



LOS ANGELES FIRE DEPARTMENT

RALPH M. TERRAZAS
FIRE CHIEF

October 1, 2019

BOARD OF FIRE COMMISSIONERS
FILE NO. 19-127

TO: Board of Fire Commissioners

FROM:  Ralph M. Terrazas, Fire Chief

SUBJECT: UNMANNED AERIAL SYSTEMS (UAS) POLICY REVISIONS

FINAL ACTION:	<input type="checkbox"/> Approved	<input type="checkbox"/> Approved w/Corrections	<input type="checkbox"/> Withdrawn
	<input type="checkbox"/> Denied	<input type="checkbox"/> Received & Filed	<input type="checkbox"/> Other

SUMMARY

Since approval by the Board of Fire Commissioners, the LAFD UAS program has focused on building a foundation that will support a valuable and sustainable program. A program that could successfully support the fire department's mission required an ongoing effort focused on internal and external growth. A three-year strategic plan was created as a roadmap for that growth which would culminate in a sustainable well-managed unmanned aerial systems program. The plan represents best practices in the industry countrywide both in the private and public safety sectors.

RECOMMENDATION

That the board:
Approve the report.

FISCAL IMPACT

There is no fiscal impact on the General Fund associated with the report at this time.

DISCUSSION

The goal of the "THREE -YEAR STRATEGIC plan" included four internal focus categories;

1. To develop a cadre of pilots and visual observers through recurrent training
2. Develop an operations support system that includes the data transmission flight crew communications, a dispatch protocol and cad integration; transport and support vehicles.
3. Expansion of the unmanned vehicle fleet capable of supporting all incident types identified in the LAFD UAS policy for deployment and use
4. To Develop an administrative support system that includes flight and crew resource management applications to comply with oversight requirements and safety operations, crew training management applications, recurrent training and a sustainability plan that includes funding source for procuring hardware software tools and equipment and training.

Benchmark Program Activities

June 2019 - LAFD and LADOT has partnered to continue work with NASA Ames research laboratories (San Jose) on their unmanned traffic management (UTM) and UAS integration project, specifically phase 4 which will focus on urban cities, with Los Angeles being a focal point.

June 2019 - LAFD played a significant role in authoring NFPA 2400, standard for Small UAS used for Public Safety Operations.

June 2019 - LAFD became the first agency to adopt the National Institute of Standards and Technology (NIST) flight test method. This method is aligned with NFPA 2400 recommendations and has set the stage for State and Federal applications.

July 2019 - The Department of Homeland Security's Science and technology division has granted a **stakeholder seat** to LAFD in their First Responders Research Group (FRRG) as well as their first responders robotic operations systems tests (FROST) group.

August 2019 - The Federal Department of the Interior and the US Forest Service recognized our **Pilots Training and Ground School** as a model for qualifying UAS pilots to operate in the wild land. Final certification of our course will allow LAFD to teach National Wildland Coordinating Group (NWGC) S-373, Unmanned Aircraft Systems Incident Operations and making us the first agency to be "red Carded" in the wildland arena.

September 2019 - Los Angeles was host to DJI AirWorks and LAFD was the focus agency. Chief Deputy Al Poirier was a Keynote speaker and our team hosted hands on training at Frank Hotchins Memorial Training Center. The training event was attended by 50 public safety professional from 30 agencies from as far away as Sweden and France.

October 2019 – Search and Rescue Pilot in Battalion 5 – to determine the impact of UAS integration on incidents involving lost or injured hikers.

We continue to lead the regional effort to standardize UAS operations. The LA Area Fire Chiefs Association moved to adopt the LAFD UAS program development model for the creation of a regional UAS program for our regional partners who seek to create a successful program. This regional program has been earmarked for **\$250,000** in the coming grant cycle to support the effort.

Significant Incidents

March 2019 – LAFD UAS was deployed to the 2019 LA Marathon

April 2019 – LAFD UAS showcased fleet and capabilities to 4 City Council members and staff at Woodley Park

July 2019 – “Radio Hill” Brush Fire

July 2019 – “Balboa” Brush Fire

August 2019 – “Colorado” Brush Fire

Policy Revisions

As our pilot cadre has grown and flight operations have increased in frequency and complexity we have reviewed and revised language, terms and phrases in our policy to clearly reflect our current operational practices, which have been improved and vetted.

Operations Manual

The manual was written to address unmanned aircraft operations, but more importantly, to support the development of an aviators mindset when operating these aircraft in the national airspace. Development of UAS policy and procedures are meant to incorporate LAFD Air Operations, knowledge of FAA regulations, to include Operational Risk Management (ORM), Crew Resource Management (CRM), and Aviation Training Operations Procedures Standardization (ATOPS).

Missions

The UAS is an operational tool to be used by authorized Department personnel in response to “all hazard” scenarios, which include: active structure fires; post-extinguishment phases of a structure fire; brush (wild land) fires and natural disaster damage assessment; hazardous material identifications; and confined area search operations, such as “river rescue” and “hiker” incidents.

The UAS was also intended for training exercises, such as operational pre-planning training (drills) and related video production.

The Department’s UAS intended use is to provide greater situational awareness to incident commanders thereby enhancing firefighter safety in response to and mitigation of emergent situations and incident types.

With the assistance of available technology, specifically, image transmission equipment, all incident related missions have been flown, providing “real time” intelligence, thereby eliminating the need to record data for future consumption or analysis.

We have however purposely recorded during UAS flight team training, department training exercises, mapping exercises and while collaborating with other city departments

Since our last reporting, In compliance with our policy, Certificate of Authorization and the stated program missions, the LAFD UAS program has flown 98 missions, over 68 hours of flight time:

- **37** incident related missions
- **35** Brush Clearance Unit Mapping flights
- **12** Mountain Recreation & Conservation Authority Mapping flights
- **7** Pre Incident analysis missions – Battalions 2 and 18
- **4** Training Support mission (recording and documenting training events)
- **10** Others – Supporting PIO, the Drill Tower Graduation and Training evolutions

Records Management

Our current method of records management is not sustainable or efficient. To support expansion of the program and to remain compliant to FAA requirements and department policy, we have vetted (3) flight and records management applications and have selected and are in the process of securing DroneSense

Fleet

The original fleet of 9 vehicles, all manufactured by Dji, and purchased by generous donations from the Fire Foundation, consisted of:

- (4) Phantom 4 Pro series quadcopters
- (2) Matrice 100 developer series quadcopters
- (1) Phantom 4 Pro series quadcopter (In Service Training purchase)
- (1) Matrice 210 RTK Developer series quadcopter (Dji QEP loan)
- (1) Matrice 600 Pro hexicopter (Fire Foundation donation)

We will soon expand the fleet by adding an additional vehicles, all manufactured by Dji:

- (1) Matrice 210 V2 Pro with 5 gas and Methane sensors
- (3) Mavic 2 Pro

Future Expansion

2020 - the UAS program will expand to Hazardous Materials applications, including Joint Hazard (JHAT), CUPA and HazMat squads, beginning with Task Force 87.

The programs is still planning future integrations specialized resources; USaR, Marine Division, Swift Water and FEMA California TaskForce 1

CONCLUSION

The successful growth of the program, to this point, has been a collaborative effort by the membership under the leadership, constant support and trust of this administration. Today the LAFD UAS programs development and implementation processes stand as a national exemplar and the programs leaders have inked their names among the nations subject matter experts.

Board report prepared by Richard Fields IV, Battalion Chief, LAFD UAS Program Coordinator.

Attachment



LOS ANGELES FIRE DEPARTMENT UAS POLICY

FOR DEPLOYMENT AND USE



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Introduction

For the purpose of this document, the terms "Unmanned Aerial Systems (UAS)," and "Unmanned Aerial Vehicle" (UAV), will be interchangeable. (Unmanned Aerial "system" in order to encompass the entirety of the vehicle that flies, the ground-based controller, and the communications connection that connects the two.) Many sources have variations in terminology when referencing the depiction of this technology.

Vision

The basic assumption is that a UAV provides an efficient and effective way for gathering information for the Los Angeles Fire Department ("Department"). The UAV allows for a clearer understanding of an event and assists in getting the right resources in place. It allows the incident commander and hazard assessment teams to get a true visual of the incidents challenges that can be communicated to local, state, and federal officials. This puts everyone on the same page of understanding.

The enhancement of situational awareness provides structure and details for hazard mitigation during the incident and sets the foundation for incident stabilization and post incident recovery.

More importantly, this increased situational awareness positively impacts firefighter safety during wildland firefighting, technical rescues, search operations and hazardous materials incidents.

During these incident types the UAS can safely and effectively be put into hazardous environments or areas that could potentially jeopardize firefighter safety. The situational awareness gained by immediate, 360 degree, visual feedback from both eye level and overhead cannot be matched by firefighters on the ground or by helicopters. The UAS is a beneficial instrument that improves the likelihood of successful emergency management operations, while also delegating risk of response operations to unmanned systems.

The value of this program will also be seen in the deployment of the Unmanned Aerial System during the initial stabilization phase of an incident, primarily in areas where it is dangerous or ineffective to place people for the purpose of gaining a clear understanding of the scope of the incident. The technology would also be beneficial during the recovery phase for the disaster assessment process.

The benefits of adding visual capabilities to the information-gathering process cannot be overstated. This technology expands the scope of disaster assessments by enabling incident commanders a better understanding of the complexities associated with an incident and to collect and disseminate information at a faster rate. This would improve the decision-making process for both the strategic and tactical objectives. Visual images sent back from the UAV to the incident command post, Department Operations Center (DOC) or Emergency Operations Center (EOC) will aid in speeding up the recovery process.

Timely and accurate communication is essential in getting the right resources in place to mitigate an incident. Having the capability of observation enhances situational awareness. It gives various agencies a collective viewpoint of the disastrous event and strengthens the assessment process by capturing community vulnerabilities. Visual communication narrows the interpretation on what is reported at the incident and provides visual perspective as to the extent of damage.

Traditionally, contingency plans relied upon during the onset of a disaster came in the preparation phase.

Purpose

Objectives

To clearly define the conditions and parameters under which the Department **will** operate and deploy a UAS within the City limits and mutual aid communities as a supplement to pre-planning, training, incident assessment, and incident command operations. The primary role of the UAS is insertion into emergent or ongoing events that pose a risk to public safety or threats to the City's infrastructure by providing "real time" hazard assessment utilizing High Resolution (zoom capable) cameras, Infrared/Thermal Sensors, Night Vision Image sensors and Gas/Chemical Sensors (Sniffers).

Although there may be occasional benefits to recording and retaining visual data, this is **NOT** the intended purpose when a UAS is launched in public space or in and around public property or domains.

Missions

As an all risk response agency, the Department responds to all calls for help. Although not meant to be "all inclusive" or exclusive of any emergent incident type, the following are primary scenarios under which the Department UAS can be requested, deployed and utilized:

Structure Fires – Deployment of UAS's to structure fires, in particular, buildings suspected of structural compromise; i.e. roof, walls or floors related to and during the initial action phase and final mitigation of an incident.

Hiker (Hi/Low Angle Rescue) Incidents – Deployment of UAS's in wilderness areas to (1). Verify the existence and location of lost or injured persons who have called 911 for assistance while in hiking, camping or climbing. (2). Confirm the safest and most effective means of dispatching Department rescue team members to make contact with such persons.

Swift Water Incidents – Deployment of UAS's to City waterways, large bodies of water or during precipitous weather events (heavy rains) for the purpose of verifying the existence of and identifying the location of trapped or injured persons in swiftly moving water (at least 3 miles per hour and depths greater than 6 inches).

Extended/Expanded Incidents – Deployment of UAS's to incidents lasting more than 12 hours in duration, where a Department Field Incident Management Team (F.I.M.T.) assumes command of an incident in place of the original Incident Commander.

Wildfire Mitigation – Deployment of UAS's In Local, State and Federal areas for the purpose of GPS topographic mapping, planning and implementing control objectives. For developing hazard mitigation strategies; i.e., structure defense, perimeter control (hot spots) and containment assessment. **NO UAS will be operated while manned aircraft are in operation Until approved authorization by Air Operations (under AOBD and IC).**

Natural Disaster Response and Assessment – Deployment of UAS's to accelerate situational awareness necessary to begin the recovery process. To collect and disseminate information through visual images sent back to the incident command post, DOC or EOC for various agencies to have a collective viewpoint of a disastrous event and strengthens the assessment process by capturing community vulnerabilities.

Hazardous Material Mitigation – Deployment of UAS's with dual-purpose sensor payload, high resolution camera to identify containment areas and amount of content for liquid spills or Gas/Chemical Sensors (Sniffers) to collect air/environment samples for analysis and identification.

Wide Area Search and Rescue – utilizing Infrared (IR) sensors to locate a lost person in low light tracking and deploying resources in areas where radio or cellular communication is impacted, diminished or unavailable.

Hazard Assessment Pre and Post-Incident Analysis –

Pre incident analysis is intended to provide situational awareness prior to situation. These particular mission area assist in fulfilling department mission planning for terrorist events and planning for other types of homeland security planning and operations

Post- incident analysis - UAS used for arson investigation, post fire critique, Hot Spot detection at wildland fires, damage assessment and other types of post incident activity.

Structure Collapse/Confined Space Search and Rescue – Deployment of UAS's utilizing IR sensors to provide night-vision footage to track heat signatures of bodies, pinpointing the locations of survivors, and providing hazard assessment for rescuers access and egress.

Planned Training Events – Use of UASs for training exercises intended to simulate any of the above mentioned "real" scenarios. Use of UASs for training purposes shall be limited to events that take place on Department property, such as Drill towers 40, 81 or 89, Frank Hotchkin Memorial Training Center, live fire training, Jensen Filtration Plant, or local fire stations.

Planned Operational Events – Fire Prevention

The Department's primary intention for integrating UAS technology into its initial action hazard mitigation and response matrix is to increase the incident commanders "situational awareness" to fully understand the challenges of a given incident in "real time" thereby providing critical information necessary to guide decision-making. Ultimately, those decisions impact the amount of risk the incident commander is willing to assume with firefighters lives.

Deployment Guidelines

Policy:

It shall be the policy of the Department to provide and strictly adhere to the guidelines for the safe and effective operation of an Unmanned Aircraft System (UAS) *set forth by the FAA Certificate of Authorization (COA) (Ref. 2018-WSA-1497-COA)*

Objective:

To clearly define the conditions and parameters under which the Department will operate and deploy a UAS within the City limits and mutual aid communities as a supplement to pre-planning, training, incident hazard assessment, *post incident analysis*, investigation and incident command operations. The development of this policy and procedures incorporates Department Air Operations knowledge of FAA regulations, to include concepts of Operational Risk Management (ORM), Crew Resource Management (CRM), Aviation Training Operations Procedures Standardization (ATOPS) and stakeholders.

Flight Procedures

The UAS is an operational tool to be used by certain authorized Department personnel in response to "all hazard" scenarios, which include: active structure fires; post-extinguishment phases of a structure fire; brush (wild land) fires and natural disaster damage assessment; hazardous material identifications; and confined area search operations, such as "river rescue" and "hiker" incidents, *Pre planning training post incident analysis, investigation and incident command operations*. The UAS is also intended to be used *video production related to recruit*

academy training and related events, in-service training exercises, such as operational pre-planning training (drills) and related video production.

The Department's UAS **will not** be used to monitor members of the public or provide surveillance for law enforcement purposes. Its intended use is to provide greater situational awareness to incident commanders thereby enhancing firefighter safety in response to and mitigation of emergent situations and incident types unrelated to citizen monitoring or surveillance.

1. The Department UAS will only be operated by trained, certified and FAA part 107 ~~or higher~~ licensed members (~~Remote Pilot in Charge~~ *Remote Remote Pilot in Charge in Command* (PIC and *Visual* observer) of the Department.
2. The UAS will be used for Department- related purposes only. The Department might, as part of California regional partnerships, Mutual Aid or Automatic Aid agreements, operate the UAS outside of "city" boundaries when dispatched to assist another regional Fire Department.
3. The UAS will **NOT** be lent to any other department or agency. However, if dispatched or properly requested, the UAS, operated by a Department UAS team member(s), *can be utilized in mutual aid capacity* in accordance with the provisions of the *Certificate of Authorization* (COA) *Department UAS policy and "any higher restrictions placed by the agency having jurisdiction (AJH). All Department policies will be adhered to in concurrence with the AHJ.*
4. For Department UAS flights, including Remote Pilot in Charge or observer certification and training or In-Service Training production, the "Remote Pilot in Charge in charge" SHALL request an incident number through Metro Fire Communications.
5. For Department UAS flights during live incidents, the "Remote Pilot in Charge in charge" SHALL ensure or request the UAS be added to the existing Incident. In all cases, incident information SHALL include: launch time, exact location, Remote Pilot in Charge in charge, mission type and UAS ID.

Upon request of the Department Incident Commander or Department Representative, when the Department is an assisting agency, the UAS flight team (Remote Pilot in Charge and a Visual observer) will deploy to the designated location within the Department fire protection area, as well as its surrounding Automatic Aid, Mutual Aid, Mutual Threat Zones and regional response areas. The UAS flight team will conduct a pre-flight assessment of the incident environment to ensure the proposed operation is within COA guidelines, Department UAS Policy and *adhere to restriction placed by the AHJ.*

The UAS Remote Pilot in Charge along with the Visual Observer will determine if safe operation of the UAS can be accomplished as requested. The decision will be contingent upon several factors to include physical features of the area, obstructions to flight, terrain, and the weather. **The UAS Remote Pilot in Charge will make the final determination if flight operations can be initiated.**

The Incident Commander and/or UAS Remote Pilot in Charge will coordinate with the Department's Air Operations Section Commander, Chief Pilot ~~final clearance~~ *or allied agencies prior to flight operations within their area of responsibility*

UAS Teams (Operator and Pilot have been replaced by Remote Pilot in Charge. Observer has been replaced by Visual Observer)

UAS Teams are a Remote Pilot in Charge (Remote Pilot in Charge) and *Visual* Observer *(Additional team members may be needed for complex missions, i.e. multiple UAS operating in*

the same airspace) The "team" concept is established to train for and respond to each authorized UAS mission. (Fire Ground Over-watch, Search and Rescue, Swift Water Rescue, etc.) *The UAS Remote Pilot in Charge will also be the team leader. The Remote Pilot in Charge will be ultimately responsible for the operation and solely responsible for input of commands of the UAS during flight. The Remote Pilot in Charge will also be responsible for UAS assembly, flight preparation, post flight procedures, UAS disassembly/storage procedures and documenting all UAS flights. (Moved from last paragraph)*

Each UAS Team will operate with at least two members of the Department (Remote Pilot in Charge-in-command and observer). Each member will be assigned a specific role prior to flight. Additional team members may be needed for complex missions, including Liaison and auxiliary Remote Controller (for independent gimbal/sensor control) The UAS Team will always have at least one certified Remote Pilot in Charge; this can be comprised of (2) Remote Pilot in Charges or (1) Remote Pilot in Charge and (1) Observer. *Where more than one UAS team is operating on the same mission, a "Lead" Pilot will be identified prior to flight.*

UAS Remote Pilot in Charge

The Department UAS will only be operated by Department personnel trained in its safe and effective operation. These *members shall be trained and certified department personnel. will normally be trained and licensed field personnel for emergent incidents or trained and licensed members assigned to the In-Service Training Section for flights not related to an emergency response.*

UAS *Remote Pilot in Charge* must be Department personnel and must have at minimum, an FAA part 107 license and a *minimum of 20 hours of practical flight time" UAS pilots must meet min department training of part 107 license and min of 20 hours of logged flight time. Other training is required (see LAFD UAS 48 hour training course and operations manual* This generally includes simulator flights, a knowledge test of Federal Aviation Regulations, safety, maintenance, a proficiency test on the UAS, training conducted by a designated Department UAS instructor and **ten** hours of supervised in-flight operation.

UAS *Remote Pilot in Charge* must maintain his/her part 107 license, maintain flight logs and all necessary records to meet the FAA's requirements. UAS Remote Pilot in Charges will also be required to open, complete and maintain a task book specific to specialized flight operations; i.e. HazMat, Urban Search and Rescue or confined space flight prior to operating any DEPARTMENT UAS in that area. Additional regularly scheduled training *in accordance with UAS operations manual must be completed and documented.*

~~/proficiency tests, as determined by the UASU Captain, must be completed and documented.~~

Visual Observer

The UAS Flight *Visual* Observer will maintain a visual observation of the UAS while in flight and alert the PIC of any conditions (obstructions, terrain, structures, air traffic, weather, etc.), which may affect the safety of a flight. UAS Flight Observers will also ensure that the Remote Pilot in Charge is not interrupted during flight.

The Flight Observer's added function is to coordinate and communicate operations between the Remote Pilot in Charge-in-Command (PIC) and ground personnel.

Additionally, the Flight Observer will be responsible for all aviation related communications required by Federal Aviation Regulations (FARs).

To accomplish this, the observer should be in close proximity and have constant communication with the PIC to ensure instant relaying of information.

UAS Data Technician Technical Specialist

The UAS Technical Specialist will be utilized anytime the documentation captured by the UAS needs to be *provided to the Incident Command or Incident Command Post, Public Information Officer or to support communications during* in "real time" *an incident*, or in the initial action phase of

Safety Policy

Commitment to Safety

The Department is committed to having a safe and healthy aeronautical workplace, including:

- An ongoing pursuit of an accident free workplace, including no harm to people, equipment, the environment or property.
- A culture of open reporting of all safety hazards in which management will not initiate disciplinary action against any personnel who, in good faith, disclose a hazard or safety occurrence due to unintentional or intentional conduct.
- Support for safety training and awareness programs.
- Conducting regular audits of safety policies, procedures, and practices.
- Monitoring the UAS community to ensure best safety practices are incorporated into the organization.

It is the duty of every Department member with UAS responsibilities to contribute to the goal of continued safe operations. This contribution may come in many forms and includes always operating in the safest manner and avoiding unnecessary risks. Any safety hazards, whether procedural, operational, or maintenance related should be identified as soon as possible. Any suggestions in the interest of safety should be made to the UAS Program Coordinator ~~Captain or Team Leader~~ without reservation.

If any member of Department UAS Flight Team observes or has knowledge of an unsafe or dangerous act committed by another member, the incident commander and the ~~DEPARTMENT Program Coordinator~~ shall be notified immediately so that corrective action may be taken.

Ground Safety – Refer to Operations Manual

- ~~The Remote Pilot in Charge and flight observer must always be aware of dangers to ground personnel from moving rotors.~~
- ~~The Remote Pilot in Charge shall under no circumstances leave any unauthorized person in charge of the UAS controls while the UAS is running.~~
- ~~If it is necessary for the Remote Pilot in Charge to leave the controls of the UAS, the engine will be shut down, battery removed, and the controls deactivated.~~
- ~~Only mission essential personnel will be in proximity to UAS launch and recovery activities.~~

When operating over populated areas, the Remote Pilot in Charge will ensure that a "defined incident perimeter" exists to limit the potential of persons being present beneath the UAS flight path.

Night Flight Operations –Refer to Operations Manual

- To assist the Remote Pilot in Charge, a secondary (auxiliary) Video Camera Remote Controller with a video monitor screen should be deployed for independent gimbal/sensor control.
- UAS team members should obtain the minimum altitude necessary to avoid obstructions in the operating area prior to nightfall if possible.
- Due to field of view and distortion issues, night vision goggles may not be used as the primary means for visual observation duties. Such devices are ONLY permitted for augmentation of the Flight Observer's visual capability.
- Flight Observers must use caution to ensure the UA remains within normal line-of-sight.
- The use of UAS Staff and the use of lighting and/or IR beacons to identify the launch/recover areas is highly recommended.

Deconfliction of Aircraft within Operational Air Space

All UAS flights shall be grounded upon arrival of approved manned aircraft entering the operational air space.

Deconfliction shall occur by the Lead PIC of the aircraft.

Incident Commanders shall not approve UAS flights to resume until the Lead PIC of the aircraft designates UAS operating areas and approves UAS use during manned flight operations.

It is the responsibility of the UAS Remote Pilot in Charge and Flight Observer to confirm and maintain awareness of all manned aircraft activity during UAS operations.

In the event a non-Department UAS is identified in our operational air space (incursion), the Lead PIC shall notify the Incident Commander and follow the "incursion protocol" found in the Department UAS Operations Manual.

Security Policy

Chain of Custody for Retained Material

1. All recorded photo/video material related to a Department emergent response shall be archived and cataloged immediately after the conclusion of the incident; then surrender any recorded photo/video material to the Arson/Counter Terrorism Section Commander *or designee*, the Department's official custodian of records.
2. All recorded photo/video material **not** related to a Department response; i.e. planned training event, *shall be surrendered to the In-Service Training Section by permission of the custodian of records (Section Commander, Arson/Counter Terrorism Section).*
3. All recorded photo/video material **not** related to a Department response; i.e. planned Department training events, involving Department personnel *and/or on Department property* shall be used, edited, reviewed and approved for internal dissemination within 60 days.
4. All recorded photo/video material **not** related to a Department response; i.e. planned Department training events, public relations events *or involving non-Department personnel*, in public space or in and around public property or domains shall be edited/produced, reviewed and approved by Community Liaison Office.

Records Retention

The Department strives to gain, develop and maintain the trust of the public it serves. The Department's primary intention for integrating UAS technology into its initial action hazard mitigation and response matrix is to increase the incident commanders' "situational awareness." Situational awareness is His/her ability to fully understand the challenges of a given incident in "real time," thereby providing critical information necessary to guide decision making. Ultimately, those decisions impact the amount of risk he/she is willing to assume with firefighters' lives.

In most cases, "real time" information will be captured solely to transmit "live" footage to a Department Incident *Commander or Incident* command post. Although there may be occasional benefits to sharing, recording and retaining visual data, this is **NOT** the intended purpose when a UAS is launched in public space or in and around public property or domains.

The Department or any entity associated with the Department UAS Program will not engage in the indiscriminate, unobscured publication of footage depicting non-Department personnel. Visual data shall never be displayed on the Department's public facing website or social media portals when not in the best interest of the public. It is the intent of the Department by policy and practice, to protect the privacy interests of members of the public or other "non-Department personnel."

The Department or any entity associated with the Department UAS Program will not permit any retained visual data to be merged with other surveillance databases, or retained solely for the purpose of mining the data at a later time by the Department or other agencies.

It will be the Department's policy and practice to retain visual footage after the conclusion of the emergent incident only where there is a specific, identified Department need. Such needs would include footage that captured an unusual occurrence; occurrence of serious building compromise or collapse; roof compromise or collapse; large area involvement with fire (conflagration, flashover, backdraft or explosion); injury or death to a firefighter or member of the public; or in connection with anticipated or pending litigation or compelling public interest.

The decision to retain any visual data captured in public space or in and around public property or domains will be balanced against the competing but equally important public concern for transparency. The retention of any visual footage or audio file will be in accordance with California Records and Information Program (CalRIM) and current records retention schedule in the Los Angeles Administrative Code, Chapter 1, Section 12, Subsection 3, 4 and 5.

Addressing Privacy (approved by commission 8/20/19)

To protect civil rights and civil liberties, the Los Angeles Fire Department shall:

- (i) prohibit the collection, use, retention, or dissemination of data in any manner that would violate the First Amendment or in any manner that would discriminate against persons based upon their ethnicity, race, gender, national origin, religion, sexual orientation, or gender identity, in violation of law;
- (ii) will only perform UAS activities in a manner consistent with the Constitution and applicable laws; and
- (iii) make the Department's Professional Standards Division (PSD) available to receive, investigate, and address, as appropriate, privacy, civil rights, and civil liberties complaints relating to the deployment of an LAFD UAS and/or the retention of information from such deployment.

Transparency

1. To maintain public trust, the Department will, with the exception of those instances where operator safety or personnel could be jeopardized, and where reasonably possible and practical, the Los Angeles Fire Department will provide notice to the public regarding where the agency's UAS are authorized to operate in the National Air Space (NAS). For specific information see 2018-WSA-1497-COA.
2. The Department will keep the public informed about its UAS program as well as changes that would significantly affect privacy, civil rights, or civil liberties;
3. Los Angeles Fire Department will make available to the public, on a bi-annual basis, a report to the Board of Fire Commissioners, which will provide a general summary of the UAS operations during the 6-month period, to include a brief description of types or categories of missions flown, and the number of times the department provided mutual aid assistance to other agencies, or to other State, local, tribal, or territorial governments.
4. The department will engage the public throughout the course of each year at recruitment events, National Fire Service Day, Community Emergency Response Team (C.E.R.T.) training events, and various media campaigns to increase general community knowledge and awareness of its use.

Program Oversight

The Board of Fire Commissioners (the Board)

As the Department's civilian oversight body, the Board shall have the authority and responsibility of oversight of the Department UAS Program, its adherence to established policy and its overall efficacy. This oversight will include review of quarterly reports on UAS flights, mission objectives, any photographic or video images retained and a program benefits analysis.

As the Department UAS Program grows and evolves, there may be a need to add, delete or modify not only the specific uses and deployment scenarios but the written policy and guidelines. In the event substantive changes in the Department's use of UAV's, or the collection, retention, or access to such information occur, the Fire Chief will request review and approval of said changes by the Board and City Council's Public Safety Committee.

Independent Assessor

The Board's independent assessor or other named designee will serve the role, **consistent with the role of the Independent Assessor as set forth in the Charter**, of reviewing the Department's use of UAS including whether the original rationale for deployment is met, whether the Department is complying with its stated policies and approved purposes, and whether the UAS program represents a worthwhile public expenditure. The subsequent report will be provided to the Board quarterly.

Program Authorizers

Oversight of the program will UAS Program Coordinator(s) and In-Service Training Section, who report to the Emergency Operations Chief Deputy, ~~made up of the and the Battalion Chiefs assigned to Air Operations.~~

Authorizer 1: Department UAS Program Coordinator - Responsible for maintaining the compliance, performance and adherence to policy of the UAS Program. Responsible for all UAS equipment inventory, expenditures, maintenance and related reports. **Responsible for ensuring proper maintenance of flight records, flight logs, training hours and licenses to meet FAA regulations for UAS Remote Pilot in Charges and observers. Responsible for ensuring UAS Remote Pilot in Charges and observers remain current on FAA rules and have a thorough working knowledge of Department Air Operations. (from Air Ops BC)**

Authorizer 2: Air Operations Battalion Chief –

Authorizer 3: In Service Training Section Battalion Chief – Responsible for coordinating the development and delivery of training and training materials related to the Department UAS program. Also responsible for receiving, verifying and maintaining all prerequisite training, training records and related documentation for members entering into the Department UAS program.

Program Instructors - Department UAS Program Instructors will be Department members who have, at a minimum, maintained a Part 107 license, has completed an FAA recognized training course for "ground school" and flight operations, **and has completed department certification as outlined in department UAS Manual** ~~has a minimum of 25 hours of logged UAS flight in a quadcopter, hexicopter or higher or has equivalent flight, flight crew or flight observer training.~~

Appendix

DEFINITIONS:

Data Technician: The person assigned to the Command Post to provide "real time" photo/video or other information, obtained from UAS mounted "sensors" to the Incident Commander (this role can be filled by the EIT/Captain I Adjutant).

Ground Control Station (GCS): Is a component of the Unmanned Aircraft System (UAS). Consists of the Remote Pilot in Charge control unit (OCU), ground data terminal (GDT) and associated cables and antennas. This GCS provides the interface between the Remote Pilot in Charge in Command (PIC) and the unmanned aircraft (UA).

Ground Data Terminal (GDT): Is a component of the Unmanned Aircraft System (UAS). Contains all the necessary equipment for the communication links between the UA and the Remote Pilot in Charge control unit (OCU) for both data and video. Also contains a Global Positioning System (GPS) to enable the Remote Pilot in Charge to determine the system's location.

Liaison: A person who interacts with incident personnel to avoid distracting the PIC and observer from their duties.

National Airspace (NAS): The National Airspace System is the network of the United States airspace, air navigation facilities, services, airports, regulations, procedures, technical information, manpower, and material shared jointly between the Federal Aviation Administration (FAA) and the military.

- Airspace is classified based on the activities therein which must be confined because of their nature.
- There are 4 types of airspace that fall under 2 Categories.

Observer: The observer is responsible for visual observation and safety of the unmanned aircraft (UA) while in flight.

Remote Pilot in Charge Control Unit (OCU): Is a component of the Unmanned Aircraft System (UAS). Consists of the control transmitter or computer that is used to make changes to the aircraft position and altitude and the data/video transmitted by the UA.

Payload: The amount of equipment carried by the aircraft. Typically divided between command and control communications (radio receiver antenna) and video (camera, transmitter).

Person Manipulating the Controls: A person other than the remote Remote Pilot in Charge in command (PIC) who is controlling the flight of an UAS under the supervision of the remote PIC.

Remote Pilot in Charge-In-Command (PIC): The person directly responsible for all operations including safety of the UA as described by Federal Aviation Regulations (FARS) 91.3.

Remote Controller: The wireless communication device that provides the interface between the Remote Pilot in Charge and the UAS.

Remote Remote Pilot in Charge in Command (Remote PIC or Remote Remote Pilot in Charge): A person who holds a remote Remote Pilot in Charge certificate with a sUAS rating and has the final authority and responsibility for the operation and safety of a sUAS operation conducted under part 107.

Small Unmanned Aircraft (sUA): A UA weighing .5 pounds or more but less than 55 pounds, including everything that is onboard or otherwise attached to the aircraft, and can be flown without the possibility of direct human intervention from within or on the aircraft.

Small Unmanned Aircraft System (sUAS): A small UA and its associated elements (including communication links and the components that control the small UA) that are required for the safe and efficient operation of the small UA in the NAS.

Sensors: High Resolution (zoom capable) cameras, Infrared/Thermal Sensors, Night Vision Image sensors, Gas/Chemical Sensors (Sniffers) - Not all use scenarios will use photo or video cameras

Technical Specialist: (definition moved from Data Technician) The person assigned to the Command Post to provide "real time" photo/video or other information, obtained from UAS mounted "sensors" to the Incident Commander (this role can be filled by the EIT/Captain I Adjutant).

Unmanned Aircraft (UA): An aircraft operated without the possibility of direct human intervention from within or on the aircraft.

UAS: An Unmanned Aerial System also known as a drone

Video Camera Remote Controller: The person in control of the second or auxiliary remote control. Controls only the gimbal/sensor portion of the UAS. Needs constant communication with PIC for safe operation. (See night operations.)

Visual Observer (VO): A person acting as a flight crew member who assists the small UA remote PIC and the person manipulating the controls to see and avoid other air traffic or objects aloft or on the ground.