



Fairfax County Government

PROGRAM MANUAL

UNMANNED AIRCRAFT SYSTEMS (UAS)

Date: May 21, 2019

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PROGRAM MANUAL PURPOSE

The purpose of this program manual is to provide a set of operational policies and procedures to promote the safe, effective, efficient, responsible, and lawful operation of the Fairfax County Unmanned Aircraft Systems (UAS) program. This program manual applies specifically to public use of Unmanned Aircraft Systems by approved County agencies and does not apply to civil use by residents or private businesses or organizations.

This program manual was developed through coordination with multiple participating agencies and stakeholders, the establishment of a UAS Task Force, and community engagement and input. This manual will be considered a living document and will be revised as required due to any legislative, regulatory, or policy revisions, best practices, or any change in the concept of operations.

Important aspects of this manual are the focus on responsible and accountable operations; the safety of the public and UAS flight crews; the protection of individuals' privacy, civil rights and civil liberties; compliance with all applicable federal, state, and local laws, regulations, and policies; public information; data management; and operational and training requirements.

To demonstrate transparency and maintain community trust the Fairfax County UAS program will provide information about the program and missions on a dedicated County UAS webpage and provide alert notifications to the public for any flights. Community engagement is to be a cornerstone of the program.

All Fairfax County UAS Part 107 certified employees and volunteers shall adhere to the guidelines in this program manual and any additional participating County agency specific requirements to maintain the highest level of standards, safety, and professionalism while operating a UAS.

MISSION STATEMENT

The Fairfax County UAS program will provide an enhanced level of operational capability, safety, and situational awareness for first responders, approved participating agencies, and decision-makers by delivering relevant high-quality imagery, data, and customized geospatial solutions using unmanned aircraft in a responsible and transparent manner to maintain the public trust.

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SECTION 1: OVERVIEW

UNMANNED AIRCRAFT SYSTEMS (UAS) PURPOSE

Unmanned Aircraft Systems (UAS) provide enhanced operational capability, safety, and situational awareness for first responders, other staff or volunteers, affiliated partners, and the community. They can operate in many types of environments (natural or manmade), or other critical incidents which might be hazardous to the safety of first responders or others. UAS provides a unique, viable, safe, versatile, supplemental tool for incident commanders and first responders. UAS also have a cost benefit compared to manned aircraft. UAS is not a replacement for manned aircraft that have a different set of capabilities, but for some missions UAS provide first responders with a tool that can access areas where manned aircraft cannot fly due to weather or other safety regulations. UAS provides a viable, safe, and supplemental asset to other manned aircraft assets.

APPROVED COUNTY UAS DEPARTMENTS/AGENCIES

The Fairfax County UAS program was approved, and this program manual adopted, by the Board of Supervisors on May 21, 2019. The current Board approval is for specific public safety use only by the below listed agencies:

- Fire and Rescue Department
- Office of Emergency Management
- Police Department
- Sheriff's Office

The Board of Supervisors directed that any other non-public safety County department or agency, including the Fairfax County Park Authority, wanting to operate UAS in the future be required to obtain Board approval prior to any UAS operations. An approval process is scheduled to be considered by the Board on June 25, 2019. Board approval of any program expansion is important to maintain community trust and awareness of other potential UAS use, maintain program integrity, avoid duplication of efforts and resources, leverage policies, expertise, and training, and to incorporate other departments and agencies into the same governance, review, and oversight structure.

ANNUAL EXECUTIVE SUMMARY

The Fairfax County UAS Program Manager, in coordination with the UAS Steering Committee, will develop an annual executive summary to highlight program accomplishments, outline mission summaries, and provide information about the number of deployments, hours flown, support for other localities or partner agencies. Any significant revisions to this manual or other relevant policies will also be identified in the summary. This summary will be posted to the County webpage and will also be available to those persons without electronic access upon request.

PUBLIC EDUCATION AND INVOLVEMENT

To be transparent and maintain community trust, in the development of this program a UAS Task Force, with community representation was established, and the community was invited to participate in information and question sessions, or to otherwise review and comment on the use of UAS technology and this policy manual online or through email.

Transparency and community engagement will continue to be an integral program component, with multiple methods and strategies to not only provide information, but to also continue to seek and allow public comment on the purpose of the program, equipment, capabilities, policies, safety protocols, and safeguards to protect individuals' privacy, civil rights, and civil liberties. These methods and strategies will include but not limited to the following:

- Provide presentations at community meetings, town halls or special events. Invite media representation as possible.
- Community representation on the UAS Steering Committee.
- Predisposition to the release of information on the program, policies, missions, flight data, logs, etc.
- Provide public demonstrations to showcase the County's capability and provide public information and education on the UAS program.
- Establish and maintain a UAS webpage for transparency and to provide the public information on policy, equipment, training, mission types, and FAQs.
- Biennial formal assessment of the UAS program with community participation.
- Fairfax County Park Authority sponsored beginner classes to educate the community about UAS.
 - Special events and programs focusing on safety and UAS philosophy.
 - Both indoor and outdoor flight opportunities.

COUNTY UAS WEBPAGE

A key County principle is to provide transparency and information to the public. As part of a multi-tiered approach to this principle the UAS program will maintain a dedicated County webpage that will provide links to the UAS Program Manual, policies and procedures, information on missions flown, program updates, and locations where members of the public may fly personal drones in compliance with Federal restrictions in permitted areas of UAS flight.

Website: <https://www.fairfaxcounty.gov/uas>

PUBLIC COMMENT / REQUESTS

An email account has been created to provide access to the County UAS program for the public to ask questions about the program, offer feedback or suggestions, or notify of a complaint. The UAS Program Manager will be responsible for monitoring this email account and responding or coordinating responses with appropriate agencies.

Email address: UAS@fairfaxcounty.gov

PUBLIC ALERTING / NOTIFICATION

A UAS notification group has been created in Fairfax Alerts that will provide the public the opportunity to sign up for notifications for missions or training flights. These alerts will be sent geo-coded only to the immediate area in which flight operations which will be conducted within line of sight of the Pilot in Command and any visual observer, will be taking place. Other existing alternative alert/notification methods may be used in certain instances, particularly if an emergency or critical incident is occurring. The respective agency program coordinator or incident commander will be responsible for ensuring timely public notification.

PUBLIC / MEDIA INTERACTION DURING OPERATIONS

While on a mission assignment, it is likely that members of the public and/or media may approach the flight crew and attempt to observe the operation, ask questions, request an interview, or take pictures or video of the operation. Flight crew members are expected to be respectful, but their priority is safety of all involved.

Flight crew members or other representatives of the UAS program are encouraged to speak with the public and media about the program or the mission provided it is safe, does not interfere with flight operations, or compromise the integrity of any mission. When possible, designate a safe area for the public or media to assemble and observe.

The flight crew may request support from other County agencies, such as police, if needed to establish a safe perimeter and/or request a PIO to respond to assist.

Flight crews are to ensure that any sensitive mission information is not readily accessible by the public or media visually or using video or other photographic equipment.

In the event the public or media wants to fly their own unmanned aircraft near or within an active airspace, flight crews or other support staff may, if necessary, ask them to avoid flight operations in the immediate area due to safety and security concerns, or provide other reasonable mitigation and deconfliction measures, such as assigning perimeter zones or different altitudes, etc. The Pilot in Command has the ultimate authority and responsibility to continue or abort any mission if safety or mission effectiveness or security is compromised.

CONCERNS / COMPLAINTS / QUESTIONS

If a member of the public has a concern or would like further information about the program or a specific flight or UAS operator, that request will be handled first through the UAS Program Manager and then followed up with the respective Agency Program Coordinator as needed.

Any complaint that alleges a privacy, civil rights, or civil liberties violation, or other type of complaint, will be handled in accordance with established County or respective agency policy. Efforts will be made to respond to a complaint within 48 hours of notification unless the initial contact falls during a weekend or holiday.

All requests, questions or comments should be directed through the UAS program email account: UAS@fairfaxcounty.gov.

UAS EQUIPMENT CAPABILITIES

Each of the aircraft used in the UAS program brings a variety of technology and flight capabilities. Enhanced capabilities include:

- Operate in environments that are hazardous or potentially hazardous to personnel.
- Provide High Definition video and photographs.
- Thermal imaging/Forward-Looking Infrared Radar (FLIR).
- Carry an external payload (flotation device, radio, medication, automated external defibrillator (AED)).
- Operate in virtually all-weather conditions.
- Take off and land autonomously.
- Onboard passive collision detection.
- Autonomous return to home during loss of signal or reduced battery strength.

PROHIBITED USES

The UAS program and equipment shall not be used for the following:

- UAS flights in airspace prohibited by applicable Federal and state regulations unless a waiver of the applicable restriction is obtained prior to a flight.
- UAS flights beyond visual line of sight (BVLOS).
- As a weapon or otherwise modified to deploy any projectile, chemical agent, or electric shock analogous to that of an electronic control weapon.
- To conduct unauthorized surveillance activities.
- To collect or use data in any manner that would harass, coerce or discriminate against any person(s) based upon their ethnicity, race, gender, national origin, religion, sexual orientation, or gender identity.
- In violation of the United States Constitution, federal laws or regulations, or the Code of Virginia. When a search warrant is required by law, and no warrant exception exists, flight is prohibited unless authorized by a search warrant signed by a magistrate.
- Routine police patrol operations.
- In conditions that exceed the manufacturer's recommended limitations, including but limited to range, ceiling, wind strength, and battery charge.
- In other than Class G airspace unless specific authorization is granted by the FAA.
- Daisy-chaining observers to extend line-of-sight.
- To intentionally gather intelligence related to First Amendment protected speech, associations, or activity.
- For personal use of any type.
- To intentionally pursue, harass, disturb, or destroy wildlife.

MISSION PROFILES

Listed below are examples of the types of missions for which UAS systems may be deployed. This list is not exhaustive, and other types of missions may be flown provided they follow County and agency policies and are approved by the incident commander or remote Pilot-in-Command.

- Damage Assessment (natural or man-made event)
 - Structural, flood related, environment, transportation, pipeline breaks, and rail incidents.
 - Enhanced search grids through onboard software.
- Search and Rescue Missions (individuals, aircraft, vehicles and objects)
 - Search for endangered or critical missing individuals.
 - Provide a large-scale overview of the search area.
 - Identify potential hazards for search teams and vehicles.
 - Allow for limited tracking of search teams in an area.
 - Provide photographic and video capability and analysis.
 - Scene awareness and life safety to identify potential hazards to responders.
- Fire Scene Management
 - Overflight of structure fires (residential and commercial) by providing a 360-degree view for the incident commander.
 - Aerial management and coordination for large outside fires to help determine the extent of coverage and identify structures, exposures or another infrastructure that may be impacted.
 - Assist in helping account for personnel on the fire ground.
 - Provide real-time aerial video footage of large-scale incidents.
 - Assist in evaluating hazards, structure integrity and helping to ensure scene safety.
- Fire / Explosives Investigations
 - Assist fire investigators in assessing and documenting fire scenes for an overall scope of the scene.
 - Provide detailed overhead views of large fire scenes from multiple angles and is safer than placing aerial ladders in multiple locations to get aerial photos. This is both a time saving and safety issue. The UAS can also zoom in or fly in to get extreme close-up photos and distant scene photos that would normally require the use of the County Police's helicopter unit or other aviation assets.
 - Assist Blasting Enforcement Officer in developing requirements for blast site safety zones for commercial blasting projects.
 - Assist in post blast investigations in locating blast scene radius and areas impacted by an explosion.
- Hazardous Materials
 - Infrared (IR) Forward-Looking Infrared (FLIR) capabilities of the UAS in tracking flows of hazardous materials on waterways during a hazardous materials incident.
 - Assist with hazard identification and development of safety measures.
 - Provide area reconnaissance information without placing personnel in potentially hazardous locations:

- Assist in determining hazardous materials involvement.
 - Determine potential run-off/movement of hazardous materials.
 - Ensure area is clear of the public.
- Urban Search and Rescue (USAR)
 - Assist with area reconnaissance including urban, suburban and rural locations.
 - Assist with personnel tracking and accountability in wide area search.
 - Provide real-time aerial video footage of rescue operations including but not limited to:
 - Trench rescue.
 - Structural collapse.
 - Swift water rescue.
- Plan Development
 - Assist the Fairfax Joint Local Emergency Planning Committee (FJLEPC) staff in developing site specific Hazardous Materials Emergency Response Plans (HMERP) for large critical hazard facilities and surrounding communities. Examples are waste and fresh water treatment facilities, and petroleum tank farms that cover many acres and are adjacent to residential and/or commercial communities and environmentally sensitive areas.
- Infrastructure
 - Assess hazardous pipeline infrastructure within Fairfax County to evaluate possible leaks and impacts during incidents or pipeline repair projects. This will assist in locating possible critical areas, communities, and sensitive environmental areas that could be impacted by hazardous chemicals leaks or be impacted by normal repairs and inspections of the pipelines.
 - Critical Infrastructure Assessment (bridges, antenna towers, stream and water management).
- Public Safety
 - Provide aerial mapping support to assist in crash reconstruction.
 - Provide aerial mapping, photographing and analyzing crime scenes.
 - Provide real-time traffic impact assessment and 3D mapping due to vehicle crashes or significant events (such as road backups/alternate routes of travel, weather, or evacuations).
 - Provide real-time situational awareness during managed deer hunts and sharpshooting operations on approved parklands to help provide an additional layer of safety for those involved and surrounding properties and residents.
 - Perimeter security.
- Dive Team Support
 - Reconnaissance of the area for best access points into the water.
 - Potentially identify the location of a missing vehicle/person (shadows, tire marks).
 - Scene awareness to identify potential hazards to responders.
- Geospatial Data Acquisition
 - Orthomosaics.
 - Elevation Surfaces.
 - Digital Surface Models.
 - 3D Point Clouds.

SECTION 2: LAW ENFORCEMENT USE OF UAS

It is important to distinguish between “general public safety missions” and the use of UAS technology by law enforcement. This policy has been developed in a manner that equally values security, safety, and privacy.

The following provisions specifically apply to the use of UAS technology by the Fairfax County Police Department (FCPD). The FCPD, consistent with other UAS user agencies, will promulgate specific agency guidelines in alignment with this program manual.

- A. The UA is lawfully authorized for use by the Fairfax County Police Department under the following circumstances:
 1. During the execution of a valid search warrant, including forensic crime scene processing and documentation, or in accordance with the exceptions as outlined in [Va. Code Ann. § 19.2-60.1](#). (see Code of Virginia section, pp. 23-24)
 2. An unmanned aircraft system may be deployed without a warrant:
 - a. When an Amber Alert is activated pursuant to [Va. Code Ann. § 52-34.3](#)
 - b. When a Senior Alert is activated pursuant to [Va. Code Ann. § 52-34.6](#)
 - c. When a Blue Alert is activated pursuant to [Va. Code Ann. § 52-34.9](#)
 - d. Where use of an unmanned aircraft system is determined to be necessary to alleviate an immediate danger to any person. Examples that may meet the “Immediate danger” threshold include, but are not limited to:
 - Missing Endangered Person
 - Suicidal/Homicidal Person
 - Barricaded/Armed Suspect
 - Fleeing Suspect considered armed and dangerous
 - Active Shooter incidents
 - Bomb/Improvised Explosive Device Incidents
 - Hazmat situations
 - e. To investigate a traffic crash, where a report is required pursuant to [Va. Code Ann. § 46.2-373](#), to survey the scene for the purpose of crash reconstruction and scene documentation.
 - f. For purposes related to training, testing, and equipment evaluation.

- g. If operated in a location where a person with legal authority consents to a warrantless search.
- B. The primary missions of the FCPD UAS Program are:
- Search and Rescue
 - Crash reconstruction
 - Forensic documentation
- C. UAS operators shall take all reasonable precautions to avoid inadvertently recording or transmitting images of individuals and areas uninvolved with the mission.
- D. Reasonable precautions to avoid inadvertent viewing and/or recording of uninvolved persons may include the following:
1. Deactivating or turning recording devices away from certain areas, structures, or persons during UAS operations.
 2. Focusing on the areas necessary to the mission to minimize the inadvertent collection of data about uninvolved persons or places.
 3. In many operations, it may be prudent and appropriate, to not use any of the UAS's recording capability during an operation, and instead use only the UAS live feed transmission capability to avoid creating "unintended images" of people or activities outside the scope of the investigation.
- E. If an FCPD UAS must be flown over private property enroute to an authorized flight area, the PIC shall operate the UAS in a manner, and at an altitude to avoid disturbing any persons on the ground.
- F. The need, availability, and use of the UAS shall never supersede the obtaining of a search warrant when such a warrant is required under Virginia law. FCPD shall not circumvent search warrant requirements by requesting any non-law enforcement or regulatory agencies to fly missions on its behalf.
- G. Transparency regarding UAS operations, including how the agency deploys and operates the technology, fosters an informed community and promotes greater public trust. If asked, operators should inform individuals that they are using a UAS, and the purpose for the use if the disclosure does not jeopardize any operation or investigation.

SECTION 3: ADMINISTRATION

STEERING COMMITTEE

A Fairfax County UAS Steering Committee will be formed and meet at least once every three (3) months. The committee will report to the Deputy County Executive for Public Safety and will include representatives from the Office of Emergency Management, Fire and Rescue Department, Police Department, Sheriff's Office, Office of the County Attorney, Risk Management Division, Department of Information Technology, Office of Public Affairs, Park Authority, and any other participating county agency approved to possess or use UAS technology. Appropriate staff from any relevant state or federal agency may also be included.

A minimum of two community or organization members, with commensurate experience, interest, and knowledge, will also be selected and appointed as members of the Steering Committee to provide a community perspective, protect and promote civil liberties and privacy, ensure program compliance, and enhance community engagement and trust.

The committee will be responsible for supporting the UAS Program Manager, administering the County UAS program, developing the annual executive summary, ensuring that the program complies with all applicable federal, state, and local laws, regulations, and policies, ensuring coordination among participating agencies, updating the program manual, and reviewing best practices and new technology.

UAS PROGRAM MANAGER

The UAS Program Manager will be designated by, and report to, the Deputy County Executive for Public Safety, and will serve for a period of 2 years. The designation will be made following consultation with members of the Steering Committee. The Program Manager is responsible for the oversight of the Fairfax County UAS program and will work closely with all the agency program coordinators.

Position Requirements

- Current Fairfax County government employee.
- Current Remote Pilot Certificate issued by the FAA with small UAS rating.

Duties

- Member of the UAS Steering Committee.
- Develop the annual Executive Summary.
- Coordinate all County UAS training.
- Manage and update the UAS Program Manual.
- Coordinate the Public Program Evaluation Program.
- Provide updated information to all agency program coordinators.
- Manage the County UAS email account and webpage.
- Maintain FAA certifications.

- Liaison with FAA, Virginia Public Safety UAS Council, Commonwealth of Virginia Unmanned Aerial Systems Sub-Panel, and the Washington Metropolitan Council of Governments (COG).
- Participate in local/regional committee meetings.
- Coordinate with external partners.
- Work closely with County senior leadership.
- Maintain flight proficiency as prescribed in this program manual.
- Maintain and update the County FAA Certificate of Authorization (COA).

AGENCY PROGRAM COORDINATORS

Each participating agency shall designate an Agency Program Coordinator to support the UAS Program Manager and coordinate an agency's UAS policies, operations, training, documentation, resource management, and data management. The UAS Program Manager shall maintain a list of current Agency Program Coordinators.

Position Requirements

- Current Fairfax County government employee.
- Designated by the agency director or designee.

Duties

- Member of the UAS Steering Committee.
- Manage an agency's UAS program in coordination with the UAS Program Manager.
- Coordinate agency training and all ensure operational guidelines are followed.
- Disseminate revisions to the UAS Program Manual to all agency flight crews and revise any respective agency policies as needed.
- Keep current on best practices and technology and make appropriate recommendations.
- Ensure that all aircraft updates and enhancements are downloaded.
- Ensure that data management/access and retention guidelines are being followed.
- Ensure preventive/operational maintenance is performed to standards and documented.
- Maintain copies of all training certificates, flight logs and maintenance logs.
- Respond to County program email as applicable.
- Responsible to ensure any respective agency standards of operating procedures, general orders, or other policy is updated.
- Conduct indoctrination training to new UAS members.
- Oversee procurement of UAS equipment.
- Conduct audits of agency flight and maintenance logs semiannually.

PROGRAM MANUAL REVISIONS

The UAS Program Manual will be reviewed periodically as required to incorporate any revisions due to federal, state, or local legislative, regulatory, or policy revisions, operational assessments, or best practices. At a minimum, the UAS Program Manual will be reviewed and updated, as needed, annually. Revisions will include additions of new or supplementary material, deletions of outdated information or changes in industry best practices. No proposed revision should contradict or override authorities or other plans contained in statute or regulation. All requests for revisions will be submitted to the Fairfax County UAS Steering Committee for coordination, approval, and distribution. Any department or agency may also propose revisions to the UAS Program Manual. Program manual revisions shall be reviewed and approved by the Deputy County Executive for Public Safety.

NOTICE OF REVISION

Notices of revision to the UAS Program Manual will be prepared and distributed by the UAS Steering Committee for all revisions made outside of the scheduled revision process. The notice of revision will include the effective date, revision number, subject, purpose, and action required by the UAS program team. The notice of revision will include revised pages for replacement within the UAS Program Manual.

Sample Record of Revision Form

Number	Date	Date Entered	Entered By
1.1	DD/MM/YEAR	DD/MM/YEAR	First Last

PROGRAM EVALUATION

Although program evaluation and improvement will be an ongoing objective, to ensure that the Fairfax County UAS program continues to evolve and maintain a high level of transparency the UAS Steering committee will schedule a formal evaluation of the UAS program, policies, and practices every two years (biennially). The first of these should begin on or about June 1, 2021. Representatives from the Steering Committee and the community will participate in this review process.

At a minimum, the review process will include the following:

- Review of the UAS program, practices, and policies.
- Review of any applicable federal, state, or local code or regulation amendments or additions to evaluate the need to make any programmatic or training revisions.
- A 30-day public comment period.
- Production of an executive summary of any revisions or recommended revisions.
- Update of the UAS program manual and any required training materials.
- Data storage and retention.

After the program evaluation process has been completed a copy of the executive summary and the updated UAS program manual will be published on the Fairfax County UAS webpage.

REQUIRED REPORTS / CERTIFICATIONS

The Fairfax County UAS program has specific reporting and certification requirements, to include:

- Annual review of the pilot and maintenance logs.
- Annual maintenance review of all aircraft, controllers, and spare parts.
- Annual Executive Summary.
- Applicable FAA and National Capitol Region waivers.
- Annual review and update of the UAS Operations Manual.
- Annual review of all training conducted.
- Quarterly update to county webpage.
- Maintain applicable FAA Remote Pilot knowledge and certifications.

The UAS Program Manager shall have the responsibility, in coordination with the Steering Committee, to ensure the timely completion of these reporting requirements.

MEMORANDUMS OF UNDERSTANDING / MUTUAL AID

Applicable existing MOUs and Mutual Aid agreements will be relied upon when providing support to other localities within the National Capital Region. All guidelines as outlined in this program manual will be followed when supporting another locality or agency. Additional or revised language may be required in current MOUs/MOAs/Mutual Aid agreements based on the restrictive nature of this UAS program.

SECTION 4: REGULATORY

All flights, regardless if operational or training, shall comply with all applicable federal, state, and local laws and regulations. All flights will be conducted following all applicable FAA regulations pertaining to the operations and certification of small Unmanned Aircraft Systems including but not limited to Title 14 CFR and Part 107.

Fairfax County will conduct UAS flight operations under either a FAA Certificate of Authorization (COA) or as a Civil Operator. This COA grants permission to fly within specific parameters established by the FAA.

To fly in controlled airspace and comply with Part 107, prior to any flight, Fairfax County will be required to obtain airspace authorization.

FAA rules do not allow flights beyond the line of sight of the Pilot in Command or visual observers without a FAA waiver. Consequently, the Fairfax County UAS program will not make flights beyond visual line of sight (BVLOS), and has not applied for such a waiver. Any future request to seek a waiver for BVLOS shall require Board of Supervisors' approval.

All FAA advisories, circulars, orders, bulletins or notices will be reviewed by the UAS Program Manager. Any changes that may impact the Fairfax County program will be updated to this program manual and the changes distributed per the record of manual changes section.

ADDITIONAL FAA COMPLIANCE

The program will comply with any additional information or regulatory requests from the Federal Aviation Administration (FAA) to include, for example:

- Any document, record, or report on:
 - Aircraft registration.
 - Flight records.
 - Incident reports.
 - Deviation from regulations.
 - Authorization from air traffic control (ATC).
 - Waiver from specific provisions (as appropriate).
- FAA may require upon request, to test or inspect:
 - Aircraft.
 - The remote pilot in command or person manipulating the flight controls.
 - Visual observer.
- Report any accident within 10 days that meets the following criteria:
 - Causes serious injury to any person or who has a loss of consciousness.
 - Damage to any property, other than the aircraft, greater than \$500.

Under every circumstance in which the FAA becomes involved, the Pilot in Command shall notify their respective Agency Program Coordinator within 24 hours. The Agency Program Coordinator

must make appropriate notification to their agency chain of command and the UAS Program Manager.

In the event of any UAS accident, regardless if it meets the FAA threshold for a reportable accident, the Pilot in Command must notify their Agency Program Coordinator, UAS Program Manager, and Fairfax County Risk Management Division.

REPORTING REQUIREMENTS

While flying under an FAA approved Certificate Authority (COA) the following requirements will be adhered to at a minimum. There may be additional requirements as outlined in a Fairfax County COA that are not yet listed in this section. Those additional requirements are to be followed as well. Once a COA has been approved by the FAA this section will be updated to reflect the full extent of requirements.

- Documentation of all operations associated with UAS activities is required regardless of the airspace in which the UAS operates. NOTE: Negative (zero flights) reports are required.
- The Proponent must submit the following information monthly through the COA Application Processing System (CAPS):
 - Name of Proponent, and aircraft registration number,
 - UAS type and model,
 - All operating locations, to include city name and latitude/longitude,
 - Number of flights (per location, per aircraft),
 - Total aircraft operation hours,
 - Takeoff or landing damage, and
 - Equipment malfunction. Required reports include, failures or malfunctions to the:
 - Control station
 - Electrical system
 - Fuel system
 - Navigation system
 - On-board flight control system
 - Power plant
 - The number and duration of lost link events (control, performance and health monitoring, or communications) per UAS, per flight.

INCIDENT/ACCIDENT/MISHAP REPORTING

After an incident or accident that meets the criteria below, and within 24 hours of that incident, accident or event described below, the proponent must provide initial notification of the following to the FAA via email at mail to: 9-AJV-115-UASOrganization@faa.gov and via the UAS COA On-Line forms (Incident/Accident).

- All accidents/mishaps involving UAS operations where any of the following occurs:
 - Fatal injury, where the operation of a UAS results in a death occurring within 30 days of the accident/mishap
 - Serious injury, where the operation of a UAS results in:
 - Hospitalization for more than 48 hours, commencing within 7 days from the date of the injury was received;
 - A fracture of any bone (except simple fractures of fingers, toes, or nose);
 - Severe hemorrhages, nerve, muscle, or tendon damage;
 - Involving any internal organ; or
 - Involves second or third-degree burns, or any burns affecting more than 5 percent of the body surface.
 - Total unmanned aircraft loss
 - Substantial damage to the unmanned aircraft system where there is damage to the airframe, power plant, or onboard systems that must be repaired prior to further flight
 - Damage to property, other than the unmanned aircraft.
- Any incident/mishap that results in an unsafe/abnormal operation including, but not limited to:
 - A malfunction or failure of the unmanned aircraft's on-board flight control system (including but not limited to navigation)
 - A malfunction or failure of ground control station flight control hardware or software (other than loss of control link)
 - A power plant failure or malfunction
 - An in-flight fire
 - An aircraft collision involving another aircraft.
 - Any in-flight failure of the unmanned aircraft's electrical system requiring use of alternate or emergency power to complete the flight
 - A deviation from any provision contained in the COA
 - A deviation from an ATC clearance and/or Letter(s) of Agreement/Procedures
 - A lost control link event resulting in
 - Fly-away, or
 - Execution of a pre-planned/unplanned lost link procedure.

Initial reports must contain the information identified in the COA On-Line Accident/Incident Report. Follow-on reports describing the accident/incident/mishap(s) must be submitted by providing copies of proponent aviation accident/incident reports upon completion of safety investigations.

The above procedures are not a substitute for separate accident/incident reporting required by the National Transportation Safety Board under 49 CFR Part 830 §830.5.

For other than Department of Defense operations, this COA is issued with the provision that the FAA be permitted involvement in the proponent's incident/accident/mishap investigation as prescribed by FAA Order 8020.11, Aircraft Accident and Incident Notification, Investigation, and Reporting.

SECTION 5: PROTECTION OF PRIVACY, CIVIL RIGHTS, AND CIVIL LIBERTIES

UAS technology is an emerging field, particularly for use in public safety. Although the potential benefits and enhanced capabilities are substantial, concerns exist that UAS may be misused or abused, particularly by law enforcement agencies. UAS operators, observers, and support staff shall ensure the protection of individuals' civil rights, civil liberties and privacy in any UAS deployment. To accomplish this primary goal:

- All agency use under the County UAS program will comply with the *Code of Virginia*, to expressly include § 19.2-60.1., set forth below. This code section prohibits the use of this technology by law enforcement or regulatory agencies with enforcement authority without a valid search warrant except in carefully defined circumstances. Prior to implementing an agency UAS program, the Police Department will develop and maintain training for supervisors and commanders relevant to this code section to ensure compliance. Other participating entities with authority to enforce criminal law or regulatory violations, such as Fire Marshals, will also develop and maintain relevant training, and be required to also comply with the provisions of § 19.2-60.1. Any allegations or violations will be reported and investigated in accordance with County and department policies.
- All UAS users, regardless of agency, shall adopt a posture of minimal data collection, limited to only that data, including images or video recordings, which are essential to complete the objective of the UAS mission.
- All personnel operating a County UA shall take every reasonable precaution to avoid inadvertently recording or transmitting images of individuals and properties unrelated to the mission. To the maximum extent possible, onboard cameras shall be directed toward the area of interest and away from uninvolved individuals or properties to minimize such inadvertent recording or transmission of images.
- Unless required by an articulable operational purpose, the recording of data imagery shall not begin until the UA has arrived at the location designated for the mission.
- All personnel operating a County UA, including non-law enforcement or regulatory personnel, shall be knowledgeable about individual privacy rights, civil rights, civil liberties and Va. Code § 19.2-60.1.
- Non-law enforcement agencies or other regulatory agencies shall not be requested to fly missions on behalf of law enforcement or any regulatory agency in order to circumvent any search warrant requirements.
- UA live feed only transmit capability will be the normal, preferred UAS use by the Pilot in Command, on-scene commander, incident command post (ICP), Emergency Operations Center (EOC), or another Department Operation Center (DOC). The video or camera capability may be used during an operation if essential, but only at the discretion of the requesting agency / incident commander, following an approved checklist and with the rationale provided in a post-incident report.
- All video and still images will be maintained in strict compliance with Fairfax County and the Library of Virginia policies and procedures. Recorded data should not be retained

beyond any period required by Virginia law. Agencies shall conduct regular audits to ensure that recorded data is not retained beyond these time periods and is destroyed in compliance with Library of Virginia guidelines. See *Appendix A* for the retention periods applicable to certain data imagery.

- All persons who have access to any County UA storage medium must have passed a County approved background check. County agencies maintaining imagery data will keep a complete and accurate record, including identity and purpose, of every access to such data by persons or organizations.
- The video is stored onboard the aircraft. The video transmission from the aircraft uses an encrypted data link. The video is viewable by the operator of the UAS utilizing a monitor at the ground control station.
- The UAS Program will employ reasonable technological or administrative safeguards to ensure that images incidentally or inadvertently recorded are not misused, disseminated or viewed unnecessarily to protect individual rights. The UAS training program shall include topics on Va. Code § 19.2-60.1, the protection of individuals' privacy, civil rights, and civil liberties, FOIA, and data dissemination, storage, retention, and security requirements.
- The users of UAS recorded data are responsible for ensuring dissemination of data is authorized, follows County policies and Virginia law, including but not limited to the Virginia Data Collection and Dissemination Practices Act and the Virginia Freedom of Information Act (VFOIA) and is consistent with the recipients' legitimate need to know and authority to receive such data. Any further dissemination by a data recipient will require the data owner's prior consent.
- Any collected data will not be indexed or otherwise arranged to be searchable by an individual's name, personal number or other identifiers.
- The County UAS program will not be paired with facial recognition technology to identify individuals in real-time.
- The UAS webpage and program email account will be maintained and monitored to provide information, and address any public questions, concerns or recommendations.
- The UAS Steering Committee has been established to review and update UAS procedures and training, identify new technologies, review best practices, revisions to UAS related laws and regulations, and any emerging case law or court decisions.
- The County UAS program will operate in strict compliance with all applicable federal, state, and local laws, regulations, and policies, and in a responsible and ethical manner. All operations will be balanced to accomplish the mission (e.g., emergency or life safety) while protecting privacy rights, civil rights, and civil liberties.
- The County UAS program will not use, retain, or disseminate collected data in any manner that would violate any Constitutional rights or in any manner that would discriminate against persons based upon, but not limited to, race, ethnicity, gender, national origin, or religion.
- No video or photographs taken by a County-owned and operated UA will be used for personal use. Any requests for appropriate County use, such as presentations or publications, must be approved by the UAS Program Manager and the data owner

(respective County agency). The Program Manager may seek guidance, if needed, from the Office of the County Attorney. No inadvertent or incidental personal images or information will be permitted to be used under this section.

CODE OF VIRGINIA

During the 2013 General Assembly Session, House Bill 2012 imposed a moratorium on the use of unmanned aircraft systems by law-enforcement agencies until July 1, 2015, with certain exceptions. This legislation also required the Department of Criminal Justice Services, in consultation with the Office of the Attorney General and other agencies, to develop model protocols for the use of unmanned aircraft systems by law-enforcement agencies, resulting in House Document No. 12, Protocols for the Use of Unmanned Aircraft Systems by Law-Enforcement Agencies, published in 2013. Although the moratorium for use by law-enforcement has been lifted, House Document 12 was one of the foundational pillars to inform this program manual.

All agency use under the County UAS program will comply with the Code of Virginia, to expressly include § 19.2-60.1., listed below. Prior to implementing an agency UAS program, the Police and Fire and Rescue Departments will develop and maintain training for supervisors and commanders relevant to this code section to ensure compliance. Other participating entities with authority to enforce criminal law or regulatory violations, such as Office of the Fire Marshal or the Department of Code Compliance, will also develop and maintain relevant training before any use is approved, and be required to also comply with the provisions of § 19.2-60.1. Any allegations or violations will be reported and investigated in accordance with County and department policies.

§ 19.2-60.1. Use of unmanned aircraft systems by public bodies; search warrant required.

A. As used in this section, unless the context requires a different meaning:

"Unmanned aircraft" means an aircraft that is operated without the possibility of human intervention from within or on the aircraft.

"Unmanned aircraft system" means an unmanned aircraft and associated elements, including communication links, sensing devices, and the components that control the unmanned aircraft.

B. No state or local government department, agency, or instrumentality having jurisdiction over criminal law enforcement or regulatory violations, including but not limited to the Department of State Police, and no department of law enforcement as defined in § 15.2-836 of any county, city, or town shall utilize an unmanned aircraft system except during the execution of a search warrant issued pursuant to this chapter or an administrative or inspection warrant issued pursuant to law.

C. Notwithstanding the prohibition in this section, an unmanned aircraft system may be deployed without a warrant (i) when an Amber Alert is activated pursuant to § 52-34.3; (ii) when a Senior Alert is activated pursuant to § 52-34.6; (iii) when a Blue Alert is activated pursuant to § 52-34.9; (iv) where use of an unmanned aircraft system is determined to be necessary to alleviate an immediate danger to any person; (v) by a law-enforcement officer following an accident where a report is required pursuant to § 46.2-373, to survey the scene of such accident for the purpose of crash reconstruction and record the scene by photographic or video images; (vi) by the Department of Transportation when assisting a law-enforcement officer to prepare a report pursuant to § 46.2-373; (vii) for training exercises related to such uses; or (viii) if a person with legal authority consents to the warrantless search.

D. The warrant requirements of this section shall not apply when such systems are utilized to support the Commonwealth or any locality for purposes other than law enforcement, including damage assessment, traffic assessment, flood stage assessment, and wildfire assessment. Nothing herein shall prohibit use of unmanned aircraft systems for private, commercial, or recreational use or solely for research and development purposes by institutions of higher education and other research organizations or institutions.

E. Evidence obtained through the utilization of an unmanned aircraft system in violation of this section is not admissible in any criminal or civil proceeding.

F. In no case may a weaponized unmanned aircraft system be deployed in the Commonwealth or its use facilitated in the Commonwealth by a state or local government department, agency, or instrumentality or department of law enforcement in the Commonwealth except in operations at the Space Port and Naval/Aegis facilities at Wallops Island.

G. Nothing herein shall apply to the Armed Forces of the United States or the Virginia National Guard while utilizing unmanned aircraft systems during training required to maintain readiness for its federal mission or when facilitating training for other U.S. Department of Defense units.

2015, cc. 764, 774; 2018, cc. 419, 546, 654.

SECTION 6: DATA MANAGEMENT

POLICY

Fairfax County would use unmanned aircraft to capture imagery and video data only to the extent necessary to assist or support the flight crew or affiliated personnel in planning, response, and recovery efforts, or for training purposes. The method of acquisition may include the utilization of commercial off-the-shelf camera payloads, advanced thermal imaging devices, multi-spectral sensor technologies and video capture equipment that are placed, as part of a UAS, for remote sensing purposes. The more important function for most UAS missions is the live video feed capability for the flight crew, Incident Commander or other authorized personnel to view.

All images and video collected using unmanned aircraft will be managed in compliance with County data collection and dissemination policies. County record retention procedures are derived from the requirements outlined in the Library of Virginia archives, records and collections services records retention and disposition schedules for localities.

The Library of Virginia publishes these Schedules pursuant to the Virginia Public Records Act, Va. Code Ann. §§ 42.1-76 through -91 of the Code of Virginia:
http://www.lva.virginia.gov/agencies/records/sched_local/index.htm

METHODS

IMAGES – Any images captured during flight are stored as data in the UAS internal storage medium. The storage medium is inserted or enabled during the pre-flight process, securely attached to the aircraft while in flight, and removed or disabled after each flight.

VIDEO – Real-time or near real-time video, captured and or distributed via electronic means, is stored on board the aircraft. The video transmission from the aircraft uses an encrypted data link. The video is viewable by the operator of the UAS utilizing a monitor at the ground control station. The encrypted video data is also distributed to external monitors by cable or other methods to on-scene personnel.

PROTECTION

To further safeguard any imagery data collected during a flight operation the following will be strictly adhered to:

- The storage medium will be handled only by the UAS pilot or observer.
- The UAS pilot or observer will secure the storage medium.
- Should the storage medium (memory card) need to be transferred to another County agency, a transfer document will be signed by both the UAS pilot or observer and the requestor. The storage medium protection requirements then transfer to the requesting/receiving agency.

- Authorized Fairfax County personnel will be granted permission and access to view any live video stream. In the event of an Emergency Operations Center (EOC) operation, those County agencies and affiliated trusted partners, such as Virginia Department of Transportation (VDOT), the Virginia Department of Emergency Management (VDEM), the Red Cross, or other agencies during an EOC activation will be permitted to view the live video.
- At **no time** will the public be allowed to view or record the live streaming imagery unless there has been consent by the on-scene incident commander and UAS Pilot in Command. An example where live video may be shown could be the impact to the highway system or other transportation sector with significant impact to the public.
- Viewers of the live video stream in an EOC or other operational environments are not authorized to record, distribute or disclose information gained from viewing the video stream without prior approval by the UAS Program Manager, who may consult as needed with the Deputy County Executive for Public Safety or the Office of the County Attorney.
- Data imagery maintained by a County agency will not be disseminated to another information system without specifying requirements for security and usage, including limitation on access thereto, and without receiving reasonable assurances that those requirements and limitations will be observed.
- County agencies maintaining imagery data will keep a list of all persons or organizations having regular access to such data.
- County agencies maintaining imagery data will keep a complete and accurate record, including but not limited to identity and purpose, of every access to such data by persons or organizations. Such record will be maintained for three (3) years or until personal information, including photographs and video of individuals, is purged, whichever is shorter.

FREEDOM OF INFORMATION REQUESTS

The Virginia Freedom of Information Act (VFOIA), Va. Code Ann. §§ 2.2-3700 through 3714, allows residents of Virginia open access to public records in the custody of a public body or its officers and employees, and open entry to meeting of public bodies where the business of the people is being conducted. Requests for UAS data, including but not limited to images, video, program manual, pilot and maintenance logs or other program materials will be treated as a public records request, and forwarded to the appropriate agency housing the data.

FOIA requests will be processed in compliance with the County FOIA Policy. The purpose of this FOIA policy is to set forth a uniform policy for processing, responding to, and tracking requests for public records. This FOIA policy seeks to balance the County's commitment to transparency and openness, while ensuring the protection of the County's privacy and security interests.

The County's FOIA policy may be accessed at the below link:

<https://www.fairfaxcounty.gov/publicaffairs/foia>

SECTION 7: OPERATIONS POSITIONS

CHIEF PILOT

The UAS program Chief Pilot is responsible for the development and performance of the training program for all UAS operations. The Chief Pilot shall have authority over the pilot and visual observer programs and ensure that all team members are trained, licensed, and operational as needed.

Position Requirements

- Current Fairfax County government employee.
- Current Remote Pilot Certificate issued by the FAA with small UAS rating.

Duties

- Member of the UAS Steering Committee.
- Oversee the Fairfax County UAS training program.
- Perform proficiency check flights of all pilots and visual observers.
- Maintain all training records for flight crews.
- Responsible for disseminating any legislative or regulatory revisions to flight crews countywide.
- Provide ground school and flight training.
- Coordinate after action conferences as needed.
- Coordinate any manufacturer updates to aircraft or software version enhancements.
- Ensure that all flight plans, and other documentation is filled out and maintained.

PILOT IN COMMAND (PIC)

The respective agency director must approve any request for an agency employee to become trained as an FAA Part 107 pilot. Once approved, the candidate will work directly with the UAS Chief Pilot to participate in both ground and flight school and familiarization training. The Pilot in Command will be responsible for flying the aircraft in a safe and approved manner and will assume overall responsibility for all safety related matters.

Position Requirements

- Current Fairfax County government employee.
- Current Remote Pilot Certificate issued by the FAA with small UAS rating.

Duties

- Available to respond to fly agency approved missions.
- Responsible for ensuring safety of each flight operations.
- Final authority in determining if flight operations will launch or continue if already initiated.

- Ensuring that pilot logbook, aircraft logbook and other paperwork is completed for each mission.
- Notify the UAS Program Manager of any deployment of the UAS with flight date, time and location.
- Ensure light conditions complies with all applicable FAA rules and regulations, including but not limited to flight within line of sight requirements.
- Follow checklists for each flight regardless if training or actual mission.
- In the absence of a safety officer on the scene, the PIC will be responsible for ensuring that all safety protocols are followed prior to, during, and after each flight.

VISUAL OBSERVER (VO)

The Visual Observer is responsible for supporting the Pilot in Command to help ensure all UAS operations are done in a safe, protected, and effective manner. All flight operations, operational or training, shall, at a minimum, have both a Pilot in Command and a Visual Observer.

Position Requirements

- Current Fairfax County government employee.
- Remote Pilot Certificate with small UAS rating.

Duties

- Maintain an unaided visual line of sight any time the aircraft is airborne.
- Ensure the takeoff and landing zones, and surrounding area, are clear and safe of any public or other hazards.
- Coordinate as needed with the Incident Commander via in-person, voice, or other communication modes.
- Focus 100 percent of attention on the aircraft once airborne.
- Ensure that there are no potential conflicts or hazards in the sky such as birds, aircraft, wires or trees.

SAFETY OFFICER (SOFR)

If available, a Safety Officer is also responsible for overall UAS mission safety. In coordination with the Pilot in Command, and after evaluating safety risk factors, the Safety Officer shall have the final determination as to whether to commence a mission. While the Safety Officer will continue to monitor safety for the duration of a mission, and provide input to the PIC, once airborne the PIC has final authority to continue or discontinue the flight of the UAS.

If no Safety Officer is available or assigned to a mission the Pilot in Command will assume the role. Regardless of any of the duties outlined, any crew member participating in the mission has the responsibility to provide critical safety information to the PIC both before and during the flight.

Position Requirements

- Current Fairfax County government employee.
- Completed the Safety Officer course.

Duties

- Responsible for ensuring safe UAS operations.
- Assist in conducting a hazard risk assessment prior to any flight.
- Assist in debriefing missions and training sessions with emphasis on safety concerns and issues.
- Serve as a crew member as needed.

SECTION 8: SAFETY

POLICY

Safety first shall be an overarching priority and philosophy for the County UAS program. This program is committed to providing a safe environment for the public and flight crews and to ensure flight operations are performed in a safe, secure, responsible, lawful, and ethical manner. To mitigate risks, each flight crew shall comply with the requirements of this program manual, safety protocols, all applicable federal, state, and local laws, regulations, and policies, and follow all recommended manufacturer guidelines for each operation. The goal is to have zero accidents or injuries. Guiding safety principles include:

- All flight crew members must recognize that there is still an element of risk during each mission and focus on risk assessment and mitigation.
- Regardless of assigned duties, all crew members have a primary duty to safety considerations, and the authority and responsibility to act immediately to notify and warn others and to suspend operations.
- All flight operations are to comply with the UAS program guidance, applicable laws, regulations, or policies, and any agency specific policies.
- Risk assessment and mitigation are not just pre-flight activities but must continue during a mission.
- Unnecessary risks shall not be taken.
- Any identified safety hazard, whether procedural, operational, or maintenance related shall be corrected as soon as possible.
- Additional safety suggestions or recommendations may be made to the UAS Chief Pilot or Program Manager for consideration.
- Performance of regular audits of safety policies, procedures, and practices.
- Research, monitor, review, and incorporate, as appropriate, any emerging UAS safety best practices.

MEDICAL FACTORS

Every member of the flight crew shall adhere to the following guidelines as outlined by the FAA (Illness, Medication, Stress, Alcohol, Fatigue and Eating - IMSAFE).

- Pilots and observers shall only deploy the UAS when rested and emotionally prepared for the tasks at hand.
- The safety rule is to not act as a pilot or observer when suffering from any physical illness, exhaustion, or emotional problems which can seriously impair judgment, memory and alertness. All crew members are expected to “stand down” when these or any other factors could reasonably be expected to adversely affect their ability to perform flight duties.
- A self-assessment of physical condition shall be made by all members during pre-flight activities.

- Performance can be seriously impacted by prescription and over the counter drugs. All flight crew members are responsible to self-monitor their condition and to report to their respective Agency Program Coordinator or the Program Manager when they are unable to participate safely. If it is determined that any medication taken could hamper a pilot or observer that member shall be prohibited from the deployment or exercise.
- No member shall act as a pilot or observer within eight hours after consumption of any alcoholic beverages, while under the influence of alcohol, or while having an alcohol concentration of 0.04 as per Federal Aviation Regulation (FAR) 91.17.

RISK ASSESSMENT AND MITIGATION

Safety requires effective practices in managing multiple risk factors to include, the aircraft, environment, and the human component. The use of small unmanned aircraft being placed into service will always have some level of risk. However, it is important to always promote a zero-accident and safety-first philosophy and reduce and mitigate risks by doing the following:

- All UAS crew members shall review safety and operations checklists prior to operations.
- All UAS crew members shall be briefed before each flight.
- Ensure that all pilots have the required training and the necessary skill level to safely execute the mission assignment.
- Follow all preflight procedures to include:
 - Weather assessment.
 - Airspace assessment.
 - Aircraft assessment and preflight checklist.
 - Assessment and accounting of personal condition.
- Operate to the extent possible in open and clear areas and always within line of sight of the Pilot in Command and Visual Observer.
- After each flight, ensure the following:
 - Post flight check lists are completed.
 - Aircraft and pilot flight logs are completed.
 - Maintenance of the aircraft is documented.
 - Conduct a hot-wash of the mission to identify potential issues and highlight positive actions.
- Ensure that the necessary safety equipment is on hand prior to flight departure:
 - Fire extinguisher and/or sand.
 - First-aid kit.
 - Appropriate clothing to include a reflective vest.
- Additional factors to consider prior to flight departure:
 - Flights over people with an emphasis on safety and the right to privacy.
 - Flights over sensitive areas.
 - Any flight that may adversely impact wildlife ecologically important areas, or sensitive habitats (preserved lands and waters, areas with threatened or endangered species).

- Launches, landings and routes should avoid areas that would result in disruption to migratory patterns, breeding, nesting, feeding or sheltering of wildlife, when feasible.
- County personnel shall regularly review the Federal Aviation Administration’s Strike Database (<https://wildlife.faa.gov/>) for guidance on areas to avoid.
- Potential aviary activity may be found at: <https://ebird.org/home>.
- For awareness for UAS operators, the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act are listed in Appendix C.
- However, UAS operators will be authorized to balance the need to conduct a life safety mission for any person(s) against the need to protect wildlife.

SAFETY TRAINING

NEW CREW MEMBER

Safety training for all new UAS crew members will take place prior to any hands-on operation with aircraft or any mission flights. This training will ensure the crew member has the latest information about the program and safety guidance and understands the process to report potential conflicts. All training will be documented in the crew members’ training folders.

ANNUAL

All Fairfax County UAS crew members will participate in an annual safety training program. This training program will cover topics that include updates to federal, state or local legislation, regulations, or policies, best practices from previous missions flown, review of updates to the UAS program manual, and a review of safety information regarding aircraft and position assignments.

SAFETY TRAINING MATERIALS / DOCUMENTATION

The UAS Program Manager and Steering Committee, in coordination with the Agency Program Coordinators, will be responsible for developing, maintaining, and updating UAS related safety and risk assessment and mitigation training materials and documentation.

SUMMARY

It is the duty of every member within the UAS flight crew to contribute to the goal of safety-first operations and zero accidents. The process of assessment is not just for preflight, but a continual effort that needs to be second nature for every member of the flight crew during every aspect of each mission.

SECTION 9: OPERATIONAL TRAINING

OBJECTIVE

The key to safe and effective operations is maintaining a professional level of knowledge and competency through training.

The Fairfax County UAS program is comprised of three formal training programs. The first training program is the 16-hour ground school that will be used to help prepare all new program crew to take the FAA Part 107 exam. Training will include topics in meteorology, flight standards, aeronautical chart interpretation, communications and flight safety. If a candidate has an FAA Part 61 pilot's certificate, and has a current flight review, they will not be required to take the ground school.

The second training program to be completed by each candidate is flight school. During this training, each pilot and observer will be exposed to the basics of flight characteristics for the aircraft, maintenance procedures, safety and hands on flying the aircraft. Each pilot prior to flying an actual mission must have a minimum of 10 documented hours of flight time. Once the 10 hours has been met, the Chief Pilot will test and certify that the Pilot-In-Training has met all the training requirements and is a certified Fairfax County UAS pilot.

The third training program is recurring flight training. To maintain both the skills and qualification as a pilot each crew member must fly a minimum of three qualifying events in the preceding 90 days. A qualifying event can be either a live mission or training session. Each crew member must also maintain a current Remote Pilot Certificate issued by the FAA with small UAS rating to retain pilot qualifications in the UAS program.

The Fairfax County Park Authority has provided the UAS program a site where flight training may be conducted.

All flight hours and training will be maintained in the individual pilot's logbook.

INITIAL TRAINING

- Any new member shall successfully complete the required initial training before deployment as a member of a UAS flight crew.
- In addition to the formal training, pilots and observers must have completed enough safety training, to include communicating any instructions or information required to remain clear of conflicting traffic.
- In conjunction with fulfilling all training requirements for pilot/observer duties, the new member must also become familiar with UAS program operations, aircraft, and equipment.
- Before a member can operate as a pilot they must complete a period of flight training with the UAS instructors to demonstrate proficiency of the flight training exercises and the airframe. This must be accomplished to show their ability and knowledge of the UAS.

- In conjunction with fulfilling all training requirements for pilot/observer duties, the new member must also demonstrate proficiency with applicable rules, regulations and policies governing the protection of individuals' privacy, civil rights, and civil liberties in the Commonwealth of Virginia, FOIA requests, and data dissemination, storage, retention, and security requirements.
- In conjunction with fulfilling all training requirements for pilot/observer duties, the new member must also become familiar with applicable rules, regulations and policies governing the applicable FOIA requirements and data dissemination, storage, retention, and security requirements in the Commonwealth of Virginia.

RECURRING TRAINING

Recurring flight training will maintain a member's knowledge and skills as follows:

- Review and update on best practices and legal updates as it relates to the protection of individuals' privacy, civil rights, and civil liberties.
- Review and update on best practices or law as it relates to FOIA requests and data dissemination, storage, retention, and security requirements.
- All designated members within a participating agency shall maintain proficiency in their pilot/observer abilities.
- Pilots and observers will be required to fly a minimum of three actual or training missions every 90 days to maintain proficiency.
- Recurrent training is not limited to actual operating/observer skills but includes knowledge of all pertinent UAS/aviation matters.
- Failure to prove proficiency, including failure to maintain a current Remote Pilot Certificate issued by the FAA with small UAS rating, can result in removal from UAS responsibilities.

TRAINING MATERIALS / DOCUMENTATION

The UAS Program Manager and Steering Committee, in coordination with the Agency Program Coordinators, will be responsible for developing, maintaining, and updating UAS related training materials and documentation.

SECTION 10: GENERAL OPERATING PROCEDURES

REQUEST FOR SUPPORT

All requests for UAS support shall be made directly to a respective agency program coordinator or through the Department of Public Safety Communications Center (DPSC) (County 911 Center). DPSC will maintain the current list of certified UAS operators and supervisors to contact.

MISSION PRIORITIES

If more than one request is received for UAS support, the UAS agency program coordinator in collaboration with the requestors will evaluate and determine the priority mission. If there is a determined need for a second crew the UAS agency program coordinator will review the lineup and on-call notification list or request support from another participating agency. In general terms, requests for UAS support will be prioritized as follows:

- Life or Public Safety.
- Investigation/Documentation.
- Damage Assessment/Situational Awareness.

MISSION APPROVAL CRITERIA

The on call UAS agency program coordinator will make the determination as to the approval of the mission request. Important approval decision factors include, but are not limited to:

- Is the mission request justified and necessary?
- Is the mission request within the capabilities of the equipment, program and personnel?
- Does the mission fall within federal, state, and local laws, regulations, and policies?
- Can the UA be deployed safely based on current and forecast weather conditions?
- Can the UA be deployed in the operational environment without unduly risking the personal privacy of individuals or groups of individuals?
- Are there sufficiently trained and qualified personnel available to safely operate the UA?
- If the UA deployment requires a search warrant, has one been requested and approved?
- Is there enough information available to make the decision or will a follow up call need to be made to the requestor?
- Determine proximity of critical infrastructure or restricted airspace.

If a mission is approved, a UAS Pilot in Command (PIC) will be selected and notified. Once deployed, the assigned PIC retains final approving authority, and may alter or cancel the mission. If a mission is altered or canceled notification will be made to the requestor and PIC's agency program coordinator.

CALL-OUT PROCEDURES

Agencies will develop or follow existing call-out procedures and protocols. Agency program coordinators will be responsible for ensuring any respective agency call-out rosters are maintained, updated, and shared, if needed, with the Department of Public Safety Communications.

MISSION MINIMUM PERSONNEL REQUIREMENTS

All UAS missions, operational or training, require a minimum of a Pilot in Command (PIC) and visual observer (VO). Under no circumstances will a mission be approved or flown with only a PIC. A safety officer is a preferred addition if available, but not required.

In the event a pilot is still in training and has not been approved to fly missions as a solo operator the chief pilot or another certified PIC must be present to observe, monitor, and evaluate the trainee. For more complex missions that require a second or third crew and UAS there must also be a UAS agency program coordinator on-scene to coordinate with the incident commander.

FLIGHT BOUNDARIES IMPOSED BY THE FAA

The FAA has been charged by the United States Congress to integrate the Unmanned Aircraft Systems into the National Airspace System (NAS). Utilizing a “Safety First” principle the FAA has carefully designated airspace throughout the United States in which UAS may not fly. The Washington DC area is the most restricted airspace in the country. As a result, due to its proximity to the Nation’s Capital, the airspace overlying Fairfax County has complex layers of varying access restrictions. With more than 60 percent of Fairfax County falling into the Flight Restricted Zone (FRZ) it is imperative that the PIC evaluates the location they will be taking off from the area they will be traversing to get to the scene, and the area of operation to ensure they can operate without an airspace authorization. The following basic guidelines will be followed:

- Flight crews are authorized to fly in Class G airspace anywhere in Fairfax County to include the Towns of Vienna, Herndon, and Clifton and parts of the City of Fairfax. PIC’s of missions located in Surface Class B, C or D airspace must have a Wide Area Authorization or be approved via the Low Altitude Authorization and Notification Capability (LAANC) system. Missions will only be flown in other localities based on appropriate request and approval protocols.
- If a surrounding jurisdiction requests assistance of the UAS team that request must first go to the UAS agency program coordinator for review. In many cases the requesting agency may be referred to the Virginia Department of Emergency Management (VDEM) first as they have a team that is available 24/7.
- If VDEM is not available, an assessment will be made to determine availability of a County flight crew. Approval by the crew’s agency program coordinator will need to be done first and if approved, the UAS team will need to submit an emergency FAA COA to get access to the other jurisdiction.
- County UAS program flight operations will follow FAA regulations.
- The maximum altitude for UAS flight operations shall not exceed 400’ per FAA regulations.

PERSONAL EQUIPMENT

Each member of the flight crew will be responsible for wearing appropriate clothing and having the correct equipment with them while on duty. The following are some of the guidelines that should be followed:

- The UAS flight crew should always wear eye protection always while engaged in flight operations.
- All flight crew shall wear the assigned program vest that identifies them as a member of the Fairfax County UAS team. The back of the vest must clearly identify the team position assigned, as an example, UAS Pilot, Pilot in Command, Visual Observer or Safety Officer.
- The flight crew shall always operate in a professional manner and take into consideration that all deployments have the potential for public or media interaction.
- The UAS flight crew will wear their County issued identification.
- Equipment including the County issued portable radio, air-band transceiver and cellular phone must be brought to each mission deployment.
- Water and snacks should become a part of a crew flight bag. Missions may only last an hour, but others may last multiple hours. Any dietary or special allergies requirements must be taken into consideration.
- FAA rules do not allow visual aids other than corrective glasses for keeping the UAS within line of sight, although not permitted for flight operations, a set of binoculars may be carried and used to scan the sky and surrounding area for obstructions or other hazards. They are not permitted to be used by flight crews during flight operations.

EQUIPMENT IDENTIFICATION

In order to ensure that all unmanned aircraft are easily recognized as part of the Fairfax County UAS program all aircraft will display both the FAA assigned identification number and a county seal or agency logo.

EMERGENCY PROCEDURES

Personnel flying the UAS will be trained that in any emergency, the safety of persons on the ground and in the air is the number one priority. The following are the emergency procedures, and each will be documented with an emergency checklist for flight crew to review.

- Fire - UAS will be flown away from people and property until a safe landing location can be found. A fire extinguisher and first-aid kit will be located at the mission site.
- Loss of Link - Onboard system will be established to execute lost link protocol by either landing immediately or returning to launch point to land, depending on conditions, operational and safety requirements. In the event the lost link happens near an airport or helicopter landing area, a call to the appropriate airport tower will be immediately made. The phone numbers are located on the aeronautical chart.
- Loss of Visual Line of Sight - If flight crew members lose, other than momentarily, sight of the aircraft, the pilot will initiate a 'Go-Home' on the remote control. The 'Go-Home'

protocol is identical to the Loss of Link protocol. Once visual contact with the aircraft is re-established the pilot will take back the aircraft using the remote control.

- Loss of Propulsion - During propulsion failure, coordinated flight cannot be maintained effectively in the most common configurations. An announcement will be made to all personnel on-scene advising them of the emergency. If the aircraft fails to successfully land at a predetermined location a recovery operation will be initiated.
- Personal Injury - In the unlikely event of an emergency involving the aircraft and person(s) on the ground, the flight crew shall maintain a list of applicable numbers (EMS, Dispatch) for emergency contact.
- Lost Communications - the PIC and VO will be ideally physically collocated during operations and communications will be through direct verbal communication. However, if the PIC and VO are not collocated and direct verbal communication is not possible, the following communication tools can be utilized:
 - Handheld radio.
 - Voice activated headsets and microphones.
 - Cellular telephone.
 - Hand Signals (used solely or in conjunction with the communication equipment).
 - If communication is lost and cannot be re-established, the UAS will immediately land.

PRE-FLIGHT/ POST-FLIGHT ACTIONS

- Inspections
 - All flight crew members are responsible for a thorough preflight inspection of the UAS.
 - Before and after each deployment (whether a mission or training), the flight crew shall conduct a thorough inspection of the UAS in accordance with the instructions contained in the manufacturer's user manual.
 - Any issues found that will jeopardize the safe operation of the UAS shall be documented and resolved immediately prior to flight.
 - Any physical damage to equipment that cannot be resolved on-site, and which have an impact on safety of the mission, will override the deployment. These issues must be resolved before flight.
- Weather
 - Before each deployment, the flight crew will gather weather forecasts covering the projected area of operations, flight duration and to include an additional buffer of 6 hours after the flight is projected to end.
 - The flight crew shall utilize FAA approved weather resources to obtain the latest and most current weather conditions.
 - If available, an anemometer should be utilized to better estimate the wind speed and determine if it is within the capabilities of the airframe being flown.
 - The weather conditions reported for the operation shall be recorded in the pre-flight checklist.

- Documentation
 - Inspection and weather checks will be documented prior to flight within the flight logbook.
 - After each flight, the pilot will document the UAS operations and log appropriate flight/equipment usage times in their logbook.
- Planning
 - The flight crew shall familiarize themselves with all available information concerning the deployment including but not limited to the weather conditions, hazards, description of the incident, deployment goals, and other relevant information.
 - The flight crew will ensure that the location for take-off and emergency landing is adequate for a safe deployment.
 - The take-off/landing area should be clearly marked and identifiable with easily seen markers.
 - Identify a location for the media and public who may want to engage the flight crew.
 - At least one emergency landing area should be identified prior to deployment.
 - The flight crew will ensure that they are aware of their surroundings in the event an emergency landing is necessary. This includes the ability to recover the UAS.
- Checklists
 - The flight crew shall utilize pre-flight checklists to ensure the highest level of safety for deployment.
- Maintenance
 - Although there are few parts on the UAS that need servicing, it is necessary that the manufacturer's maintenance schedule is followed and properly documented.
 - Any issues that arise during maintenance that cannot be resolved by routine methods shall be forwarded to the manufacturer/approved dealer for further technical support.
- Other
 - The flight crew will ensure that no items are attached to the UAS prior to flight that are not required for safe operation or to complete the mission goal.
- Pre-Flight Briefing
 - Review of mission goals and methods to achieve goals, including but not limited to handoff procedures. This will be done with the incident commander and all UAS crew members prior to launch.
 - Review of current and forecasted weather conditions and weather limitations
 - Review of current Notice to Airmen (NOTAM) and Temporary Flight Restrictions (TFR) that have been issued for the proposed flight area.
 - Identification of mission limitations and safety issues such as battery charge, Global Positioning Satellite (GPS) strength, and potential for radio interference.
 - Review of proposed flight area, including maximum ceiling and floor and applicable airspace restrictions.
 - Review of communication procedures between flight crew members, including

but not limited to the availability of cellular phones and portable air band radio to communicate with air traffic control in the event of a fly-away or lost link.

- Review of emergency/contingency procedures including but not limited to aircraft system failure, flight termination, divert, and lost link procedures.
- Review of required video or digital images requirements.
- Contents of the COA, if applicable.
- Radio frequencies to be used by the Pilot in Command to communicate with and control the UAS.
- Weather evaluation to include current weather and projected weather moving into the area within the next 6 hours. The flight crew will comply with all FAA rules which do not allow UAS flights during certain weather conditions after the weather evaluation is completed.
- Post Flight Briefing
 - After all flights, the Pilot in Command will perform a post flight review with their team and incident commander/designee.
 - Opportunities for improvement will be documented.
 - Protocols for the memory card will be followed.
 - Notifications as needed.
 - An inspection of all equipment will be done, and any damage or other deficiency found will be noted in the maintenance logbook.
 - Pilot flight hours will be added to the logbook.

GLOSSARY OF TERMS

Above Ground Level (AGL): AGL is the altitude expressed in the actual number of feet measured above the ground.

Air Traffic Control (LATC): A service operated by appropriate authority to promote the safe, orderly and expeditious flow of traffic.

Area Command (Unified Area Command): An organization established (1) to oversee the management of multiple incidents that are each being handled by an ICS organization or (2) to oversee the management of large or multiple incidents to which several Incident Management Teams have been assigned. Area Command has the responsibility to set overall strategy and priorities, allocate critical resources per priorities, ensure that incidents are properly managed, and ensure that objectives are met, and strategies followed. Area Command becomes Unified Area Command when incidents are multi-jurisdictional. Area Command may be established at an EOC facility or at some location other than an ICP.

Available Resources: Resources assigned to an incident, checked in, and available for use.

Beyond Visual Line of Sight (BVLOS): FAA rules require that UAS flights must remain in the sight of the remote Pilot in Command or the visual observer with vision that is unaided by any device other than corrective throughout the entire flight.

Certificate of Authorization (COA): Authorization issued by the FAA to a public operator and grants permission to operate a UAS for governmental functions within specific boundaries and parameters.

Call out Procedure: The process used to activate the Fairfax County UAS program for deployment of resources.

Civil Morning Twilight: Begins when the sun is 6 degrees below the horizon and ends at sunrise.

Civil Evening Twilight: Begins at sunset and ends when the sun reaches 6 degrees below the horizon.

Class A Airspace: Extends from 18,000 feet (5,500 m) mean sea level MSL to FL600 (approximately 60,000 feet (18,000 m) MSL) throughout the contiguous United States and Alaska.

Class B Airspace: Surrounds the **busiest** airports (Washington Dulles, Reagan National) from the surface to 10,000 feet MSL. The dimensions of Class B airspace vary depending on the needs of the airport.

Class C Airspace: Extends from the surface to 4,000 feet MSL. These airports are busy enough to have an air traffic control tower and be serviced by radar approach control. The dimensions are tailored to each individual airport, but typically extend out to 5 miles for the inner layer and 10 miles for an outer layer that covers 1,200 feet to 4,000 feet (think of an upside-down wedding cake.)

Class D Airspace: Surrounds smaller airports that have control towers and extends from the surface to 2,500 feet MSL

Class E Airspace: Surrounds instrument approach paths or federal airways, in all other locations other than Class A, B, C or D airspace, not including the uncontrolled Class G airspace.

Class G Airspace: Includes all airspace below 14,500 feet (4,400 m) MSL not otherwise classified as controlled. There are no entry or clearance requirements for class G airspace, even for IFR operations. Class G airspace is typically the airspace very near the ground (1,200 feet or less), beneath class E airspace and between class B-D cylinders around towered airstrips.

Command Staff: In an incident management organization, the Command Staff consists of the Incident Commander and the special staff positions of Public Information Officer, Safety Officer, Liaison Officer, and other positions as required, who report directly to the Incident Commander. They may have an assistant or assistants, as needed.

Controlled Airspace: A generic term that covers the different classifications of airspace (Class A, B, C, D and E airspace) and defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Declaration of Emergency: Whenever, in the opinion of the governing official, the safety and welfare of the people of the jurisdiction require the exercise of extreme emergency measures due to a threatened or actual disaster, they may declare a state of emergency to exist.

Disaster Recovery Center (DRC): A facility established in a centralized location within or near the disaster area at which disaster victims (individuals, families, or businesses) apply for disaster aid. Commonwealth and federal officials may establish one or more DRC within federally declared jurisdiction where One-on-one assistance can be provided to disaster survivors.

Emergency/Disaster: An event that demands a crisis response beyond the scope of any single line agency or service and that presents a threat to a community or larger area. An emergency is usually an event that can be controlled within the scope of local capabilities; a major emergency or disaster usually requires resources beyond what is available locally.

Emergency Operations Center (EOC): The physical location at which the coordination of information and resources to support domestic incident management activities normally takes place. An EOC may be a temporary facility or may be in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, and medical services), by jurisdiction (e.g., Federal, State, regional, County, city, tribal), or by some combination thereof.

Emergency Operations Plan (EOP): A document which provides for a preplanned and coordinated response in the event of an emergency or disaster situation.

Emergency Support Function (ESF): A function which tasks agencies to provide or to coordinate certain resources in response to emergencies or disasters.

Flight Observer (FO): The individual trained to maintain the line-of-sight and 360-degree hazard awareness with the aircraft in direction support of the Pilot-in-Command. They are responsible for the safe operations of the immediate area.

Geographic Information System (GIS): A computer system capable of assembling, storing, manipulating, and displaying geographically referenced information, i.e. data identified per their locations.

Incident: An occurrence or event, natural or human caused, that requires an emergency response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, wild land and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.

Incident Action Plan (IAP): An oral or written plan containing general objectives reflecting the overall strategy for managing an incident. It may include the identification of operational resources and assignments. It may also include attachments that provide direction and important information for management of the incident during one or more operational periods.

Incident Command Post (ICP): The field location at which the primary tactical-level, on-scene incident command functions are performed. The ICP may be collocated with the incident base or other incident facilities and is normally identified by a green rotating or flashing light.

Incident Command System (ICS): A model for disaster response that uses common terminology, modular organization, integrated communications, unified command structure, action planning, manageable span-of-control, predesignated facilities, and comprehensive resource management. In ICS there are five functional elements: Command, Operations, Logistics, Planning and Finance/Administration.

Incident Commander (IC): The individual responsible for the management of all incident operations.

Initial Damage Assessment Report: A report that provides information regarding overall damage to public and private property, thereby providing a basis for an emergency declaration and/or disaster assistance.

Instrument Flight Rules (IFR): Under IFR, ATC exercises positive control of all aircraft within designated airspace. Any pilot operating in this environment must meet minimum equipment requirements and have special certification to fly.

Joint Field Office (JFO): An administrative office established by FEMA and staffed by appropriate federal/state personnel following a disaster declaration by the president. The Disaster Field Office is the primary field location for the coordination of response and recovery operations.

Joint Information Center (JIC): Is a facility established to coordinate all incident-related public information activities. It is the central point of contact for all news media at the scene of the incident. Public information officials from all participating agencies should collocate at the JIC.

Joint Information System (JIS): The JIS refers to processes, procedures, and systems for communicating timely and accurate information to the public during crisis or emergency situations.

Jurisdiction: A range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authorities. Jurisdictional authority at an incident can be political or geographical (e.g., city, County, tribal, state, or federal boundary lines) or functional (e.g., law enforcement, public health).

Landing Zone (LZ): A place designated and intended to be used for the takeoff and landing of the UAS aircraft.

Liaison Officer (LOFR): A member of the Command Staff responsible for coordinating with representatives from cooperating and assisting agencies.

Local Emergency: The condition declared by the local governing body when, in its judgment, the threat or actual occurrence of a disaster is or threatens to be of enough severity and magnitude to warrant coordinated local government action to prevent or alleviate loss of life, property damage, or hardship. A local emergency arising wholly or substantially out of a resource shortage may be declared only by the Governor, upon petition of a local governing body, when he deems the situation to be of enough magnitude to warrant coordinated local government action to prevent or alleviate the hardship or suffering threatened or caused thereby.

Major Disaster Declaration: Any natural or man-made disaster in any part of the United States which, in the determination of the President of the United States, is or thereafter determined to be of sufficient severity and magnitude to warrant disaster assistance above and beyond emergency services by the federal government to supplement the efforts and available resources of local and state governments, and relief organizations in alleviating the damage, loss, hardship, or suffering caused.

Mitigation: Mitigation is any activity taken to eliminate or reduce the degree of long-term risk to human life and property from natural, technological, and human-caused hazards.

Mutual Aid Agreement (MAA): A written agreement between agencies and/or jurisdictions in which they agree to assist one another, upon request, by furnishing personnel and equipment in an emergency.

National Airspace System (NAS): The common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and sharing material. Included are system components shared jointly with the military.

National Incident Management System (NIMS): A system mandated by HSPD-5 that provides a consistent, nationwide approach for Federal, State, local, and tribal governments; the private sector; and NGOs to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. To provide for interoperability and compatibility among Federal, State, local, and tribal capabilities, the NIMS

includes a core set of concepts, principles, and terminology. HSPD-5 identifies these as the ICS; multiagency coordination systems; training; identification and management of resources (including systems for classifying types of resources); qualification and certification; and the collection, tracking, and reporting of incident information and incident resources.

National Response System: Pursuant to the NRF, the mechanism for coordinating response actions by all levels of government (40 CFR § 300.21) for oil and hazardous substances spills and releases.

National Weather Service (NWS): The federal agency which provides localized weather information to the population, and during a weather-related emergency, to state and local emergency management officials.

Nongovernmental Organization (NGO): A nonprofit entity that is based on interests of its members, individuals, or institutions and that is not created by a government but may work cooperatively with government. Such organizations serve a public purpose, not a private benefit. Examples of NGOs include faith-based charity organizations and the American Red Cross.

Notice to Airmen (NOTAM): A NOTAM is time critical information concerning the establishment, condition, or change in any component of the NAS. The NOTAM provides knowledge that is essential to personnel concerned with flight operations in a designated area.

Pilot in Command (PIC): The individual responsible for the overall flight operations of a specific mission.

Presidential Declaration: A presidential declaration frees up various sources of assistance from the Federal government based on the nature of the request from the governor.

Public Assistance: Aid available to state or local governments to pay part of the costs of rebuilding a community's damaged infrastructure. Public Assistance may include debris removal, emergency protective measures and public services, repair of damaged public property, loans needed by communities for essential government functions and grants for public schools.

Recovery: Recovery in the short-term is any activity to return vital life-support systems and critical infrastructure to minimum operating standards; and in the long-term any activity designed to return life to normal or an improved state.

Response: Response is any action taken immediately before, during, or after an emergency to reduce casualties, save lives, minimize damage to property, and enhance the effectiveness and speed of recovery.

Search and Rescue: The employment of available personnel, equipment and facilities in rendering aid to persons and property in distress, or potential distress, in the air, water or on the land.

Service Information Center (SIC): A SIC is an information and resource facility established by the County to effectively communicate response and recovery information to the public, provide recovery services to the public, streamline the recovery process, and alleviate the burdens of

recovery for impacted populations.

Standard Operating Procedures (SOP): Guidelines for operating procedures in an emergency; includes but not limited to equipment, processes and methods.

State of Emergency: The condition declared by the Governor when, in his judgment, a threatened or actual disaster in any part of the State is of enough severity and magnitude to warrant disaster assistance by the State to supplement local efforts to prevent or alleviate loss of life and property damage.

Unaffiliated Volunteer: An individual who is not formally associated with a recognized voluntary disaster relief organization or assigned to an agency; also, known as a spontaneous or emergent volunteer.

Uncontrolled Airspace: Any airspace that is not controlled airspace. There are almost no requirements for Visual Flight Rule (VFR) aircraft flying in Class G airspace, other than certain cloud clearance and visibility requirements.

Unmanned Aircraft System (UAS): An aircraft that is operated without a physical human presence within or on the aircraft which, in the way it is used or the way it is equipped, can perform audio or visual surveillance and guided by remote control.

Unified Command: An application of ICS used when there is more than one agency with incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command to establish their designated Incident Commanders at a single Incident Command Post and to establish a common set of objectives and strategies and a single Incident Action Plan.

Virginia Department of Emergency Management (VDEM): Commonwealth of Virginia Department of Emergency Management.

Visual Observer (VO): The VO is equally responsible for the visual observation of the UAS while in-flight. They are responsible for notifying the Pilot in Command of any obstructions, terrain, structures, air traffic, weather or any circumstance that may impact the aircraft. They manage communications and integration with the person in charge.

Volunteer: Any individual accepted or assigned to perform services by an agency that has authority to accept volunteer services when the individual performs services without promise, expectation, or receipt of compensation for services performed.

ACRONYMS

AED – Automatic External Defibrillator

ATC – Air Traffic Control

BVLOS – Beyond Visual Line of Sight

COA – Certificate of Authority

CERT - Community Emergency Response Team

COOP – Continuity of Operations Plan

COG - Continuity of Government

DHS - Department of Homeland Security

DOC - Department Operation Centers

DOD - Department of Defense

DMORT - Disaster Mortuary Operation Response Teams

DPSC - Department of Public Safety Communications

DRC - Disaster Recovery Centers

EAN - Employee Alert Network

EAS - Emergency Alert System

EOD – Explosives Operation Division

EMAC - Emergency Management Assistance Compact

EMnet - Emergency Management Notification Network

EOC - Emergency Operations Center

ESF - Emergency Support Function

FAA – Federal Aviation Administration

FAC - Family Assistance Center

FCRC - Fairfax County Recovery Center

FEMA - Federal Emergency Management Agency

FLIR – Forward Looking Infrared

FRZ – Flight Restriction Zone

GIS - Geographic Information Systems

IAP - Incident Action Plan

IC - Incident Command

ICP – Incident Command Post

ICS - Incident Command System

IMSAFE – Illness, Medication, Stress, Alcohol, Fatigue, Emotion

IMT - Incident Management Team

IT - Information Technology

JFO - Joint Field Office

JIC - Joint Information Center

LEPC - Local Emergency Planning Committee

LOFR - Liaison Officer

MACC - Multi-Agency Coordination Center

MCS - Multi-Agency Coordination System

MDW - Military District of Washington

MWCOG - Metropolitan Washington Council of Governments

MSL – Mean Sea Level

NCR - National Capital Region

NDMS - National Disaster Medical System

NGO - Non-Governmental Organizations

NIMS - National Incident Management System

NOAA - National Oceanic and Atmospheric Administration

NOTAM – Notice to Airman

NVHA – Northern Virginia Hospital Alliance

NRF - National Response Framework

NVRC - Northern Virginia Regional Commission

OSC – On Scene Coordinator

PDA - Preliminary Damage Assessment

PIC – Pilot in Command

PIO - Public Information Officer
PSA - Public Service Announcements
RECP - Regional Emergency Coordination Plan
RHCC - Regional Healthcare Coordination Center
RPIC – Remote Pilot in Command
NVRIC – Northern Virginia Regional Intelligence Center
RICCS - Regional Incident Communication and Coordination System
SARA - Superfund Amendments and Reauthorization Act
SHMO - State Hazard Mitigation Officer
SIC - Service and Information Centers
SNS - Strategic National Stockpile
SOFR - Safety Officer
SUAS – Small Unmanned Aircraft System
TFR – Temporary Flight Restrictions
UA – Unmanned Aircraft
UAS – Unmanned Aircraft Systems
USAR – Urban Search and Rescue Team
VADEQ- Virginia Department of Environmental Quality
VCMC - Volunteer Coordination and Mobilization Center
VDEM - Virginia Department of Emergency Management
VDOT - Virginia Department of Transportation
VFOIA – Virginia Freedom of Information Act
VIPS - Volunteers in Police Service
VO – Visual Observer

APPENDIX A – Retention Schedules

Note: This Appendix sets forth several retention schedules that may apply to data imagery captured as part of the County’s UAS Program. Retention schedules are based on the content of the record and not its format. This Appendix is excerpted from the retention schedules for localities issued by the Library of Virginia. Records will be destroyed in accordance with Library of Virginia instructions when the retention period expires. The Library of Virginia frequently amends these schedules and the current versions may be found at <http://www.lva.virginia.gov/agencies/records/retention.asp>.

Type of Record:	General Schedule and Series	Retention period
Disaster recovery files	GS-16 Series 200036	Five years after claims filed or written off
Fire Training: Class Records	GS-17 Series 200392	Five years after end of calendar year
Fire Code Compliance Inspection Reports	GS-17 Series 007043	10 years after submission
Law enforcement surveillance or monitoring recordings not used as evidence	GS-17 Series 100796	30 days after event
Law enforcement missing Persons files	GS-17 Series 100780	75 years
Law enforcement missing Persons files – Resolved	GS-17 Series 100779	One year after case closed
Law enforcement missing Persons with history files – Resolved	GS-17 Series 100755	Five years after case closed
Reports: Traffic accident/crash - Law Enforcement	GS-17 Series 005670	Three years after closed
Reports: Traffic Accident/Crash - Citizen	GS-17 Series 100781	Three years after event
Traffic Management and Control	GS-17 Series 100806	One year after last action
Law enforcement Investigative Case Files, Less Serious Offenses – Resolved	GS-17 Series 200146	30 years after case closed

Law enforcement Investigative Case Files: Less Serious Offenses – Unresolved	GS-17 Series 200147	50 years after creation
Law enforcement Investigative Case Files: Non-Serious Offenses – Resolved	GS-17 Series 000266	10 years after case closed
Law enforcement Investigative Case Files: Non-Serious Offenses - Unresolved	GS-17 Series 200148	5 years after creation
Law enforcement Investigative Case Files: Serious Offenses - Resolved	GS-17 Series 100771	75 years after case closed
Law enforcement Investigative Case Files: Serious Offenses – Unresolved	GS-17 Series 200145	100 years after creation
Hazardous Materials Files	GS-17 Series 007100	50 Years after event
Incident Reports: Emergency Services, Fire and Rescue	GS-17 Series 007037	6 Years after event

APPENDIX B - LINKS

FAA UAS resources:

<https://www.faa.gov/uas/>

FAA Drone Registration:

<https://drone-registration.net/>

SkyVector Aeronautical Charts/Mapping:

<https://skyvector.com/>

FAA UAS Facility Maps:

https://www.faa.gov/uas/request_waiver/uas_facility_maps/

FAA Resources /Policy/Documents/Regulations:

https://www.faa.gov/uas/resources/policy_library/

United States Code:

<http://uscode.house.gov/view.xhtml?path=/prelim@title49/subtitle7&edition=prelim>

FAA Webinar Series:

https://www.faa.gov/uas/resources/webinar/or_faa.gov/go/dronewebinar

Waivers and Authorizations:

https://www.faa.gov/uas/getting_started/emergency_approval/

Temporary Flight Restriction - TFR:

<https://tfr.faa.gov/tfr2/list.html>

Notice to Airman – NOTAM:

<https://pilotweb.nas.faa.gov/PilotWeb/>

FAA Public Safety and Government

https://www.faa.gov/uas/public_safety_gov/

VFR Charts

<https://faa.gov/go/vfrcharts>

Fairfax County Parks:

<https://www.fairfaxcounty.gov/parks/model-aircrafts-drones>

APPENDIX C – WILDLIFE ACTS

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act makes it illegal to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid Federal permit. Migratory bird species protected by the Act are listed in 50 CFR 10.13.

Webpage:

<https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php>

BALD AND GOLDEN EAGLE PROTECTION ACT

The Bald and Golden Eagle Protection Act (16 USC 668-668d) prohibits anyone from taking, possessing, or transporting a bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*), or the parts, nests, or eggs of such birds without prior authorization. This includes inactive nests as well as active nests. Take means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. Activities that directly or indirectly lead to take are prohibited without a permit.

A permit can be issued for taking eagles when the take is associated with, but not the purpose of, an activity and cannot practicably be avoided. We refer to this type of take as "incidental take." Authorization is subject to conditions to minimize impacts. The regulation authorizing incidental take permits for bald and golden eagles can be found in the Code of the Federal Register 50 CFR 22.26

If activities need to be conducted near an eagle nest or may disturb roosting or foraging eagles, a permit may be required from the U.S. Fish and Wildlife Service for "incidental take."

AIRBORNE HUNTING ACT

This Act approved November 18, 1971 added to the Fish and Wildlife Act of 1956 a new section 13 (16 U.S.C. 742j-l), which is commonly referred to as the Airborne Hunting Act or Shooting from Aircraft Act, prohibits shooting or attempting to shoot or harassing any bird, fish, or other animal from aircraft except for certain specified reasons, including protection of wildlife, livestock, and human life as authorized by a Federal or State issued license or permit. States authorized to issue permits are required to file reports with the Secretary of the Interior containing information on any permits issued.

APPENDIX D – AIRSPACE IN FAIRFAX COUNTY

