

Agenda *(As of March 29, 2017)*

Overview

The 2017 UAS Symposium provides stakeholders with the opportunity to talk face-to-face with a cross-section of government and industry representatives about regulations, research and initiatives to integrate unmanned aircraft systems (UAS) into the National Airspace System (NAS). This year's agenda is based on stakeholder feedback and focuses on industry partnerships as well as how to overcome technical challenges to safe UAS operations.

The FAA will operate a resource center during the symposium to provide technical support on authorizations, waivers, Part 107 requirements, and other policies and regulations. Stop by anytime to have your questions answered by staff from the FAA's Flight Standards Service, Air Traffic Organization, and other policy and IT experts.

Monday, March 27

0930	Registration and Attendee Business Room Open
1000 – 1600	FAA Resource Center Open <i>Lake Fairfax A</i> Boxed Lunch Provided in the Grand Ballroom Foyer Starting at 1115
1200 – 1210	Welcome <i>Grand Ballroom</i> Brian Wynne , President & CEO, Association for Unmanned Vehicle Systems International
1210 – 1230	Opening Remarks Michael P. Huerta , Administrator, Federal Aviation Administration The FAA has taken major steps over the past year to move toward integrating UAS into the NAS in a manner that is both

safe and efficient. Administrator Huerta will speak to the FAA's achievements to date as well as next steps toward full integration.

1230 – 1400

FAA Executive Panel

Moderator: Michael P. Huerta, Administrator, Federal Aviation Administration

Peggy Gilligan, Associate Administrator, FAA Aviation Safety Organization

Teri Bristol, Chief Operating Officer, FAA Air Traffic Organization

Winsome Lenfert, Deputy Associate Administrator, FAA Office of Airports

James Eck, Assistant Administrator, FAA NextGen Office

The FAA's senior executives will take an inward look at the agency's UAS efforts and how their lines of business are prioritizing and coordinating key aspects of integration – research, concept development, the regulatory framework, airspace, airports and technology.

1400 – 1430

Break and Networking

1430 – 1545

Stakeholder Engagement Panel

Moderator: Victoria Wassmer, Acting Deputy Administrator, FAA

Marke "Hoot" Gibson, FAA Senior Advisor on UAS Integration

Earl Lawrence, Director, FAA UAS Integration Office

Bryan Quigley, Managing Director and System Chief Pilot, United Airlines, and Co-Chair, Drone Advisory Committee Subcommittee

Nancy Egan, Advisor to the CEO, 3D Robotics, and Co-Chair, Drone Advisory Committee Subcommittee

Ben Marcus, CEO, AirMap, and Co-Chair, Unmanned Aircraft Safety Team

Margaret Jenny, President, RTCA, Inc.

This panel focuses on the work being conducted external to the FAA to support integration. The FAA and industry have a shared responsibility for the safe integration of UAS into the airspace. Over the past year, collaboration has been taken to a new level with the formation of the Drone Advisory Committee (DAC) and the Unmanned Aircraft Safety Team (UAST), both industry-led groups designed to inform UAS regulatory priorities and safety strategies. Hear updates on these and other government-industry partnerships, including the Focus Area Pathfinders, FAA Test Sites and UTM research.

1545 – 1600

Day 1 Recap and Day 2 Logistics

Earl Lawrence, Director, FAA UAS Integration Office

A summary of the day's plenary remarks and logistical information for breakout sessions on Day 2.

1600 – 1700

Networking Reception

Regency Ballroom A - B

Tuesday, March 28

0730

Registration and Attendee Business Room Open

Continental Breakfast Provided in the Grand Ballroom Foyer

0800 – 1600

FAA Resource Center Open

0830 – 0945

Breakout Session 1A

Grand Ballroom A - D

Understanding Your Options as an Operator

Understanding Recreational, Part 107, and Public Operations

Moderator: Joe Morra, Manager, Safety and Operations
Branch, FAA UAS Integration Office

James Viola, Manager, General Aviation and Commercial Division, FAA Flight Standards Service

Randy Willis, Manager, Emerging Technologies Team, Mission Support Services, FAA Air Traffic Organization

Lorelei Peter, Assistant Chief Counsel for Regulations, FAA Office of the Chief Counsel

Allison Ferguson, Director of Research, PrecisionHawk

Chris Courtney, Vice President of Flight Operations, Measure

This breakout session will feature an overview of the operational options UAS pilots have when considering how to fly safely and legally. Learn about the rules that impact hobbyists vs. commercial UAS operators, and when a waiver or airspace authorization may be needed.

Breakout Session 1B

Grand Ballroom E - F

UAS Security Challenges

Detection and Mitigation

Moderators: Marke “Hoot” Gibson, Senior Advisor on UAS Integration, FAA

Angela Stubblefield, Deputy Associate Administrator, FAA Security and Hazardous Materials Safety

Pat McNall, Deputy Chief Counsel, FAA Office of the Chief Counsel

Brendan Schulman, Vice President of Policy and Legal Affairs, DJI

Mark Aitken, Director of Government Relations, Association for Unmanned Vehicle Systems International

Hear perspectives from the FAA and industry on some of the most pressing UAS security issues facing integration today. What is the role of those who might use UAS countermeasures that forcibly intercept a UAS that is assumed or proven to pose a safety or security threat? What should the security community consider when evaluating available technologies?

Breakout Session 1C

Regency Ballroom A - B

Managing the Volume

UAS Traffic Management (UTM)

Moderator: Steve Bradford, Chief Scientist, FAA NextGen Office

Jay Merkle, Director, Program Control and Integration, FAA Air Traffic Organization

John Cavolowsky, Director, Airspace Operations and Safety Program, NASA Aeronautics Research Mission Directorate

Dr. Cathy Cahill, Director, University of Alaska Center for Unmanned Aircraft Systems Integration and UAS Test Site

Mark Blanks, Director, Mid-Atlantic Aviation Partnership at Institute for Critical Technology and Applied Science, Virginia Tech and UAS Test Site

As the presence of UAS in the NAS grows, so does the need for sustainable UAS traffic management. The FAA and NASA are currently conducting research and evaluation on a UAS Traffic Management (UTM) platform to identify operational requirements to enable large-scale visual and beyond visual line-of-sight UAS operations in the low altitude NAS. This breakout session will focus on UTM progress to date and how the FAA expects the UTM research concept to translate into operational scalability in the real-world NAS.

0945 – 1015

Break and Networking

1015 – 1130

Breakout Session 2A

Grand Ballroom A - D

Setting R&D Priorities

Industry Development vs. Regulatory & Operational Responsibility

Moderator: Sabrina Saunders-Hodge, Manager, Research Division, FAA UAS Integration Office

Nick Lento, Supervisory Operations Research Analyst, FAA NextGen Office

Marty Rogers, Executive Director, ASSURE – FAA’s UAS Center of Excellence

Mark Blanks, Director, Mid-Atlantic Aviation Partnership at Institute for Critical Technology and Applied Science, Virginia Tech and UAS Test Site

Edgar Waggoner, Director, Integrated Systems Research Program, NASA

Dr. Hassan Shahidi, Director, Aviation Safety, MITRE Corporation

The FAA is sponsoring research on a number of UAS issues to inform its regulations, policies, and procedures; however, the performance-based UAS regulatory framework the Agency is working to establish may also necessitate industry-sponsored research as innovators seek solutions and test results to meet safety standards. This breakout session will discuss the FAA’s research objectives and priorities, but also broach the limits of the FAA’s regulatory R&D program and where the responsibility lies to develop new R&D data.

Breakout Session 2B

Grand Ballroom E - F

The Future of Airspace Authorizations

Airspace Notification and Authorization

Moderator: Lynn Ray, Vice President, Mission Support Services, FAA Air Traffic Organization

Jim Stroiney, Director, Enterprise Program Management Service, FAA Office of Information and Technology

Bill Davis, Executive Director, Emerging Technologies Integration Directorate, Mission Support Services, FAA Air Traffic Organization

Jay Merkle, Director, Program Control and Integration, FAA Air Traffic Organization

Steve Weidner, Unmanned Aircraft Systems Representative, National Air Traffic Controllers Association

What does the future of low altitude airspace authorizations look like? How can the FAA and industry leverage data to support automated authorizations? What is the optimal division of labor for managing this data between the public and private sectors? This breakout session will cover activities already underway to support the future of airspace notification and authorization, and consider the future dynamic of communication between UAS operators and air traffic controllers.

Breakout Session 2C

Regency Ballroom A - B

Beyond Visual Line of Sight

Expanded Operations – the Next Frontier

Moderator: Earl Lawrence, Director, FAA UAS Integration Office

Steve Bradford, Chief Scientist, FAA NextGen Office

John Duncan, Director, FAA Flight Standards Service

Maureen Keegan, Program Manager for Domain Engineering & Requirements Team, FAA Air Traffic Control Operational Concepts, Validation & Requirements Directorate

Paul McDuffee, Vice President of Commercial of Business Development, Insitu

The “see and avoid” requirement is at the heart of the FAA’s regulatory structure, mitigating the risk of aircraft colliding in midair. How do we ensure that UAS operations outside of visual line of sight do not create a hazard to others in the NAS? How do we ensure that UAS pilots know the location of their UAS? How are UAS pilots able to observe the airspace for other air traffic or hazards, or determine that their UAS does

not endanger the life or property of another? What options exist or could be developed for “sense and avoid” systems?

1130 – 1145

Break

1145 – 1315

Luncheon Panel – Have We Arrived in the Jetsons’ Orbit City?

Grand Ballroom, Boxed Lunch Provided

Moderator: Earl Lawrence, Director, FAA UAS Integration Office

Anil Nanduri, Vice President in the New Technology Group and General Manager of Unmanned Aviation Systems for the Perceptual Computing Group, Intel Corporation

Charles Bergan, Vice President of Engineering, Qualcomm Technologies, Inc.

Travis Mason, Vice President of Public Policy & Regulatory Affairs, A³ by Airbus

Mark Moore, Engineering Director of Aviation, Uber

Hear from industry’s latest players about the potential UAS integration holds for them and what it will take to get there.

1315 – 1330

Break

1330 – 1445

Breakout Session 3A

Grand Ballroom A - D

Global Leadership

International Partnerships & Harmonization Efforts

Moderator: Tricia Stacey, Manager, International Division, FAA UAS Integration Office

Randy Willis, Manager, Emerging Technologies Team, Mission Support Services, FAA Air Traffic Organization

Karlin Toner, Director Global Strategy, FAA Office for Policy, International Affairs and Environment

Thomas Mickler, European Aviation Safety Agency, EASA
Representative in Washington, DC

Pierre Ruel, Chief of Flight Standards, Transport Canada Civil
Aviation

Doug Davis, Northrup Grumman, Director of Airworthiness &
CANSO, Vice Chair Ops Steering Group

Brian Wynne, AUVSI President & CEO, Drone Advisory
Committee member

This breakout session will focus on progress underway to harmonize UAS regulations and standards around the world, and the impact these harmonization efforts may have on the UAS industry. What role does the International Civil Aviation Organization (ICAO) play in shaping UAS regulations across the world? What other organizations should play a pivotal role in international harmonization? And what role should the UAS industry play in this international work?

Breakout Session 3B

Grand Ballroom E - F

Airport Authorities

Operations, Authorities, and Best Practices

Moderator: Brian Rushforth, Manager, FAA Airports Safety and
Operations Division

Jack Allen, Deputy Director, Air Traffic Services, FAA Air Traffic
Organization

Mark Bury, Deputy Chief Counsel, FAA Office of the Chief
Counsel

Paul Werts, Program Manager, South Carolina Aeronautics

Marilyn Mora, Chief Executive Officer and President, Reno-
Tahoe Airport Authority

The potential impacts of UAS operations on efficient airport operations are significant. This breakout session will focus on best practices for airport operators and local authorities, specifically what authority an airport or local official has to ensure safe and efficient airport operations. Participants will

also delve into best practices for UAS operations conducted at or from airports.

Breakout Session 3C

Regency Ballroom A - B

Cutting Through the Red Tape

Future Vision for Single UAS IT Gateway

Moderator: Jim Stroiney, Director, Enterprise Program Management Service, FAA Office of Information and Technology

Tina Amereihn, Acting Assistant Administrator, FAA Finance and Management

John Duncan, Director, FAA Flight Standards Services

Jeannie Shiffer, Deputy Assistant Administrator, FAA Corporate Communications

Rebecca Guy, Manager, Decision Support Programs, FAA Program Control and Integration Directorate

Since the FAA released the Small UAS Rule (Part 107), requests for commercial registration, waivers, and airspace authorizations have soared. This breakout session will discuss what steps the Agency is planning to streamline its public interface, and get a sneak preview of how an integrated UAS gateway will improve user experience and interface with third party users. Session will include a demonstration.

1445 – 1515

Break and Networking

1515 – 1615

Breakout Session Recap

Grand Ballroom

Moderator: Earl Lawrence, Director, FAA UAS Integration Office

UAS Integration Office Director Earl Lawrence and breakout session moderators will recap lessons learned over the past two days and a look at what's next.

1615 – 1630 **Day 2 Symposium Closing – Looking Beyond Tomorrow**
Grand Ballroom

Moderator: Earl Lawrence, Director, FAA UAS Integration Office

FAA UAS Integration Office Director Earl Lawrence will discuss the FAA's overarching vision for UAS integration in more detail, including where the agency stands on implementation and what challenges remain to achieving full integration by 2020.

1630 – 1730 **Networking Reception**
Regency Ballroom A - B

Wednesday, March 29

0730 **Registration Open**

0800 – 1600 **FAA Resource Center Open**

0830 – 1000 **Workshop 1 – Pilot-In-Command Certification and Responsibilities**
Grand Ballroom A - D

Lead: James Viola, Manager, General Aviation and Commercial Division, FAA Flight Standards Service

Brad Zeigler, Aviation Safety Analyst, Airman Training and Certification Branch, FAA Flight Standards Service

Joe Morra, Manager, Safety and Operations Branch, FAA UAS Integration Office

Steve Jangelis, Chairman of Air Safety, Air Line Pilots Association

So you want to be a certified FAA pilot? Learn about taking the Remote Pilot knowledge test and what kind of responsibilities a pilot has every time they fly. Hear from experts about what

being a drone pilot means in today's world and how the FAA's Compliance Philosophy relates to drone operations.

Workshop 2 – Cybersecurity

Grand Ballroom E - F

Lead: Susan Cabler, Assistant Manager, Aircraft Certification Design, Manufacturing and Airworthiness Division, FAA Aircraft Certification Service

Wes Ryan, Manager, Programs and Procedures (Advanced Technology), FAA Small Airplane Directorate

Richard Morgan, Director, National Airspace Security and Enterprise Operations, FAA Technical Operations Services

Tim Shaver, Manager, Aircraft Maintenance Division, FAA Flight Standards Service

Greg Rice, Senior Engineering Manager for Cyber Systems, Rockwell Collins

As a new entrant to the NAS, UAS-specific cyber security vulnerabilities are a subset of overall aviation cyber security threat concerns. The FAA is working with industry partners and federal stakeholders to identify and address the cyber security risks associated with the NAS and highly networked avionics on board aircraft. This workshop will discuss how to approach potential cyber vulnerabilities to UAS as a community, including how we define security issues and requirements, how to determine security mitigations for risks associated with systems specific to UAS (e.g. C2 links), and the potential certification implications associated with cyber security risks.

Workshop 3 – FAA Data and Forecasts Workshop

Regency Ballroom A - B

Lead: Nan Shellabarger, Director, FAA Office of Aviation Policy and Plans

Mike Lukacs, Deputy Division Manager, Forecast and Performance Analysis Division, FAA Office of Aviation Policy and Plans

Dipasis Bhadra, Supervisory Economist, Forecast and Performance Analysis Division, FAA Office of Aviation Policy and Plans

Learn about the FAA's UAS statistics and what they have forecast for the future. Come prepared to share your own data and views about how the industry will unfold.

1000 – 1015

Break

1015 – 1145

Workshop 4 – Unmanned and Automated Vehicles

Grand Ballroom A - D

Lead: Nathaniel Beuse, Associate Administrator for Vehicle Safety Research, National Highway Transportation Safety Administration

Melanie Boteler, Director, Information Security and Privacy Service, FAA Office of Information and Technology

Susan Cabler, Assistant Manager, Aircraft Certification Design, Manufacturing and Airworthiness Division, FAA Aircraft Certification Service

Chan D. Lieu, Senior Legislative Advisor, Venable LLP

Join representatives from the FAA, the National Highway Transportation Safety Administration's automated vehicle initiative, and Venable to discuss the future of automation policy. Hear about the next steps in unmanned vehicle technology and regulation, and discuss what lessons the unmanned aircraft industry can learn from leaders in automated vehicle technology.

Workshop 5 – The Part 107 Waiver Process and Airspace Authorizations

Grand Ballroom E - F

Lead: Brad Zeigler, Aviation Safety Analyst, Airman Training and Certification Branch, FAA Flight Standards Service

Scott Gardner, Acting Manager, FAA Emerging Technologies Integration Directorate, FAA Mission Support Services
Diana Cooper, Vice President of Legal & Policy Affairs, PrecisionHawk

A panel of agency experts will discuss how the FAA approves airspace authorizations and waivers submitted through the FAA UAS Portal. Learn about best practices for applying for, and complying with your waiver, and see examples of successful waivers and airspace authorizations.

Workshop 6 – FAA Data and Forecasts Workshop

Lead: Nan Shellabarger, Director, FAA Office of Aviation Policy and Plans
Regency Ballroom A - B

Mike Lukacs, Deputy Division Manager, Forecast and Performance Analysis Division, FAA Office of Aviation Policy and Plans
Dipasis Bhadra, Supervisory Economist, Forecast and Performance Analysis Division, FAA Office of Aviation Policy and Plans

Learn about the FAA's UAS statistics and what they have forecast for the future. Come prepared to share your own data and views about how the industry will unfold.

1145 – 1300

Break and Networking

Open lunch, no meal provided

1300 – 1430

Workshop 7 – Local and State UAS Enforcement Authorities

Grand Ballroom A - D

Lead: Charles Raley, Senior Attorney, UAS Team Lead for Enforcement Policy and Outreach, FAA Office of the Chief Counsel

Janet Riffe, Investigations Specialist, FAA Office of National Security Programs and Incident Response

Don Roby, Training Program Manager, Airborne Law Enforcement Association (ALEA), International Association of Chiefs of Police Aviation Committee

Douglas Johnson, Vice President of Technology Policy, Consumer Technology Association

The FAA's General Counsel and Law Enforcement Assistance Program (LEAP) will lead a workshop on what authorities state and local agencies have when responding to public safety and privacy concerns. Attendees will learn what resources are available to them and how to leverage existing authorities to ensure public safety and security.

Workshop 8 – Understanding Safety Risk Management

Grand Ballroom E - F

Lead: Wes Ryan, Manager, Programs and Procedures (Advanced Technology), FAA Small Airplane Directorate

Gerald Pilj, Aviation Safety Engineer, Safety Engineering Team, FAA Safety and Technical Training Services

Rob Pappas, Manager, Program and Data Management, FAA UAS Integration Office

Jeffrey Smith, Aviation Safety Inspector, Compliance Philosophy Focus Team, FAA Flight Standards Service

Jenn Player, Director of UAS Technologies, Bihle Applied Research Inc.

Safety is the FAA's business. This workshop will cover the approach the FAA has used to determine the level of safety for various types of UAS operations. Hear from individuals involved in the FAA's Safety Risk Management processes about developing operational risk assessments and how to navigate these processes for certification of NAS operations.

1445 – 1615

Workshop 9 – Public Aircraft Operations (Governmental Entities)

Grand Ballroom A - D

Lead: Scott Gardner, Acting Manager, Emerging Technologies Integration Directorate, Mission Support Services, FAA Air Traffic Organization

Karen Petronis, Senior Attorney for Regulations, FAA Office of the Chief Counsel

Joe Morra, Manager, Safety and Operations Branch, FAA UAS Integration Office

James Viola, Manager, General Aviation and Commercial Division, FAA Flight Standards Service

Government entities have several options for conducting UAS operations, including part 107 and flying as a public aircraft operation. Public UAS engaged in emergency response activities must receive priority. This workshop will cover the ins and outs of each option to help you determine which option works best for your needs.

Workshop 10 - Type and Airworthiness Certifications

Grand Ballroom E - F

Lead: Wes Ryan, Manager, Programs and Procedures (Advanced Technology), FAA Small Airplane Directorate

Brian Cable, Manager, Aircraft Certification Airworthiness Section, FAA Aircraft Certification Service

Tim Shaver, Manager, Aircraft Maintenance Division, FAA Flight Standards Service

Mark Giron, Manager, General Aviation Operations Branch, FAA Flight Standards Services

Andy Thurling, Director of Product Safety and Mission Assurance, AeroViroment

Higher risk flight operations come with an increased responsibility for safety. This breakout session will cover the goals of the FAA's airworthiness certification process and how



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applicants successfully navigate their unmanned aircraft through the process.