LAW ENFORCEMENT DRONES

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OVERVIEW

BACKGROUND & HISTORY

History of aviation in law enforcement and Unmanned Aerial Systems

LEGAL OPERATIONS

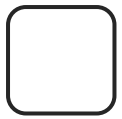
Legal authorization and restrictions, evidentiary rules & cases

SAFE OPERATIONS

Aviation operations, regulations, and licensing

CASE STUDIES

Examples of agencies using drones successfully



Q&A

BACKGROUND & HISTORY

HOW WE GOT HERE

BACKGROUND-LAW ENFORCEMENT AVIATION

i) - **1914**: Miami police reportedly used a Curtiss F-type seaplane to pursue an escapee headed for Barbados—one of the earliest recorded uses of aircraft in law enforcement.

ii) - **1919**: New York City police formed a volunteer air section using surplus U.S. Navy flying boats.

iii) - **1929**: The NYPD established the first full-time police aviation unit in the U.S., marking the beginning of organized aerial law enforcement.

iv) - **1948**: The first police helicopter patrols began in New York and Los Angeles, revolutionizing urban policing with aerial surveillance and rapid response.

v) - **1956**: LAPD formally launched its Air Support Division, which would become one of the largest and most advanced in the world.

vi) **1971**: Thermal imaging was introduced, allowing aircraft to detect heat signatures—crucial for search-and-rescue and suspect tracking.

vii)- **1980s–90s**: Widespread adoption of night vision, GPS, and real-time video transmission transformed air units into high-tech command centers in the sky.

BACKGROUND- DRONES

- **1849**: Austria used **unmanned hot air balloons** filled with explosives to attack Venice—arguably the first recorded use of aerial drones in warfare.
- **1917**: Britain developed the **Aerial Target**, a radio-controlled aircraft for military use during WWI.
- **1918**: The U.S. followed with the **Kettering Bug**, an early cruise missile prototype.
- The term **"drone"** likely originated from the British **DH.82B Queen Bee**, a radio-controlled target aircraft.
- The U.S. developed **Unmanned Combat Aerial Vehicles (UCAVs)** during the Cold War.
- Drones saw action in **Vietnam**, used for **reconnaissance and psychological operations**.
- By the **1990s**, drones were deployed in real combat scenarios.
- Post-9/11, drones became central to **U.S. military operations**, especially for **surveillance and targeted strikes**.
- Civilian use exploded: drones are now used for **filmmaking, agriculture, delivery, disaster response**, and even **climate monitoring**.
- As of 2023, the U.S. had over **855,000 registered drones**, most of them privately owned.

QUESTIONS

LEGAL OPERATIONS

HOW TO OPERATE LEGALLY

TEXAS GOVT. CODE 423

- **Warrant Requirements**: Law enforcement agencies generally need a **valid search or arrest warrant** to use drones for surveillance.
- **Permitted Uses**: Drones can be used without a warrant in certain situations, such as:
  - **Pursuing a suspect** when officers have reasonable suspicion or probable cause.
  - **Documenting crime scenes** involving serious offenses.
  - **Investigating fatal accidents** or missing persons cases.
  - **High-risk tactical operations** that pose a threat to human life.
- **Restrictions on Capturing Images**: Unauthorized drone surveillance of private property is restricted, and violations can result in penalties.

CCP 28.253 – USE OF FORCE BY DRONE

- Defines “drone”:
    - “Drone” means an unmanned aircraft, watercraft, or ground vehicle or a robotic device that:
        - is controlled remotely by a human operator; or
        - operates autonomously through computer software or other programming.
- All other Texas statutes refer to this definition
- Each law enforcement agency that uses or intends to use a drone for law enforcement purposes shall:
    - adopt a written policy regarding the agency's use of force by means of a drone, before the agency first uses a drone, and update the policy as necessary; and
    - not later than January 1 of each even-numbered year, submit the policy to the commission in the manner prescribed by the commission.

US SUPREME COURT CASES

- None of these are explicitly drone cases, but they all involve related technologies or techniques
- California v. Ciraolo (1986)
- Florida v. Riley (1989)
- Dow Chemical Co. v. United States (1986)
- United States v. Jones (2012)
- Kyllo v. United States (2001)
- At this point, a drone-centric case is a matter of time at the US Supreme Court, stay tuned!

QUESTIONS

SAFE OPERATIONS

HOW TO OPERATE SAFELY

A NEW FEDERAL AGENCY (FOR US)

- While local law enforcement interact with several different federal agencies regularly, the Federal Aviation Administration (FAA) is not typically one of them.
- However, when it comes to drones, the safe operation of Small Unmanned Aerial Systems (sUAS), or drones, falls squarely into their responsibility.
- This comes doubly so when it comes to regulating drone flight in otherwise controlled airspace, such as near airports.

14 CFR 107
AKA PART 107

- This is the primary regulation issued by the FAA concerning drone operations and licensing
- Subsequent actions have modified these rules, but this is still where they live.
- Pilots must be certified in small unmanned aerial systems operation and aeronautical knowledge, as determined by certification training and testing.
- Pilots must visually observe drones in flight.
- Drones are required to be registered and carry transponders when in operation
- 400 ft altitude maximum, unless over a structure (then 400 ft over that). Can be waived, but this gets challenging near airports.
- Max speed of 100 mph
- Original rule is daytime flight only and not over people – this has subsequently been changed and is allowed to be waived based on pilot testing.
- No flying from moving vehicles

FAA COA

- Certificate of Authorization (full title Certificate or Waiver of Authorization to Operate)
  - Available for law enforcement agencies
  - Integrated with waiver process – documentation is the same
- Requires documentation on use cases, training, and control
- Relatively long approval cycle
- Partnership with FAA pays off here
  - Smoother approval
  - More terms on the waiver (if you ask for them!)

QUESTIONS

CASE STUDIES

HOW AGENCIES ARE OPERATING SUCCESSFULLY

CASE STUDIES

- Irving PD - VIDEO: Irving Police Department Enhances Emergency Response with
- Drone First Responder Program - Irving Police Department
- Arlington PD
- Harris County Constable 4
- Prosper PD

IRVING PD PT.1

- Drone First Responder Program - Irving Police Department
- Irving started with Tactical Drones supporting tactical operations
- Still have ~20 Tactical Drones in field use
- Created relationship with FAA during this time
- Created Drone First Responder program in 2025 to enhance patrol operations
- 3 DFR docks to launch drones
- All pilots are FAA Certified
- DFR operates from Real Time Crime Center
- Pilots available 1400-0000 M-Sat

IRVING PD PT.2

- FAA Part 107 Waiver
- Close Partnership with FAA – open books, invitation to facilities led to trust from FAA
- Key point for DFR – waiver to allow for radar control of drones (no visual control needed)
- Radar is maritime radar from Canada; was being tested by Mississippi State team for tracking drones in agricultural use
- DFR only utilized with “life safety” critical calls.
- Camera is forward facing only in transit – observation only enabled when at call location

IRVING PD PT.3

- DFR Performance to date:
  - ~300 calls/month
  - Response time for Priority calls: 8 mins -> 6 mins
  - Response time for non-Priority calls: 34 mins -> 4 mins
  - 22% of Priority calls downgraded while units enroute due to drone observation that one or both parties had left the scene
- NASA UAS Traffic Management Test Site
  - A Story for Axel: Big Ideas for Better Air Mobility with Drones of all Sizes
  - Collaborating with NASA on testing automated traffic management for UAS
  - This is what will allow drone deliveries for Amazon and others
  - Allows “lights and sirens” for law enforcement UAS to ‘pre-empt’ other UAS if the airspace is needed for the law enforcement unit to respond to a call or support tactical operations.

ARLINGTON PD PT. 1

- Arlington PD Announces Expansion of Drone as a First Responder Program
- Started with drones to support tactical operations
- Expanded to Drone First Response in May, 2025
- Drones flown from Real Time Crime Center
- 2 DFR docks

ARLINGTON PD PT.2

- FAA Part 107 Waiver
- Allows non-visual flight
- DFR only utilized with certain calls
- Camera is not observing down during flight

ARLINGTON PD PT.3

- Latest Gov code 420 report:
  - 1,775 flights 1/1/2023 – 12/31/2024
- NASA UTM Test Site
  - Same program as Irving – 2 of 3 Key Cities in UTM program

HARRIS COUNTY CONSTABLE 4

- Field based operation
- ~30 deputies w/FAA pilot certification
- Assist with searches, both missing persons and threats to deputies
- Part 107 rules– pilots still required to maintain visual observation of drones
  - Drone pilot remains on the outside of search area to maintain observation as drone is over search area
- Very good example of field drone operations without central dispatch or Part 107 waiver for remote control

PROSPER PD

- Patrol based and Drone First Responder program
- Grant funded by Motor Vehicle Crime Prevention Authority (Texas DMV)
- Drone operators for DFR embedded in Real Time Intelligence Unit
- Operating under Part 107 waiver – Beyond Visual Line of Sight operations
- Provides real-time statistics to the public on https://community.prosper.tx.us.aerodome.com/
  - ~400 calls since May 1
  - Includes support on traffic stops and other calls
  - Site includes stats and archived video
- Smaller agency doesn't mean less technology or capability

Discussion

QUESTIONS