FAA
UAS Integration Research Plan

Presented to: REDAC
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UAS Integration Landscape

UAS will be expected to meet certification standards and operate safely with traditional air traffic and ATM services. (Example Use Case: Communication Relay / Cargo Transport)

Cooperative Traffic

MIXED IFR/VFR

These UAS will operate at altitudes below critical NAS infrastructure and will need to routinely integrate with both cooperative and non-cooperative aircraft. (Example Use Case: Infrastructure Surveillance)

LOW ALTITUDE URBAN

Must interface with dense controlled air traffic environments as well as operate safely in uncontrolled airspace. (Example Use Case: Traffic Monitoring / Package Delivery)

Low risk BVLOS rural operations with or without aviation services. (Example Use Case: Agriculture)

Restricted Access

Routine Access

RURAL

URBAN

TIME (Notional)
Alignment to FAA’s Strategic Priorities

Federal Aviation Administration

FAA Strategic Priorities
- Make aviation safer and smarter
- Deliver benefits through technology and infrastructure
- Enhance Global Leadership
- Empower and innovate with the FAA’s people

FAA Priority Initiatives
- Risk-Based Decision Making
- National Airspace System Initiative
  - Integrate new entrants
- Global Leadership Initiative
- Workforce of the Future

UAS Strategic Priorities
- Safety
- Adaptability
- Global Leadership

UAS Integration
- Five-year UAS Integration Approach

The UAS Integration Research Plan aligns with FAA Strategic Priorities and Initiatives and informs the NARP

National Aviation Research Plan (NARP)

Federal Aviation Administration www.faa.gov/uas
UAS Integration research supports key FAA mission functions to publish regulations, policy, procedures, and guidance material to support safe and efficient UAS operations in the NAS.

Ongoing and planned research activities inform these functional areas.
## Operational Capabilities Towards Full UAS Integration

### UAS Operations Today
- Part 107
- UAS Waivers to Part 107
  - Limited Operations Over People
  - Limited Night Operations
  - Limited BVLOS Operations
- Exemptions
- UAS COAs
- Experimental Category

### Informs:
- Research Needs
- Operational Capabilities

### Enabling Capabilities
- Identification & Tracking Capability
- DAA & BVLOS Performance Requirements
- UAS Operational Requirements & Repeatable Approval Process
- UAS Low Altitude Authorization & Notification Capability (LAANC)
- UAS Traffic Management
- Command and Control Performance Requirements
- Infrastructure/Equipment Investment Analysis
- Cost Benefit Analysis

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UAS Research Collaboration & Partnerships

AFRL: Air Force Research Lab
ANSI: American National Standards Institute
APAC: ICAO Asia and Pacific Office
ASEB: NAS Aeronautics and Space Engineering Board
ASSURE: Alliance for System Safety of UAS through Research Excellence
CANSO: Civil Air Navigation Services Organization
CTA: Consumer Technology Association
EASA: European Aviation Safety Agency
EuroCAE: European Organisation for Civil Aviation Equipment
EXCOM SSG SARP: Executive Committee – Senior Steering Group – Science And Research Panel
FAA CAMI: Civil Aerospace Medical Institute
FAA WJHTC: William J. Hughes Technical Center
ICAO: International Civil Aviation Organization
IEEE: Institute of Electrical and Electronics Engineers
ITU: International Telecommunications Union
JARUS: Joint Authorities for Rulemaking on Unmanned Systems
MIT/LL: Massachusetts Institute of Technology Lincoln Laboratory
MITRE CAASD: Center for Advanced Aviation System Development
NAS: National Academy of Sciences
NATO: North Atlantic Treaty Organization
NSF: National Science Foundation
NIST: National Institute of Standards and Technology
REDA: Research, Engineering, & Development Advisory Committee
SAE: Society of Automotive Engineers
TRB: NAS Transportation Research Board

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FAA Requests Your Research Expertise

• Review the FAAs UAS Integration Research Plan
  – The plan is For Official Use Only.
  – The FAA will make subject matter experts available to the REDAC upon request.

• Provide industry research perspectives
  – Are there high-value applied research areas, not addressed in the plan that the committee deems essential?
  – Are there areas where planned activities and/or needs reflected in the plan are already being sufficiently addressed within the stakeholder community?
  – Is the research going in the right direction?

• The FAA requests the REDAC provide final recommendations no later than November 1, 2018
  – REDAC input will be reflected in the 2018 version of the UAS Integration Research Plan.