# Public Safety Unmanned Aircraft System Resource Guide

Public safety agencies have started using small unmanned/uncrewed aircraft systems (UAS), also known as "drones," for a variety of purposes, including communications support, transportation, situational awareness, and search and rescue. As of March 2020, at least 1,578 state and local public safety organizations reported the recent purchase of a UAS, an increase of approximately 500 organizations since 2018.[1] UAS use is also expanding in the commercial space. The Federal Aviation Administration (FAA) has seen a dramatic surge in the number of non-hobbyist[2] UAS registrations and estimates the number of non-hobbyist UAS will swell significantly by 2024.[3]

In response, SAFECOM and the National Council of Statewide Interoperability Coordinators (NCSWIC) have developed this guide to provide stakeholders with information on UAS, their impacts on public safety operations, and how the public safety community can establish their own drone programs, if needed.



*Figure 1.* Examples of small UAS

## Using UAS

The following use cases provide more information on UAS and may be helpful in garnering support for a public safety UAS program.

- **General use case:** A summary report (2018) by the Region 10 Regional Response Team and Northwest Area Committee UAS Task Force provides a general overview of federal, state, and regional UAS regulations, definitions, and acronyms. Additionally, the FAA *Drones in Public Safety* brochure offers a simple guide to starting public safety UAS operations.

- **Law enforcement use case:** The Cybersecurity and Infrastructure Security Agency (CISA) UAS Considerations for Law Enforcement Action webpage houses legal and operational guidance as well as links to FAA resources for law enforcement agencies seeking to deploy and protect critical infrastructure against UAS. The U.S. Department of Justice (DOJ) released a 2020 report that outlines several considerations for law enforcement application of drone programs.

- **Firefighting use case:** The International Association of Fire Chiefs (IAFC) developed a UAS Toolkit to provide fire and emergency medical services organizations with tactics, policies, technologies, and regulatory recommendations for deploying UAS.

> ### What is a small UAS?
> The FAA defines a small UAS, commonly referred to as a "drone," as weighing less than 55 pounds including the equipment necessary to operate it safely and efficiently within the National Airspace System.[4] The UAS referenced in this guide is notably civilian UAS, which differ from military-use drones.[5] Deployment of UAS in the civilian context, which includes public safety[6], varies significantly from that of military use, having different rules, regulations, standards, and operational purposes.

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[1] "Public Safety Drones, 3rd Edition." *Center for the Study of the Drone at Bard College.* https://dronecenter.bard.edu/files/2020/04/CSD-Public-Safety-Drones-3rd-edition.pdf

[2] The FAA defines non-hobbyist (also referred to as non-model and non-recreational) as small UAS that are not operated In accordance with Section 336 (Special Rule for Model Aircraft) of Public Law 112-95.

[3] Based on 2019 data forecast. "FAA Aerospace Forecast." *Federal Aviation Administration.* https://www.faa.gov/data_research/aviation/aerospace_forecasts/media/FY2019-39_FAA_Aerospace_Forecast.pdf

[4] 14 C.F.R. § 107.3 2019

[5] "Unmanned Aircraft Systems (UAS): DoD Purpose and Operational Use." U.S. Department of Defense. Accessed July 22, 2020. https://dod.defense.gov/UAS/

[6] See FAA "Public Safety and Government" guidance for additional information.

- **Communications support use case:** The National Public Safety Telecommunications Council's (NPSTC) *Using UAS for Communications Support - Spectrum and Technology Considerations* (May 2018) outlines the considerations for deploying a public safety UAS program, specifically outlining the lack of dedicated spectrum, as well as addressing command, telemetry, and payload bandwidth. Similarly, NPSTC's *Using UAS for Communications Support* paper (May 2018) describes the current state of UAS-supported communications, associated benefits, and recommended actions for program establishment.
- **Critical infrastructure protection use case:** CISA's UAS – Critical Infrastructure webpage explains the threats UAS present, how those threats apply to critical infrastructure, and actions public safety and critical infrastructure owners and operators may take to mitigate potential UAS-related security risks.
- **Tribal lands use case:** The Confederated Tribes of Warm Springs deploys UAS for monitoring of critical infrastructure, preservation of natural resource habitats, and testing and support of controlled burn and wildfire suppression operations. The Bureau of Indian Affairs (BIA) published the BIA 2017 National Aviation Plan, which outlines policies for BIA UAS deployment and program development nationally and regionally.

# Developing a UAS Use Program

The public safety community is integrating UAS to better serve their communities, supplementing mission critical capabilities with innovative technology. The resources below can assist public safety organizations with developing and maintaining a responsible UAS program.

## Following the Rules

Public safety organizations using UAS must abide by the same standards and regulations for UAS usage as the general public. The following resources help explain these limitations:

- *Drones in Public Safety: A Guide to Starting Operations* (February 2019): This FAA primer provides a brief overview of standards guiding drone use for public safety.
- FAA Operation and Certification of Small Unmanned Aircraft Systems Rule (Rule 107): This FAA rule sets the licensing standard for non-hobbyist UAS usage.
- Drone Webinar Series: This FAA video series addresses a wide array of matters impacting drone users such as how to operate in the National Airspace System, starting a drone program, and flying drones during an emergency.
- Respecting tribal airspace: Federal, state, local, and territorial agencies should coordinate and establish agreements with Native American and Alaska Native tribal partners when deploying UAS in tribal airspace.

## Maturing Your UAS Use Program and Providing Cybersecurity

Adopting new technology is often less about the technology itself and more about implementing effective governance, engaging users, and establishing standard operating procedures which enable streamlined adaptation of the technology into operation. The following resources can assist public safety organizations in developing the appropriate governance and cybersecurity frameworks to enable the functionality and sustainment of UAS programs.

- DOJ Policy on the Use of UAS (updated August 2019): This DOJ policy outlines the governance structures law enforcement agencies need to operate a UAS program. This guidance also underscores the need to respect civil rights and liberties, protect privacy, uphold acceptable use policies, ensure cybersecurity through supply chain risk management and acquisition oversight, and support transparency and accountability with the general public.

- **Unmanned Aircraft Systems in Disaster Management**:  This training course, provided by the National Preparedness Training Center, discusses the role of UAS during disaster response, the types of UAS available, and how public safety organizations can become authorized users.
- *Cybersecurity Best Practices for Operating Commercial Unmanned Aircraft Systems* (June 2019):  This CISA fact sheet provides best practices for installing and using UAS software and firmware, securing UAS operations, and safely storing and transferring data. This document also introduces CISA information sharing activities such as the Cyber Information Sharing and Collaboration Program (CISCP) and the Information Sharing and Analysis Centers (ISACs).[7]
- *Small Unmanned Aircraft Systems* (April 2019):  The International Association of Chiefs of Police (IACP) Law Enforcement Policy Center provides a Model Policy for public safety agencies to reference; a Concepts and Issues Paper that provides background information, including the implementation requirements and developmental philosophies for public safety application, to support a Model Policy or Considerations Document; and a "need to know" synthesis that summarizes key points of small UAS application.
- *Guidelines for Creating a UAS Program* (April 2017):  This comprehensive guide covers the planning, policies, expected costs, public perceptions, legal concerns, use cases, and references to applicable FAA policies for public safety UAS programs. This guide also includes descriptions of UAS operational types and capabilities.
- *Considerations and Recommendations for Implementing a UAS Program* (December 2016):  This DOJ report provides law enforcement specific insights into the benefits, risks, civil liberty concerns, and implementation considerations for public safety UAS operations.

## Engaging with the Community

Due to the nature of public safety UAS usage, it is vital that public safety organizations consider how they will engage with the community to explain their use policies and maintain public trust.

- **UAS Symposium**:  This symposium, hosted by the Association of Unmanned Vehicle Systems International (AUVSI) and the FAA, brings stakeholders together to help define the rules and concepts that govern future UAS operations.
- *National Drone Safety Awareness Week Stakeholder Playbook* (September 2019):  This FAA guide is intended for public safety organizations interested in publicizing the benefits of drone usage in their communities.

## Responding to Unfamiliar or Malicious UAS Use

The proliferation of UAS throughout the commercial and general public spaces is complicating public safety operations, as their capabilities can create security challenges for first responders. The following resources will assist public safety in responding to unauthorized or suspected malicious UAS use.

The FAA's UAS Public Safety and Law Enforcement Toolkit was created to assist the public safety community in operating and managing incidents involving UAS. Components that provide recommendations for managing incidents include:

- **Law Enforcement Pocket Card**:  This quick reference card describes FAA's recommended courses of action for UAS-related law enforcement.
- **Know Your Authority: Unauthorized Drone Operations**:  This video provides an overview of law enforcement authorities during a response to malicious drone operations.

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[7] For more information about this and other resources, contact the CISA National Risk Management Center at NRMC@cisa.gov.

- **Drone Safety: It's the Law**:  This webinar highlights information on drone sighting protocols, the FAA's assistance programs for general support or imminent threats, the extent to which agencies are expected to know federal aviation laws, and drone registration.
- *Law Enforcement Guidance for Suspected Unauthorized UAS Operations* (August 2018): This white paper covers the legal basis for FAA action against UAS operators for unauthorized or unsafe operations, which includes model aircraft operations, airworthiness, and exemptions to FAA rules. The paper also provides guidance for detection and investigation of unauthorized and unsafe UAS operations.
- *Public Safety Small Drone Playbook* (September 2019):  This handbook aggregates the FAA's UAS guidance and best practices to include security instructions, registration and certification requirements, law enforcement authorities, and additional web-based resources.

For agencies concerned with the protection of critical infrastructure assets, CISA published the *UAS Addressing Critical Infrastructure Security Challenges* fact sheet (February 2017) to describe possible UAS threats to critical infrastructure and detail the actions agencies may take to mitigate them.

# Managing UAS with Available Tools

Maintaining situational awareness on the legislation and rules regarding UAS use can be challenging due to the rapidly evolving ecosystem. As a result, several organizations have developed tools to educate stakeholders. The FAA created the B4UFly mobile app to inform UAS users where they are permitted to operate. AUVSI also created two interactive mapping tools, the State Legislation Map: Unmanned Systems and Waivers Under Part 107: Interactive Report. The State Legislation Map details all legislation impacting UAS in the United States and has filters for location, vehicle type, and threat/impact. The Interactive Report maps all FAA-issued waivers to Part 107 and can be filtered by location of waiver recipients, type of UAS use, and waivers by user type.

# Resource Guide Authors and Contributors

### About SAFECOM
SAFECOM is managed by CISA. Through collaboration with emergency responders and elected officials across all levels of government, SAFECOM works to improve emergency response providers' inter-jurisdictional and interdisciplinary emergency communications interoperability across local, regional, tribal, state, territorial, international borders, and with federal government entities.

### About NCSWIC
Established by CISA in July 2010, NCSWIC supports statewide interoperability coordinators (SWICs) from the 56 states and territories by developing products and services to assist them with leveraging their relationships, professional knowledge, and experience with public safety partners involved in interoperable communications at all levels of government.

### About CISA
CISA is the Nation's risk advisor, working with partners to defend against today's threats and collaborating to build more secure and resilient infrastructure for the future. CISA enhances public safety interoperable communications at all levels of government to help partners across the country develop their emergency communications capabilities.

For additional information about this resource guide, please visit cisa.gov/safecom/technology or contact SAFECOMGovernance@cisa.dhs.gov or NCSWICGovernance@cisa.dhs.gov.