

Mutual Aid Box Alarm System – Illinois Unmanned Aircraft Systems Program (UAS)

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Subject: Unmanned Aircraft Systems Program (UAS)
Functional Area: Special Operations Team
Category: Policy, Procedure and Guideline
Approved By: MABAS Executive Board



PURPOSE

The purpose of this document is to provide guidance and structure to MABAS operational staff for building a statewide standard and roadmap to assist MABAS Divisions in establishing, developing, and implementing an aerial drone program. The MABAS UAS Program Guideline provides a framework for member agencies to effectively mobilize and deploy assets without the cost, complexity, and liability of building them individually. The UAS Program Guideline outlines a framework detailing how MABAS will develop, maintain, and deploy a safe and highly effective response of aerial assets to support member agencies and their jurisdictions in response to man-made, technological or environmental threats. Shared MABAS divisional cooperative UAS programs are strongly encouraged for their efficiency and cost-effective benefits.

ROLES, RESPONSIBILITIES AND AUTHORITIES

MABAS-Illinois assumes the role, responsibility, and authority to:

- coordinate, facilitate, and monitor compliance of the UAS Program Guidelines;
- recognize and designate MABAS-Illinois UAS divisionally operated UAS special operations team programs which are guideline compliant;
- withdraw statewide special operations UAS divisional recognition for those failing to comply with program guidelines.

MABAS divisions assume the role, responsibility, and authority to:

- develop and assign UAS program coordination and administration to MABAS division member agency(ies) in a cooperative and cohesive manner;
- understand participation of MABAS divisions or agency(s) are voluntary and not required;
- support, sponsor, and assure guideline compliance efforts are actively monitored and acted upon;
- support participation in the MABAS UAS work group as the source of subject matter expertise, guidance and sharing of efforts to improve MABAS division UAS programs

MABAS member divisional agencies assume the role, responsibility, and authority (when designated as a MABAS divisional Coordinator and Administrator of a statewide UAS recognized team) to:

- understand right and authority for program operation as the authority having jurisdiction (AHJ) and avoidance of inappropriate or liable UAS uses or applications;
- understand acceptance and involvement in a lead role as a UAS Program Administrator and Coordinator is purely voluntary;
- understand scope and intent of administrating and coordinating AHJ requires awareness and efforts to comply with statewide team recognition policies and guidelines.

REASON AND RATIONALE

Drones have proved to be an invaluable tool for saving lives in the public safety industry. Due to the cost and resources required for implementing a safe and effective program, MABAS proposes that special ops teams be created allowing divisions to build out operational capabilities based on need, functionality, and budget. The structure of MABAS Special Operations Teams lends itself to supporting UAS operations by specifying crewmember roles, training, certification, recurrent

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training, and program maintenance standards. Authorization on the federal level will be granted to MABAS, as well as federal certification of each Pilot in Command (PIC) to ease the startup and program maintenance expenditures for individual agencies.

SPONSORSHIP AND SUPPORT

Insurance: MABAS-Illinois will negotiate special MABAS group insurance rates.

FAA Authorizations/Compliance: MABAS-Illinois will secure FAA authorizations that divisions can utilize easing the FAA compliance burden at the divisional level.

ADMINISTRATION

Rules of Construction:

1. Unless otherwise specified in an attachment or expressly prohibited by any federal aviation regulation, waiver, or authorization granted to MABAS-IL; MABAS UAS Operations shall be conducted in accordance with the *NFPA 2400 Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations*.
2. Nothing in this standard shall inhibit the adoption of methods, systems, or devices of equivalent or superior quality, efficacy or performance.
3. This standard shall apply to public entities, and any non-public entities operating for the purposes

Definitions: Defined terms used in this standard are available for reference. In the *Unmanned Aircraft Systems Program (UAS) Policy*, chapter 5, and *NFPA 2400 Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety operations*, chapter 3.

SPECIAL TEAMS

MABAS-Illinois will create and recognize Statewide Special Operations UAS Teams.

References: Chapter 1 Personnel Roles, Responsibilities, and Qualifications and Chapter 3 Flight Operations and Deployment, in the *Unmanned Aircraft Systems Program (UAS) Policy*.

UAS PROGRAM PLANNING PROCESS

1. Identify mission, search and rescue, fire observation, fire investigations, flooding, logistics, hazardous material response, and other.
2. Identify operational needs: aerial video, aerial photography, 3D mapping, aerial thermography, or payload (drop or other).
3. Create a budget for equipment, training, certification staffing, insurance, and consulting services.
4. Purchase UAS hardware, software, accessories, and extended warrantee.
5. Identify staffing needs and resource allocation.
6. Assess training and certification requirements.
7. Understand FAA, state, local regulations, and compliance issues.
8. Create UAS Program Guidelines for building an effective, efficient, and safe UAS Program.
9. Build program awareness in the community.

Reference: Attachment A UAS Program Planning. In *Unmanned Aircraft Systems Program (UAS) Policy*.

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STANDARD OPERATING GUIDELINES

Training / Certification:

This guideline will include minimum requirements for classroom and practical training for each crewmember, plus a periodic flight review for the Pilot in Command (PIC) to be signed off by UAS Branch Chief or UAS Coordinator.

Reference: Chapter 1 Personnel Roles, Responsibilities, and Qualifications. In *Unmanned Aircraft Systems Program (UAS) Policy*.

Reference: Chapter 5 Professional Qualifications for sUAS Public Safety Personnel. In *NFPA 2400 Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations*.

Equipment Selection and Purchase:

Based on the operational needs assessment, the division will select standard UAS equipment. Criteria should be based on effectiveness, reliability, and interoperability. Considerations include requirements for aerial video/photography, thermal imagery, or specialty equipment (payload drop, carry, gas detection or other).

Purchase extended warranty that includes repair/replacement if cost effective vs. self-insuring for Hull Damage Insurance.

Reference: Chapter 2 Equipment Selection, Purchase, and Maintenance. In *Unmanned Aircraft Systems Program (UAS) Policy*.

Reference: Chapter 4, Organizational Deployment and Considerations for sUAS, (see 4.5). In *NFPA 2400 Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations*.

Maintenance:

The UAS, accessories, and batteries shall be in a state of readiness to fly at all times.

The assigned Pilot in Command (PIC) is responsible for validating UAS readiness, including pre-flight and post-flight checklist. The PIC will refer to manufacturer's guidelines on equipment maintenance and if none are in place, will develop guidelines to ensure that equipment is functional and airworthy.

Reference: Chapter 2 Equipment Selection, Purchase, and Maintenance. In *Unmanned Aircraft Systems Program (UAS) Policy*.

Reference: Chapter 6 Maintenance sUAS. In *NFPA 2400 Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations*.

Crew Roles and Responsibilities Assignment:

Before deployment, a flight crew will be assigned to each UAS. Flight Crew assignment guidelines will cover the roles and responsibilities of crewmembers, qualifications, and training recency, to ensure crewmembers are qualified to act in the capacity of Pilot in Command, Sensor Operator/Visual Observer or other designated role. These guidelines are developed to ensure maximum interoperability between MABAS Divisions and immediate deployment of crewmembers.

Reference: Chapter 1 Personnel Roles, Responsibilities, and Qualifications; Chapter 3 Flight Operations and Deployment. In *Unmanned Aircraft Systems Program (UAS) Policy*.

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Mobilization Procedures:

To effectively mobilize a UAS response, MABAS UAS units will maintain the UAS and supporting equipment in a persistent state of readiness. In addition, the UAS mobilization procedures document the actions taken by the flight crew after dispatch, before and after a UAS response.

Reference: Chapter 3 Flight Operations and Deployment. In *Unmanned Aircraft Systems Program (UAS) Policy*.

Reference: Chapter 4 Organizational Deployment and Considerations for sUAS. In *NFPA 2400 Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations*.

Flight Operations:

Once deployed, it is imperative that the UAS flight crew operate safely, efficiently, and effectively in challenging environments. These guidelines describe the actions required by the flight crew to prepare the aircraft to respond safely including flight planning, procedures for navigating the National Airspace System, and weather related operating conditions. The guidelines outline procedures for preflight inspection, takeoff, cruise flight, arrival, and landing. They also set forth the contingencies the UAS Pilot in Command (PIC) will use to respond to in-flight emergencies and abnormal operating conditions as well as log the pertinent information required for documenting the flight.

Reference: Chapter 3 Flight Operations and Deployment, and Attachment D Operational Application Guideline – General. In *Unmanned Aircraft Systems Program (UAS) Policy*.

Reference: Chapter 4 Organizational Deployment and Considerations for sUAS. In *NFPA 2400 Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations*.

Specialty Operations:

Frequently MABAS UAS units will deploy for incidents requiring UAS support for special operations. These operations require additional knowledge and proficiency from the flight crew, including HazMat, Tech Rescue, Dive, Water and Ice Rescue, Hazardous Weather and Natural Disasters, and Structure Fire Support. In addition, certain authorizations or waivers granted to MABAS could require additional training. Procedures on implementing and documenting this training can be found in the Specialty Operations Guideline.

Reference: *Unmanned Aircraft Systems Program (UAS) Policy*.

Chapter 3 Flight Operations and Deployment.

Attachment E Operational Application Guideline – Firefighting.

Attachment F Operational Application Guideline – Search and Rescue.

Attachment G Operational Application Guideline – Hazardous Materials Response.

Reference: Chapter 4 Organizational Deployment and Considerations for sUAS. In *NFPA 2400 Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations*.

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Data Collection / Retention:

UAS Responses collect a wealth of useful data. It is paramount that data be collected and retained in a manner that does not pose additional liability to MABAS or its member agencies. This guideline describes the manner in which data including images, videos, flightlog files, and pilot's log, and other information is stored and retained.

Reference: Chapter 4 Data Collection and Retention. In *Unmanned Aircraft Systems Program (UAS) Policy*.

Program Reporting and Compliance:

▪ **Mandated Reporting**

Certain operating permissions granted by the FAA entail a specific burden for reporting the specifics of flights that occur under that permission. This guideline describes how flight operations are reported to the FAA through the MABAS Command Structure.

▪ **Aircraft Incident Reporting**

Maintaining the safety and effectiveness of the MABAS UAS program relies on full transparency regarding in-flight emergencies, aircraft accidents, and incidents. The procedures for reporting aircraft incidents internally are separate from FAA mandated incident reporting, and are designed to allow MABAS to continuously improve the safety and efficacy of the MABAS UAS Program.

▪ **Operational Safety Assessment**

Based on the information collected in the mandated reporting guideline, each UAS unit will undergo a yearly operational safety assessment of their training, maintenance, and operating procedures. This assessment will identify areas of improvement and the team's eligibility to operate.

Reference: Chapter 3 Flight Operations and Deployment. In *Unmanned Aircraft Systems Program (UAS) Policy*.

Insurance Considerations:

Liability Insurance and Hull Insurance Options.

Reference: Attachment C Insurance Recommendations. In *Unmanned Aircraft Systems Program (UAS) Policy*.

Program Awareness and Support:

The success of a UAS program is dependent upon the department's and community's acceptance. Concerns over safety and privacy exist and education and transparency are key to adoption. It is highly recommended that departments educate their communities on the lifesaving benefits of using UAVs in public safety.

Reference: Attachment A UAS Program Planning. In *Unmanned Aircraft Systems Program (UAS) Policy*.

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RESOURCES

Referenced Publications:

- NFPA 2400 Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations.
- Title 14, Code of Federal Regulations Part 1 “General Definitions and Abbreviations”.
- 2016 FEMA — ICS Glossary, Incident Command System Training, 2008.
- Title 49, United States Code § 40125: Qualifications for Public Aircraft Status.
- Title 14, Code of Federal Regulations, Part 91, “General Operating and Flight Rules”.
- Title 14, Code of Federal Regulations, Part 107, “Operation and Certification of Small Unmanned Aircraft”.

Chapters: (Compulsory)

1. Personnel Roles, Responsibilities, and Qualifications
2. Equipment Selection, Purchase, and Maintenance
3. Flight Operations and Deployment
4. Data Collection and Retention
5. Definitions

Attachments and Reporting Forms: (Non-Compulsory Information)

- A. UAS Program Planning
- B. Equipment and Maintenance
- C. Insurance Recommendations
- D. Operational Application Guideline - General
- E. Operational Application Guideline - Firefighting
- F. Operational Application Guideline - Search and Rescue
- G. Operational Application Guideline - Hazardous Materials Response
- H. MABAS UAS Program Budget Tool
- I. Reporting Forms
 - I.1. MABAS In-Service Report
 - I.2. MABAS Post-Flight Report
 - I.3. MABAS Deviation Report
 - I.4. MABAS Accident Report