Advanced Aviation Advisory Committee Public eBook

Public eBook
March 13, 2024 AAAC Meeting
FAA Headquarters
and Virtual

Advanced Aviation Advisory Committee

March 13, 2024 AAAC Meeting

Public eBook Table of Contents

AAAC 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

Advanced Aviation Advisory Committee

FAA Designated Federal Officer, Presenters, and Speakers

Name	Title	Org.
1. Katie Thomson	Deputy Administrator and Designated Federal Officer	FAA
2. Jeffrey Vincent	Executive Director, UAS Integration Office	FAA
3. Joe Morra	Manager, Emerging Technologies Division, Flight Standards Service	FAA
4. Mitchell Bernstein	Advanced Air Mobility Strategy & Pre-Implementation Branch, Office of NextGen	FAA
5. Chris Hope	Acting Deputy Director, Office of Safety Standards	FAA
6. Gary Kolb	UAS Stakeholder & Committee Officer, UAS Integration Office	FAA

FAA/DOT Observers and Stakeholders

Name	Title	Org.
1. Dr. Robert Hampshire	Deputy Assistant Secretary for Research and Technology/Chief Science Officer	DOT
2. Shannetta Griffin	Associate Administrator, Airports	FAA
3. Laurence Wildgoose	Assistant Administrator, Office of Policy, International Affairs and Environment	FAA
4. Tonya Coultas	Acting Associate Administrator, Security & Hazardous Materials Safety	FAA
5. Jodi Baker	Deputy Associate Administrator, Aviation Safety	FAA
6. Katrina Hall	Deputy Chief Operating Officer, NAS Programs and Support, Air Traffic Organization	FAA
7. Jessica Sypniewski	Deputy Assistant Administrator, NextGen	FAA
8. Erika Vincent	Director, Office of Audit and Evaluation	FAA
9. Angela McCullough	Deputy Executive Director, UAS Integration Office	FAA
10. Keri Lyons	Manager, Emerging Entrants, Airports	FAA
11. Jamie Metz	Acting Senior Advisor, UAS Integration Office	FAA
12. Jessica Brightman	Manager, Implementation Branch, UAS Integration Office	FAA
13. Ebonni Wright	Senior Advisor, UAS Integration Office	FAA

Advanced Aviation Advisory Committee

March 13, 2024 AAAC Meeting • FAA Headquarters, Washington DC

Public Meeting Agenda
Time: 1:00 pm – 4:30 pm Eastern Time
Location: FAA Headquarters, Bessie Coleman Room

	Start	Stop	
1.	1:00 p.m.	1:05 p.m.	FAA – Greetings & Logistics
2.	1:05 p.m.	1:10 p.m.	FAA – Read Official Statement of the Designated Federal Officer
3.	1:10 p.m.	1:15 p.m.	FAA – Review of Agenda and Approval of Previous Meeting Minutes
4.	1:15 p.m.	1:25 p.m.	Host/DFO/Chair – Opening Remarks
5.	1:25 p.m.	1:55 p.m.	AAAC – Tasking #17 Consensus Standards Recommendations
6.	1:55 p.m.	2:25 p.m.	AAAC – Tasking #16 Innovation and Infrastructure Investments Recommendations
7.	2:25 p.m.	2:40 p.m.	BREAK
8.	2:40 p.m.	3:05 p.m.	FAA - Remote ID Implementation Update
9.	3:05 p.m.	3:30 p.m.	FAA – Innovate28 Update
10.	3:30 p.m.	3:50 p.m.	FAA – Present New Taskings
11.	3:50 p.m.	4:20 p.m.	Chair – New Business/Future Agenda Topics
12.	4:20 p.m.	4:25 p.m.	FAA – Closing Remarks/Final Thoughts
13.	4:25 p.m.	4:30 p.m.	Chair – Closing Remarks/Final Thoughts
14.	4:30 p.m.	4:30 p.m.	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

Members
Designated Federal Officer – Katie Thomson, Deputy Administrator, Federal Aviation Administration
Chair - Houston Mills, Vice President, Flight Operations and Safety, United Parcel Service (UPS)
Jaz Banga, Co-Founder and Chief Executive Officer, Airspace Systems, Inc.
Edward Bolen, Chief Executive Officer, National Business Aviation Association
Bob Brock, Principle, State Aviation Infrastructure Needs Division of Brock Communications Group (BCG)
Adam Bry, Co-founder and Chief Executive Officer, Skydio
Dr. Catherine Cahill, Director, Alaska Center for Unmanned Aircraft Systems Integration (ACUASI)
David Carbon, Vice President, General Manger, Amazon Prime Air
Kevin Cox, Chief Executive Officer, Ferrovial Vertiports
Capt Joseph DePete, President and Chief Executive Officer, Aerospace Industry Solutions
Karthik Duraisamy, Professor of Aerospace Engineering, University of Michigan & Founder and Chief Scientist, Geminus.AI
Amit Ganjoo, Founder and Chief Executive Officer, ANRA Technologies
Todd Graetz, Director, UAS Program and Machine Vision Systems, BNSF Railway
David Greene, Bureau of Aeronautics Director, Wisconsin Department of Transportation
James Grimsley, Executive Director, Advanced Technology Initiatives - Choctaw Nation of Oklahoma
Brad Hayden, Founder and Chief Executive Officer, Robotic Skies
Dr. Paul Hsu, Founder and Chair, HSU Educational Foundation
Andrew LeBovidge, Executive Vice President, National Air Traffic Controllers Association (NATCA)
Michael Leo, Captain, New York City Fire Department
Lee Moak, Founder & Chief Executive Officer, Intrepid
Okeoma Moronu, Head of Aviation Regulatory and Legal Affairs, Zipline
Vic Moss, Owner, Moss Photography
Matt Parker, President, Precision Integrated Programs
Christian Ramsey, President, uAvionix Corporation

Advanced Aviation Advisory Committee

Members
Robie Samanta Roy, Managing Director, Cerberus Capital Management
Dr. Jaiwon Shin, Chief Executive Officer, Supernal
David Silver, Senior Vice President Strategy, Belcan; Aerospace Industries Association (AIA) Representative
Michael Sinnett, Vice President Product Development and Strategy, Boeing Commercial Airplanes
Kenji Sugahara, Director, Oregon Department of Aviation
Melissa Tomkiel, President and General Counsel, Blade Air Mobility
Brandon Torres Declet, Chief Executive Officer, Exyn Technologies
James Viola, Chief Executive Officer, Helicopter Association International
Molly Wilkinson, Vice President, Regulatory Affairs, American Airlines
Yolanka Wulff, Executive Director, Community Air Mobility Initiative
Brian Wynne, President and Chief Executive Officer, Association for Uncrewed Vehicle Systems International

Advanced Aviation Advisory Committee

March 13, 2024

Housekeeping

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- FAA team is monitoring the livestream, if you have any problems during the meeting, please reach out in the comments.

Official Statement

PUBLIC MEETING ANNOUNCEMENT

Read by: Committee Management Officer Gary Kolb

Advanced Aviation Advisory Committee

March 13, 2024

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:

February 28, 2024

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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Opening Remarks from Designated Federal Officer

Katie Thomson

FAA Deputy Administrator

Designated Federal Officer

FAA Advanced Aviation Advisory Committee

Opening Remarks from AAAC Chair

Houston Mills

Chair

FAA Advanced Aviation Advisory Committee

ADVANCED
AVIATION
ADVISORY
COMMITTEE

Federal Aviation
Administration

AAAC Task Group #17: Consensus Standards Recommendations

Amit Ganjoo, ANRA Technologies
Dr. Catherine Cahill, Alaska Center for Unmanned
Aircraft Systems Integration
Task Group #17 Leads
March 13, 2024

"AAAC to make recommendations on prioritizing the development of and harmonization around consensus standards from an industry perspective. These recommendations will support FAA's new entrant's certification processes."

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- Amit Ganjoo, ANRA Technologies
- Catherine Cahill, ACUASI
- Dallas Brooks, Wing
- Scot Campbell, Airbus
- Joseph Rios, NASA

Safety: The primary rationale for the task group is to prioritize safety above all else.

Priority: Standards should be prioritized for development and/or modification by their potential to 1) positively impact safety; and 2) speed integration of UAS and AAM.

Harmony: Standards for UAS should be planned, proposed and created as part of an integrated framework for their respective applications (UAS or AAM). Using a framework approach ensures that standards are appropriately scoped, highly aligned and interoperable in practice.

Innovation and Growth: Recognize that new entrants bring innovative concepts and technologies to the aviation landscape and encourage standards development that supports such innovation.

Aligns with recently-updated FAA guidance on risk acceptability, specifically FAA Order 8040.6A, Unmanned Aircraft Systems (UAS) Safety Risk Management (SRM) Policy, as the primary metrics guidance for acceptably safe operations;

- The Task Group identified similarities between UAS and AAM.

- Despite these similarities, the group recognizes potential differences in risk profiles and industry maturity, leading to the decision to address standards recommendations for Small UAS and AAM operations separately.

- The reasoning includes variations in aircraft size, the potential for human presence onboard, distinct risk profiles, and differing levels of readiness for implementation and regulatory approval.

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Differing Risk Profiles:

- Small UAS and AAM present substantially different risk profiles, necessitating distinct performance requirements.

Industry Maturity and Readiness:

- UAS approaches and technologies are ready for implementation and regulatory approval today, requiring different timelines for standards assessments for UA and AAM.

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Leveraging UAS Standards Maturity:

- The higher maturity of UAS standards offers valuable knowledge that can serve as a precedential enabler for AAM, crewed aircraft, and broader aviation operations.

Alignment in Principles and Approaches:

- While recognizing differences, the Task Group emphasizes leveraging areas of alignment in principles and approaches wherever appropriate to ensure efficiency and consistency.

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- The recommendations detailed in the following sections are grouped according to the three broad categories.
- The overarching goal is to provide a comprehensive framework that addresses the unique characteristics and needs of Small UAS and AAM operations while maintaining alignment in overarching principles and approaches.
- Given the safety-first mindset of stakeholders and the recently updated 8040.6A (UAS SRM Policy), the team leveraged that document as a driver for discussing appropriate standards and practices for UAS operations.

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Blue	**Operator Best Practices**	• Operator manuals and checklists development and documentation. • Operational procedures establishment and proper documentation.
Purple	**Vehicle/Vehicle Related Technology Standards**	• Recommendations for standards related to vehicle and vehicle-related technologies.
Orange	**Maturation/Acceptance/ Establishment of USS/SDSP Related Standards**	• Standards recommendations focused on USS and SDSP maturation, acceptance, and establishment • Focus on ASTM and RTCA standards.

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The Operators' Lack of Qualification and Experience Increases Operational Risks

- Operators with insufficient qualifications or experience pose a significant risk to aircraft operations.

- The absence of validated operational procedures, lack of adherence to safety standards, and potential human errors contribute to increased risks, posing threats to aircraft, infrastructure, and personnel.

Enhance Operator Qualifications and Documentation Practices

- These comprehensive recommendations aim to enhance operator qualifications, align operational procedures, and mitigate risks across various aspects of UAS and AAM operations by leveraging existing industry best practices and encouraging the creation of Operator manuals and checklists.

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Operational Best Practices

- Develop, validate, and implement standardized operational procedures vetted by experienced individuals.

- Utilize manufacturer's checklist or develop own for preflight checks.

- Refer to existing industry Operator Best Practices for preflight checks.

- Implement and enforce standards for crew fitness to operate.

- Identify and standardize key roles for operators and service suppliers.

- Mitigate diurnal risks by accounting for time of day and employing visibility-enhancing measures.

- Raise awareness of Mid-Air Collision risks at low altitudes and establish detection techniques.

Training

- Successful operators receive statements of qualifications for specific aircraft types, categories, and configurations.

- Certificates of training, flight logs, and emergency procedures for maintaining safe operations.

- Operators should undergo training by experienced personnel with competency assessments.

- Regular training and currency checks for remote crews.

- Currency intervals tailored based on experience to maintain competency.

- Provide human factor training for crews to enhance error recognition.

- Conduct Crew Resource Management training and adhere to Organization Operations Manual.

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Manuals

- Refer to existing industry Operational Best Practices for procedures and documentation.
- Publish and maintain operations manual detailing steps for safe operations.
- Encourage the creation of Operator manuals and checklists for proper documentation

Emergency Procedures

- Establish and practice emergency procedures to recover from technical issues.
- Standardize Emergency Response Plans (ERPs) based on operation type, aligned with regulatory policy and industry best practices.
- Enhance communication protocols for timely Mid-Air Collision (MAC) avoidance.

Risk Assessment

- Update ASTM F3178-16 Standard Practice for Operational Risk Assessment to assess air and ground risk.

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Lack of Consistent Standards for UAS Performance and Environmental Adaptability

- These comprehensive recommendations aim to standardize UAS performance metrics, promote environmental adaptability, and ensure consistent communication systems, thereby enhancing overall safety and operational efficiency.

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Establish Comprehensive Performance and Environmental Standards

- The absence of recognized standards for digital representation of obstacle and terrain data create challenges in mitigating hazards.

- The lack of consistent criteria for hazard mitigation and the absence of recognized standards hinder effective risk management and operational efficiency.

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Emergency Mitigation
- Standardize safety credit calculations for reducing kinetic energy at impact to support varied operations.
- Introduce standards for frangibility and drag-inducing methods (e.g., parachutes) to reduce residual kinetic energy.
- Standardize failure mode analysis procedures and emergency management/response documentation.
- Develop a framework *(digital or procedural)* to ensure that operators are notified of degradation or outage related to external systems.
- Focus on integrating failure mode analysis and emergency procedures into the aircraft design.
- Encourage compliance with airspace and operating regulations, utilizing ADSB receivers, Visual Observers (VOs), and flight tracker applications to enhance aircraft detection.

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Environmental Concerns

- Establish design and test standards for UAS operating in challenging environmental conditions.
- Support standards flexible enough to address a continuum of environmental challenges, including extreme temperatures, precipitation, and windy conditions.
- Perform range tests for C2 equipment with documented verification, tailored to location/environment.

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Lack of Standardization in UTM Performance Recognition and Operational Crediting

- Current UTM standards (e.g. UED-318, F3548-21 and F3411-22a) are widely-accepted but gaps remain.

- Additional work is needed, particularly on digital representation of terrain and obstacle data and the non-standardization of UTM operational credits create challenges in mitigating hazards.

UTM Services

- Developing standardized processes for qualifying UTM services.
- Standardizing UTM recognition and operational crediting based on USS definitions.
- Accelerating service recognition formalization and clarifying operational credit for recognized services.
- Maturing the service qualification process for consumers' understanding of qualified services.

Human Factors

- Developing new standards or FAA guidance for efficient UTM data mapping to human roles.
- Training crews in human factors and CRM for safer operations.

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Questions?

AAAC Task Group #16: Innovation, Infrastructure Investments Recommendations

Michael Sinnett, Boeing
Kevin Cox, Ferrovial Vertiports
Task Group #16 Leads
March 13, 2024

"…to make recommendations of areas of opportunities for innovative infrastructure investments, to support aviation new entrants and other transportation and land based autonomous technologies.

These recommendations will support FAA's strategic planning and implementation of new entrants in an autonomous multi-model environment."

Additional Guidance from FAA

- Safety is foundational
- Focus on the next five years
- Consider all types of AAM (eVTOL, Drones, UAM)
- Consider all types and levels of investment
- Be creative - think beyond current projects and programs
- Incorporate non-monetary partnerships as applicable
- Consider all levels and degrees of "autonomy"
- Multimodal aspects can include surface transportation investments with AAM benefits, or automation throughout the AAM journey.

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To fulfill this tasking, the Chairs sought input starting with AAAC members and extended it to a diverse set of industry and autonomy experts.

Written input was initially solicited on various categories from *Physical infrastructure, Digital infrastructure and Human Capital*.

Various site types and/or environments were considered including a *traditional airport environment, facility upgrades, retrofits, and green fields.*

Various investment sources, resources, and partnerships were considered ranging from *federal, state, local, and private investment*.

Online video meetings with contributors were subsequently held to collect more color on the written input.

Finally, the Chairmen's synthesized deck was shared with contributors for their final feedback and input.

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| Contributors	
ATA Aviation	NTCOG
AUVSI	Nowgen
BEEP	UPS
Boeing	Reliable Robotics
EVE Air Mobility	Robotic Skies
Ferrovial Vertiports	Saab
NAVOS Air	Wisk

Infrastructure Investment Sources and Partnerships

Investment Category	Airport Environment	Facility Upgrade/Retrofit	Greenfield
Physical Infrastructure			
Digital Infrastructure			
Human Capital			

AAM Infrastructure will continue to evolve and inevitably involve (1) diverse locations, sites, and facilities (2) that will support varied uses and business cases, (3) involving different aircraft types (4) that will need to be integrated into unique and varied operating environments.

Despite this diversity of infrastructure needs and environments, there are **common traits or attributes** that will be required to ensure **commercial viability** including the need:

- to collaborate with federal, state, and local authorities;

- to ensure facilities are appropriately sited where passengers or cargo are or want to go;

- to ensure the facilities are cost effective and enable the quick and efficient movement of people and/or goods;

- to ensure both community and customer education, collaboration, and acceptance; and

- to ensure an educated, diverse, and adaptable workforce.
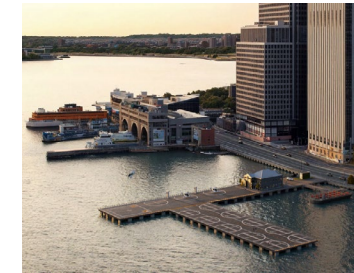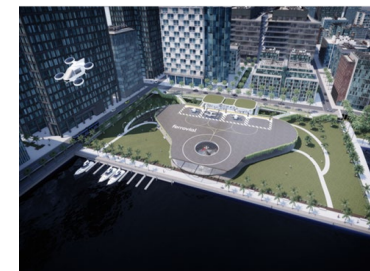
- **Diversity and Safety**. Diversity of aircraft, business models, types of infrastructure, and sites/environments highlights the need to ensure safety is paramount.

- **Common Themes**. Industry continues to evolve and expand, but there are common infrastructure themes that must be addressed as investment in the infrastructure is introduced, sited, developed, and built.

- **Immediate Needs with Long-term vision.** There are immediate needs to ensure infrastructure is available and ready for AAM in a timely fashion, while recognizing AAM is likely to evolve quickly and will require a longer-term vision combined with the need for agility and adaptability.

- **Stakeholder Collaboration.** In order to succeed, communication and collaboration will be essential amongst all stakeholders and regulatory bodies.

- **Training and Education**. The need for foundational physical and digital infrastructure, and improvements to process and trainings was identified as a necessity.

- **Partnership and Investment**. Partnership and funding recommendations span existing programs but also highlight the need for private investment and innovative engagements.

- **Siting.**   In order to fully leverage the unique attributes of AAM and ensure long-term commercial viability, facilities will need to be developed at both traditional aviation and non-traditional sites and/or environments.

- **Common Flatwork.** Although the demands of a piloted aircraft versus an autonomous aircraft on a particular facility may differ, the associated flat work involve common attributes to ensure a safe, secure and efficient operations, irrespective of aircraft types and operating environments, such as FATO, TLOF, Safety Areas, taxiways, and charging stands.

- **Efficient facilities.** Autonomous movements will enable more efficient movements of passengers and cargo; therefore, this increase in efficiency must be factored in now to ensure today's facilities are equipped to accommodate these increased operations.

- **Multimodal connectivity.** Given the low noise and no aircraft operating emissions associated with AAM, these aircraft can integrate more seamlessly into communities, thereby improving multimodal connections. This ability could also lead to challenges on existing infrastructure which must be taken into account such as, ingress/egress, curb management, and parking.

- **Grid improvements.** Reliable power connectivity with local generation and storage will be essential to scale AAM.

- **Sensor rich infrastructure.** Anticipating autonomous operations in the siting, design and construction of vertiports or the modification of existing aviation facilities will be critical to avoid excessive and costly rebuilds to account for LIDAR, Weather/micro-weather monitoring, Camera's, and other technology needs that will be critical to usher in autonomy.

- **UTM supporting infrastructure.** Anticipating autonomous operations should, to the extent possible, seek to ensure compatibility with future airspace navigational improvements including Global Navigation Satellite System (GNSS), Ground Based Surveillance Systems (e.g. RADAR, cameras, etc.) and Ground Based Augmentation Systems.

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- **FAA Engagement.** Many of the digital infrastructure needs will be developed by industry stakeholders, all will require FAA, across lines of business, to be involved in their development. This includes standards development, approval/oversight and data requirements. This involvement should align with the Info-Centric NAS concept.

- **PSU-Vertiport Automation Systems.** These systems will ensure situational awareness, coordination and execution of flight plans. These systems will facilitate vertiport – operator interfaces to ensure appropriate passenger handling.

- **Traffic Management.** Traffic management solutions need to be cross domain, inclusive of all airspace users. Traffic management services are required from the start and will evolve as more autonomous operations are introduced as well as scale. ATC facilities will also need tools to facilitate AAM aircraft / operations integration.

- **Digitization of Air Traffic Services.** AAM can leverage the work done so far on DataComm and could expand its use for AAM. Support the development and approval of third-party services.

  - o **Datacenters.** FAA and industry datacenters may require expansion and/or modernization to manage AAM operations. These centers must leverage strong cybersecurity and secure communications protocols.

  - o **Digital Publication.** Digital publication of machine-readable NAVAIDS, advisories and surveillance data will be needed. Of note will be the digital communication mechanisms between physical infrastructure and AAM aircraft & operators. Publications need to support digitally native flight operations.

  - o **Weather Data.** While not needed for day one operations, higher fidelity (real-time, localized) weather data will be required for scaling operations. New weather stations in areas where aircraft do not currently operate will also be needed. Current standards may need revision to support time and interoperability needs, FAA engagement will be key.

- **Procedures.** New AAM aircraft procedures (e.g., IFP's) will be needed. This includes facility specific procedures. Procedure development can be done leveraging current authorized procedure designers in close coordination with appropriate FAA lines of business. TERPS and OpSpec updates may be needed. Continued FAA support develop routing and corridor requirements will be key to validating concepts outlined in FAA's UAM ConOps 2.0 and new flight operation modes.

- **Aviation Spectrum.** Spectrum usage rules need to be completed (e.g. C-Band 5030-5091MHz for C2). This includes aviation both safety services as well as intermodal connectivity at airports/vertiports.   Enabling flexible use wireless capabilities (4G/5G/6G) for C2 and/or localization.

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- **Process Improvement/Alignment.** While ensuring the bed-rock principal of safety, consider ways to improve certain regulatory processes to account for the proliferation and rapid development of AAM and automation. Areas for potential improvement include
  - **NEPA**. Seek for ways to streamline NEPA process when it involves quiet and no emission AAM aircraft.
  - **Federal vs. Local FAA**. Collaboration and Alignment between federal and local FAA officials on all AAM approvals and processes.
  - **Aviation vs. Surface**. Support greater collaboration between aviation and surface transportation planning and project stakeholders.

- **Funding/GAP Analysis.** Seek to modernize Federal grant and development programs for AAM infrastructure and digital infrastructure investment. Consider undertaking a gap analysis of funding programs for opportunities to support AAM investment

- **Workforce Training.** All stakeholders, both government and private, must devote the necessary time and resources to appropriately train the AAM Workforce of the Future
  - Equip transportation planners and decisionmakers with an understanding of AAM opportunities
  - Support fire and rescue training, best practices and equipment for electric and autonomous aircraft
  - Reconsider existing programs for applicability for AAM
  - Adaptation/clarification of aircrew medical requirements to allow for pilots/operators who would be disqualified for conventional flight operations but could be a valuable member of the autonomous aviation workforce.
  - Improve participation and engagement with spectrum entities including NTIA, FCC and ICU.

In order to ensure the U.S. remains at the forefront of Advanced Air Mobility, it will require an "all of the above" approach in terms of funding and partnerships.

Public Private Partnerships (P3s). In order to stand up a new industry involving sizeable and substantial infrastructure, it will inevitably require private funding, especially given the limited and constrained budgets at the federal, state, and local levels. As such, public/private partnerships (P3s) should be both encouraged and incentivized. Examples include:
- TIFIA, USDA Rural Utility Services Program, EPA and DOE loan programs should be explored and considered at the Federal level
- State Infrastructure Banks and state resiliency funds could support P3s at the State and local level
- Tax Incentives for zero-emission technology and infrastructure would drive further investment

State and Local. As recipients of the benefits of AAM, state and local governments can and should play a role in AAM infrastructure investments. This need should, however, be coordinated with the FAA and other Federal funding sources.

Federal. Federal grants can also help accelerate AAM; unfortunately, for most in the AAM industry there is confusion as to which programs and under what circumstances may federal dollars be available. Preparing a consolidated list of programs here AAM might be eligible for funding could prove quite helpful informative . Examples potential programs could include:
- Airport Improvement Program (AIP) for on-airport projects that support 135 Operations;
- Block grant programs;
- USDOT programs such as SMART Grants;
- Economic Development Agency programs; and
- FEMA and NHTSA programs explored to leverage best practices and training for AAM emergency response

Educational institutions. Industry Stakeholders (both public and private) should consider partnering with Universities, Colleges, High schools, and other educational institutions to help educate, train, and develop a workforce capable of supporting AAM. Department of Education and Department of Labor programs should be reviewed for suitable opportunities to bring these various stakeholders together.

Physical Infrastructure

- **All in Approach and Best Practices**. Emphasize and communicate an All In Government Approach to infrastructure identification and best practices, including incorporating GSA, DOD BRAC, and EDA into the US National AAM Strategy.

- **Align and Communicate**. Align all FAA officials (federal, regional, and local) and communicate to relevant stakeholders a consistent set of processes for obtaining approvals covering both traditional aviation infrastructure and non-traditional infrastructure.

- **Streamline.** Consider streamlining NEPA processes and other processes for low-impact infrastructure such as vertiports and small wireless connectivity infrastructure.

- **Promote**. Consider developing and communicating a consolidated list of AAM eligible funding programs and consider expanding financial incentives for P3 opportunities in this nascent industry.

- **Anticipate**. Anticipate when standards and Advisory Circulars for automation in aviation facilities will need to be developed and subsequently communicated to ensure agency is on pace with rapidly evolving AAM industry.

- **Integrate**. Seek to integrate into USDOT Intergovernmental and NETT Council activities in order to broaden AAM understanding at all levels of government and across the Federal Family.

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Digital Infrastructure

- **FAA Engagement.** Engage broadly from all lines of business in activities that relate to digital infrastructure development including standards, approval/oversight and data requirement development.

- **Digitization.**   Apply resources to digitize air traffic services for AAM including digital data exchanges, weather data updates and datacenter modernization (as needed).

- **Procedures.** Begin work on new AAM procedures partnering with industry and existing authorized procedure designers. Continue to resource the validation work on the FAA UAM ConOps 2.0.

Human Capital

- **Applicability of Existing Programs**. Assess and consider any and all existing training and education programs for applicability for AAM.

- **Utilize Existing Workforce**. Identify opportunities to grow the AAM workforce from the disabled and differently abled communities by adaptation/clarification of airmen medical requirements for remote operators.

- **Existing "Think-tanks"**. Consider empowering the Center of Excellence and/or the University Transportation Center to focus on AAM Automation.

Questions?

Break

Remote Identification Update

Joe Morra
Office of Safety Standards Leadership Team
Flight Standards Service
March 13, 2024

- End of Remote ID Enforcement Discretion: March 16, 2024
- Current RID Compliance Status
- Encouraging Remote ID Compliance
- FAA Continued Remote ID Education for Users
- We are all in this together (Aviation Safety Culture)
- Call to Action: AAAC Members Leverage Stakeholders and Encourage Compliance

IMPORTANT!

Remote ID Compliance Date: September 16, 2023
Discretion was announced by FAA

End of Discretionary Enforcement: March 16, 2024
FAA will work to encourage compliance

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US and Territories UAS Fleet	Totals	Compliance Level
Total UAS Registered Aircraft*	**801,048**	31.4%
107 RID Compliance	**90,604**	24.7%
Standard RID drones	76,516	20.8%
RID Comp. w/ RID Module	14,088	3.8%
Rec Flyer Rid Compliance (Total) *	**161,035**	37.1%
Rec Flyer RID Compliance (Total Broadcasting)	61,035	14.1%
Standard RID drones	49,409	11.4%
RID Comp. w/ RID Module	11,626	2.7%
RecFlyer FRIA Factor*	100,000	23.3%

* RecFlyer FRIA Factor, +100,000 (Industry provided data on FRIA users)

BASED ON CURRENT FAADRONZONE AIRCRAFT REGISTRATION DATA | COMPLIANCE DATA REPORTED AS OF 01.MAR.2024

- FAA Approved FRIAs – 2,075
  - FRIA locations are now available on UDDS Mapping tool.
- Comms and Outreach
  - Reaching non-traditional Aviation users
- Flight Standards Approach to UAS Enforcement
  - Compliance Program
  - Collaborative: Working Together and Information Sharing

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- TRUST – 686,086 Certificates Issued to Rec Flyers
- UAS – Collegiate Training Initiative (CTI)
  - 136 schools; 41 Minority Serving Institutes
- UAS Support Center
- Drone Safety Day
- FAA Drone Symposium

- Safety is our North Star

- We share and learn together

- Sharing data increases safety

- Aviation Safety Reporting Program (ASRP) for UAS
  - captures confidential reports, analyzes the resulting aviation safety data, and disseminates vital information to the aviation community

We need the help of industry leaders – you!

- Please share information and encourage compliance with your stakeholders so we can reach a broader audience

- Together our message will be amplified

- AAAC plays a pivotal role in conveying the importance of compliance to the broader non-traditional aviation public.

- UAS community will be reached by "Outside the Box" thinking.

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Questions?

Innovate28 Update

Mitchell Bernstein
NextGen Advanced Air Mobility (AAM) Strategy Branch
March 13, 2024

- Major updates since April 2023 meeting
  - Special Federal Aviation Regulation (SFAR) Update
  - Vertiports Standards
  - Wake Categorization

- AAM Airspace Integration Assessments

- Testing & Evaluation through Memorandum of Understanding (MOU) with AFWERX

- Next Steps

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Key Innovate28 Activities

Aircraft Type Certification

Air Traffic Policy Review and Updates

Concept of Use (general and local)

Hazardous Materials

- Fire/smoke procedures
- Cabin safety
- Emergency training
- Cargo requirements

Procedure Development

- Scoping
- Solution development
- Environmental review
- Safety Risk Management (SRM) process

Community Engagement

Operational Certification

- Part 135 Operational Approval
- Operational Suitability (to establish aircraft type ratings, pilot training programs, maintenance programs, master equipment lists)

Local Vertiport Activities

- Vertiport locations
- Local zoning
- Construction
- Charging infrastructure

Local ATC Activities

- Controller training
- Standard Operating Procedures (SOP) and Letters of Agreement (LOA)

Cybersecurity

Physical and Operational Security

Site Selection

Site-Specific AAM Forecasting

Wake Separation Requirements

Crew Preparation

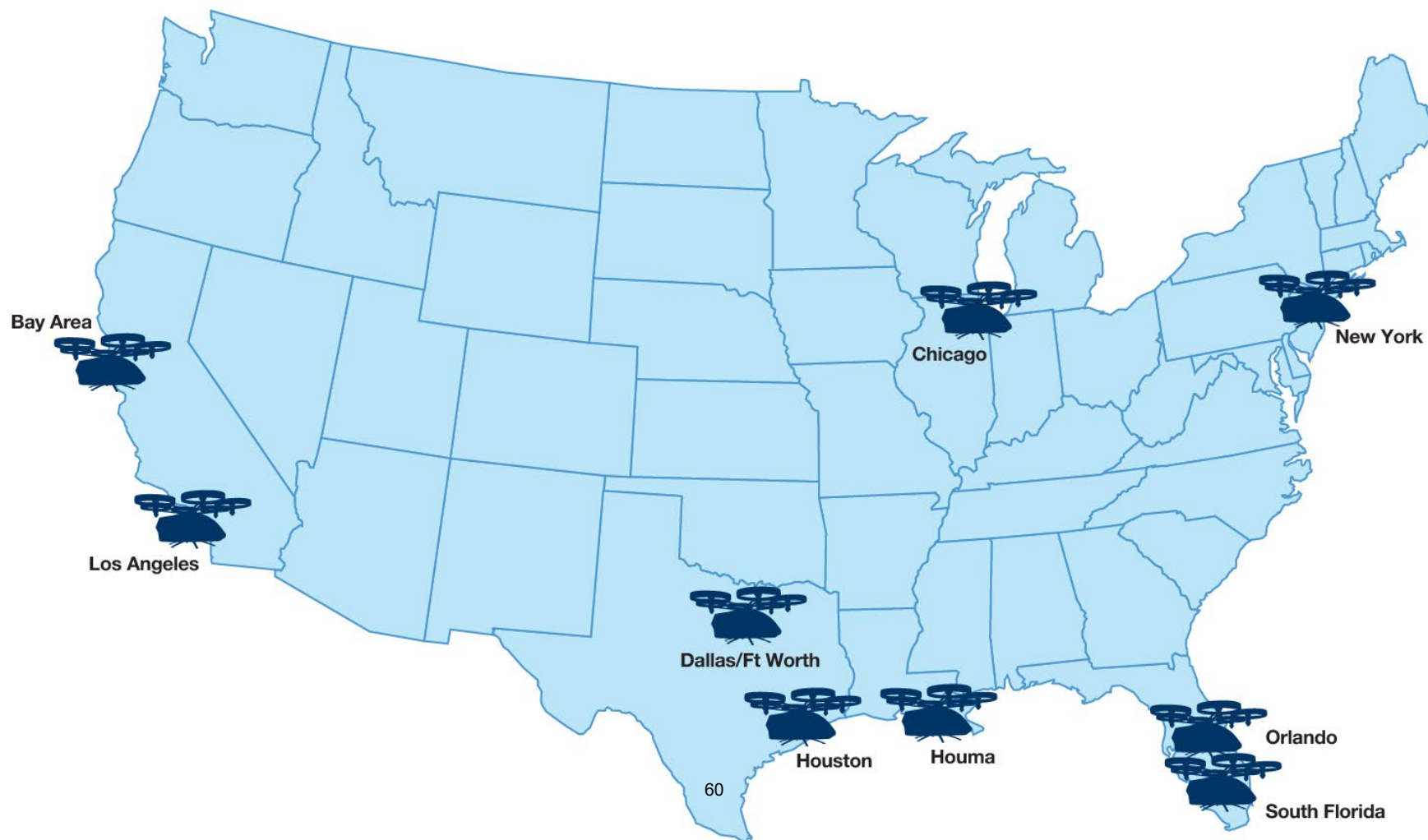- Rulemaking for pilot training
- Crew training and certification

National Vertiport Activities

- Flight testing
- National guidance
- Rulemaking

➢ The list includes the FAA, other federal government agencies, FSLTT government, industry, and other stakeholder activities.

Potential Initial Operations Locations

Recent
- October 25, 2023: FAA/AFWERX Memorandum of Understanding (MOU) signed
- December 2023: Autonomy Working Group Kickoff
- January 2024: Autonomy Webinar
- February 2024: Wake Separation Webinar
- February 2024: Interagency Working Group (IWG) Meeting in Dallas, TX

Upcoming
- Community Engagement Webinar, April 17, 2024
- Drone and AAM Symposium, July 30-August 1, 2024
- Targeting Fall 2024 publication of the Powered-Lift SFAR
- AAM IWG National Strategy Report anticipated in 2024
- Updated interim Vertiports guidance end of 2024

Autonomy Working Group

- Facilitate autonomy framework development and gap analysis as basis for stakeholder engagement in support of integrating autonomy in the NAS

- External stakeholder engagements planned for Spring/Summer 2024

- Targeting end of 2024 to develop draft framework

Wake Categorization

- The ANG Wake Turbulence Research and Development Program assessed the Joby JS4, Archer Midnight, and Beta CX-300 for initial wake turbulence separation recommendations

- The assessment of these vehicles is based on the best understanding of the initial or early operations of these aircraft in the NAS

- As eVTOL and UAM operations evolve, additional wake studies and analyses will be required to ensure safety and acceptable risk levels are maintained
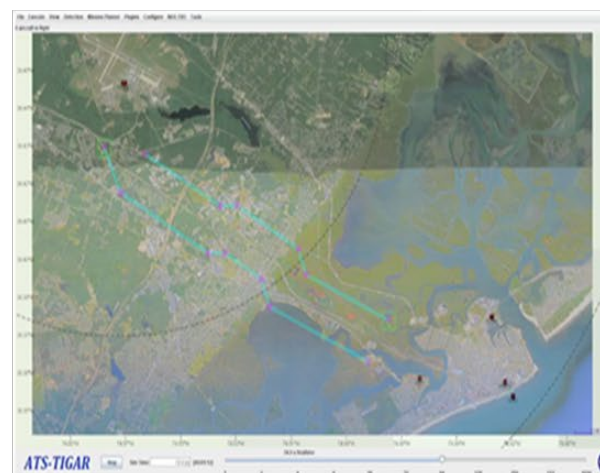
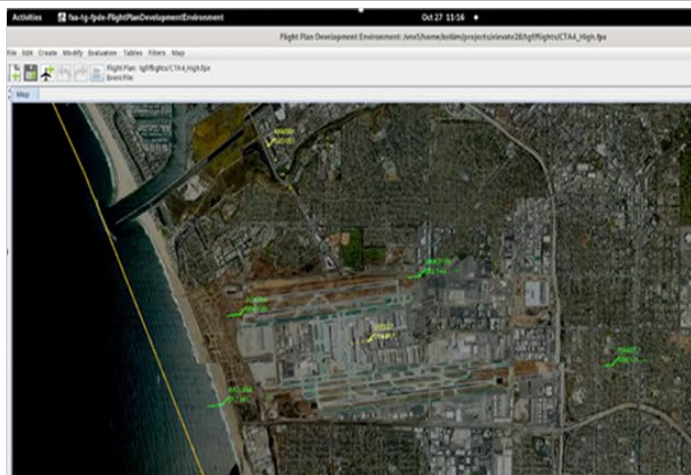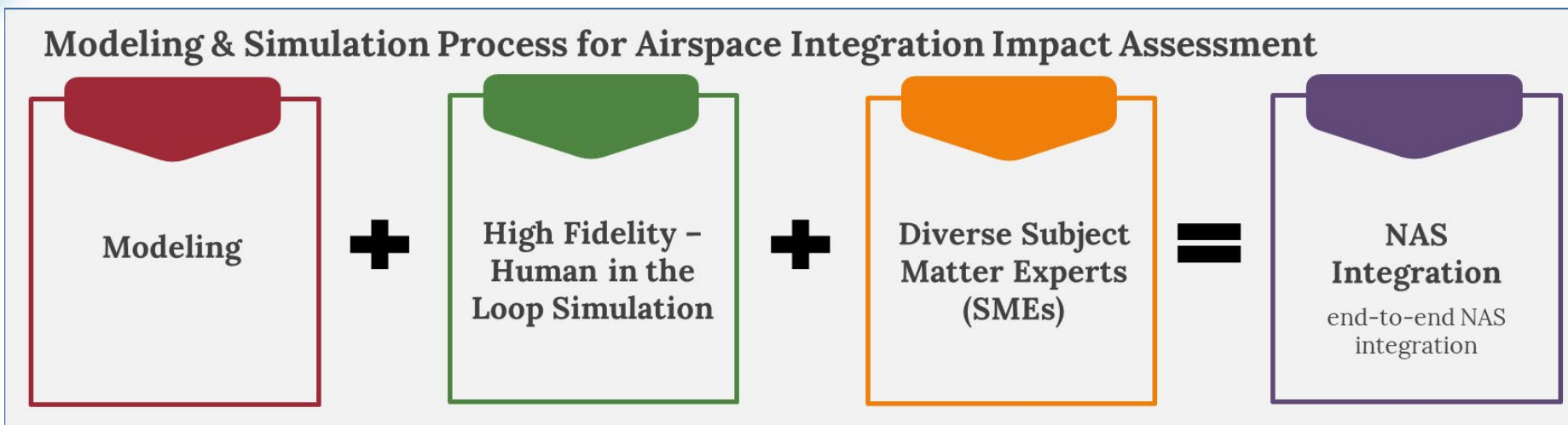## Vertiport Standards

- Initial vertiport operational testing ongoing

- Testing will inform update to Engineering Brief 105 "Vertiport Design" expected by the end of 2024

- Performance-based Vertiport Design Advisory Circular expected by end of 2025

- The majority of AAM operators are targeting use cases at major airports in complex operating environments

- The FAA is developing strategies to understand aircraft performance and how it will impact existing operations

- Complementary integration efforts support our overall process for getting to 'yes' safely as we develop an AAM ecosystem encompassing infrastructure, airspace considerations, energy management, etc.

  - Work with airport authority, operators, and Air Traffic Controllers to identify beneficial and safe use cases

  - Operational and flight testing

  - Modeling and simulation

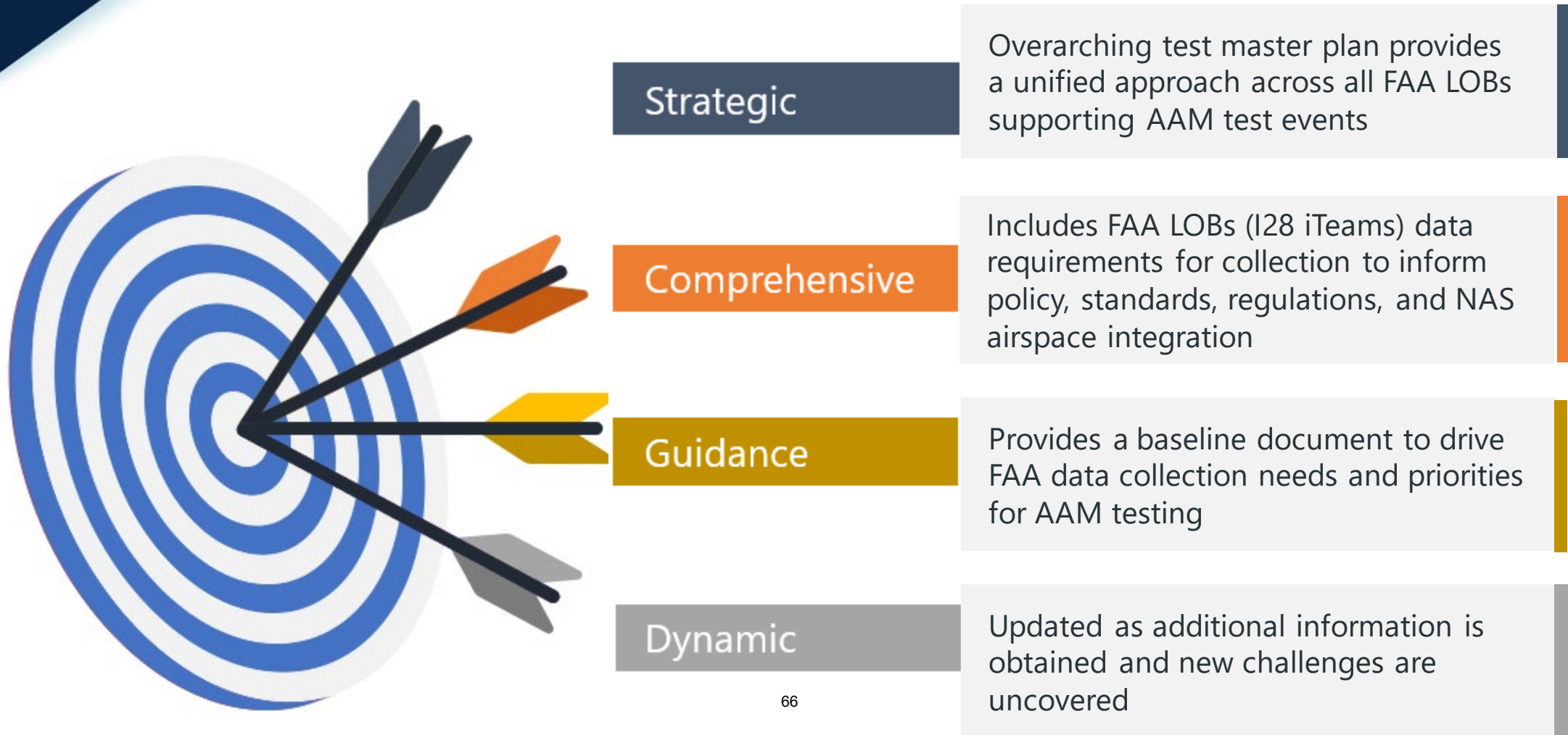Modeling & Simulation Process for Airspace Integration Impact Assessment

Modeling + High Fidelity – Human in the Loop Simulation + Diverse Subject Matter Experts (SMEs) = NAS Integration end-to-end NAS integration

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Federal Aviation
Administration

Strategic

Overarching test master plan provides a unified approach across all FAA LOBs supporting AAM test events

Comprehensive

Includes FAA LOBs (I28 iTeams) data requirements for collection to inform policy, standards, regulations, and NAS airspace integration

Guidance

Provides a baseline document to drive FAA data collection needs and priorities for AAM testing

Dynamic

Updated as additional information is obtained and new challenges are uncovered

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FAA Taskings to the Advanced Aviation Advisory Committee

Chris Hope
Deputy Director (A), Office of Safety Standards
Jeffrey Vincent
Executive Director
UAS Integration Office
March 13, 2024

FAA Tasking: AAAC to provide recommendations regarding planned communications, navigation, surveillance, and safety systems onboard powered-lift and electric Vertical Takeoff and Landing (eVTOL) aircraft to include operator data sharing capabilities.

Recommendations should be focused over the next six years (calendar year increments 2025 through 2027 and 2026 through 2030) and draw on NextGen Advisory Committee (NAC) efforts and expertise related to the Minimum Capabilities List (MCL).

Timeline: AAAC recommendations presented to the FAA at the next AAAC meeting tentatively scheduled for June 2024.

Questions?

Tasking #24-2 Safe Use of Artificial Intelligence

Tasking #24-2 Safe Use of Artificial Intelligence

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ADVANCED
AVIATION
ADVISORY
COMMITTEE

Federal Aviation
Administration

Questions?

New Business/Future Agenda Items

Houston Mills

Chair

FAA Advanced Aviation Advisory Committee

Closing Remarks

Katie Thomson

FAA Deputy Administrator

Designated Federal Officer

FAA Advanced Aviation Advisory Committee

Closing Remarks

Houston Mills

Chair

FAA Advanced Aviation Advisory Committee

Federal Aviation Administration

March 13, 2024

Adjourn

Houston Mills

Chair

FAA Advanced Aviation Advisory Committee

RECOMMENDATIONS REPORT –Task Group #16: Innovation & Infrastructure Investments

TG#16 Tasking

The FAA Provided TG#16 with the following tasking: "...to make recommendations of areas of opportunities for innovative infrastructure investments, to support aviation new entrants and other transportation and land based autonomous technologies. These recommendations will support FAA's strategic planning and implementation of new entrants in an autonomous multi-model environment." Under the leadership of AAAC Chair Houston Mills, Michael Sinnett, Vice President and General Manager of Product Development for Boeing Commercial Airplanes; and Kevin Cox, CEO of Ferrovial Vertiports co-chaired the task group.

In addition to the written task, FAA subject matter experts provided additional guidance to the co-chairs:

- Safety is foundational
- Focus on the next five years
- Consider all types of AAM (eVTOL, Drones, UAM)
- Consider all types and levels of investment
- Be creative - think beyond current projects and programs
- Incorporate non-monetary partnerships as applicable
- Consider all levels and degrees of autonomy
- Multimodal aspects can include surface transportation investments with AAM benefits, or automation throughout the AAM journey.

Key Takeaways

The Task Group found several key takeaways. One was that there will be a diversity of aircraft, business models, types of infrastructure, and operating environments. This highlights the need to ensure safety is paramount. Despite this diversity, common infrastructure themes emerged.

Another was that there are immediate needs to be balanced with a long-term vision. There are matters that must be addressed in the current environment to ensure infrastructure is available and ready for AAM in a timely fashion, while recognizing AAM is likely to evolve quickly and will require a longer-term vision combined with the need for agility and adaptability.

Collaboration also emerged as a key theme. In order to succeed, communication and collaboration will be essential amongst all stakeholders and regulatory bodies across all levels of government. In addition to physical and digital infrastructure, the need for improvements to processes and training was identified as a necessity for AAM infrastructure development. Lastly, there is a need for greater partnerships and investment. Partnership and funding recommendations span existing programs but also highlight the need for private investment and innovative engagements.

Process and Expert Input

To fulfill this tasking, the Chairs sought input starting with AAAC members and extended it to a diverse set of Advanced Air Mobility (AAM) industry and autonomy experts. Written input was initially solicited on various categories from Physical infrastructure, Digital infrastructure and Human Capital. Various site

types and/or built environments were considered including a traditional airport environment, facility upgrades, retrofits, and green fields. Various investment sources, resources, and partnerships were considered ranging from federal state and local to private investment. Online video meetings with contributors were subsequently held to collect more color on the written input. Finally, the Chairmen's synthesized deck was shared with contributors for their final feedback and input.

A wide variety of stakeholder input was solicited, with the below organizations providing written input:

ATA Aviation	NTCOG
AUVSI	Nowgen
BEEP	UPS
Boeing	Reliable Robotics
Eve Air Mobility	Robotic Skies
Ferrovial Vertiports	Saab
NAVOS Air	Wisk

AAAC members reviewed the findings of the Task Group and made recommendations based on their unique perspectives and leadership roles in the industry.

Diversity of AAM Infrastructure

A foundational element of the tasking and a core finding is that AAM infrastructure will be as diverse as AAM aircraft and use cases. AAM Infrastructure will continue to evolve and inevitably involve:
 (1) diverse locations, sites, and facilities;
 (2) that will support varied uses and business cases;
 (3) involving different aircraft types; and
 (4) that will need to be integrated into unique and varied operating environments.

Despite this diversity of infrastructure needs and environments, common attributes that will support safe, efficient and commercially viable AAM emerged. These included the need for all partners to collaborate with federal, state, and local authorities. Following that collaboration, facilities must be appropriately sited where passengers or cargo are or want to go to be cost-effective and enable the quick and efficient movement of people and/or goods – both at existing aviation facilities and leveraging the low noise and reduced external impacts to serve additional locations. For all environments, both community and customer education, collaboration, and acceptance must be prioritized. Lastly, all AAM will require an educated, diverse, and adaptable workforce.

Physical Infrastructure Findings

The expert stakeholder input provided helpful insights to the fundamental needs around physical infrastructure for AAM.

The first need was for AAM facilities to be sited to increase mobility and improve, not exacerbate congestion. To fully leverage the unique attributes of AAM and ensure long-term commercial viability, facilities will need to be developed at both traditional aviation and non-traditional sites and/or environments. While one commentor recommended prioritizing AAM at existing facilities, another

emphasized the need for intermodal connectivity and service for points of interest. The paradigm shift of bringing the airport to the people (versus the traditional approach of bringing people to the airport), provides many opportunities to add a new option for multimodal connectivity. It could also lead to challenges at existing infrastructure where there may be inadequate ingress/egress, curb management, and parking.

While AAM aircraft may be technologically advanced, they will still require the safe flatwork that supports existing aviation technologies. Although the demands of a piloted aircraft versus an autonomous aircraft on a particular facility may differ, the associated flat work involve common attributes to ensure safe, secure, and efficient operations, irrespective of aircraft types and operating environments, such as FATO, TLOF, Safety Areas, taxiways, and charging stands. This flatwork needs to be of high enough quality to support the MTOW of the aircraft, kinetic energy of the aircraft in operation, and the associated out/downwash.

AAM movements are expected to move more passengers and cargo; therefore, this increase in efficiency must be factored in now to ensure facilities are equipped to accommodate these increased operations. Existing facilities will require improved passenger facilities, and new facilities can be reimaged for frictionless passenger and cargo processing.

The electric nature of many AAM vehicles will require grid improvements. Reliable power connectivity with local generation and storage will be essential to scale AAM. Without proper investment and a streamlined permitting process, AAM infrastructure projects could be delayed or relocated.

Airports and vertiports of the future will be a sensor rich environment. Anticipating autonomous operations in the siting, design and construction of vertiports or the modification of existing aviation facilities will be critical to avoid excessive and costly rebuilds to account for LIDAR, Weather/micro-weather monitoring, cameras, and other technology needs that will be critical to usher in autonomy.

Lastly, the physical infrastructure must support the digital capabilities. Unmanned Aircraft Systems Traffic Management (UTM) should be integrated at design or retrofit. Anticipating autonomous operations should, to the extent possible, seek to ensure compatibility with future airspace navigational improvements including Global Navigation Satellite System (GNSS), Ground Based Surveillance Systems (e.g. RADAR, cameras, etc.) and Ground Based Augmentation Systems.

Digital Infrastructure Findings

While many of the infrastructure needs for AAM are physical there are significant digital elements that serve as fundamental aspects of a safe and efficient ecosystem. The expert stakeholder input provided helpful insights for these needs.

Many of the digital infrastructure needs will be developed by industry stakeholders but all will require involvement by the FAA, from across lines of business, in their development. This includes standards development, approval/oversight, and data requirements. This involvement should align with the Info-Centric NAS concept.

PSU-Vertiport automation systems will ensure situational awareness, coordination, and execution of flight plans. These systems will facilitate the necessary vertiport – operator interfaces to ensure appropriate passenger handling.

Traffic management solutions need to be cross domain, inclusive of all airspace users. Traffic management services are required from the start and will evolve as more autonomous operations are introduced and scaled. ATC facilities will also need tools to facilitate AAM aircraft / operations integration.

Regarding the further digitization of Air Traffic Services, AAM can leverage the work done by the NextGen program on DataComm and could expand its use to support AAM operations. It will also be key for the FAA to support the development and approval of third-party services.

As a result of this digitization, the FAA's and industry's datacenters may require expansion and/or modernization to manage AAM operations. These centers must leverage strong cybersecurity and secure communications protocols.

Additionally, digital publication of machine-readable NAVAIDS, advisories and surveillance data will be needed. Of note will be the digital communication mechanisms between physical infrastructure and AAM aircraft and operators. Publications will need to support digitally native flight operations.

While not needed for day one operations, higher fidelity (real-time, localized) weather data will be required for scaling operations. New weather stations in areas where aircraft do not currently operate will also be needed. Current standards may need revision to support time and interoperability needs, and FAA engagement will be key.

New AAM aircraft procedures (e.g., IFP's) will be needed. This includes facility specific procedures. Procedure development can be done leveraging current authorized procedure designers in close coordination with appropriate FAA lines of business. TERPS and Operational Specification (OpSpec) updates may be needed. Continued FAA support developing routing and corridor requirements will be key to validating concepts outlined in FAA's UAM ConOps 2.0 and new flight operation modes.

Radio frequency spectrum usage rules for AAM need to be completed (e.g., C-Band 5030-5091MHz for C2). This includes aviation safety services and intermodal connectivity at airports/vertiports. Enabling flexible use wireless capabilities (4G/5G/6G) for C2 and/or localization will also be required.

Human Capital Findings

For the purposes of this Task Group, Human Capital covers the education, training, organizational and process aspects of how AAM infrastructure will be brought about. These findings answer the question 'if we have all the facilities, funding and technology to support AAM, what would still need to be addressed in order to leverage those investments?'. The inputs were diverse, and identified both challenges and opportunities for AAM. The three primary categories of opportunities include process improvements, gap analysis, and workforce development.

Process improvement and greater alignment is necessary to address the proliferation of aviation technology and rapid development of AAM and automation. While ensuring the bed-rock principle of safety, stakeholders identified several processes that could be streamlined for this growth. The National Environmental Policy Act (NEPA) process, which impacts aircraft, operations, and airports, could be streamlined for more efficient outcomes. With lower noise and zero operating emissions, electric aircraft and electric-specific facilities could be added to the FAA's existing use of Categorical Exclusions,

a process that allows for all required consultation and disclosure in an efficient manner. Additionally, NEPA actions could allow for more concurrent work across resource agencies and within the FAA.

Beyond NEPA, respondents identified a need for great collaboration within the FAA, specifically between headquarters, regions, Airports District Offices, Flight Standards District Offices and even down to the Tower. Greater transparency and concurrence for Federal processes would support scaling AAM. There have been multiple proposals that require dashboards or concurrent FAA action across Lines of Business and offices. Greater alignment and transparency will empower the FAA and AAM community to address the many approvals required for AAM at scale in an efficient manner.

AAM represents aviation integrating into the transportation network in a much more localized, community-oriented way than traditional aviation. Because of this, there needs to be greater collaboration between aviation and surface transportation stakeholders. This will support AAM infrastructure being better integrated into the multimodal networks that serve that community.

There is not currently an understanding of the various types and levels of funding that can support AAM; a comprehensive analysis and understanding of how private, research and public funding can support AAM infrastructure could be a beneficial project for a cross-cutting body such as the Airport Cooperative Research Program. A gap analysis could identify where different funding sources match the diverse line items of an infrastructure project. Where funding sources exist but are not well suited for AAM infrastructure, opportunities for modernization could be identified to support great AAM development.

Lastly, workforce development must be addressed for AAM to flourish. All stakeholders, both government and private, must devote the necessary time and resources to appropriately train the AAM workforce of the future. This will require a concerted effort for education, training, and continued development of a diverse workforce in a variety of new and reimagined aviation roles. There are likely existing Federal, state, local and privately supported workforce development programs that could be updated and adapted to address AAM needs. Specific opportunities for AAM training include training for state and local transportation planners, fire and rescue agency training and best practices, utility planning and permitting stakeholders.

In addition to needs for workforce development, AAM represents significant potential to allow for new participants in the aviation industry. One respondent identified that individuals with physical disabilities that would currently be unable to meet the medical requirements as a pilot could safely be a remote operator for autonomous AAM. This will require an adaptation or clarification of the aircrew medical requirements that will enable the growth of the AAM workforce.

Funding and Partnership

To ensure the U.S. remains at the forefront of Advanced Air Mobility, it will require an "all of the above" approach in terms of funding and partnerships. At this stage, there has been significant private investment in both AAM aircraft and infrastructure. As private investment continues to catalyze AAM and allow it to scale, additional partnership will increase AAM opportunities.

Public Private Partnerships (P3s) allow for private sector funding and expertise to accelerate projects. Partnership between Federal, state, and local jurisdictions with private project stakeholders for AAM can leverage existing P3 structures that successfully deliver parking garages, light rail and airport infrastructure. Examples of P3 programs at different levels of government include:

- Federal loan and loan guarantee programs across the federal government that could be updated to include AAM infrastructure include USDOT's TIFIA credit assistance, USDA Rural Utility Services Program credit assistance, EPA and DOE loan programs.
- State Infrastructure Banks and state resiliency funds could support AAM P3s.
- Tax Incentives for zero-emission technology and infrastructure would drive further investments.

Lastly, P3s benefit from regulatory certainty. While not directly tied to the project, the greater clarity FAA can provide regarding AAM commercialization timelines and process, the greater investment all parties can bring to AAM infrastructure investment. A clear, transparent path to safe, scaled operation of AAM will accelerate AAM infrastructure P3s.

State and local governments have already taken a leadership role in AAM integration. Many governments have already published AAM plans, policy updates, and are preparing for AAM. This leadership role can extend to AAM infrastructure investments. Like private sector investors, state and local governments will benefit from increased guidance for how AAM can be safely integrated into their communities. Further regulatory certainty and a clear understanding of AAM infrastructure and operations will guide state and local investment. Specifically, states and their subrecipients would benefit from an understanding of federal funding sources and their grant requirements.

Federal grants can also help accelerate AAM; unfortunately, for most in the AAM industry there is confusion regarding which programs and under what circumstances federal dollars may be available for AAM infrastructure. Preparing a consolidated list of programs here AAM might be eligible for funding could prove quite helpful informative. Examples potential programs could include:

- Airport Improvement Program (AIP) for on-airport projects that support 135 Operations;
- Block grant programs;
- USDOT programs such as SMART Grants;
- Economic Development Agency programs; and
- FEMA and NHTSA programs explored to leverage best practices and training for AAM emergency response.

For the crucial research and development needs of AAM, existing educational institutions and workforce programs should be leveraged. Industry Stakeholders (both public and private) should consider partnering with Universities, Colleges, High schools, and other educational institutions to help educate, train, and develop a workforce capable of supporting AAM. At the Federal level, Department of Education and Department of Labor programs should be reviewed for suitable opportunities to bring these various stakeholders together. Within USDOT, both existing University Transportation Centers and FAA's Centers of Excellence could be updated to include the cross-cutting research that will be helpful to support AAM's human resources needs.

Co-Chairs Recommendations – Physical Infrastructure

With the input provided by experts and AAAC members, the co-chairs can confidently make the below recommendations to the FAA and wider AAM community. While no expert or agency can predict how an innovative sector will mature, these represent pragmatic actions the FAA can take that will allow for further investment in AAM infrastructure.

First, we recommend that the United States Federal government take a 'All-In' approach to AAM. AAM commercialization requires FAA's leadership, but also a forward-looking posture of other Federal agencies. USDOT can lead this by emphasizing and communicating regarding AAM in their work across the Federal family, as co-creators in a vibrant AAM ecosystem. Specifically, other federal agencies could review their existing real property footprint for suitability and identify opportunities for AAM infrastructure in redeveloped or disposed federal facilities. Additionally, the chairs recommend that the Economic Development Administration of the Department of Commerce participate in the AAM Intergovernmental Working Group to identify opportunities for AAM infrastructure support in their programs.

Within the FAA there can be greater communication and alignment. AAM infrastructure approvals may require additional information sharing regarding aircraft and operational attributes; Lines of Business and support offices must be involved in a concurrent process. Additionally, Headquarters, regional and district offices should have candid and consistent engagement and share information internally and with the diverse ecosystem of AAM stakeholders.

Streamlining processes will improve AAM infrastructure, aircraft and operational approval. The chairs recommend identifying a path for establishing a Categorical Exclusion for low-impact infrastructure such as vertiports and small wireless connectivity infrastructure at airports where the NEPA process would be applicable.

USDOT and the FAA can clearly articulate opportunities for AAM infrastructure development. The chairs recommend developing and communicating a consolidated list of AAM eligible funding programs and to consider expanding financial incentives for P3 opportunities in this nascent industry.

AAM infrastructure will create a new class of facilities and aviation infrastructure components, and the FAA would benefit from anticipating future guidance, standards, and Advisory Circulars. As the FAA currently studies pavement and paint, in the future it will need to establish equivalent standards for sensors and communications infrastructure. Anticipating likely future standards can guide current research planning and activities and support the agency staying on pace with the rapidly evolving AAM industry.

Lastly, USDOT can integrate AAM into existing autonomy-focused and technology-oriented workstreams within the Department and across government. The existing Nontraditional and Emerging Transportation Technologies (NETT) Council could be a forum for the multi-disciplinary opportunities this report identifies. Additionally, USDOT can leverage the work associated with the Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence (E.O. 141100) for applicability for AAM infrastructure. The chairs recommend that USDOT and the AAM community utilize established and existing workstreams to the greatest extent possible.

Co-Chairs Recommendations – Digital Infrastructure

Many of the digital infrastructure elements relate to airspace usage and functions that service providers perform in today's environment. To ensure the safe introduction of AAM it will imperative that the FAA engage broadly, from all lines of business, in activities that relate to digital infrastructure development, approval and oversight including standards activities as well as data requirements development.

The FAA should also apply resources to drive the digitization of air traffic services for AAM. This should include implementation of digital data exchanges, weather data updates and datacenter modernization (as needed).

Lastly, the FAA should begin work on the development of new AAM procedures. This should include leveraging existing partnerships with industry and current authorized procedure designers. These new procedures, as well as other key elements as outlined in the FAA UAM ConOps 2.0, will need to be validated. Resources should be allocated to these efforts.

Co-Chairs Recommendations – Human Capital

The human element will be significant for AAM infrastructure development. The purpose of these recommendations is to ensure that modernized programs drive a safe work force for AAM operations. First, the chairs recommend that the FAA and other Federal agencies should assess and consider all existing training and education programs for applicability for AAM. Diverse workforce development, upskilling and educational programs across a variety of Federal agencies should be reviewed to determine if they are well suited to be updated for AAM.

Second, the FAA should capitalize on the unique opportunities autonomy provides. The FAA can grow the AAM workforce from the disabled and differently abled communities by adaptation and clarification of airmen medical requirements for remote operators. This provides both a method for addressing the AAM workforce needs and allows AAM to play a positive role in improving the economic opportunity for the unemployed and underemployed disabled community.

Lastly, the FAA should consider leveraging existing structures for further AAM research and training. By empowering a Center of Excellence and/or a University Transportation Center to focus on AAM Automation, FAA and USDOT can utilize an established method for research and education with a proven track-record of technology transfer and workforce development. USDOT and FAA have the tools necessary for AAM research and training.

Conclusion

The Chairs wish to express their sincere thanks for the opportunity to assist on Task Group 16. Learning from the diverse ecosystem of stakeholders who provided input and review gives us great optimism for the future of aviation. Delivering AAM infrastructure at scale will require a cohesive effort from private, public, and academic stakeholders at the National, regional and community level. The goal of this task group is to provide AAM stakeholders with a tool to support this effort and recommendations of actions we can take today to create the aviation ecosystem of tomorrow.

RECOMMENDATIONS REPORT –Task Group #17: Consensus Standards

FAA Tasking: AAAC to make recommendations on prioritizing the development of and harmonization around consensus standards from an industry perspective. These recommendations will support FAA's new entrant's certification processes.

Executive Summary

The FAA AAAC Task Group 17 has undertaken the critical task of identifying and prioritizing the development and harmonization of consensus standards from an industry perspective. This initiative aims to provide essential support to FAA's certification processes for new entrants, focusing on Small Unmanned Aircraft Systems (sUAS) and AAM (Advanced Air Mobility) operations.

The recommendations presented herein are structured around three distinct categories:

- Operator Best Practices (Blue),
- Vehicle/Vehicle Related Technology Standards (Purple), and
- Maturation/Acceptance/Establishment of USS/SDSP Related Standards (Orange).

Approach

The Task Group acknowledges the foundational similarities between sUAS and AAM, such as flying without on-board crews, high degrees of automation, and cooperative deconfliction. Despite these similarities, the group recognizes potential differences in risk profiles and industry maturity, leading to the decision to address standards recommendations for Small UAS and AAM operations separately. The reasoning includes variations in aircraft size, the potential for human presence onboard, distinct risk profiles, and differing levels of readiness for implementation and regulatory approval.

Rationale

Differing Risk Profiles:

Small UAS and AAM may present substantially different risk profiles, necessitating distinct performance requirements. Compared to AAM, sUAS are generally much smaller and have less kinetic energy, reducing both the likelihood and severity of a potential collision. sUAS also do not carry passengers, eliminating the risk of first-party injuries or fatalities.

Industry Maturity and Readiness:

- UAS approaches and technologies are generally far more ready for implementation and regulatory approval today, potentially requiring different timelines for standards assessments for UA and AAM.

Leveraging UAS Standards Maturity:

- The higher maturity of UAS standards offers valuable knowledge and experiential validation of technologies, procedures and best practices that can serve as a proven and precedential enabler for AAM, crewed aircraft, and broader aviation operations.

Alignment in Principles and Approaches:

- While recognizing differences, the Task Group emphasizes leveraging areas of alignment in principles and approaches wherever appropriate to ensure efficiency and consistency.

Recommendations Grouping

BLUE - Operator Best Practices

- Operator manuals and checklists development and documentation.
- Operational procedures establishment and proper documentation.

PURPLE - Vehicle/Vehicle Related Technology Standards

- Recommendations for standards related to vehicle and vehicle-related technologies.

ORANGE - Maturation/Acceptance/Establishment of USS/SDSP Related Standards

- Standards recommendations focused on USS (Unmanned Aircraft System Traffic Management) and SDSP (Service Supplier Data Sharing) maturation, acceptance, and establishment, with a focus on ASTM/RTCA standards.

Recommendations

The recommendations detailed in the following sections are grouped according to the three broad categories. The overarching goal is to provide a comprehensive framework that addresses the unique characteristics and needs of Small UAS and AAM operations while maintaining alignment in overarching principles and approaches.

Top-Level Problem Statement (BLUE)

Operators' Lack of Qualification and Experience Increases Operational Risks

Operators with insufficient qualifications or experience pose a significant risk to aircraft operations. The absence of validated operational procedures, lack of adherence to safety standards, and potential human errors contribute to increased risks, posing threats to aircraft, infrastructure, and personnel.

Top-Level Recommendations (BLUE)
Enhance Operator Qualifications and Documentation Practices

To ensure operator qualification and enhance operational practices, TG 17 recommends the following:

Operational Best Practices

● Develop, validate, and implement standardized operational procedures vetted by experienced individuals;

● Utilize manufacturer's checklist or develop own for preflight checks;

● Refer to existing industry Operator Best Practices for preflight checks;

● Implement and enforce standards for crew fitness to operate;

● Identify and standardize key roles for operators and service suppliers;

● Mitigate diurnal risks by accounting for time of day and employing visibility-enhancing measures; and

● Raise awareness of Mid-Air Collision risks at low altitudes and establish detection techniques.

Training

● Receive statements of qualifications for specific aircraft types, categories, and configurations;

● Document certificates of training, flight logs, and emergency procedures for maintaining safe operations;

● Undergo training by experienced personnel with competency assessments;

● Conduct regular/recurring training and currency checks for remote crews;

● Tailor currency intervals based on experience to maintain competency;

● Provide human factors training for crews to enhance error recognition; and

● Conduct robust Crew Resource Management training and emphasize adherence to the Organization's Operations Manual.

Manuals

● Refer to existing industry Operational Best Practices for procedures and documentation.

- Encourage the creation and maintenance of operations manual s and checklists detailing steps for safe operations.

- Establish a mechanism for the exchange of Operational Best Practices for procedures and documentation.

Emergency Procedures

- Establish and practice emergency procedures to recover from technical and operational issues.

- Standardize Emergency Response Plans (ERPs) based on operation type, aligned with regulatory policy and industry best practices.

- Enhance communication protocols for timely Mid-Air Collision (MAC) avoidance.

Risk Assessment

- Update ASTM F3178-16 Standard Practice for Operational Risk Assessment to assess air and ground risk[1].

These comprehensive recommendations aim to enhance operator qualifications, align operational procedures, and mitigate risks across various aspects of UAS and AAM operations by leveraging existing industry best practices and encouraging the creation of Operator manuals and checklists.

Top-Level Problem Statement (PURPLE)
Lack of Consistent Standards for UAS Performance and Environmental Adaptability

The absence of standardized criteria for UAS performance, environmental adaptability, and communication systems poses significant risks. Issues such as communication link performance, collision impact mitigation, failure mode analysis, and adherence to environmental conditions lack standardized benchmarks, leading to potential safety hazards and operational inefficiencies.

Top-Level Recommendations (PURPLE)
Establish Comprehensive Performance and Environmental Standards

To address the identified issues, the following recommendations are proposed:

Emergency Mitigation
- Standardize safety credit calculations for reducing kinetic energy at impact to support varied operations.

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[1]The Task Group notes that ASTM F38 has begun this process effective with the November 2023 Plenary.

- Introduce standards for drag-inducing methods (e.g., parachutes) to reduce residual kinetic energy.
- Standardize failure mode analysis procedures and emergency management/response documentation.
- Develop a framework for standardizing messaging related to external system degradation or outage.
- Focus on integrating failure mode analysis and emergency procedures into the aircraft design.
- Encourage compliance with airspace and operating regulations, utilizing ADS-B receivers, Visual Observers (VOs), and flight tracker applications to enhance aircraft detection.

Environmental Concerns
- Establish design and test standards for UAS operating in challenging environmental conditions.
- Support standards flexible enough to address a continuum of environmental challenges, including extreme temperatures, precipitation, and windy conditions.
- Perform range tests for C2 equipment with documented verification, tailored to location/environment.

These comprehensive recommendations aim to standardize UAS performance metrics, promote environmental adaptability, and ensure consistent communication systems should contribute to, enhanced overall safety and operational efficiency.

Top-Level Problem Statement (ORANGE)

Lack of Standardization in UTM Performance Recognition and Operational Crediting

The absence of recognized standards for digital representation of 'structure data' and the non-standardization of UTM operational credits create challenges in mitigating hazards. The lack of consistent criteria for hazard mitigation and the absence of recognized standards hinder effective risk management and operational efficiency.

Top-Level Recommendations (ORANGE)

Establish Standards for UTM Performance and Operational Crediting

To address the identified issues, the following recommendations are proposed:

UTM Services
- Develop standardized processes for qualifying UTM services.

- Standardize UTM recognition and operational crediting based on USS definitions.
- Accelerate service recognition formalization and clarify operational credit for recognized services.
- Mature the service qualification process to enhance consumers' understanding of qualified services.

Human Factors

- Develop new standards or FAA guidance for efficient UTM data mapping to human roles.
- Train crews in human factors and CRM for safer operations.

Hazard Mitigation

- Incorporate considerations for UAS operations in airspace management and operator flight planning.
- Promote modernized data exchanges for improved geoawareness in shared airspace.
- Define confidence levels for environmental data related to aircraft limitations using ASTM WX Standard.
- Establish practices and metrics for determining ground risk associated with differing population densities.
- Leverage DAA technologies and approaches to enhance the safety of VLOS flying, ensuring applicability based on vehicle characteristics.

These recommendations aim to standardize UTM performance recognition, operational crediting, and risk mitigation strategies, thereby enhancing safety and efficiency in UAS and AAM operations.

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.
    - o Members may continue to serve until a replacement has been appointed or removed.

Federal Aviation Administration

Kathryn "Katie" Thomson was appointed as the Deputy Administrator in June 2023. She brings a 30+ year history of global aviation and transportation law and leadership experience to the Agency. Previously, she served as the FAA Chief of Staff (CoS) where she was a key advisor to the Administrator and provided leadership, guidance, oversight and coordination of activities related to aviation policy and resource management program. She oversaw and partnered with agency leadership on some of the agency's most complex and controversial matters.

Katie was the Director, Bipartisan Infrastructure Law Implementation at the U.S. Department of Transportation (DOT) immediately prior to joining FAA. In this capacity, Katie worked with internal and external stakeholders to successfully implement approximately $660 billion in new and expanded programs across all modes of transportation over five years. This was Katie's second stint at DOT. She rejoined DOT from Amazon, where she was Vice President & Associate General Counsel, Worldwide Transportation and Sustainability.

Before joining Amazon, Katie played a pivotal role in shaping national and international transportation law and policy as General Counsel of DOT (2013-2016) and as Chief Counsel of the Federal Aviation Administration (2012-2014) during the Obama Administration. She also served as Counselor to the U.S. Secretary of Transportation (2009-2012) and was DOT's first Senior Sustainability Officer. During her tenure as Counselor, Katie led the DOT team that worked with the White House and the U.S. Environmental Protection Agency to develop and implement historic joint fuel economy/greenhouse gas emission standards for cars and trucks.

Prior to federal government service, Katie was a partner in the environmental group at Sidley Austin in Washington, D.C., where she supported clients in all industrial sectors. Immediately prior to joining Amazon, Katie chaired the transportation practice group at Morrison Foerster, advising clients on emerging technologies in the transportation sector.

Katie received her Bachelor of Arts degree from the University of Illinois (Champaign-Urbana) and her Juris Doctor from the University of Pennsylvania.

Kathryn Thomson
Deputy Administrator

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.

Captain Houston Mills

UPS Vice President Flight Operations & Safety

Jeffrey Vincent is the Federal Aviation Administration's (FAA) Executive Director for the Unmanned Aircraft Systems (UAS) Integration Office in Aviation Safety (AVS). He is responsible to safely integrate unmanned aircraft into the National Airspace System.

Prior to his current role, Mr. Vincent served as Vice President of Air Traffic Services responsible for providing safe and efficient air navigation services to more than 42,000 flights and 2.5 million airline passengers across more than 29 million square miles of airspace. Prior to the Vice President of Air Traffic Services, he served as the Vice President for Safety and Technical Training was responsible for the development of ATO's Safety Management System and the integration of safety and training standards into the provision of air traffic services.

Mr. Vincent was also the Director of Air Traffic Operations, Eastern Service Area providing strategic leadership and direction for ensuring the safety and efficiency of air traffic operations for Airport Traffic Control Towers, Terminal Radar Approach Control (TRACON) facilities, and Air Route Traffic Control Centers. He also served as Deputy Director as well as Senior Advisor to the Director of Air Traffic Operations. In addition, he worked as a Certified Professional Controller at Boston Logan and Charlotte Douglas International Airports. He began his leadership career as a Front-Line Manager (FLM) at Birmingham International Airport. He continued his leadership as a FLM at Houston Intercontinental Tower and TRACON.

Then in 1999, Mr. Vincent broadened his FAA experience by returning to the Southern Region (ASO) where he held positions as Quality Control Specialist and Acting Branch Manager of Airspace, in ASO-520. Additionally, he held several positions at Atlanta TRACON and Tower, to include; Operations Manager, Support Manager, and acting Tower Air Traffic Manager.

After completing a headquarters detail in the Terminal Mission Support office, Mr. Vincent was selected to lead the Quality Control Group for the Eastern Service Center in 2009. During his tenure there he worked closely with the Air Traffic Services Safety and Compliance Group in developing and implementing ATO's current Quality Assurance/Quality Control process in the Eastern Service Area.

Jeffrey Vincent
Executive Director, UAS Integration

Detailed Minutes

Introduction

An Advanced Aviation Advisory Committee (AAAC) meeting was held at the Federal Aviation Administration Headquarters Building, 800 Independence Avenue SW, Washington, D.C., on August 23, 2023, from 1:01 PM to 4:09 PM EDT. This meeting was held in a hybrid format and livestreamed across FAA social media for the general public.

The full meeting is archived on the FAA's YouTube channel which may be found here: https://www.youtube.com/watch?v=rayb0678Nd0

Committee Management Officer Mr. Gary Kolb opened the session and provided the public meeting announcement published in the Federal Register on August 8, 2023, and provided an overview of the meeting agenda. Mr. Kolb presented a motion for approval of the April 26, 2023, meeting minutes. There were no objections and the motion passed. Mr. Kolb turned the meeting over to the Designated Federal Officer, FAA Deputy Administrator, Ms. Katie Thomson.

Designated Federal Officer Opening Remarks

Ms. Thomson began the session of the meeting by welcoming the audience and provided opening remarks. Ms. Thomson remarks included: a brief introduction of herself and her background. She mentioned skills that she has obtained over the course of her career that will be instrumental for her role in AAAC. Ms. Thomson mentioned the UAS and AAM spaces will help us make the future of aviation sustainable, safe, and equitable. Ms. Thomson discussed the UTM Key Site Operations Evaluation and informed the group that there are five companies that agreed to test out what it is like to navigate drone traffic below 400 feet. Ms. Thomson emphasized the need to work together to make the future of aviation safe. Additionally, Ms. Thomson highlighted the FAA partnership with Tribal government on the BEYOND Program to see how UAS could help their communities. This will ensure we build with equity in mind from the beginning and will lead to more robust and meaningful UAS and AAM fields. In closing, Ms. Thomson thanked everyone for their hard work on AAAC and the important feedback and counsel we have yet to receive. The meeting was turned to AAAC Chairperson, Captain Houston Mills.

View the DFO's remarks https://youtu.be/rayb0678Nd0?t=190

AAAC Chair Opening Remarks

Captain Mills thanked Ms. Thomson and outlined the efforts and accomplishments by AAAC to work integration challenges to further drone and AAM operations. Captain Mills mentioned the contributions AAAC has made to support the FAA. These efforts include: Innovate 28 Strategic Roadmap and AAAC recommendations, and the Beyond Visual Line of Sight (BVLOS). Captain Mills noted, the excitement around the recent activity and collaboration with FAA on UAS and AAM and was appreciative of the AAAC membership and their continued commitment to further drone and AAM efforts. The meeting was turned over to Mr. Jeffrey Vincent, Executive Director, UAS Integration Office, Federal Aviation Administration, for a brief on the FAA's Responses to AAAC Task Group #14: Beyond Visual Line of Sight (BVLOS) Aviation Rulemaking Committee Recommendations

View the remarks from the AAAC Chair's remarks: https://youtu.be/rayb0678Nd0?t=653

FAA Response to AAAC Task Group 14 Recommendations: Beyond Visual Line of Sight (BVLOS) Aviation Rulemaking Committee

Presenter:
Jeffrey Vincent, Executive Director, FAA UAS Integration Office, Aviation Safety

Mr. Vincent began the presentation by including the background on this effort, which include the AAAC presenting this task to the FAA. Task Group #14 offered six interim recommendations for FAA in efforts to provide relief, clarity, and consistency to industry. Mr. Vincent stated, the FAA is committed to providing the safest, most efficient aerospace system in the world, and we are taking steps toward accelerating BVLOS operations for drones. Mr. Vincent discussed, BVLOS rulemaking is all-hands-on-deck effort and is making continued progress with a target of August of 2024 for the Notice of Published Rulemaking. The FAA focused on accelerating the review and approval of BVLOS waiver and exemption requests. Mr. Vincent emphasized, the FAA recognizes the challenges industry faces with regard to BVLOS regulatory approval and we are working hard to streamline our processes and we are committed to improving our responsiveness. Both FAA and industry want the same thing and that is a regulatory framework for scalable BVLOS operations. Mr. Vincent provided the FAA responses for each of the six recommendations.

There was a discussion period following the presentation.

The AAAC eBook provides the official report of Task Group #14: Accelerating Implementation of BVLOS Operations Recommendations.

View this presentation and discussion https://youtu.be/rayb0678Nd0?t=850

FAA Response to AAAC Task Group 15 Recommendations: Community Engagement Lessons Learned

Presenter:
Rebecca Cointin, Deputy Executive Director, National Engagement and Regional Administration

Captain Mills turned the meeting over to Ms. Cointin, who provided an overview of the Office National Engagement and Regional Administration. Task #15 aimed at lessons learned and best practices related to drone and advanced aviation community engagement methods. The Task Group also requested the FAA to identify specific aviation operating sectors and their related community engagement methods. Ms. Cointin acknowledged Task Group #15 for creating a recipe for operators to create a plan, identify key stakeholders and methods of communicating. Ms. Cointin focused on the recommendations and categorized them into four areas. The areas are: hosting the report, the availability in publishing the report, updating best practices and conducting outreach. Ms. Cointin stated, The FAA has refocused their engagement efforts and it has allowed them to create a framework to focus on how they engage. Ms. Cointin provided the FAA responses for both recommendations.

There was a discussion period following the presentation.

The AAAC eBook provides the official report of Task Group #15: Community Engagement Lessons Learned.

View this presentation and discussion https://youtu.be/rayb0678Nd0?t=3345

After a 20-minute break, the AAAC meeting resumed, and Mr. Kolb introduced Mr. Joe Morra.

FAA – Waiver and Exemption Information Briefing

Presenter:
Joe Morra,
Bonnie Gagliardo

Mr. Morra provided an overview on FAA waivers and exemptions. Mr. Morra explained the relationship and responsibilities between FAA Aviation Safety (AVS) and Air Traffic Policy (AJV) for the waivers and exemptions process. It was stated that waivers and exemptions essentially accomplish the same outcome. Mr. Morra explained the difference between a rule and an exemption. The FAA has forms for the waiver process and they do not have forms for the exemption process. The FAA came to an agreement between AVS and AJV for safety assessments for airspace below 400 feet. AVS will take the responsibility of airspace below 400 feet and Air Traffic will be responsible for airspace above 400 feet and in controlled airspace. This agreement can be found in FAA Order 8040.6. Mr. Morra and Ms. Gagliardo continued to outline the collaboration between AVS and AJV for engagement in the waiver and exemption process.

There was a brief discussion following the presentation.

View the presentation and discussion https://youtu.be/rayb0678Nd0?t=4358

New AAAC Taskings

Mr. Mills turned the meeting to Jeffrey Vincent to provide AAAC with two new taskings.

Mr. Vincent presented Task #16

Tasking #16 – Innovation and Infrastructure Investments - AAAC to make recommendations of areas of opportunities for innovative infrastructure investments, to support aviation new entrants and other transportation and land based autonomous technologies.
These recommendations will support FAA's strategic planning and implementation of new entrants in an autonomous multi-model environment.

Captain Mills thanked Mr. Vincent for the recommendation of Task #16. AAAC accepted the recommendation and will provide FAA feedback at the AAAC meeting.

Tasking # 17 – Consensus Standards - AAAC to make recommendations on prioritizing the development of and harmonization around consensus standards from an industry perspective. These recommendations will support FAA's new entrants certification processes.
Captain Mills thanked Mr. Vincent for recommendation of Task #17. AAAC accepted the recommendation and will provide FAA feedback at the AAAC meeting.

Captain Mills requested a motion to accept Tasking #16 and #17. A motion was placed and accepted – no objections.

View the presentation and discussion https://youtu.be/rayb0678Nd0?t=6545

New Business/Agenda Topics

Captain Mills opened the floor to Committee members to raise any new business or future agenda items.

Topics for the FAA to consider for future agenda items included:

- Kenji Sugahara raised the topic of BVLOS MPRM. He requested a briefing for next meeting to explain the date change from February to August 2024. Mr. Sugahara also inquired about the Remote ID implementation date. He would like the FAA to provide an update.
- AAAC proposed that the FAA open future meetings with a matrix. How many waivers, How many exemptions? What's the completion timeline? It is important to work with fact and data rather than opinions.
- Bob Brock raised the topic of including newly certified AAM entrants in future meetings. They can provide best practices and lessons learned. They would like to see additional AAM members to represent growth in the industry. Also, a representative from a state or federal agency to represent AAM.
- David Silver requested NextGen to attend next meeting to brief on Innovate 28.
- Captain Mills encouraged members to submit any new ideas or taskings to him, which he will forward to the FAA.

View the discussion https://youtu.be/rayb0678Nd0?t=6870

Closing Remarks and Adjourn

Ms. Thomson thanked AAAC for the candor feedback provided to the FAA. Ms. Thomson stated that she looks forward to the feedback from AAAC on the two new taskings. She then turned the meeting over to Captain Mills, who thanked the AAAC for all of their hard work and thought leadership. Captain Mills stated the next meeting is planned for February 2024.

Captain Mills asked for a motion to adjourn the meeting. The motion was approved, and the meeting was adjourned.

View the closing remarks https://youtu.be/rayb0678Nd0?t=9752

Appendix A: FAA Designated Federal Officer, Presenters, and Speakers

Name	Title	Org.
1. Katie Thomson	Deputy Administrator and Designated Federal Officer	FAA
2. Jeffrey Vincent	Executive Director, UAS Integration Office	FAA
3. Rebecca Cointin	Deputy Executive Director National Engagement & Regional Administration	FAA
4. Joe Morra	Office of Safety Standards Leadership Team, Flight Standards Service	FAA
5. Bonnie Gagliardo	UAS Aircraft Policy Team, Mission Support Services	FAA
6. Gary Kolb	UAS Stakeholder & Committee Officer, UAS Integration Office	FAA

FAA/DOT Observers and Stakeholders

Name	Title	Org.
1. Hillary Heintz	Acting Deputy Chief of Staff	FAA
2. Shannetta Griffin	Associate Administrator, Airports	FAA
3. Tonya Coultas	Acting Associate Administrator, Security & Hazardous Materials Safety	FAA
4. Jodi Baker	Deputy Associate Administrator, Aviation Safety	FAA
5. Franklin McIntosh	Deputy Chief Operating Officer, Operations, Air Traffic	FAA
6. Jessica Sypniewski	Deputy Assistant Administrator, NextGen	FAA
7. Tracy Edwards	Acting Deputy Executive Director, UAS Integration Office	FAA
8. Ebonni Wright	Acting Senior Advisor, UAS Integration Office	FAA

Public Comments Received
Since August 23, 2023
None Received