

## All Hazards Unmanned Aircraft Systems (AHUAS) Team

<b>DESCRIPTION</b>	<b>The All Hazards Unmanned Aircraft System (AHUAS) Team is a multidisciplinary team able to operate independently or attached to other resources and conduct a variety of sUAS missions, including US&amp;R support, reconnaissance or Rapid Needs Assessment, search, damage assessment, or observation and situational awareness.</b>
<b>OVERALL FUNCTION</b>	An All Hazards Unmanned Aircraft System (AHUAS) Team deploys independently or attached to other resources, including US&R, firefighting, damage assessment, or law enforcement. It performs the following functions: <ol style="list-style-type: none"> <li>1. Conducts post-impact reconnaissance or Rapid Needs Assessment</li> <li>2. Provides local incident commanders data and information to inform decision making and resource allocation.</li> <li>3. Conducts search and rescue in urban, suburban, maritime, and wide area.</li> <li>4. Conducts damage assessment, route clearance, and observation/situational awareness missions as required by the IC.</li> </ol>
<b>COMPOSITION AND ORDERING SPECIFICATIONS</b>	<ol style="list-style-type: none"> <li>1. AHUAS Team can operate for between 8 hour and 24 hours per day (see Type) - depending on assigned personnel. This team is self-sustaining for 72 hours, and deployable for up to 7 days.</li> <li>2. Requestor/Agency Having Jurisdiction (AHJ) and resource provider must address, prior to deployment, certain needs, including:                     <ol style="list-style-type: none"> <li>a. Communications beyond the resource’s intra-team communications (such as programmable interoperable communications with command, logistics, other resources, etc.)</li> <li>b. Additional transportation or specific vehicles, boats, trailers, drivers, mechanics, equipment, supplies, and fuel, etc.</li> <li>c. Any additional aviation support, such as helicopter or fixed wing</li> <li>d. Logistics support needs for this resource (fuel, security and force protection, lodging, transportation, meals, etc.) past 72 hours.</li> </ol> </li> </ol>

RESOURCE TYPES			TYPE 1	TYPE 2	TYPE 3	TYPE 4
COMPONENT	METRIC	CAPABILITY				
Personnel	Per Team	Management and Oversight	2 - Small Unmanned Aircraft System Team Leader (SUASTL)	Same as Type 3	Same as Type 4	1 - Small Unmanned Aircraft System Team Leader (SUASTL)
<b>NOTES:</b> None specified.						
Personnel	Per Team	Operations and Support	4 - Small Unmanned Aircraft System Pilot (SUASP) 2 - Small Unmanned Aircraft System Data Technician (SUASDT)	2 - Small Unmanned Aircraft System Pilot (SUASP) 1 - Small Unmanned Aircraft System Data Technician (SUASDT)	1 - Small Unmanned Aircraft System Pilot (SUASP) 1 - Small Unmanned Aircraft System Data Technician (SUASDT)	1 - Small Unmanned Aircraft System Pilot (SUASP)
<b>NOTES:</b> Personnel may have multiple functions to include logistics, search manager, HAZMAT technician, etc.						

RESOURCE TYPES			TYPE 1	TYPE 2	TYPE 3	TYPE 4
Personnel	Per Team	Minimum	8	4	3	2
<b>NOTES:</b> Additional personnel may be assigned to the team, permitting extended operation time.						
Equipment	Per Team Member	PPE	Same as Type 2	Same as Type 3	Same as Type 4	1. SAR (NFPA 1951) Helmet 2. Protective clothing 3. Footwear 4. Personal medical kit 5. Eye protection 6. Headlamp and batteries 7. Other necessary field gear to be self-sustaining for 72 hours.
<b>NOTES:</b> None specified.						
Equipment	Per Team Member	Communications	Same as Type 2	Same as Type 3	Same as Type 4	1. Handheld GPS Unit 2. Two-way VHF/UHF handheld radio 3. Mobile phone 4. Chargers for all devices
<b>NOTES:</b> 1. The local Incident Command should determine interoperability within the incident, including with aircraft.						
Equipment	Per Team	Communications	Same as Type 2, <b>PLUS:</b> 1. VHF AM Aviation band radio 2. Aircard/hotspot/MiFi	Same as Type 3, <b>PLUS:</b> 1. Remote video streaming hardware, software and services.	Same as Type 4	1. VHF AM Aviation band radio 2. Aircard/hotspot/MiFi 3. Chargers for team devices
<b>NOTES:</b> sUAS Operators are limited by FCC license in using VHF aviation bands. Some teams may hold FCC licenses for ground use of VHF aviation radios for Search and Rescue.						
Vehicle	Per Team	Unmanned Aircraft	5 - Multirotor UAS, capable of 18 min on-station time. 2 - Fixed-wing UAS capable of 45 min on-station time.	5 - Multirotor UAS, capable of 18 min on-station time.	3 - Multirotor UAS, capable of 18 min on-station time.	2 - Multirotor UAS, capable of 18 min on-station time.
<b>NOTES:</b> Minimum aircraft specified. Additional aircraft may be included with the team. All UAS will weigh less than 55lbs. Type 1 Fixed wing requirements can be replaced with multi-rotor aircraft capable of performing similar taskings.						

RESOURCE TYPES			TYPE 1	TYPE 2	TYPE 3	TYPE 4
Equipment	Per Team	Batteries/Fuel	42 - Primary flight batteries (avg. 6 per aircraft)	30 - Primary flight batteries (avg. 6 per aircraft)	18 - Primary flight batteries (avg. 6 per aircraft)	12 - Primary flight batteries (avg. 6 per aircraft)
<p><b>NOTES:</b> Specified battery/fuel requirements enable continuous operation of each aircraft while 120V AC power is available for re-charging. Without 120V AC power, flight operations may be limited.</p>						
Equipment	Per Team	Sensors, Payloads, Ground Control Systems	Same as Type 2	Same as Type 3	Same as Type 4, PLUS: 1. FLIR sensor 2. Strobe light (white) attached to aircraft for nighttime operations, visible for 3NM. 3. Hardware and software to process still imagery into orthorectified mosaic images and GIS layers	1. Optical, color, High-Definition camera systems, one per aircraft 2. Complete ground control station for each aircraft, including primary flight control, computer/tablet for aircraft operation, required antennas, power systems and chargers for ground control stations
<p><b>NOTES:</b> None specified.</p>						
Capability	Per Team	Operations	Same as Type 2, PLUS: 1. Maintains continuous flight operations (airborne aircraft on station) for up to <b>six</b> hours. 2. Operational for 24 hours per day.	Same as Type 3, PLUS: 1. Performs long range (to edge of line of sight) on linear structures such as power lines, pipelines, roads, bridges, and beaches.	Same as Type 4, PLUS: 1. Operates during nighttime hours in Visual Meteorological Conditions (VMC) 2. Operational for 12 hours per day. 3. Maintains continuous flight operations (airborne aircraft on station) for up to <b>four</b> hours.	1. Performs unmanned aircraft support missions as described above, with emphasis on: a. Reconnaissance/Rapid Needs Assessment b. Urban Search and Rescue 2. Maintains continuous flight operations (airborne aircraft on station) for up to <b>three</b> hours. 3. Operates during daylight hours and in Visual Meteorological Conditions (VMC) 4. Operational for 8 hours per day (not continuous flight). 5. Aviation ops occur under a Certificate of Authorization or 14 CFR Part 107.
<p><b>NOTES:</b> None specified.</p>						

RESOURCE TYPES			TYPE 1	TYPE 2	TYPE 3	TYPE 4
Capability	Per Team	Products (Data, Information, Intelligence)	Same as Type 2	Same as Type 3, PLUS: 1. Provides real time streaming of aircraft sensor feeds to remote locations via IP network. 2. Printed maps of acquired data and information.	Same as Type 4, PLUS: 1. Recorded FLIR video in multiple palettes on SD card. 2. Geotagged FLIR imagery on SD card 3. Orthorectified mosaic imagery 4. GIS raster layers containing orthorectified mosaic imagery and other information.	1. Recorded color video on SD card 2. Real-time local video feed from aircraft (located with operator) 3. Geotagged color imagery on SD card 4. Location information (USNG or Lat/Long) of subjects or points of interest 5. GIS data collection of damage and survivor contact utilizing Survey123 or Iron Sights
			<b>NOTES:</b> Additional products may be created in the field.			
Vehicle	Per Team	Ground Transportation	4 - Vehicle capable of transporting team/elements	2 - Vehicle capable of transporting team/elements	Same as Type 4	1 - Vehicle capable of transporting team (van/truck)
			<b>NOTES:</b> Vehicles should include covered/secured storage area for equipment - open bed pickup trucks may not be appropriate.			