepts Program



Advanced Air Mobility (AAM) Mission

AAM Maturity Levels (AML)

- AML-4 Medium Density/Complexity, Collaborative and responsible, automated systems
- AML-3 Low Density, Medium Complexity, Comprehensive safety assurance automation
- AML-2 Low Density/Complexity, Assistive automation
- AML-1 Mature Certification Projects

Safe, sustainable, affordable, and accessible aviation for <u>transformational</u> local and intraregional missions

Advanced Air Mobility is Emerging

CARGO TRANSPORT

PUBLIC GOOD

CONSUMER/ ENTERPRISE GOODS AND SERVICES

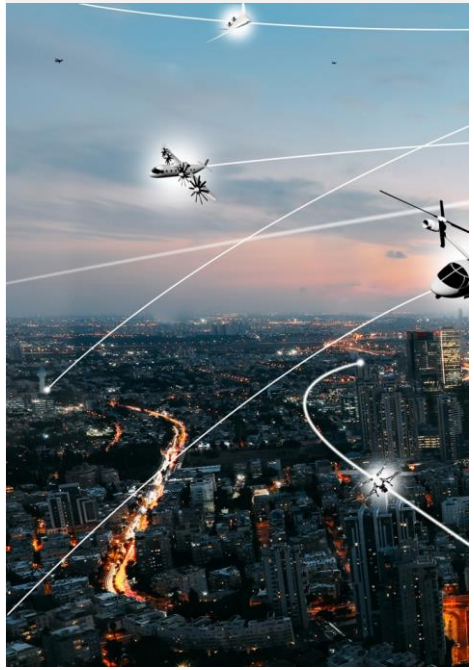
PASSENGER TRANSPORT

86

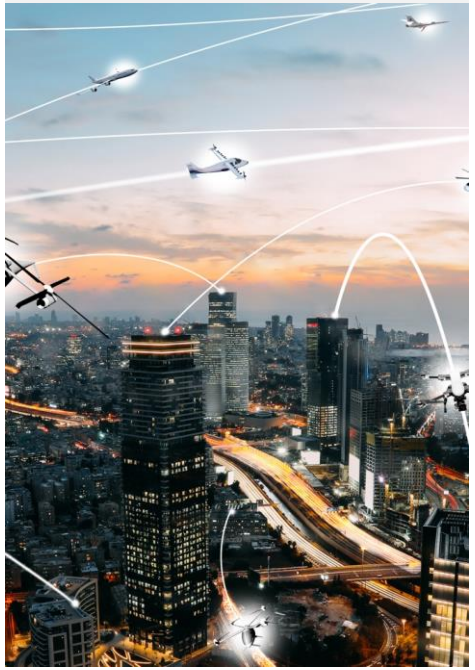
Latest studies show an annual estimated market of $115B by 2035

NASA Role to Address AAM Challenges

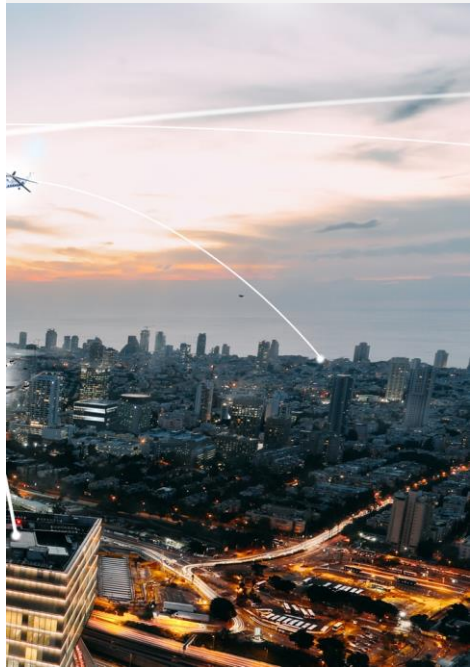
Vehicle Development and Operations



Airspace Design and Operations



Community Integration



NASA and key partners are collectively taking on the most difficult mission challenges to enable industry to flourish by 2030

- **Research and Development Portfolio**
- **Robust Ecosystem Partnerships**
- **AAM National Campaign Series**

NASA will deliver validated system architectures and recommended requirements for aircraft, airspace, and infrastructure systems to enable sustainable and scalable medium density advanced air mobility operations

The AAM North Stars

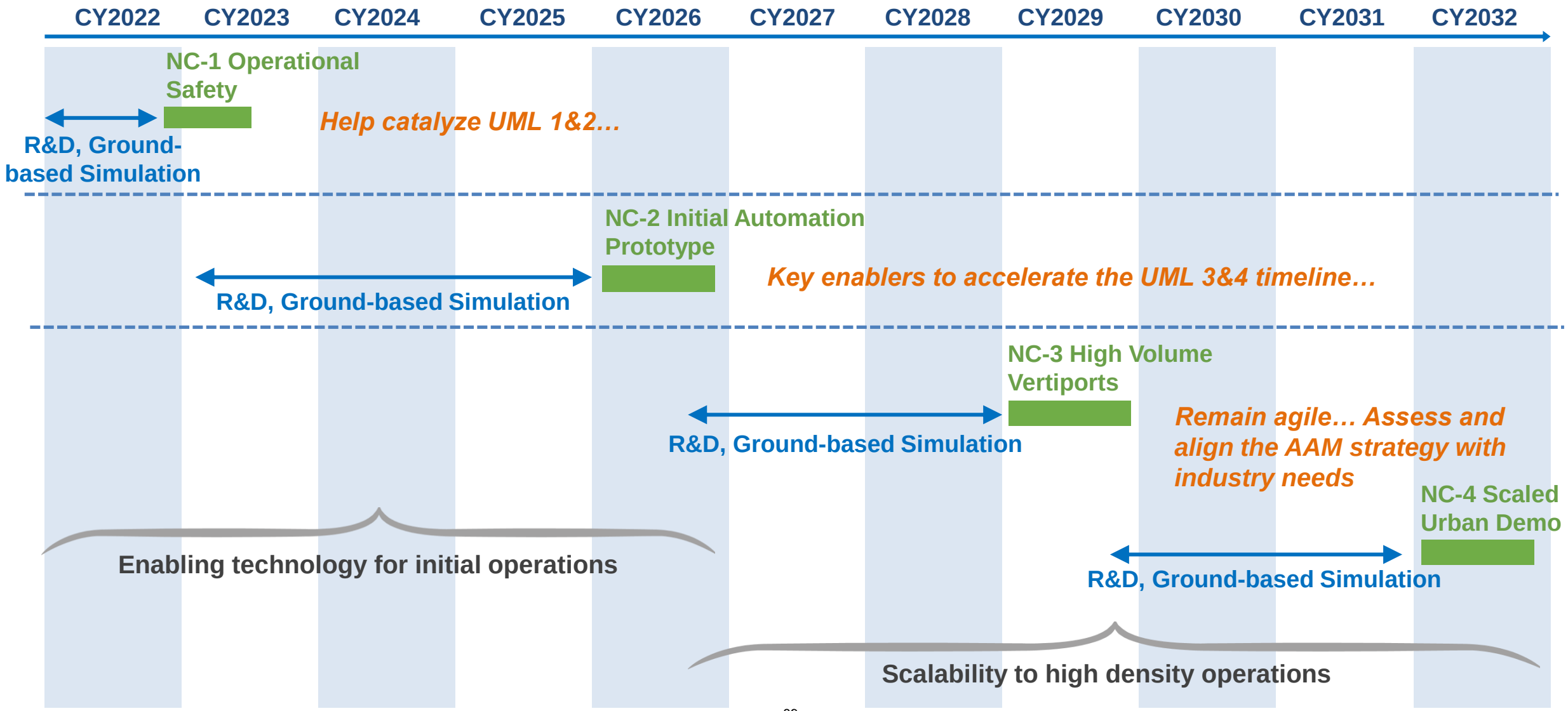
Automation

Airspace

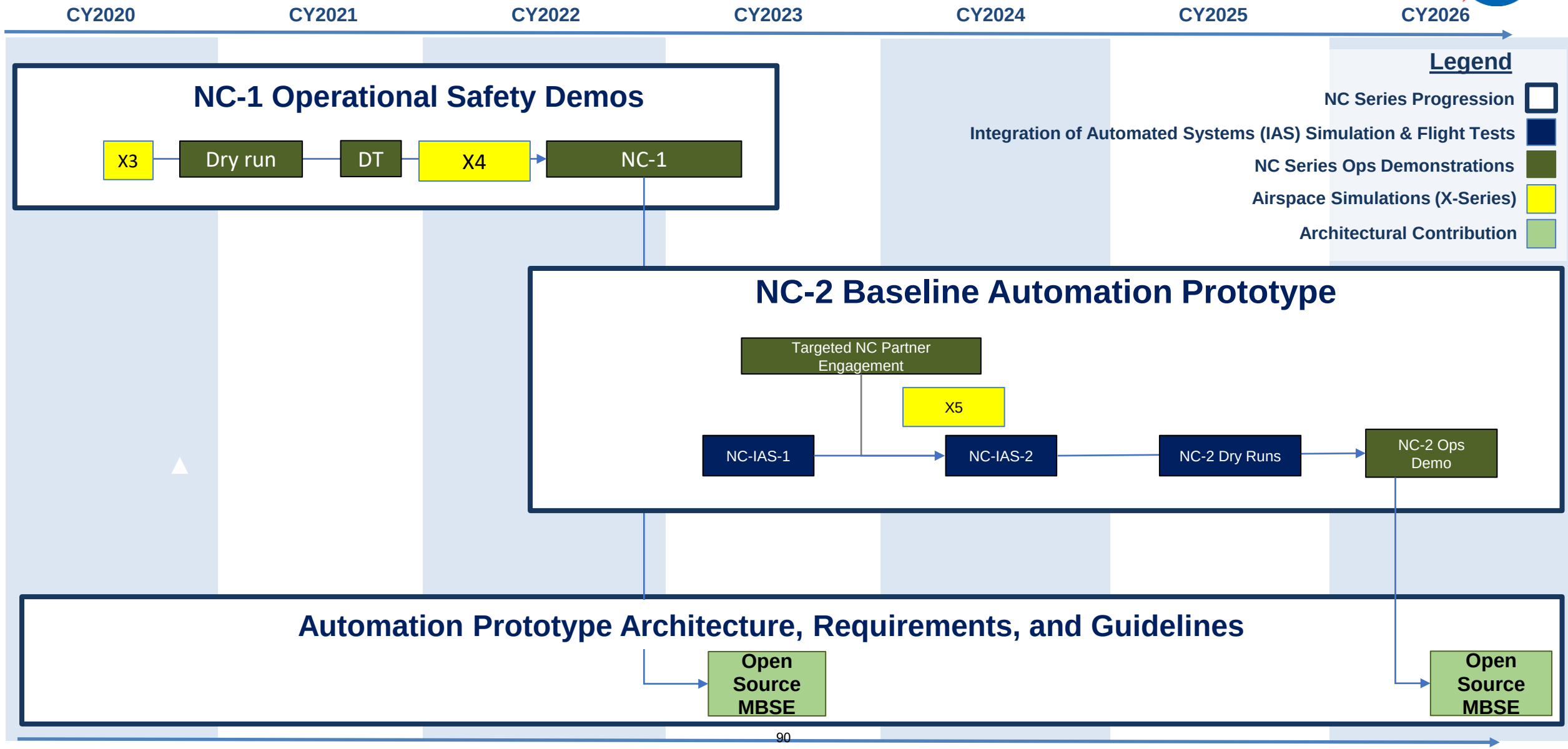
Safety

Noise

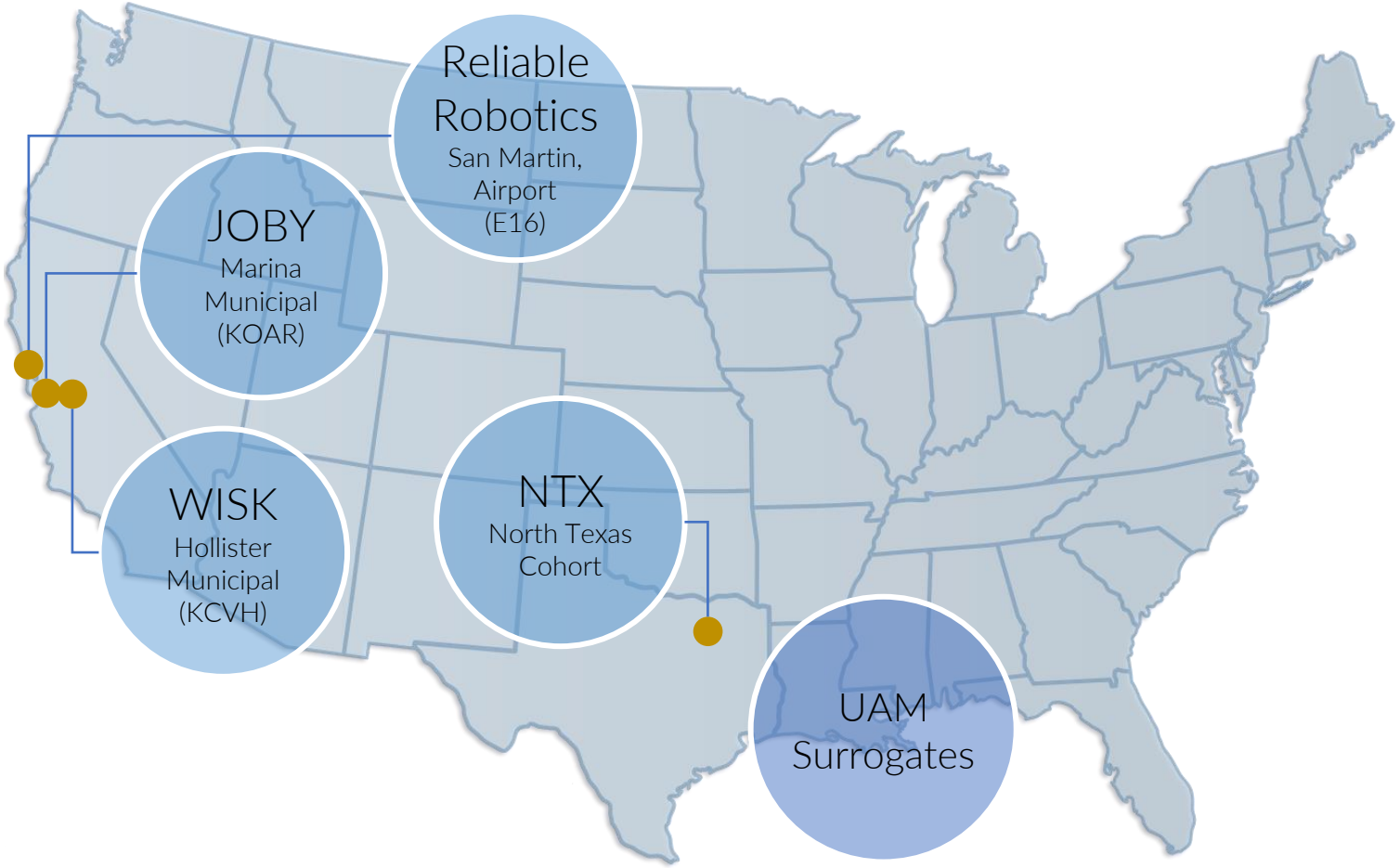
National Campaign Series Support of the Industry Timeline



Notional Schedule for Reference AAM Automation Architecture



NC-1 Objectives and Partnerships



1 **Accelerate Certification and Approval**

- UAM Surrogate
- Joby Piloted - Urban Ops

2 **Develop Flight Procedure Guidelines**

- UAM Surrogate
- Joby Piloted - Urban Ops

3 **Assess Infrastructure & CNS Trade Space**

- Wisk Cohort - Automated Urban Ops
- NTX Cohort - Urban Ops
- Reliable Robotics - Regional Ops

4 **Demonstrate an Airspace Management Architecture**

- UAM Surrogate
- Wisk Cohort - Automated Urban Ops
- NTX Cohort - Urban Ops

5 **Identify Community Considerations**

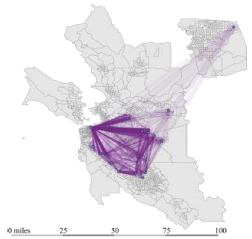
- Wisk Acoustics Test

Moving Towards an Increasingly Automated Future

Assurance

Fleet Management and Vehicle Supervisors

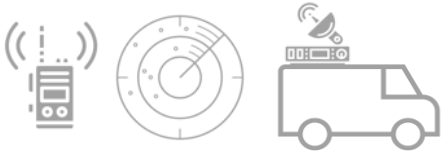
Airspace Management Architecture and Services



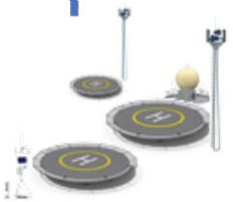
Safety Management Systems

Relevant Test Environment
(NC-Integration of Automated Systems, NC Ops Demos)

Aircraft Technologies and Automation



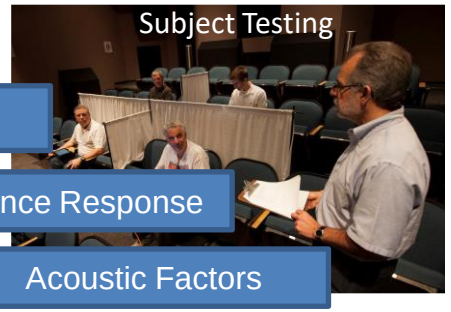
Communication, Navigation, Surveillance, Information



Vertiport/Airport Management

NASA's role emphasizes an enterprise approach towards assessing automated architectures and recommending requirements

NASA AAM Noise Research Approach



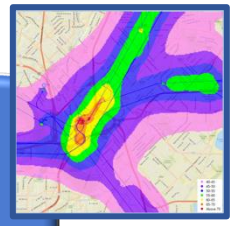
Sound Auralized

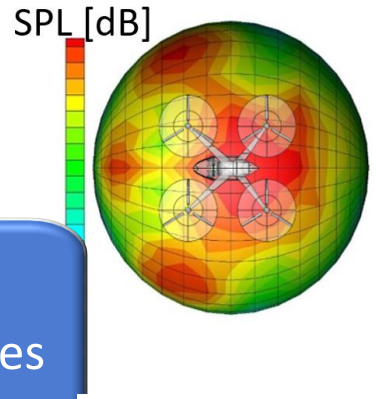
Annoyance Response

Acoustic Factors

Psychoacoustic Research for Human Response to AAM Noise

Develop and Distribute Noise Prediction Tools





Accurately Model and Predict AAM Noise Sources

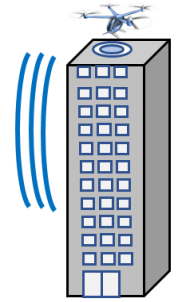
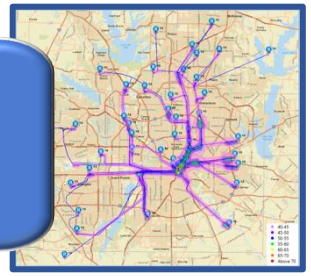


Photo Credit: Joby Aviation

Obtain Flight Data to Characterize Noise

Methods for Assessing AAM Acoustic Impact in Operations



Provide Design Tools and Guidelines for Low Noise Design and Operations

NASA's X-57 is Pathfinder for Electric Propulsion

First flight is summer 2022

Ground and flight validation of electric motors, battery, and instrumentation

INDUSTRY

ACADEMIA

Enable new configurations

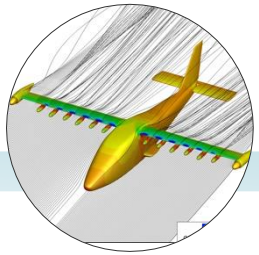
Share technical insights and lessons learned

LEAPTech experiment

Wind-tunnel validation

Motor nacelle design & testing

Structural testing



Computational simulations

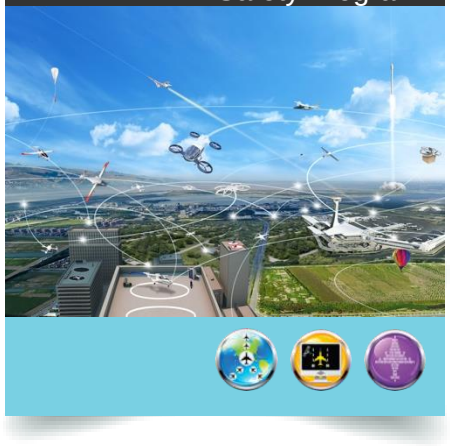
Operational checkouts

Inform Small Electric Aircraft Propulsion Standards and Certification

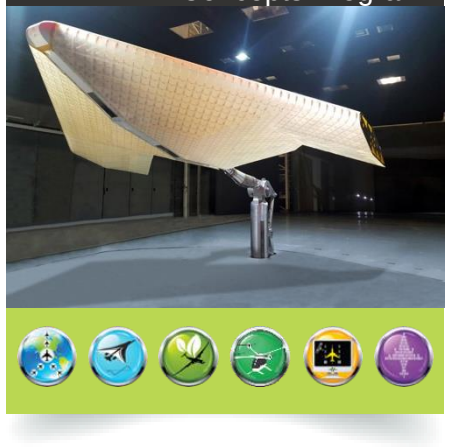
Advanced Concepts for Emergency Response Operations

NASA Opportunity to Address a National Crisis

Airspace Operations and Safety Program



Transformative Aeronautics Concepts Program



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NASA Research, Development, and Technology Transition Project

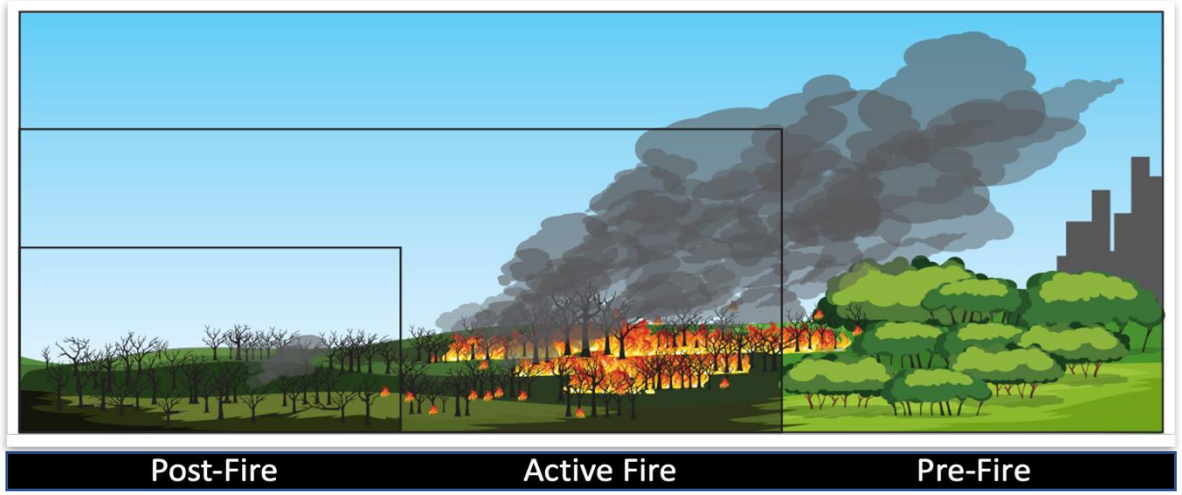
To advance our nation's ability to predict and manage wildfires and other national disasters and mitigate their impacts

Objectives

- Focusing on wildfire use case, develop and demonstrate evolving NASA technologies to reduce fire risk, improve monitoring and response to wildfires while mitigating impacts to enhance safety and prevent economic loss.

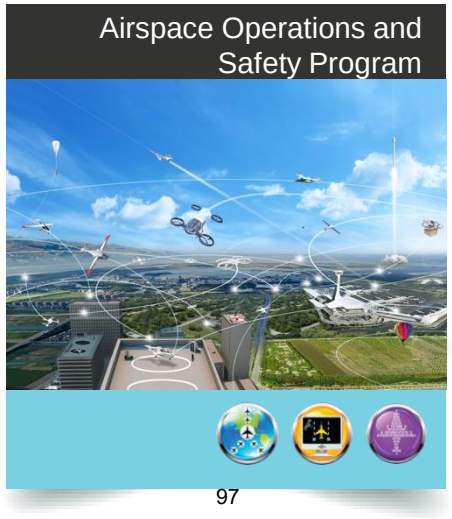
Approach

- In coordination with wildfire community, lead development of advanced airspace operations and sensing technologies, safety methods, communications and aircraft capabilities for persistent suppression operations
- Leverage and expand current R&D related to air traffic/uncrewed traffic operations, drones, and safety methods to coordinate remote sensing aircraft
- Fuse satellite/airborne observations with models to support fire research and management
- Establish Public-Private-Philanthropic Partnerships to test and implement prototype capabilities and support transition/adoption by stakeholders



The technology developed in this program will be applicable to other disasters and climate driven events, e.g., floods and hurricanes

Future Airspace and Safety:
Sky for All



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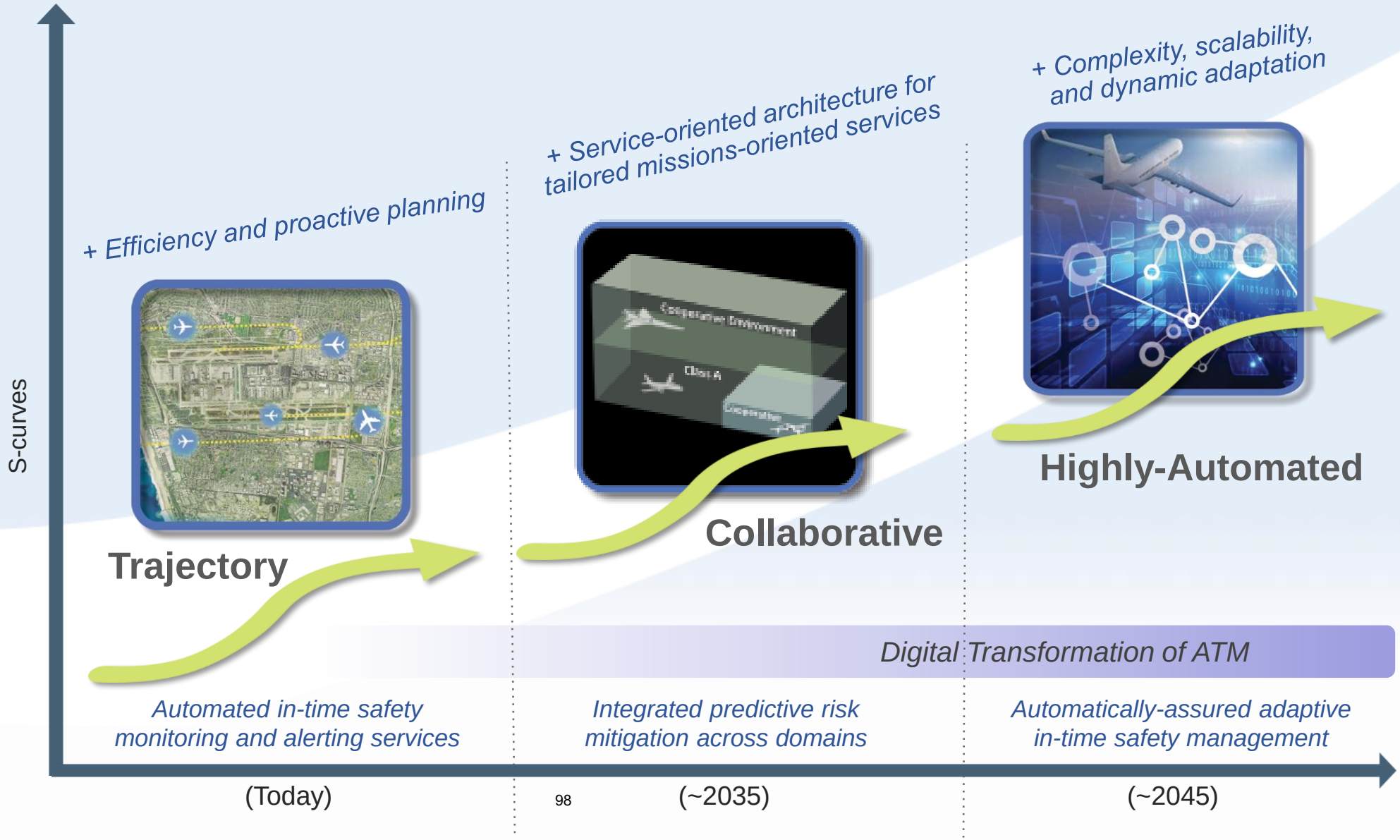
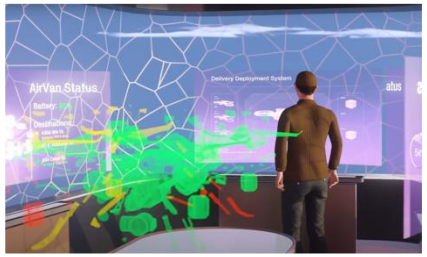
Evolution of Airspace Operations and Safety



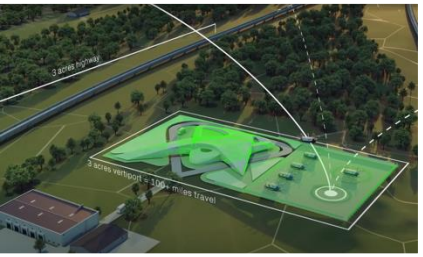
~ 2040: Planning to Achieve a Sky for All

Imagining tomorrow's aviation system today, leveraging FAA Info-centric NAS

Operator Optimization



Ubiquitous and Resilient Operations



Sustainable Solutions

Seamless Skies

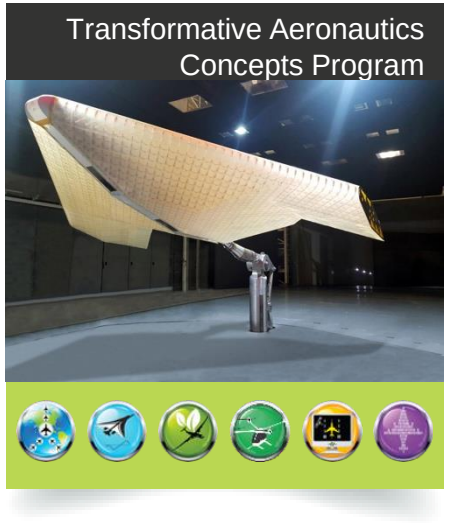
Learning-Based Systems and Communities

- NASA-led effort to gather inputs from the aerospace community and FAA
- Co-developed vision of a mid-21st century shared airspace that is agile, scalable, optimizable, increasingly diverse, and equitable
- Evolution from trajectory-based operations to collaborative and highly automated operations
- Sky for All results will inform ARMD research and development portfolio and collaboration with FAA

SKY for ALL

A thriving airspace must be scalable, accessible, safe, sustainable, and resilient.

Energizing the U.S. Aeronautics Innovation Pipeline



University Leadership Initiative (ULI) Engaging the University Community

5 rounds of solicitations
$157M of awards

Seeking and awarding proposals addressing all strategic thrusts and special topics

- 23 awards with 64 universities
- 7 HBCUs and 10 other MSIs
- 406 proposals submitted
- 280 different proposing Principal Investigators
- 3189 team members
- 20–50 students per team

In ULI, the universities take the lead, build their own teams, and set their own research path.

Summary

National Need – Stakeholder Alignment – Compelling Vision – Real Impact

Sustainable Flight National Partnership enables U.S. technological leadership in the cornerstone subsonic transport market

ULTRA-EFFICIENT TRANSPORT

FUTURE AIRSPACE

Quesst Mission charts long-term path to commercial supersonic transportation

Advanced Air Mobility Mission enables emergence of a transformative new aviation transportation mode

Sky for All Airspace and Safety ensures the safe and efficient utilization of the National Airspace for all of these new capabilities

HIGH-SPEED COMMERCIAL FLIGHT

ADVANCED AIR MOBILITY

Questions?

ADVANCED AVIATION ADVISORY COMMITTEE

June 30, 2022

New Business/Future Agenda Items

Houston Mills

Acting Chair

FAA Advanced Aviation Advisory Committee

Federal Aviation Administration

New Business

- UAS/AAM operator security
- What are the priorities of tasks remaining from the 2018 FAA Reauthorization Act?
- What can the FAA do to speed the rulemaking process?
- How can drones operate in Class E over Class A airspace?

Potential FAA Tasking Recommendations

- AAAC to review the FAA five-year plan for integrating UAS into the NAS and assess the root cause of successes, shortfalls, and future opportunities for this sector; with recommendations for FAA to adjudicate accordingly.
- AAAC to conduct analysis of short-term BVLOS ARC recommendation – what can be put into place as rules within 12 months.

ADVANCED AVIATION ADVISORY COMMITTEE

June 30, 2022

Closing Remarks

Jay Merkle

Designated Federal Officer

FAA Advanced Aviation Advisory Committee

Federal Aviation Administration

ADVANCED AVIATION ADVISORY COMMITTEE

June 30, 2022

Closing Remarks

Houston Mills

Acting Chair

FAA Advanced Aviation Advisory Committee

Federal Aviation Administration

ADVANCED AVIATION ADVISORY COMMITTEE

June 30, 2022

Adjourn

Houston Mills

Acting Chair

FAA Advanced Aviation Advisory Committee

Federal Aviation Administration

Charter of the Advanced Aviation Advisory Committee
U.S. Department of Transportation

1. **Committee's Official Designation.** The Committee's official designation is the Advanced Aviation Advisory Committee (AAAC).

2. **Authority.** The Committee is established under the authority of the U.S. Department of Transportation (DOT), in accordance with the provisions of the Federal Advisory Committee Act (FACA), as amended, Pub. L. 92-463, 5 U.S.C. App. 2. The Secretary of Transportation has determined that the establishment of the Committee is in the public interest.

3. **Objectives and Scope of Activities.** The objectives of the AAAC are to provide independent advice and recommendations to the Department of Transportation (DOT) and the Federal Aviation Administration (FAA) and to respond to specific taskings received directly from the FAA. The advice, recommendations, and taskings relate to improving the efficiency and safety of integrating advanced aviation technologies-- including unmanned aircraft systems (UAS) and advanced air mobility (AAM), into the National Airspace System (NAS) -- while equipping and enabling communities to inform how UAS, AAM, and other technologies may operate in ways that are least impactful to those communities. In response to FAA requests, the AAAC may provide the FAA and DOT with information that may be used for tactical and strategic planning purposes.

4. **Description of Duties.** The AAAC will act solely in an advisory capacity and will not exercise program management responsibilities. Decisions directly affecting the implementation of transportation policy will remain with the FAA Administrator and the Secretary of Transportation. The AAAC will:

    a. Undertake only tasks assigned by the FAA

    b. Deliberate on and approve recommendations for assigned tasks in meetings that are open to the public.

    c. Respond to ad-hoc informational requests from DOT and the FAA and/or provide input to DOT and the FAA on the overall AAAC structure (including the structure of subcommittees and/or task groups).

5. **Agency or Official to Whom the Committee Reports.** The AAAC reports to the Secretary of the U.S. Department of Transportation (DOT) through the FAA Administrator.

6. **Support.** The FAA will provide support, including funding for the Committee. The UAS Integration Office is the primary entity within the FAA responsible for supporting the AAAC.

7. **Estimated Annual Operating Costs and Staff Years.** The FAA's annual operating costs to support the AAAC for the period and scope specified by the charter is approximately $460,000, which includes 2.0 full-time equivalent salary and benefits at $413,000, plus $47,000 for meeting, travel, and miscellaneous expenses.

8. **Designated Federal Officer.** The FAA Administrator, on behalf of the Secretary of Transportation, will appoint a full-time or permanent part-time Federal employee to serve as the AAAC Designated Federal Officer (DFO). The AAAC DFO will ensure that administrative support is provided for all activities. The DFO will:

    a. Ensure compliance with FACA and any other applicable laws and regulations.

    b. Call and attend all the committee and subcommittee meetings.

    c. Formulate and approve, in consultation with the Chair, all committee and subcommittee agendas.

    d. Notify all Committee members of the time, place, and agenda for any meeting.

    e. Maintain membership records.

    f. Ensure efficient operations, including maintaining itemized contractor invoices.

    g. Maintain all AAAC records and files.

    h. Adjourn any meeting when doing so would be in the public interest.

    i. Chair meetings when directed to do so by the FAA Administrator.

9. **Estimated Number and Frequency of Meetings.** AAAC estimates meeting three times per year to carry out its responsibilities. AAAC meetings will be open to the public, except as provided under Section 10(d) of FACA, as implemented by 41 CFR part 102-3, and DOT Order 1120.3C.

10. **Duration.** Continuing, subject to renewal every two years.

11. **Termination.** The charter will terminate two years after its effective date unless renewed in accordance with FACA and other applicable regulations. If the AAAC is terminated, the FAA will give as much advance notice as possible of such action to all participants.

12. **Membership and Designation.** AAAC shall comprise members appointed by the U.S. Secretary of Transportation upon recommendation by the FAA Administrator. All AAAC members serve at the pleasure of the Secretary of Transportation. To the extent practicable, the membership of the AAAC shall include persons with lived experience and knowledge of the needs of underrepresented and underserved groups in race, ethnicity, religion, disability, sexual orientation, and gender identity.

    a. The AAAC will have no more than 41 members. Members represent airports and airport communities; pilot and controller labor groups; local, state, and tribal governments; navigation, communication, surveillance, and air traffic management capability providers; research, development, and academia; agricultural interests, traditional piloted aviation operators; UAS hardware component manufacturers; UAS manufacturers; corporate UAS operators; citizen UAS Operators; UAS software application manufacturers; advanced air mobility; community advocates; and industry associations or other specific areas of interest as determined by the FAA Administrator or Secretary of Transportation.

    b. Members will serve without charge and without government compensation. Members who represent a particular interest of employment, education, experience, or affiliation with a specific aviation-related organization will serve as representatives. Members appointed solely for their expertise serve as Special Government Employees (SGEs).

    c. Member representatives and SGEs are appointed for a two-year term but can continue to serve until their replacement is chosen or they are reappointed.

    d. Members shall not preference or otherwise utilize their membership on the Committee in connection with public statements in their personal capacities without a disclaimer that views expressed are their own and do not represent the views of the Committee, the Federal Aviation Administration, or the Department of Transportation.

13. **Subcommittees.** The FAA Administrator has the authority to create and dissolve subcommittees as needed. Subcommittees must not work independently of the AAAC. They must provide recommendations and advice to the AAAC, not the FAA, for deliberation, discussion, and approval. Subcommittees are comprised of subject matter experts from multiple stakeholder groups to include traditional, pilotless, and advanced aviation

communities, and they will include experts on a range of policy matters, including security, safety, and privacy.

14. **Recordkeeping.** The records of the AAAC are handled in accordance with the National Archives and Records Administration (NARA) General Records Schedule 6.2 or other approved agency records disposition schedules. Subject to the Freedom of Information Act, 5 U.S.C. § 552, the records, reports, transcripts, minutes, and other documents that are made available to or prepared for or by AAAC will be available for public inspection at https://www.faa.gov/uas/programs_partnerships/advanced_aviation_advisory_committee/.

15. **Filing Date.** This charter is effective June 10, 2022, which is the filing date of this Charter

Advisory Committee Member Roles and Responsibilities

Advisory committees have played an important role in shaping programs and policies of the federal government from the earliest days of the United States of America. Since President George Washington sought the advice of such a committee during the Whiskey Rebellion of 1794, the contributions made by these groups have been impressive and diverse.

Through enactment of the Federal Advisory Committee Act (FACA) of 1972 (Public Law 92-463), the U.S. Congress formally recognized the merits of seeking the advice and assistance of our nation's citizens to the executive branch of government. At the same time, the Congress also sought to assure that advisory committees:

- Provide advice that is relevant, objective, and open to the public;
- Act promptly to complete their work;
- Comply with reasonable cost controls and recordkeeping requirements; and
- Had government oversight through creation of the Committee Management Secretariat.

Participation in a FACA such as the Advanced Aviation Advisory Committee (AAAC) provides the Federal Government with essential advice from subject matter experts and a variety of stakeholders. The FACA requires that committee memberships be "fairly balanced in terms of the points of view represented and the functions to be performed." Selection of committee members is made based on the particular committee's requirements and the potential member's background and qualifications. AAAC members assume the following responsibilities:

- Attend ¾ of all AAAC public meetings during membership term.
- Provide oversight, deliberation, comments and approval of the AAAC activities.
- Contribute respective knowledge and expertise.
- Participate as a member on a working group, if desired.
- Coordinate with the constituents in his or her Uncrewed Aircraft System and aviation sector.
- Review work plans, if requested.
- Review the AAAC and any subcommittee or working group recommendation reports.
- Inform the AAAC Chair and the DFO when he or she can no longer represent his or her organization/association on the AAAC.
    - Members may continue to serve until a replacement has been appointed or removed.

Jay Merkle
Executive Director, Unmanned Aircraft Systems Integration Office

Prior to being named the new Executive Director of the Unmanned Aircraft Systems Integration Office, Peter “Jay” Merkle was the Deputy Vice President (DVP) of the Program Management Organization (PMO) within the Air Traffic Organization (ATO). The PMO is responsible for all NextGen program activity; all National Airspace System (NAS) communications; navigation, weather, surveillance and automation modernization programs; and all service life extensions to legacy NAS sensors, communications and navigation aids. Given the tight coupling between successful automation program delivery and current system operation, the PMO also leads and manages all second-level automation engineering efforts. Lastly, the PMO works with FAA operations and aviation users to ensure globally interoperable solutions for NextGen.

Prior to that position, Merkle was the Director of Program Control and Integration, AJM-1, in the PMO for the ATO. In that capacity, he led the PMO in developing effective, timely, and innovative solutions to evolving business needs. The focus areas were program control, cross-cutting analysis and integration, and special initiatives.

Since joining the FAA, Merkle has served as the Manager of Systems Integration for Portfolio Management and Technology Development within the NextGen organization. He also has held positions as the Lead Engineer for tower, terminal, and en route automation systems, as the Chief System Engineer for En Route and Terminal Domains, and as the Chief Architect for NextGen at the Joint Planning and Development Office.

Merkle has over 30 years of extensive experience in engineering and program management. He started his career as an engineer working in cockpit and crew station design on several aircraft, including the C-17 large transport aircraft. Merkle holds a Bachelor’s degree in Psychology from the University of Central Florida and a Master's degree in Industrial Engineering and Operations Research from the Virginia Polytechnic Institute and State University.

Captain Houston Mills
UPS Vice President Flight Operations & Safety

As Vice President of Flight Operations & Safety, Captain Mills has global oversight of and responsibility for UPS Airline Flight Operations, Training, Regulatory Compliance and Airline Safety.

Prior to his current position Houston served as Global Aviation Strategy & Public Policy Director, where he advocated for federal and international aviation policy and collaborated with domestic and international industry groups to harmonize aviation safety standards and sustainability rules. He was also responsible for aggregating aviation strategy issues under one umbrella within UPS to help maximize safety and reliability for the company, as well as service to UPS's growing global customer base.

Houston also served as UPS's Director of Airline Safety and Compliance where he was responsible for ensuring safe and regulatory compliant Flight, Maintenance, and Ground support operations, Emergency Response preparedness, and interaction with government regulatory and safety organizations worldwide. Under his leadership UPS became one of the first U.S. airlines to have a certified Safety Management System (SMS). He also served as the UPS International Chief Pilot, where he was responsible for crew-related international flight operation activity and as the Director of Flight Training where he was responsible for the UPS Advance Qualification Program (AQP) for all crewmembers.

Houston currently serves as Chairman of the FAA Drone Advisory Committee, where as one of 35 executive stakeholders he brings a traditional aviation perspective to a group of other transportation and technology leaders as they explore policy considerations for unmanned aerial systems (UAS) integration into the National Air Space system. He also serves as the Chairman of the Cargo Airline Association Board of Directors, Board of Governors for the Fight Safety Foundation, Board of Advisors of RTCA and is a member of the IATA Safety Flight Ground Operations Advisory Council, and the Airlines for America (A4A) Safety and Operations Councils.

A native of Indianapolis, Houston received a bachelor's in English literature from Wabash College and an MBA from Webster University. He also holds a Professional Human Resources (PHR) designation.

Houston began his aviation career in 1985 as a Marine Corps officer and F/A-18 fighter pilot where he was certified as an air combat tactics instructor (ACTI). He served the United States in Operations

Desert Shield, Desert Storm, Restore Hope and Southern Watch. He has more than 100 aircraft carrier landings to his credit. He has previously served as an FAA designated check airman and is currently an international qualified Captain on the Boeing 757/767.

In step with UPS's commitment to the community, Houston has served on numerous Boards to include: Washington Aero Club, Marine Toys for Tots Foundation, Association for Unmanned Systems International, Center for Women & Families, Hospice, and many others. He currently serves on the Board of Directors of the National Center for Families Literacy, RTCA Board of Advisors, Flight Safety Foundation Board of Governors, The Organization of Black Aerospace Professional Board of Advisors, and is president of the Marine Corps Coordinating Council of Kentucky.

Married and the father of three, Houston particularly enjoys motivational speaking, golf, and has coached various youth sports for many years.

Advanced Aviation Advisory Committee

February 23, 2022 • Virtual Meeting

Detailed Minutes

Introduction

An Advanced Aviation Advisory Committee (AAAC) meeting was held on February 23, 2022, from 12:00 PM to 2:30 PM EST. This meeting was held virtually and livestreamed due to the COVID-19 emergency.

Designated Federal Officer Opening Remarks

Mr. Jay Merkle started the meeting by welcoming the audience and reading the Designated Federal Officer (DFO) opening statement. After reading the opening statement, Mr. Merkle then discussed the agenda for the meeting. Mr. Merkle proceeded to ask for a motion for approval of the October 27, 2021 meeting minutes. There were no objections and the motion passed.

Mr. Merkle then turned the meeting over to Deputy Administrator, Mr. Bradley Mims. Mr. Mims iterated the significance of the committee's name change and highlighted a milestone of 1 million airspace authorizations through the Low Altitude Authorization and Notification Capability (LAANC). Mr. Mims finished his remarks by thanking the AAAC for all of their hard work on their recommendations for Gender Neutral Language for the Drone Community. He informed the committee that their work has acted as a major instigator for the FAA's current initiatives on Diversity, Equity, Inclusion and Access. After finishing his remarks, Mr. Mims turned the meeting back over to the DFO.

Mr. Merkle concluded his remarks by highlighting a few recent accomplishments since the last meeting. He highlighted that the first means of compliance for category 2 and 3 small drone operations over people were just accepted. The recommendations the committee provided related to the Remote Identification and Operations Over People rules contributed to the agency's ability to implement these rules. Mr. Merkle emphasized the success of The Recreational UAS Safety Test (TRUST), and updated the public of the status of the recent solicitation for new AAAC members. He then turned the meeting over to the AAAC Chair.

View the DFO's remarks (link is timestamped for DFO Opening Remarks):
https://youtu.be/xRRl-LDedoA?t=628

AAAC Chair Opening Remarks

AAAC Chair, Captain Houston Mills, began his remarks by welcoming everyone to the first ever AAAC meeting and expressing his eagerness to lead the committee in its expanded role integrating drones and advanced air mobility operations into the national airspace system. Capt.

Mills thanked the scheduled presenters for their hard work in preparing their recommendations. He then turned the meeting over to the DFO to brief the committee on roles and responsibilities.

View the AAAC Chair's remarks: (link is timestamped for AAAC Chair Opening Remarks): https://youtu.be/FvFtxYGsnsw?t=683

Overview of AAAC Roles and Responsibilities

Presenter:
Jay Merkle, DFO and Executive Director, FAA UAS Integration Office

Mr. Merkle began the overview of AAAC Roles and Responsibilities by stating the objective of the committee to provide independent advice and recommendations to the Department of Transportation (DOT) and the Federal Aviation Administration (FAA) and to respond to specific taskings received directly from the FAA. He then discussed the composition and evolution of the committee, before touching on the basic Federal Advisory Committee Act (FACA) guidance for members to abide by.

He then turned the meeting over to the Jay Kinser to present the FAA's response to Task Group #11's recommendations on Acceptable Level of Risk White Paper.

View the Overview of AAAC Roles and Responsibilities: (link is timestamped for Overview of AAAC Roles and Responsibilities): https://youtu.be/FvFtxYGsnsw?t=838

Response to Task Group #11: Acceptable Level of Risk White Paper

Presenter:
Jay Kinser, Manager, Strategic Programs, FAA UAS Integration Office

Mr. Jay Kinser began the presentation by providing a brief background on the Acceptable Level of Risk White Paper, which was provided to the FAA at the October 2021 committee meeting, and thanking the AAAC for their recommendations. Mr. Kinser specified that at this time, the FAA would be providing interim responses, and acknowledged that the anticipated BVLOS ARC report would have some implications on the FAA's final responses.

The FAA concurred with all but one recommendation. Mr. Kinser specified that the FAA would provide final responses at the June 2022 AAAC meeting, following the release, review, and incorporation of the BVLOS ARC report findings.

There was a brief discussion following the presentation.

The AAAC eBook provides the official interim report of the FAA's response to Task Group #11's Acceptable Level of Risk White Paper and presentation.

View this presentation and discussion (link is timestamped for FAA Response to Task Group #11: Acceptable Level of Risk White Paper presentation):
https://youtu.be/FvFtxYGsnsw?t=1098

Task Group #12: Integrating UAS Operations into K-12 Curriculums Recommendations

Presenters:
Paul Hsu, Chairman, HSU Educational Foundation
Brian Wynne, CEO, AUVSI

Mr. Paul Hsu opened the presentation by taking a moment to recognize the diverse and experienced members and subject matter experts that make Task Group #12. He then presented a comprehensive list of organizations providing UAS- and aviation-related education programs, before sharing a video of some of the existing programs using drones for STEM learning. Mr. Hsu proceeded to turn the presentation over to Mr. Brian Wynne to present Task Group #12's recommendations.

Mr. Wynne addressed the methodology used for forming Task Group #12's recommendations and provided a brief description of each recommendation, which includes making content and resources readily available, building connections for action and cultural transformation, and delivering aviation-specific curricula. He then turned the presentation back over to Mr. Hsu to provide a conclusion.

Following the presentation, there was a brief discussion period. Upon completion of the discussion, the DAC Chair entertained a motion to accept the recommendations and forward them to the FAA. The motion passed with no objections.

View Task Group #12's official report on Integrating UAS Operations into K-12 Curriculums Recommendations in the AAAC eBook.

View this presentation and discussion (link is timestamped for Task Group #12: Integrating UAS Operations into K-12 Curriculums Recommendations presentation):
https://youtu.be/FvFtxYGsnsw?t=3101

BVLOS ARC Update

Presenter:
Jay Merkle, DFO and Executive Director, FAA UAS Integration Office

Mr. Merkle provided the committee with a brief background on how the Beyond Visual Line-of-Sight (BVLOS) Aviation Rulemaking Committee (ARC) was established. He revealed to the committee that the work of the ARC is nearly complete and that the FAA expects to receive the full report of the BVLOS ARC in the near future.

View the update (link is timestamped for BVLOS ARC Update):
https://youtu.be/FvFtxYGsnsw?t=5220

Los Angeles Department of Transportation (LADOT): Urban Air Mobility (UAM) Policy Framework Considerations

Presenter:
Seleta Reynolds, General Manager, Los Angeles Department of Transportation

Ms. Seleta Reynolds began her presentation by thanking the AAAC for their welcome. Ms. Reynolds shared that landing pads on all of Los Angeles' tall buildings sparked LADOT's thinking about advanced air mobility (AAM). She discussed the city's role in managing the public realm as an operator, regulator, and investor, and the importance of establishing these roles for the future of transportation. Ms. Reynolds shared that in 2018, the LADOT started a plan for AAM in Los Angeles, which involved working closely with both the public and industry and investing in research, before eventually publishing a city policy framework.

Ms. Reynolds concluded her presentation by asking the FAA to consider a tasking that acknowledges the FAA's role as an airspace designer, manager, and operator; acknowledges state, tribal, and local government to catalyze vertiport development, operation, and maintenance; and acknowledges desired outcomes heard among all stakeholders.

Mr. Merkle thanked Ms. Reynolds for her presentation, acknowledged her ask for a new tasking, and stated that he would need to consult with the necessary parties within various FAA Lines of Business before getting back to her with a response.

Following the presentation, there was a discussion period. View the discussion: (link is timestamped for LA DOT: UAM Policy Framework Considerations):
https://youtu.be/FvFtxYGsnsw?t=5549

New AAAC Taskings

Presenter:
Jay Merkle, DFO and Executive Director, FAA UAS Integration Office

Mr. Merkle, shared that the FAA is issuing a new tasking for the AAAC. The tasking presented by Mr. Merkle asks the AAAC to provide comments on the FAA's draft "Strategic Framework for Advanced Air Mobility (AAM) Near-Term Operations."

The AAAC Chair accepted the new tasking and the recommendations report is scheduled for the next AAAC meeting in June 2022.

View the presentation and discussion (link is timestamped for New AAAC Tasking):
https://youtu.be/FvFtxYGsnsw?t=7896

New Business/Agenda Topics

The AAAC Chair opened the floor to AAAC members to bring up any new business topics or agenda topics. Capt. Mills raised the first new business item, allowing AAAC members to share what they feel the AAAC should be thinking about in regards to future FAA taskings.

Topics for the FAA to consider for future taskings included:

- Mr. Jaz Banga brought up a call for participants to test the mechanics of remote identification in dense urban environments, specifically, San Francisco and New York City.
- Ms. Cathy Cahill raised a question regarding the future of UAS, especially larger UAS, given recent 5G developments and the known issues that spectrum causes for UAS.
- Mr. Samanta Roy suggested it may be good to develop a framework regarding a broad landscape to shape the conversation within the FAA and interagency, specifically, regarding how things are going to evolve from a safety/certification perspective, a community acceptance perspective, and an environmental perspective.

- Mr. David Carbon raised the topic of dangerous goods to add the Mr. Samanta Roy's list of considerations.

Capt. Mills then proceeded onto the next new business item. He asked the AAAC's thoughts regarding the impact of FAA certification process on advanced aviation. Mr. Chris Anderson iterated that the Durability and Reliability (D&R) Type Certification for UAS is currently stalled over a tricky policy issue and would like to see more smart minds working on it. Ms. Cahill agreed to that point, acknowledging that D&R is going to be significantly worse for larger UAS and iterated that we need to have a clear outline of expectations for these aircraft. Mr. Kenji Sugahara agreed to this point and expressed that Type Certificates are not the only way to integrate these aircrafts.

Lastly, Capt. Mills raised the possibility of an FAA tasking that focused on developing communication approaches that would answer the question of many prospective drone users, "How do I get started?" A brief discussion among the members ensued that brought forth some ideas on how the FAA can integrate this into a future tasking.

Ms. Shanetta Griffin, FAA Associate Administrator for Airports, shared with the AAAC that FAA's draft interim guidance on vertiport design would be posted in the near future to the Federal Register. Ms. Griffin prompted the AAAC members and the public to look for that Federal Register Notice and provide comments.

View the discussion (New Business/Agenda Topics):
https://youtu.be/FvFtxYGsnsw?t=8084

Closing Remarks and Adjourn

Mr. Merkle began his closing remarks by thanking all of the presenters, as well as those who help make the AAAC possible, and expressed that he is looking forward to working with the committee. He then turned the meeting over to Capt. Mills, who thanked the AAAC for their all of their hard work, thought, and leadership. Capt. Mills shared his hopes to meet with everyone in-person for the next AAAC meeting, should it be deemed safe to do so, before turning the meeting over to Mr. Gary Kolb.

Mr. Kolb, UAS Stakeholder & Committee Officer, asked for a motion to adjourn the meeting. The motion was approved and the meeting was adjourned.

View the closing remarks (Closing Remarks and Adjourn):
https://youtu.be/FvFtxYGsnsw?t=8980

Appendix A: FAA Meeting Attendees

Confirmed FAA/DOT Attendees (on camera)		
Name	**Title**	**Org.**
1. Jay Merkle	Executive Director, UAS Integration Office (DFO)	FAA
2. Bradley Mims	Deputy Administrator	FAA
3. Laurence Wildgoose	Assistant Administrator, Office of Policy, International Affairs and Environment	FAA
4. Billy Nolen	Associate Administrator, Aviation Safety	FAA
5. Shannetta Griffin	Associate Administrator, Airports	FAA
6. Claudio Manno	Associate Administrator, Security and Hazardous Materials Safety	FAA
7. Chris Rocheleau	Deputy Associate Administrator, Aviation Safety	FAA
8. Winsome Lenfert	Deputy Associate Administrator, Airports	FAA
9. Tim Arel	Deputy Chief Operating Officer, Air Traffic	FAA
10. Jay Kinser	Manager, Strategic Programs, UAS Integration Office	FAA
11. Peter Sachs	Strategic Programs, UAS Integration Office	FAA
12. Alexis Morgenthaler	Strategic Programs, UAS Integration Office	FAA
13. Gary Kolb	UAS Stakeholder & Committee Officer, UAS Integration Office	FAA

Confirmed FAA/DOT Observers		
Name	**Title**	**Org.**
1. Jessica Orquina	Acting Manager, UAS Integration Office	FAA
2. Tonya Coultas	Deputy Associate Administrator, Security and Hazardous Materials Safety	FAA
3. Sabrina Saunders-Hodge	Director, Research, Engineering, and Analysis, UAS Integration Office	FAA
4. Abigail Smith	Executive Director, Aviation Policy and Plans	FAA
5. Adrienne Vanek	Director, International Division, UAS Integration Office	FAA
6. Joe Morra	Director, Safety and Integration Division, UAS Integration Office	FAA
7. Martha Christie	Deputy Director, Safety & Integration Division, UAS Integration Office	FAA
8. Elizabeth Forro	Special Assistant, UAS Integration Office	FAA
9. Kamisha Walker	Management Assistant, UAS Integration Office	FAA

No Written Public Comments Submitted Since Last Committee Meeting