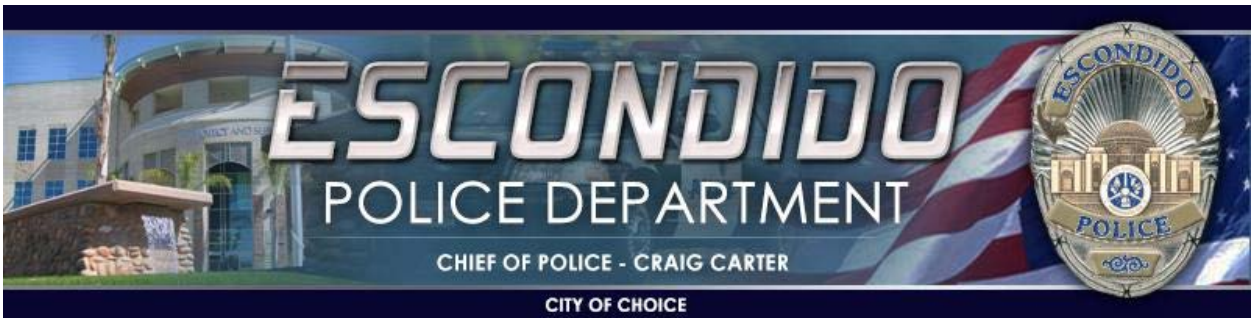
Escondido Police Department

Unmanned Aircraft Systems Unit (UASU)



Operations Manual

Mission Statement

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The Escondido Police Department Unmanned Aircraft Systems Unit (UASU) will augment the Department's efforts in apprehending criminals, keeping its officers safe, and enhancing the quality of life for its citizens.

1.0 Administration

1.1 Operations Manual

1.1.1 This document conveys the same authority as other Department Instructions, regulations, policies, and procedures. Compliance is required by all personnel assigned to the Unmanned Aircraft Systems Unit (UASU). Violations of the standards set forth in this manual may result in removal from the UASU and / or disciplinary action.

1.1.2 This operations manual will not apply in such a way as to supersede state or federal laws, other Department policies or procedures. If for any reason a portion of this manual is held to be invalid, the remainder of the manual shall not be affected by any such decision.

1.1.3 This operations manual outlines the purpose of the UASU, procedures applicable during UASU deployments, unit structure, organization, equipment, and training. The manual has been written to address unmanned aircraft operations as they existed at the time of drafting. As such, it is essential that this manual be reviewed and updated on a continual basis. This manual will be reviewed as needed, and any changes will be communicated to affected personnel.

1.1.4 A copy of this manual will be issued to each member of the UASU.

1.2 Organization

1.2.1 The UASU shall be comprised of personnel assigned by the Chief of Police and/or his designee and may include pilots, visual observers and others as deemed necessary.

1.2.2 UASU operations are under the direct command of the UASU lieutenant and sergeant.

1.2.3 UASU will be comprised of personnel trained in UAS operations and holding a collateral assignment with the UASU.

1.3 UASU Personnel

1.3.1 The UASU Lieutenant is responsible for the overall management of the unit.

1.3.1.1 Given the technical nature of aviation, the UASU Lieutenant may, at his discretion, assign responsibilities for UAS operations to any member of the UASU with the knowledge, skills and abilities to safely and effectively manage the operation.

1.3.2 UASU Sergeant

1.3.2.1 The UASU Lieutenant shall assign a sergeant to the unit.

1.3.2.2 The UASU sergeant shall serve as the supervisor of the unit whose duties include personnel selection, training, etc.

1.3.2.3 The UASU Sergeant shall ensure all UASU personnel understand the applicable regulatory requirements, standards and organizational safety policies and procedures.

1.3.2.4 The UASU Sergeant shall observe and control safety systems by monitoring and supervision of UAS Pilots and Visual Observers.

1.3.2.5 The UASU Sergeant shall measure pilot and observer performance compliance with organizational goals, objectives and regulatory requirements.

1.3.2.6 The UASU Sergeant review standards and practices of agency personnel as they impact flight safety.

1.3.2.7 The UASU Sergeant shall copy and circulate pertinent safety information.

1.3.2.8 The UASU Sergeant shall debrief training sessions with an emphasis on safety concerns.

1.3.3 Pilots

1.3.3.1 To be considered for selection as a UAS pilot, applicants must be in good standing with the Escondido Police Department and meet other standards as imposed by the UASU Lieutenant. On any given mission, a UAS Pilot may be called upon to perform the duties of either a UAS Pilot or Visual Observer. UAS Pilots must maintain proficiency in the operational standards of both positions.

1.3.3.2 A UAS Pilot's primary duty is the safe and effective operation of the Department's UAS in accordance with the manufacturer's approved flight manual, FAA regulations, and agency procedures. Pilots must remain knowledgeable of all FAA regulations, aircraft manufacturer's flight manual and Escondido Police Department instructions.

1.3.3.3 In order to fly a mission (other than flights required for initial training or currency) pilots must have completed three (3) currency events within the previous 30 days. Currency events include takeoffs, flights and landings.

1.3.4 Visual Observers

1.3.4.1 The Visual Observer's primary function is to act as an airborne operations commander, coordinating operations between the UAS and ground personnel.

1.3.4.2 The Visual Observer will identify risks to police personnel, the public and property, including the UAS and take immediate steps to mitigate or avoid those risks.

2.0 Safety Policy

2.1 Commitment to Safety

2.1.1 The Escondido Police Department is committed to having a safe and healthy workplace, including:

1. The ongoing pursuit of an accident-free workplace, including no harm to people, no damage to equipment, the environment and property.
2. 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.
3. Support for safety training and awareness programs.
4. Conducting regular inspections of safety policies, procedures and practices.
5. Monitoring the UAS community to ensure best safety practices are incorporated into the organization.

2.1.2 It is the duty of every member of the UASU to contribute to the goal of continued safe operations. This contribution may come in many forms and includes always operating in the safest manner practicable and never taking unnecessary risks. Any safety hazards, whether procedural, operational, or maintenance related should be identified as soon as possible after, if not before, an incident occurs. Any suggestions in the interest of safety should be made to the UASU Lieutenant or Sergeant without reservations.

2.1.3 If any member of the UASU observes or has knowledge of an unsafe or dangerous act committed by another member, the UASU Lieutenant or Sergeant shall be notified immediately so that corrective action may be taken.

2.2 Safety Training

2.2.1 All new members shall receive training in the following prior to serving in an operational capacity:

1. Agency commitment to safety.
2. Agency policy and procedures.
3. The member's role in safety.
4. Process for reporting hazards and occurrences.

5. Applicable emergency procedures.
6. All new members shall receive training in the following prior to serving in an operational capacity.

2.2.2 All Safety training shall be documented. The training records will be maintained in the member's training file.

2.3 Safety Stand Down

2.3.1 A safety stand down will be conducted annually. During the stand down, all UASU members will be required to attend and review the Escondido Police Department's safety program. During the stand down, management and UASU members will solicit changes to this manual, identify potential hazards, update emergency procedures, and conduct safety training.

2.4 Medical Factors

2.4.1 Each UASU member shall report for duty rested and emotionally prepared for the task at hand.

2.4.2 Physical illness, exhaustion, emotional problems, etc. can seriously impair judgment, memory and alertness. The safest rule is not to act as a UAS pilot or visual observer when suffering from any of the above. UASU personnel are not to participate in UASU operations when these problems could reasonably be expected to affect their ability to perform as either a UAS pilot or visual observer.

2.4.3 A self-assessment of physical condition shall be made by all UASU members prior to and during UASU operations.

2.4.4 Members of the UASU shall adhere to Section 1.38 of the Rules of Conduct and may not participate in UASU operations while under the influence of alcohol to any degree whatsoever.

3.0 Training

3.1 Objective

3.1.1 The key to continued safe operations is maintaining a professional level of UAS competency. The first step in this process is establishing minimum qualifications for selecting UASU members. The second step involves training.

3.2 Instructor Pilots

3.2.1 The UASU Sergeant will organize proficiency exercises as well as ongoing training.

3.3 Training Plans

3.3.1 All members will complete a training plan on file that outlines objectives.

3.3.2 The approved training plan will be developed by the UASU Lieutenant and UASU Sergeant.

3.3.3 Training objectives will vary depending on whether the members is new to the UASU or an existing member. For new members, the training program will focus on familiarization with equipment and operational procedures. Existing members will focus on recurrent training. Objectives should challenge the members to increase their competency in the knowledge and skills necessary to perform.

3.3.4 Training plans shall be maintained in a file and reviewed monthly to ensure progress toward objectives.

3.4 Initial Training

3.4.1 Initial training will be conducted to provide new UAS Pilots with skills sufficient to operate Department UAS.

3.4.2 New pilots need to become familiar with UAS aviation operations, FAA regulations, the UAS and associated equipment.

3.4.3 Any new member who fails to successfully complete the initial training may be subject to removal from the UASU.

3.5 Recurrent Training

3.5.1 Recurrent training for all pilots and observers will be conducted no less than once a month. The UASU Sergeant is responsible for organizing these training sessions. Training will emphasize safety, respect for the law and privacy concerns, lessons learned from previous deployments, and the efficient completion of UASU missions.

3.5.2 All pilots must complete at least three (3) currency events each month. The currency events must utilize the UAS currently deployed by the Escondido Police Department. Currency events including landings and takeoffs. Pilots who experience a lapse in currency must perform currency events, described above, under the supervision of the UASU Sergeant. Pilots with lapsed currency may not participate in an actual UASU missions. Currency flights will be recorded in the pilot's UAS log book.

3.5.3 Recurrent training is not limited to actual pilot skills, but includes knowledge of all pertinent UAS matters.

3.5.4 Failure to prove proficiency can result in removal from UAS responsibilities.

3.6 Use of Escondido Police Department UAS for Training

3.6.1 The Escondido Police Department's UAS may be used to meet the training objectives set forth in the UASU training plan.

4.0 General Operating Procedures

4.1 Requests for UAS Support

4.1.1 Requests for UASU support shall be forwarded to the UASU Lieutenant for consideration. If the UASU Lieutenant is unavailable, the request shall be forwarded to the UASU Sergeant for consideration.

4.1.2 Requests will be handled by UASU members on duty whenever possible.

4.1.3 Requests for support from other agencies shall be forwarded to the UASU Lieutenant for consideration**.** If the UASU Lieutenant is unavailable, the request shall be forwarded to the UASU Sergeant for consideration.

4.2 Deployment Priorities

4.2.1 Several requests for UAS support may be received simultaneously. Given the limited UAS resources it is necessary to prioritize calls for service. In general terms, requests for UAS support are prioritized as:

1. Life Saving
2. Assisting in the apprehension of criminal violators
3. Evidence/Documentation

4.3 Minimum UASU Flight Crew Requirements

4.3.1 The minimum flight crew on all UASU missions will be a pilot and an observer. Under no circumstances will a pilot attempt to complete a UASU mission by themselves.

4.4 UAS Flight Crew Responsibilities

4.4.1 UAS Pilot

4.4.1.1 The Pilot is directly responsible for and is the final authority over the operation of the UAS.

4.4.1.2 Pilots have the absolute authority to reject a flight due to weather, aircraft limitations, physical conditions, etc. No member of the Police Department, regardless of rank, can order a pilot to conduct a flight when, in the opinion of the pilot, it would be unsafe to do so.

4.4.1.3 Pilots are responsible for compliance with FAA regulations, this manual and any other special FAA conditions.

4.4.1.4 Pilots shall be responsive to the requests of the Visual Observer in order to accomplish the mission.

4.4.2 Visual Observer

4.4.2.1 The Visual Observer is responsible for the law enforcement aspect of the mission.

4.4.2.2 The Visual Observer will assist the Pilot with maintaining visual awareness of the airspace and advise the pilot of any imminent hazards including other aircraft, terrain and adverse weather conditions.

4.4.2.3 The Visual Observer shall remain alert for suspicious persons or activities on the ground and coordinate response by ground units.

4.4.3 Crew Coordination

4.4.3.1 The Pilot and Visual Observer will work together to form the crew which will ultimately accomplish the mission objectives.

4.4.3.2 The Pilot is the custodian of evidence. In this capacity, he or she is responsible for the safeguarding and proper processing of any evidence including, but not limited to, digital imagery to include still and video images.

4.4.3.3 In the interest of safety, both the Pilot and Visual Observer must be comfortable with any decision made while working as a crew. This begins when deciding whether to accept the mission and continues throughout the mission. If there is a genuine concern on the part of either the Pilot or Visual Observer, the mission should not be accepted or should be terminated.

4.4.3.4 Concern on the part of either crew member should be immediately expressed to the other member.

4.4.3.5 Visual Observers have the right and the responsibility to question the pilot whenever they do not understand any aspect of the mission, or are uncomfortable with certain procedures, weather, mission parameters, etc. The pilot should honestly answer any questions posed to them and not act as though he or she is being challenged or threatened.

4.4.3.6 The crew concept and open communications will help to achieve safe operations.

4.5 Flight Time Limitations and Rest Requirements

4.5.1 During any 24 consecutive hours, the total flight time of any pilot may not exceed 10 hours.

4.6 Uniform and Equipment

4.6.1 When conducting UASU missions, the pilot and visual observer shall be equipped as outlined in Department Instruction 1.2.

4.6.2 Personnel in close proximity to UAS launches and landings will wear protective eyewear.

4.7 Preflight Actions

4.7.1 Thorough preflight planning and inspections are critical to safe operations.

4.7.2 UASU flight crews will conduct a self-assessment of their physical condition. If any member of the flight crew feels they cannot safely perform his or her duties, they should decline the mission.

4.7.3 UAS Inspection

4.7.3.1 Prior to initial deployment, the UAS pilot shall conduct a thorough preflight inspection of the UAS in accordance with the manufacturer's instructions and the Escondido Police Department Unmanned Aircraft Systems Preflight Checklist. In the event of a night mission, the Nighttime Supplemental checklist will be completed.

4.7.3.2 All mission equipment will be tested and securely attached to the UAS prior to flight by the Pilot.

4.7.3.3 If any mechanical discrepancies are found, refer to ***section 6.0 "Maintenance."***

4.7.4 Weather

4.7.4.1 Prior to each deployment of the UAS, the pilot shall obtain a full and detained weather forecast for the area of operation.

4.7.4.2 Frequency of weather forecasts will be determined by the severity of existing or forecasted weather during the planned operation.

4.7.4.3 Weather minimums for UAS operations are contained in *Section* 5.2 of this manual.

4.7.5 Documentation

4.7.5.1 Physical assessment, UAS inspection and weather forecasts will be documented prior to all flights on the Pre-Flight Checklist.

4.7.5.2 Documents will be retained for a period of one year.

4.7.6 Preflight Planning

4.7.6.1 It is the responsibility of ~~the~~ UAS pilots to familiarize themselves with all available information regarding the requested operation.

4.7.6.2 Pilots shall ensure that all required FAA notifications have been made prior to conducting any flights. ASTREA and/or ABLE will

also be notified if they will be participating in the mission or it is anticipated they will be flying in the area of operation.

4.8 Ground Handling

4.8.1 The UAS Pilot is responsible for the operation of the UAS on the ground and in the air. Pilots will ensure that no unauthorized items are attached to the UAS prior to deployment. During deployment, adequate clearance from the UAS will be maintained.

4.9 Post Flight

4.9.1 A thorough inspection of the UAS will be conducted to ascertain if any damage was sustained.

4.9.2 If necessary, the UAS will be serviced immediately and returned in a deployment-ready state.

4.9.3 All flight log entries will be completed immediately following the conclusion of the operation.

4.9.4 All flight operations will be documented on approved forms dictated by the type of event.

4.9.5 Upon "repacking" of the UAS, the pilot will ensure that all items are returned to the transport case.

4.10 Data Collection and Storage

4.10.1 The collection of data to include, but not limited to, digital photographs, video or IR images will be limited to the extent necessary to accomplish the mission.

4.10.2 UASU members shall adhere to Department Instruction 1.51 for the retention and use of digital images and video.

4.10.3 All data as described above will be subject to the Escondido Police Department records retention policy as it pertains to evidence.

4.11 Constitutional Aspects of Aerial Searches

4.11.1 Aerial searches to inspect, or gather evidence on activity on the ground may, under some circumstances, intrude into a person's reasonable expectation of privacy and therefore come under the protection of the Fourth Amendment to the U.S. Constitution.

4.11.2 The Supreme Court has cautioned against assuming that compliance with FAA regulations will automatically satisfy Fourth Amendment requirements. Instead, the courts will determine whether the police aircraft is in the public airways at an altitude at which members of the public regularly travel. Other considerations include: the type of property (open fields vs. curtilage), frequency of other aircraft flights over the

area, steps taken to conceal the property and activity from aerial observation, and location of the observer (altitude).

4.11.3 Aerial searches will not be conducted of areas that can be reasonably interpreted to give rise to a reasonable expectation of privacy unless authorized by a warrant, under exigent circumstances or with the consent of the property owner/agent.

4.11.4 Use of thermal imagers is passive and non-intrusive. In most circumstances, use of this device is not considered a search and does not require a search warrant. However, a 2001 U.S. Supreme Court decision (U.S. v. Kyllo), held that using sense-enhancing technology to obtain any information regarding the interior of a home that could not otherwise have been obtained without physical intrusion into a Constitutionally protected area constitutes a search. Thus, police may not use thermal imagers to scan a private residence for heat characteristics (a tactic used to identify indoor marijuana grow operations) without first obtaining a search warrant. It does not prohibit their use on structures or other areas not protected under the Fourth Amendment.

4.11.5 In all cases of UAS deployment, reasonableness and respect for the privacy of individuals shall guide the actions of the UASU personnel.

4.12 Emergency Response Plan

4.12.1 During UAS operations, emergency situations may develop at any time. The primary concern in such incidents is the prevention of injury to persons on the ground and/or other users of the National Airspace. Secondary concerns include protection of property and non-living entities on the ground.

4.12.2 For UAS accidents causing personal injury and/or property damage, the air crew shall do the following:

1. Render first aid to the injured.
2. Follow FAA Part 107 guidelines as it pertains to documentation and/or notification of the FAA and NTSB.
3. Immediately notify the UASU Lieutenant, who may respond to the scene and coordinate accident investigations efforts.
4. Survey the damage to the UAS and/or other property.
5. Submit a detailed written report.

4.12.3 Pre-planning for emergencies

4.12.3.1 Prior to any UAS operation, the Pilot and Visual Observer will identify the nearest emergency medical facility, document it on

the Pre-Flight Checklist and brief all involved personnel on the emergency transportation plan.

4.12.3.2 Safety response training will be conducted annually.

4.12.3.3 All members will be current on first aid training.

5.0 UAS Operations

5.1 General

5.1.1 UAS will be operated in accordance with this manual and Federal Aviation Administration regulations.

5.1.2 Personal use of the Escondido Police Department UAS is prohibited.

5.2 Weather

5.2.1 Any weather or atmospheric condition that would preclude adhering to line-of-sight requirements, or which causes an unsafe flying condition, is cause for declining a mission and/or terminating a flight.

5.2.2 Weather minimums are not applicable to indoor operations.

5.3 Maximum and Minimum altitudes

5.3.1 The maximum altitude for operations is 400 feet AGL.

5.3.2 The minimum altitude is one at which operations can be conducted without undue risk to persons or property on the ground.

5.4 Ground Safety

5.4.1 The Pilot and Visual Observer must be constantly aware of dangers to ground personnel from moving rotors.

5.4.2 The Pilot shall under no circumstances leave any unauthorized person in charge of the UAS controls while the motors are running. If it is necessary for the Pilot to leave the controls of the UAS, the motors will be shut down and the controls deactivated.

5.4.3 Only mission-essential personnel will be in proximity to UAS launch and recovery activities.

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

5.5 Night Operations

5.5.1 UAS members shall obtain the minimum altitude necessary to avoid obstructions in the operating area prior to nightfall if possible.

5.5.2 Because of field of view and distortion issues, night vision goggles may not be used as the primary means of visual observation duties. Such

devices are permitted only for augmentation of the Visual Observer's capabilities. Visual Observers must use caution to ensure the UAS remains within normal visual line of sight.

5.5.3 The use of position lighting (red/green) and anti-collision (white strobe light) is mandatory during all night operations. In accordance with FAA rules, anti-collision lighting may be dimmed when it is in the interest of public safety to do so.

5.6 Miscellaneous

5.6.1 Should the Pilot or Visual Observer develop fatigue or sudden illness, the operation/flight shall be terminated as soon as practical.

6.0 Maintenance

Properly maintained UAS are essential to safe operations. Compliance with the manufacturer's scheduled maintenance, preflight inspections, post-flight inspections and the immediate repair of mechanical problems ensure the availability and safety of agency UAS.

6.1 **Definitions**

6.1.1 Aircraft Flight Log – Flight record book kept with the aircraft.

6.1.2 Preventative Maintenance – Simple or minor preservation operations or the replacement of small standard parts not involving complex assembly operations.

6.1.3 Scheduled Maintenance – Periodic maintenance on UAS at know intervals.

6.1.4 Unscheduled Maintenance – Repairs to UAS in response to mechanical deficiencies.

6.2 Responsibilities

6.2.1 Maintenance Officer

6.2.1.1 One UASU member will be designated as the Maintenance Officer who will coordinate maintenance of the UAS. This assignment can be in addition to other duties.

6.2.1.2 If possible, maintenance will be scheduled when it will have the least amount of impact on operations. The UASU Sergeant will be notified of the operational status of the UAS.

6.2.1.3 The Maintenance Officer shall be responsible for keeping the UAS maintenance record updated.

6.2.1.4 The Maintenance Officer and UASU Sergeant shall provide the UASU Lieutenant with accurate projections regarding replacement of life-limited parts and upcoming maintenance schedules.

6.2.2 Pilots

6.2.2.1 Conduct a thorough preflight inspection of the UAS in accordance with the manufacturer's manual. Any problems or discrepancies shall be noted and rectified as soon as practical.

6.2.2.2 The UAS flight log shall be reviewed prior to flight and appropriate data entered at the conclusion of each flight.

6.2.2.3 The UAS Pilot is the final authority on whether the UAS is airworthy.

6.2.2.4 Any repairs to UAS shall be reported to the UASU Sergeant as soon as practical.

6.2.2.5 In accordance with Federal Aviation Administration regulations (FAR Part 43.3) Pilots can perform preventative maintenance. All such work must be entered into the maintenance records.

6.3 Discrepancy Reporting System

6.3.1 Minor problems not requiring grounding will be noted on the UAS Flight Log and the Maintenance Officer will be notified.

6.3.2 Major problems requiring grounding will be noted in the Flight Log and a placard will be affixed to the UAS indicating it cannot be deployed.