SMALL UNMANNED AIRCRAFT SYSTEM (SUAS) TEAM

DESCRIPTION	A small Unmanned Aircraft System (sUAS) Team is comprised of a Remote Pilot in Command (Remote PIC) and a Technical Specialist – sUAS, an aircraft operations team without a human pilot onboard, also known as a drone. The Remote PIC holds a Remote Pilot Certificate for operating an sUAS and collecting data for improved situational awareness through remote sensing.
RESOURCE CATEGORY	Incident Management
RESOURCE KIND	Team
OVERALL FUNCTION	The sUAS Team: 1. Provides situational awareness by transmitting real-time or near real-time imagery, data, or verbal assessment, using multiple technologies, such as photogrammetry, live video, thermal imaging, and lidar, to enhance the Common Operating Picture (COP), planning functions, and Incident Action Plan (IAP) development 2. Uses various platforms based on mission need in accordance with Federal Aviation Administration (FAA) Code of Federal Regulations (CFR) Part 107, specifying sUAS

COMPOSITION AND ORDERING SPECIFICATIONS	1. Discuss logistics for deploying this team, such as security, communications, lodging, transportation, power, recharging, fuel, and meals, prior to deployment 2. Remote PIC determines the duty cycle of aircraft based on assignment, environment, terrain, battery life, and other factors affecting performance 3. Requestor should consider the following needs when ordering: a. Collection: A measurable description of each information or image collection task, including image resolution, and distribution instructions b. Processing: Ability to link platform to satellite, platform-required ground reception and range limitations, if any, data collection media used, delivery points of data on media, media compatibility with end users, and the turnaround time for analysis c. Distribution: Parameters for when, where, and how to disseminate images, information, and data d. Storage: Image, data, and information storage locations and servers and time frames for storage and maintenance 4. Requestor orders data analysis capabilities separately 5. Requestor and provider should discuss the capability requirements of the mission: a. Fixed wing sUAS that have short- to medium-range capabilities and are more agile b. Rotary wing sUAS that are very agile and can provide near-stationary monitoring but have limited flight times and altitudes c. Lighter-than-air sUAS that have extended flight times and can achieve significant altitudes but lack maneuverability and are more susceptible to weather than other UAS types 6. Requestor provides management and oversight of this team by: a. Providing Air Operations Branch staff, including the Air Tactical Group Supervisor and the Air Support Group Supervisor b. Ensuring Air Operations Branch staff understand UAS operations, FAA regulations, and requirements of other state, local, tribal, territorial, and federal agencies having jurisdiction 7. Requestor and provider should discuss availability of equipment and supplies needed to establish an adequate Ground Control Station, such as a portable system for data management, wireless or networking equipment, batteries, and a specialized communications cache. 8. Based on mission requirements, requestor and provider should discuss data collection payload options such as: a. Aerial photography b. Full motion video c. Specialized sensors, such as photogrammetry, sonar, radar, infrared, lidar, and hyperspectral d. Infrared thermography (IRT) 9. Discuss mission planning factors, including: a. Time-on-scene and flight duration requirements b. Topography, climate, land and maritime factors, and population density c. Launch and retrieve capabilities; takeoff and line of sight capabilities; first-person view (FPV), beyond line-of-sight view, and video piloting; use of multiple controllers; and follow-me capability (electronic or tether) d. Operational time (day/night), takeoff and landing terrain, and operational area terrain e. Weather factors (maximum wind speeds, temperature, humidity, and inclement conditions) f. Airports and restricted airspace nearby 10. This team follows all applicable state, local, tribal, and territorial privacy laws and regulations 11. Requestor and provider should discuss the need for FAA waivers and authorizations, such as permission to fly beyond the visual line of sight, fly at night, fly directly over a person or people, fly multiple aircraft with only one pilot, fly above 400 feet, fly near airports, and fly in other restricted or special-use airspace 12. This team adheres to FAA restrictions on crew duty according to Title 14 CFR Part 117: Flight and Duty Limitations and Rest Requirements

Each type of resource builds on the qualifications of the type below it. For example, Type 1 qualifications include the qualifications in Type 2, plus an increase in capability. Type 1 is the highest qualification level.

COMPONENT	TYPE 1	TYPE 2	NOTES
MINIMUM PERSONNEL PER TEAM	Same as Type 2	3	Not Specified

COMPONENT	TYPE 1	TYPE 2	NOTES
SUPPORT PERSONNEL PER TEAM	Same as Type 2	2 - National Incident Management System (NIMS) Type 1 Remote Pilot in Command 1 - NIMS Type 1 Technical Specialist-sUAS	1. Requestor provides Air Operations Branch staff for management and oversight of this team 2. Requestor ensures Air Operations Branch staff understand UAS operations and meet requirements of FAA, Federal Communications Commission (FCC), Department of Transportation (DOT), and other state, local, tribal, territorial, and federal agencies having jurisdiction 3. One PIC serves as a safety flight observer for the UAS Team during flight operations and is not in direct control of an operational UAS platform. The PIC provides field oversight and situational awareness, and ensures the safety of the PIC operating the UAS 4. Teams can add additional UAS aircraft and a corresponding number of additional PIC personnel within a manageable span of control 5. For Type 1 teams using UAS aircraft over 55 pounds, requestor should add pilots and personnel based on manufacturer recommendations for safe operation and handling.
AIRCRAFT SYSTEMS PER TEAM	Same as Type 2	Combination of fixed wing, lighter-than-air, and rotary wing sUAS aircraft that meet requirements under FAA Part 107	1. Requestor determines image resolution required using the National Imagery Interpretability Rating Scale (NIIRS) 2. sUAS platforms needed, such as fixed wing, rotary wing, or lighter-than-air, may vary based on mission assignment 3. For Type 1 and Type 2 teams, each sUAS should meet requirements under FAA Part 107
INFORMATION COLLECTION EQUIPMENT PER TEAM	Same as Type 2, PLUS: Specialized information collection equipment, such as: 1. Specialized sensors, such as photogrammetry, sonar, radar, infrared, lidar, and hyperspectral 2. Infrared thermography (IRT)	1. Photography 2. Full motion video	Requestor provides image resolution requirements based on mission needs.
COMMUNICATIONS EQUIPMENT PER TEAM MEMBER	Same as Type 2	1. Two-way portable radio 2. Cell phone	Consider alternate forms of communications, such as satellite phones, based on the mission assignment and team needs.

NOTES

Nationally typed resources represent the minimum criteria for the associated component and capability.

REFERENCES

1. FEMA, NIMS 509: Air Operations Branch Director
2. FEMA, NIMS 509: Air Tactical Group Supervisor
3. FEMA, NIMS 509: Air Support Group Supervisor
4. FEMA, NIMS 509: Remote Pilot-in-Command
5. FEMA, NIMS 509: Technical Specialist – Small Unmanned Aircraft System
6. FEMA, National Incident Management System (NIMS), October 2017
7. Federal Aviation Administration (FAA) Joint Order (JO) 7200.23: Air Traffic Organization Policy, October 2016
8. Title 14 Code of Federal Regulations (CFR) Part 107: Small Unmanned Aircraft Systems, latest edition adopted
9. Title 14 CFR Part 117: Flight and Duty Limitations and Rest Requirements, latest edition adopted
10. Department of Homeland Security Best Practices for Protecting Privacy, Civil Rights, and Civil Liberties in Unmanned Aircraft Systems Programs, December 2015