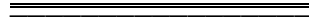
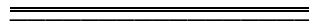


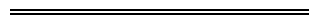
**The Bill Blackwood  
Law Enforcement Management Institute of Texas**



**Unmanned Aerial Vehicle Integration into Law Enforcement Agencies**



**A Leadership White Paper  
Submitted in Partial Fulfillment  
Required for Graduation from the  
Leadership Command College**



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## **ABSTRACT**

UAVs (unmanned aerial vehicles) have become common place in society. Just like the Internet was once a government program that crossed over into the consumer market, UAVs are following a similar path. The technology that was once only available to the military has now entered into the civilian market. UAVs are not model aircraft. They are aircrafts that are controlled by sophisticated GPS (Global Positioning System), with navigation using an advanced flight control system. The GPS system was first development by the defense department in the 1970s to provide a highly accurate navigation system for military use (Hurn, 1989). It is now commonplace in consumer electronics, including personal phones. By incorporating this technology in UAVs, they have become a stable platform that can hover, spin, climb, and descend with easy flight control. Their use in law enforcement and public safety is growing, and having certified training is critical to agencies. Law enforcement should integrate UAVs and have policies to respond to critical incidents as well as prepare for the illegal use of UAVs.

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## INTRODUCTION

With the technical advances in flight control systems as well as extended battery life, unmanned aerial vehicle (UAV) use has become affordable and easier to use. These two factors have contributed to the popularity of UAVs, or drones as they are commonly referred to in the public. GPS (Global Positioning System) expanded radio frequencies, and advances with lithium ion technology has brought military technology to the public. According to one consumer association, there were 1.5 million UAVs sold during the 2016 holiday season (Pappalaardo, 2017). However, along with the increased popularity in the civilian market, public safety has the obligation to stay informed about UAVs, along with the rules that govern their use.

As the proliferation of UAVs has increased, law enforcement needs to become better educated, better trained, and have community involvement with these systems. As with any new technology, there is great opportunity to benefit the public. However, there is also great opportunity for illegal use and activity. The FAA (Federal Aviation Administration) is the federal agency responsible for regulating all airspace in the United States, just as state legislatures have enacted laws governing the use of UAVs for their geographic area. These laws focus on concerns about privacy, land rights, and defining flight operations over critical infrastructure. UAVs are also uniquely suited to provide a range of beneficial uses in public safety (Fleming et al., 2015). Public safety, especially emergency management, now has the capability to perform flight operations at a much lower cost than a fixed winged aircraft can provide.

Damage assessment, searching for missing persons, or directing rescue operations are just a few of the positive ways that law enforcement can use UAVs. The

technology in batteries now provides the UAV extended flight time that allows the ability to fly greater distances and provide real time assessment. Storm response to hurricanes or other natural disasters demonstrate the unique abilities that UAVs provide to law enforcement as a cost-effective solution for quick deployment over fixed wing aircraft. Law enforcement across the nation should begin the process of integrating UAVs into their operations. By becoming trained on the use of UAVs, as well as knowing both federal and state regulations, law enforcement will have the ability to effectively manage UAVs in their community.

## **POSITION**

The very mention of the word drones or UAVs in law enforcement conjures up visions of surveillance, monitoring by the police, or government intrusion. Elected officials, agency administration, and policy makers continue to have serious conversations on the use of UAVs. In recent years, the media has reported on the use of military drones that are able to drop bombs as well as provide surveillance of targets in total darkness, 24 hours a day. This type of public perception is very difficult to overcome when discussing the positive use of UAVs for public safety or trying to create a functioning UAV group. The business case that is usually presented to command staff and the public is one involving officer safety.

This is a viable reason to deploy UAVs since drones have been used in situations where officers would have been placed in harm's way (Phillips, 2014). However, having one polarized view point that differs from public perception makes it very difficult to justify a very valuable tool. The recent use of UAVs by law enforcement with the response to Hurricane Harvey have proven that they are a cost effective and

viable tool when properly used (Repka, 2017). Public safety officials were able to deploy UAVs in areas that were ravaged by the storm. Directing swift water rescue operations and locating trapped citizens are just a few examples on the beneficial use of UAVs. In addition to rescue operations, UAVs provided real time assessment to emergency management officials that assisted with the on-going response (Repka, 2017). To assist with these efforts, the FAA granted authorization to several dozen drone operators supporting response and recovery, from oil and gas companies to government agencies (Repka, 2017).

Another advantage to the use of UAVs is in the rural environment, especially when searching for missing individuals. Trails, wooded areas, parks, and other terrain that is not easily assessable show the versatility of using a UAV over a fixed wing asset. UAVs can fly in confined areas around trees and search areas that other types of aircraft may not be able to. It is important to understand that the UAVs available to law enforcement today are not model aircraft. They can hover and easily change direction and altitude and fly for extended periods of time (Rudisil, 2016).

UAVs can assist with crime scene analysis and traffic accident reconstruction as well as provide documentation for training exercises. Just as sport teams use video review for practices, law enforcement can use UAVs to record training, allowing instructors the ability to implement improvements. UAVs also provide law enforcement the ability to assess dangerous situations where a subject may possibly be armed. Barricaded subjects or suicidal subjects pose a significant threat to law enforcement officers. The standard response is to activate the SWAT Team and use tactics to approach the subject. Now with the availability of UAVs, SWAT commanders have a

tool that can provide real time video analysis of the situation. This, in turn, may assist in de-escalating a situation and not put officers at risk. In addition, providing information to crisis negotiators will provide another resource that can be used to help a suicidal subject. Real time video analysis is a valuable resource during any critical event where time and location of the event is needed. Along with critical incident response, UAVs can provide “first person” view during public gatherings. They provide a cost effective and quiet resource when needed in high crime areas. UAVs can assist with traffic control after a large event, and they can provide access points to locations.

Although there continues to be very strong public perceptions about spying and violating privacy rights, the UAV technology has made the aircraft easier to operate at a substantial cost savings over other types of aircraft systems. These factors have made UAVs assessable to anyone who has nefarious intentions for their use. To address these problems, law enforcement must be prepared and trained on the use of UAVs as well as all regulations.

Unauthorized UAV operations is a growing problem, and law enforcement must be prepared on how to respond. The rapid increase in domestic UAV use is an issue that causes some of the greatest concern. Threats to critical infrastructure due to UAVs capturing high resolution photography has increased over the past few years. One of the most alarming use of a UAV over critical infrastructure occurred in January of 2015, when a UAV was found on the grounds of the White House (JTIC, 2016).

To address these and other security issues, law enforcement should begin the process to develop responses and interdiction of unauthorized UAV operations. This should include the justice system, as well, for prosecution purposes. UAV training for all

departments in public safety should become a mandatory requirement and be incorporated into the UAS system.

## **COUNTER ARGUMENTS**

Although the uses of UAVs in law enforcement have followed all federal and state regulations, there continues to be serious privacy concerns from the public. Elected officials across the nation are debating the merits of UAVs, against the perceptions held by the public. Even when UAVs are provided via government grants, city leaders have restricted or shut down UAV programs. This occurred in the City of Seattle in 2013. Saying that the police should stay focused on community building, the mayor pulled the plug on the City of Seattle Police Department's drone program (Clarridge, 2013). The mayor and the police chief agreed to focus on other means to provide public safety, as the priority for the department. To accomplish this, the drone program was dismantled, and the two-aircraft purchased with grant money were returned to the vendor.

Public advocacy groups, such as the ACLU, have argued that drones provide law enforcement unprecedented tools for surveillance (ACLU, n.d.). They see drones as a direct threat to privacy and describe their use as an Orwellian dystopia on the near horizon (Ghoshray, 2009). In addition to privacy concerns, the use of facial recognition, thermal imaging, monitoring of conversations, and the ability to track people or vehicles, has caused great concern (ACLU, n.d.).

Just as in the use of red light cameras being considered unconstitutional, the subject of drones has caused tremendous debate over their intended use and perceived benefits. Public and privacy concerns with public safety are at an all-time low in the U.S. A Monmouth University Polling Institute revealed that 69% of Americans would feel their



privacy threatened if law enforcement began using drones (Murray, 2012). Along with privacy concerns, there are serious debates about the safety of drones and the public. While the public has accepted the use of UAVs by hobbyists along with some commercial applications for real-estate, there are concerns about the safe use of drones during mass gatherings such as sporting events. Another area where the use of drones has caused concern are private property rights.

In 2011, a private drone was being flown over a section of Cedar Creek, the tributary that flows into the Trinity River near Dallas. The owner of the drone is a hobbyist, and he was taking photos of an old bridge trestle, when he discovered what appeared to be blood in the creek. Upon further research, it was determined to be pig waste from a local meat packing company. Subsequent lawsuits and grand jury indictments were later dropped against the company. However, this event brought the issue of UAVs and property rights to the Texas Legislature as a serious invasion of property rights using UAVs (Berry, 2014)

The issue of privacy and the use of UAVs by law enforcement is at the very forefront of legislative debates. Although there continues to be debate on potential privacy infringement, little has been done at the federal level. Opponents to UAV use by law enforcement often cite protection granted by the fourth amendment of the US Constitution. However, the Supreme Court has already ruled on previous cases involving manned aircraft in the cases of *California v. Ciraolo* (1986) and *Florida v. Riley* (1989). These two cases upheld the right of law enforcement to use public airspace without a warrant to gather evidence. In addition, privacy provisions are also being addressed by the state legislatures. Most states now require law enforcement to obtain

a search warrant before collecting any evidence with a UAV. In addition, photographs and videos may not be retained unless they are required for evidence and a warrant was obtained to capture the image. Some law enforcement command staff have raised concerns that they should wait before purchasing a UAV and starting a unit. When faced with public outcry over privacy issues and dealing with elected officials' concerns about regulations and policy, leaders are wary of investing into technology that they may not be able to use. Groton City Connecticut Police Chief Thomas Davoren has stated that he would like to use UAVs, but the rules are changing so quickly that he has decided to wait (Boyle, 2017). Along with command staff, some elected officials have halted the purchase of UAVs until operating guidelines and policies have been written (Spencer, 2015).

The rules and regulations on the use of UAVs continue to be revised by the FAA and at the state level. The FAA understands that there are considerable challenges for federal, state, and local law enforcement with the use of UAVs. In August 2016, the FAA revised its regulations for small UAVs. Known as CFR 14 Part 107, the regulations have specific definitions for the operations of UAVs. For example, under Part 107, a UAV must weigh less than 55 pounds, operate no higher than 400', and cannot operate directly over people ( FAA Part 107: The Small UAS rule ). However, in Part 107, the FAA has decided not to act, deferring privacy matters to state and local laws. An example of this are the recent laws that the state of Texas has enacted that regulate the use of UAVs over certain areas such as critical infrastructure (Tex. Gov't Code, 423.0045(a)), and stadiums with a seating capacity of 30,000 or more (Tex. Gov't Code, 423.0046(a)). To address concerns about property rights, the state of Texas enacted

HB 1643 on September 1<sup>st</sup>, 2017. This law makes it a crime to fly a UAV over concentrated animal feeding operations.

## **RECOMMENDATION**

The use of UAVs, both by the public and law enforcement will only increase in the next few years. Although there continues to be valid concerns about privacy and property rights, these issues should not deter support for UAV integration with law enforcement. Education on existing federal and state privacy laws, along with community outreach programs, will help the public understand the value of a UAV program.

Along with public support, law enforcement should utilize resources, such as the PIO (Public Information Officer) and meetings with elected officials, to show the benefits of having a UAV program. To accomplish these goals, law enforcement will need to have a solid plan on the use of UAVs that will show officials the cost benefits over fixed wing assets. Training that includes FAA pilot certification should be the priority along with drafting operating procedures and policies. By becoming FAA certified, the pilots in the program can demonstrate to command staff that there are rules in place and that they are being followed by the unit. The selection process for pilots should be a well-defined process that accepts only the most qualified candidates. Just as in other specialized units, a UAV unit should operate and train for various deployments. This is where the cost benefit can have the highest impact. Training for critical incidents such as active shooter, or training for crime scene reconstruction, are just a few of the uses that a UAV program can provide.

Along with law enforcement applications, training should focus on cooperation with other agencies such as fire and emergency management. These responses are viable uses for a UAV unit, and these deployments will demonstrate to elected officials that the technology is useful and cost effective. There is another, perhaps greater need for UAV integration into law enforcement. The illegal use of UAVs is also increasing since they can easily be used for malicious intent by terrorists. Significant threat events have occurred in recent years, and law enforcement must be prepared to respond to these threats. Just as the Internet brought new technology to the public, law enforcement must have trained units to respond to illegal use. When the Internet became a consumer technology, law enforcement was not prepared on how to respond to criminal activity using the Internet.

Law enforcement should recognize and implement security practices that meet federal, state, and local requirements. These are key to successfully managing potential security incidents associated with UAVs. There are many reasons to integrate UAVs into law enforcement. Cost benefits vs. fixed/rotor wing, UAV technology and quick deployments, and community outreach are all solid reasons to integrate UAVs into law enforcement.

## REFERENCES

- American Civil Liberties Union (ACLU). (n.d.). *Domestic drones*. Retrieved from <https://www.aclu.org/issues/privacy-technology/surveillance-technologies/domestic-drones>
- Berry, M. (2014, September 22). An introduction to journo-drones. *The Washington Post*. Retrieved from <https://www.washingtonpost.com/news/volokh.../an-introduction-to-journo-drones/>
- Boyle, L. (2017, January 24). Conn. police want to invest in drones but want rules set first. *PoliceOne*. Retrieved from <https://www.policeone.com/police-products/Police-Drones/articles/282813006-Conn-police-want-to-invest-in-drones-but-want-rules-set-first/>
- California v. Ciralo, 476 U.S 207 (1986)
- Clarridge, C. (2013, February 7). Seattle grounds police drone program. *Seattle Times*. Retrieved from <https://www.seattletimes.com/seattle-news/seattle-grounds-police-drone-program/>
- FAA sUAS Part 107: The small UAS Rule  
<https://www.faa.gov/uas/media/faa-uas-part107-flyer.pdf>
- Fleming, M., Brannen, S., Mosher, A., Altmire, B., Metrick, A., ... Say, R. (2015). Unmanned systems in homeland security. *U.S. Department of Homeland Security*. Retrieved from [http://csis-prod.s3.amazonaws.com/s3fs-public/151216\\_Unmanned\\_Systems.pdf](http://csis-prod.s3.amazonaws.com/s3fs-public/151216_Unmanned_Systems.pdf)
- Florida v. Riley, 488 U.S. 445 (1989)

- Ghoshray, S. (2009). Domestic surveillance via drones: Looking through the lens of the fourth amendment. *Northern Illinois University Law Review*, 33, 580-600.
- Hurn, J. (1989). *GPS: A guide to the next utility*. Sunnyvale, CA: Trimble Corporation.
- Justice Technology Information Center (JTIC). (2016 July). *Law enforcement guidance concerning suspected unauthorized UAS operations*. Retrieved from [https://www.justnet.org/pdf/UAS-LEA-Guidance-White-Paper-7\\_8\\_16.pdf](https://www.justnet.org/pdf/UAS-LEA-Guidance-White-Paper-7_8_16.pdf)
- Murray, P. (2012, June 15). Public registers concern about privacy. *The Two River Times*. Retrieved from [https://www.monmouth.edu/polling-institute/reports/monmouthpoll\\_nj\\_081513](https://www.monmouth.edu/polling-institute/reports/monmouthpoll_nj_081513)
- Spencer, A. (2015, April 22). County denies grant request for emergency management drones. *Community Impact Newspaper*. Retrieved from <https://communityimpact.com/austin/city-county/2014/03/19/county-denies-grant-request-for-emergency-management-drones/>
- Pappalardo, J. (2017, March). What you need to conquer to be a drone journalist in Texas: An airman's test, privacy laws and gravity. *Dallas Observer*. Retrieved from <http://www.dallasobserver.com/news/texas-anti-drone-privacy-laws-are-hampering-journalists-and-citizens-9272138>
- Phillips, A. (2014, March 17). Drones in law enforcement. *Dronelife*. Retrieved from <https://dronelife.com/2014/03/17/drones-in-law-enforcement/>
- Repka, M. (2017, Sept 7). Harvey offers preview how drones could be used to speed up rebuilding. *Dallas News*. Retrieved from <https://www.dallasnews.com/business/technology/2017/09/07/harvey-offers-preview-drones-used-speed-rebuilding>

Rudisil, S. (2016). Law enforcement rolls out drones. *The Journal of California Law Enforcement*, 1, 13-17. Retrieved from <https://cpoa.org/resources/journal-of-ca-law-enforcement/>