

**Workshop on eVTOL Defining Challenges for Urban Air Mobility:  
System Safety, Infrastructure and Airspace Management**

<b>Day 1 – Tues, Sept. 10 – Infrastructure</b>	
<b>Organizers: Rex Alexander</b>	
0700 – 0800	<b>Registration Opens</b>
0800 – 0900	<b>Welcome and Introductions</b> Mike Hirschberg, Vertical Flight Society Mel Johnson, Federal Aviation Administration
0900 – 1000	<b>Today's Heliports – baseline</b> <i>What is the state of heliports today – building requirements, certification, operation, etc.? The session will include case studies of recent experiences.</i> Rex Alexander, Five-Alpha Bill Goodwin, Skyryse
<b>1000 – 1030 Networking Break</b>	
1030 – 1100	<b>Vertiports Design Requirements</b> <i>What are the baseline requirement for Vertiports? We will examine the standards, codes, and policy requirements to ensure these new structures will meet the needs for the safe operations of Urban Air Mobility</i>
1100 – 1130	<b>Local Policy Consideration for Vertiports</b> Anna Dietrich, AMD Consulting Yolanka Wulff, Community Air Mobility Initiative (CAMI)
1130 – 1200	<b>eVTOL Ground Infrastructure Standardization and Interoperability</b> Arturo Garcia-Alonso, Airport Intelligence Darrell Swanson, Swanson Aviation Consultancy Ltd.
1200 – 1330	<b>Vertiport Building Code</b> Rex Alexander, Five-Alpha
<b>1200 – 1330 Lunch</b>	
1330 – 1350	<b>Vertiport Performance</b> <i>As the Vertiport landscape develops, the operational aspects of the facilities will require some very out-of-the-ordinary infrastructure to be effective. Clear lines of sight for approach/departure, fire protection systems for both aviation fuel and high-density batteries, a significant amount of electrical power, security screening facilities, evacuation routes, and, for some facilities, maintenance and repair facilities.</i>
1350 – 1410	<b>Geo-Coding the Future of Urban Air Mobility</b> Michael Dymont, NEXA Advisors
1410 – 1430	<b>Vertiport Electrical Requirements</b> Teresa Peterson, Gannett Fleming
1430 – 1450	<b>Powered for Take-Off: Preparing for High-Powered Charging</b> Jamare Bates, Black & Veatch
1450 – 1500	<b>Uber's Perspectives of Infrastructure</b> Mark Moore, Uber Elevate
<b>1500 – 1530 Networking Break</b>	
1530 – 1600	<b>Operations</b> <i>Safe operation is an aviation hallmark. This session will explore issues that are outside of the system, such as non-tracked traffic hazards, localized weather, and communicating these hazards to the rest of the traffic in the system.</i>
1600 – 1640	<b>Operations Safety: Automating Hazard Detection, Assessment and Mitigation</b> Nikunj Oza, NASA
1640 – 1700	<b>Weather operations &amp; micro-climate – a fireside chat</b> Colleen Reiche / Joel Siegel, Booz Allen Hamilton Matthias Steiner, National Center of Atmospheric Research
1700 – 1730	<b>GAMA Activities</b> Christine DeJong, General Aviation Manufacturers Association (GAMA)

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<b>Day 2 - Wed., Sept. 11 – Air Traffic System Safety / Acoustics</b>	
<b>Organizers: John Koelling / Misty Davies</b>	
0700 – 0800	<b>Registration Opens</b>
0800 – 0830	<b>Welcome and Introductions</b> John Koelling, NASA
0830 – 1000	<b>Today's Air Traffic Control</b> <i>How is low altitude air traffic managed today? What are the current procedures for safe flight in low altitudes, and what improvements can be made today.</i> Chris Baur, Hughes Aerospace
<b>1000 – 1030</b>	<b>Networking Break</b>
	<b>Defining the Airspace</b> <i>As the UAM / eVTOL industry will be flying a much lower levels than commercial air traffic, it will need to define a modern air traffic management system. NASA has commenced the UAM Grand Challenge to encourage new solutions to the anticipated problem. As there are many aspects to defining the airspace, we will look at safety management, routing, and spacing as part of the overall traffic management system.</i>
1030 – 1100	<b>NASA UAM Grand Challenge</b> Starr Ginn, NASA
1100 – 1130	<b>Lessons Learned from UAS Traffic Management</b> Marcus Johnson, NASA
1130 – 1200	<b>Research Topics on UAM Airspace Management and Integration</b> Jeff Maddalon, NASA
<b>1200 – 1330</b>	<b>Lunch</b>
	<b>eVTOL / UAM Challenges</b> <i>In defining the challenges for eVTOL and UAM, we need to look beyond just the immediate challenges at a subsystem level. We need to look at the development of the ecosystem and understand issues that will enable growth of the industry as a whole, e.g. having a proper traffic management system that incorporates UAM and UAS, a well-defined regulatory framework, and vehicles that incorporate effective propulsion systems, detect and avoid systems, and ultimately technologies leading to autonomous operations.</i>
1330 – 1500	<b>eVTOL / UAM Challenges Panel Discussion</b> Moderator: Ajay Sehgal, KBR <ul style="list-style-type: none"> <li>· CAA/FAA Regulations/AV Certification/Autonomy (Anna Dietrich)</li> <li>· Technology – Propulsion Systems (Tom Gunnarson)</li> <li>· Traffic Management – Remote ID/UTM (Phil Kenul)</li> <li>· Detect and Avoid (Andy Thurling)</li> <li>· Aerospace Personnel Certification (Rick Ochs)</li> </ul>
<b>1500 – 1530</b>	<b>Networking Break</b>
	<b>Mission Constraints &amp; Opportunities</b> <i>To ensure that the industry effectively attracts users (riders/passengers), common issues with the current industry must be addressed, such as noise mitigation and the uncomfortable passenger compartment.</i>
1530 – 1550	<b>Uber's Perspectives on Acoustics</b> Mark Moore, Uber Elevate
1550 – 1610	<b>eVTOL Noise / Acoustics – Proposed Methods</b> Juliet Page, Volpe
1610 – 1630	<b>Ride Handling and Passenger Experience</b> George Price, Crowne Consulting
1630 – 1700	<b>VFS / NASA Transformative Vertical Flight Working Groups Outbriefs</b> Johnny Doo, International Vehicle Research, Inc.

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<b>Day 3 – Thu., Sept. 12 – System Safety &amp; Certification</b>	
<b>Organizers: Jonathan Hartman / Ajay Sehgal / Dan Newman / Anubhav Datta</b>	
0830 – 0900	<b>Registration Opens</b>
0900 – 0930	<b>Welcome and Introductions</b> Jonathan Hartman, Sikorsky Nick Lappos, Sikorsky
0930 – 1000	<b>Administration Goals and Priorities</b> Joe Van Valen & Bert Williams, OSTP
1000 – 1100	<b>Today's Vehicles – an Intro to Risk Framework</b> <i>Certification of today's General Aviation and Rotorcraft is a defined process with required artifacts and analyses.</i> <b>Defining and Understanding Risk-Based Frameworks</b> John Burchett, International System Safety Organization
<b>1100 – 1130 Networking Break</b>	
1130 – 1200	<b>Understanding Operational Risks for UAM</b> · How does the weather impact the design & operation of eVTOL aircraft? · What solutions are available today, and are they adequate to address the main risk factors? If not, where are the gaps? · Is there work that remains to be done to understand the potential safety implications, and if so what needs to be addressed? Is anyone (academic, professional societies or others) working that problem?
1200 – 1300	<b>Current Rotorcraft Incident Data and Trends</b> Jonathan Hartman, Sikorsky
1300 – 1400	<b>Impact of Adverse Weather on eVTOL Design &amp; Operations for UAM</b> Moderator: Ajay Sehgal, KBR · IFR/DVE performance – AV Design / Op Limitations (Vladislav Gavrillets) · GA weather info: Relevance to eVTOL/UAM (Rex Alexander) · Operation in and around icing environment (Ajay Sehgal) · Avoidance/Situational Awareness (Don Berchoff)
<b>1300 – 1400 Lunch</b>	
1400 – 1420	<b>Understanding Air Vehicle Design Risks</b> <i>As the eVTOL / UAM industry has received a significant amount of press in the past few years, most of that has been on the actual vehicles – sleek, modern designs that look comfortable and inviting. In this session, we will explore the safety issues associated with getting the vehicles into operation.</i>
1420 – 1500	<b>Uber's Perspective on Vehicle Safety</b> Mark Moore, Uber Elevate
1500 – 1530	<b>Cyber-Security</b> Max Fenkell, Aerospace Industries Association (AIA) Daniel Freedman, Lockheed Martin
<b>1500 – 1530 Networking Break</b>	
1530 – 1545	<b>Interactive Next Steps Discussion</b> <i>Addition of operational considerations onto risk framework and how industry associations and societies are working toward achieving the goal of the UAM / eVTOL market introduction. This session will also summarize the actions that need to be taken and who will be responsible for accomplishing them.</i>
1545 – 1645	<b>Activities of the VFS eVTOL Technical Committee</b> Anubhav Datta, University of Maryland / Chair of VFS eVTOL Technical Committee
1645 – 1700	<b>Partnering Association Activities</b> ASTM International: Ajay Sehgal, KBR SAE International: Mark DeAngelo CAMI: Yolanka Wulff NBAA: Mike Nichols
1700 – 1730	<b>Program Wrap-up / Capturing Actions</b> Rex Alexander, Five-Alpha Jim Sherman, Vertical Flight Society Jonathan Hartman, Sikorsky