Overview of On-Airport UAS Detection Equipment, Airspace Evaluations, and Policy

ICAO UAS RPAS Webinar

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  - Program Manager – AAM and UAS Airspace Policy, Emerging Entrants Division
- 10 years with the U.S. Federal Aviation Administration (FAA), Central Region Airports Division
  - Community Planner - Airport Planning, Capital Development, Grant Programs
  - Airports Airspace Specialist - 14 CFR Parts 77 & 157 (Airspace Evaluations)
- 3 years airport consultant on planning
- 10 years with the Missouri Department of Transportation, Aviation Division, Operations Manager and Inspector
- 2 years of airport operations/airport management at:
  - Tallahassee International Airport (TLH)
  - Denver International Airport (DEN)
- Licensed pilot and UAS remote pilot

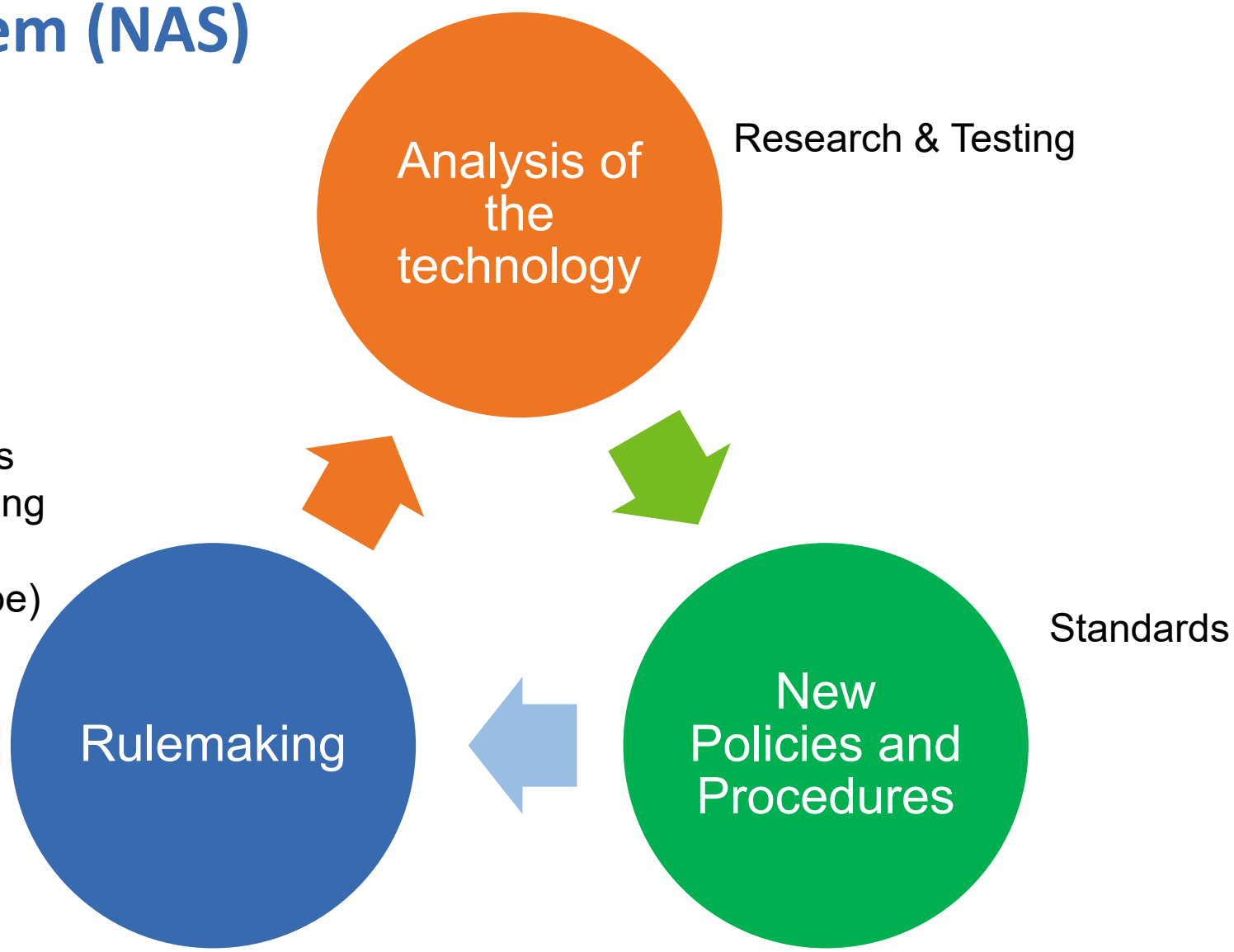
Today's Discussion Points

Scope: Airport Infrastructure

- Equipment Integration
- Where Are We?
- Airspace Evaluation Process
- Mitigation Status
- Where Are We Going?
- Integration Considerations and Challenges
- Outreach

Integrating detection/mitigation equipment in the U.S. National Airspace System (NAS)

- Update existing regulations
- Exemptions
- Petitions for regulations by the public or triggering events
- New regulations (maybe)



Detection/Mitigation Systems - Where Are We?

2018-2022

- 2018 FAA Reauthorization
- Planning/Development for Testing
- Testing began
- Issued On-Airport UAS Guidance to Airports
- Cert Alert Issued to Commercial Service Airports requiring UAS Response Plan

2023

- Airspace Eval Guidance
- Research Concluded
- ARC formed

2024

- ARC final report
- FAA Reauthorization
- FAA Draft Integration Plan

UAS Detection Systems

Detection systems ARE allowed at airports

- 14 CFR part 139 airports (commercial service) are already installing them.
  - Airport Emergency Plan/UAS Response Plan
    - FAA Cert Alert 21-04, *Updated Guidance for Airport Emergency Plans (AEP) under 14 CFR Part 139.325(b)(7)*, September 2021.
  - Airport Security Plan
- General aviation airports may consider adding them – no guidance at this time
- **NOT** grant eligible at this time = future

Mitigation systems ARE NOT allowed under federal law to be owned/operated by airports…yet

UAS Detection Systems

But It's Hard to Find UAS…

Robust detection systems may help with that.

- The Final Rule for Remote Identification (RID) of Uncrewed Aircraft in the U.S. went into effect on April 21, 2021.
- All remote pilots required to register their UAS must operate their aircraft in accordance with the final rule on RID beginning September 16, 2023.
- RID is intended to make locating and controlling UAS and their operators more manageable, but so far, the technology has been a challenge.
- Three methods of compliance are:
  - ✓ Drone manufactured with RID onboard
  - ✓ RID module added to older drone
  - ✓ Operate within a designated FAA-Recognized Identification Area (FRIA)

Regardless of how you identify "rogue" or clueless operators, local law enforcement agencies should be on your speed-dial list to help.

UAS Detection Systems – Airspace Evaluations

14 CFR part 77 – SAFE, EFFICIENT USE, AND PRESERVATION OF THE NAVIGABLE AIRSPACE

Special process for conducting the airspace evaluation on the system:

- Sensitive Security document handling
- Reviews by FAA lines of business, military, and other Federal agencies
- Equipment/site concerns
- Spectrum analysis/frequencies
- Passive/Active systems
- Construction activities
- HQ review w/feedback to field
- Field issuance of final aeronautical determination

FAA
Office of Airports
Emerging Entrants Division, AAS-200

Best Practices for the Submission of On-Airport UAS Detection and Mitigation System(s) into OE/AAA

This handout aims to provide airport stakeholders and non-FAA government employees and contractors with best practices for safeguarding the information and data submitted with UAS Detection and/or Mitigation system proposals into the OE/AAA system.

Prior Coordination

Before submitting an aeronautical study into the OE/AAA system, please coordinate the proposal with the local Airports District Office (ADO) or Airports Regional Office (RO) so that additional technical assistance can be provided for these projects.

Case Details

Complete the case details page as you would for any other study submission, except the following items should adhere to the following:

- **Description/Remarks Text Box –** identify if the proposal is a UAS Detection System or UAS Mitigation System.
  - If the system is a UAS Detection System, include the number of antennas, height information, general location, and whether the system is passive or active (transmits).
  - If the system is a UAS Mitigation System, only include the following text: UAS Mitigation System.
- **Case Information**:
  - For the Component Type, select OTHER
  - For the Development Type, select OTHER – Improvements
    - Select the system type (there will be three choices)
  - Do not submit frequency data into the Proposed Frequency Bands unless directed by the RO/ADO. This information should be contained in the secured documentation file uploaded to the study(s).

Supporting Documentation

Sufficient documentation, such as system description, frequencies to be used, renderings of the equipment, antenna, and/or photos of the proposed location, etc., should be included with the case so that the appropriate FAA offices can conduct their review. Ensure the backup material does not contain information about detection or mitigation equipment at other airports.

- Use a cover sheet identifying to the reviewer that the information submitted is sensitive/confidential, or mark each page of your document per your organization's security/confidentiality requirements.
- Combine supporting documentation into a single file.
- Password-protect the file. Passwords should contain at least eight characters, have at least one uppercase and one lowercase letter, contain at least one number, one special character, and not be a word in the dictionary.
- Transmit the password without identifying information in a separate email to the responsible FAA staffer in the RO/ADO who will process the aeronautical study(s).

Study Submission

Once the above information is compiled within the system and submitted, FAA staff at the local Airports District Office (ADO) or Airports Regional Office (RO) will process the study(s) and coordinate with AAS-200 in FAA HQ before a final determination can be issued.

Review time is expected to take a minimum of 90 days to complete due to the additional lines of business (LOB) reviews required for these systems. Please plan accordingly.

UAS Mitigation

Mitigation (or Countering) Systems (non-kinetic and kinetic):

U.S. Congress has exclusively authorized ONLY 4 Federal agencies to engage in limited UAS detection AND mitigation of UAS presenting a credible threat to covered facilities and assets.

- Department of Defense
- Department of Homeland Security
- Department of Justice
- Department of Energy

Where Are We Going?

Section 383 Integration Plan

In development and required by Congress

Initial Engineering Brief/Guidance

2025:
Performance-Based Minimum Standards for Detection Equipment

Research/Testing

2025 Through 2028

Advisory Circular (Standards)

Finalize Grant Eligibility

Rulemaking (if needed)

Expansion of C-UAS Authority

FAA continues to urge Congress

On-Airport Deployment & Safety

- **Considerations**
  - Spectrum/Frequency impacts to NAVAIDs
  - Operator training program(s)
  - Response/Emergency Plan(s)
  - Minimum performance-based detection system standards
  - Third-party monitoring (or airport sponsor)
  - Guidelines for deployment
- **Challenges**
  - Rapidly changing technology
  - Mitigation authority
  - Legal (Criminal & Civil)
  - Privacy
- **Other Critical Points**
  - Separate policies for detection & mitigation
  - Be sure the technology operates the way it is advertised
  - Industry collaboration with Federal, State, Local, Tribal, & Territorial public safety agencies
  - Multi-jurisdictional response plans
  - Data availability and access to understand UAS activities

Outreach

AAS-200 Webpage

Federal Aviation Administration

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Home / Airports / New and Emerging Entrants On Airports

- Overview
- Airport Compliance
- Airport Financial Assistance
- Airport Coronavirus Response Grant Program
- Airport Improvement Program (AIP)
- Airport Rescue Grants
- 2020 CARES Act Grants
- Airport Safety & Operations
- Engineering, Design, & Construction Standards

New and Emerging Entrants On Airports

The Office of Airports Emerging Entrants Division is responsible for advancing the needs of the nation's aviation system through the evaluation and development of policy for new technologies, infrastructure, and aircraft positioned to operate in the national airspace system (NAS). Policy and guidance, in coordination with targeted research efforts, support FAA goals to provide safe and efficient access to aviation facilities and accommodate various new and emerging entrants including unmanned aircraft, advanced air mobility (AAM), and commercial space.

- Advanced Air Mobility Infrastructure
- On Airport Unmanned Aircraft System Operations
- UAS Detection, Mitigation, and Response on Airports
- Commercial Space Transportation on Airports [coming soon]
- Autonomous Ground Vehicles Systems on Airports [coming soon]

Draft Engineering Brief 105A, Vertiport Design, and Virtual Industry Day

Resource Links

General Information

- FAA Office of Airports
- New and Emerging Entrants on Airport
- FAA UAS Integration Office
- FAA Commercial Space Transportation

Advanced Air Mobility (AAM)

- Urban Air Mobility and AAM
- Engineering Brief No. 105, Vertiport Design
- Draft Engineering Brief No. 105A, Vertiport Design

Commercial Space

- New Applicant Pre-application Initial Contact Information

ATR Research

- AAM Research
- UAS Integration at Airports

Unmanned Aircraft Systems (UAS)

- On Airport UAS Operations
- UAS Detection and Mitigation Equipment Processing
- Letter to Airport Sponsors about Policies and General Best Practices for UAS Activities On Airports
- Public Safety and Government UAS Sighting Resources
- Law Enforcement Assistance Program

Questions?

Emerging Entrants Division
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