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Public Safety Drones

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**By
W. Frank Price**

**Dickinson Police Department
Dickinson, Texas
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ABSTRACT

Public safety agencies across the nation are increasingly using drones for public safety applications. However, drone technology has both positive and negative effects on the public. This paper analyzes the use of drones in public safety and the effects of such use, while providing a recommendation on how a public safety agency can deploy a drone program while considering the benefits and burdens. Three immediate and important uses are outlined. They include the utilization of drones for search and rescue, disaster response and crime scene photography. In each application, drones do a better and more efficient job than personnel because they have better access and suitability for tasks that may be dangerous. Privacy concerns, the military perception, aerial disturbances, and distrust of law enforcement highlight the most critical public concerns that must be considered before launching a drone program. Laws, regulations, and best practices are critical for establishing trust and alleviating fears with the public. Fears are resolved with an effective communication strategy, a good policy and adherence to Federal and State laws. Even though law enforcement drone use is controversial, if not already doing so, public safety agencies should consider their use. If applied and used sensibly, drones have the potential to be incredible assets.

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INTRODUCTION

A drone, also known as an unmanned aircraft system (UAS), is an “aerial vehicle designed to be used without a human pilot onboard” (Electronic Privacy Information Center, n.d., para. 3). Drones are used in conditions where manned flight is considered too hazardous or difficult. They may be remotely controlled, or they can fly autonomously through software-controlled flight plans working in conjunction with GPS technology. The history of drones is marked with highs and lows in their development; however, the biggest advances occurred during times of war. Most often, drones are the subject of media reports because of their military application. The news coverage highlights drone strikes targeting terrorist cells in Iraq, or sending back surveillance images of treacherous tribal areas in Afghanistan. While the military use of drones is well-known, the domestic use of drones by public safety agencies is increasing. Public safety officials and law enforcement around the country are either already using or considering using drones to help prevent and fight crime.

Drone technology and its use in law enforcement can have both positive and negative effects on the public. Although this technology can be used to keep people safe, some citizens believe it is abusing their privacy. They fear drones will be used to watch them in their homes and raising privacy concerns that drone use will infringe on their Fourth Amendment right “to be secure in their persons, houses, papers and effects, against unreasonable searches” (Feeney, 2016, p. 4). However, the reality is there are laws in place that prevent this use or abuse by public safety agencies.

Law enforcement agencies around the country are using drones instead of manned aircraft, such as helicopters or low altitude planes. There are many other

public safety applications for drones to include photographing traffic crash scenes and crime scenes, monitoring prison and jail facilities, tracking suspects and escapees, controlling crowds, and more. “At least 347 state and local police, sheriff, fire, and emergency units in the U.S. have acquired drones” (Gettinger, 2017, p. 1). The use of drones, or UASs, can help public safety agencies gather essential information in dangerous situations while saving manpower and money. If not already doing so, public safety agencies should consider the use of drones. This paper will fully analyze a variety of uses of drones in public safety and law enforcement and the effects of such uses, while providing a conclusion about whether the benefits of using drones for public safety applications outweigh the burdens.

POSITION

The three potential uses outlined in this paper are operations that usually require a lot of manpower under dangerous, sometimes life-threatening conditions or are currently operations being conducted by manned aircraft. The operational cost of manned aircraft is prohibitive to most small governmental agencies and requests to larger agencies having this resource may take time. In the United States, there are 17,962 volunteer fire departments (Haynes & Stein, 2017). With a volunteer fire department operating almost completely from donations, the cost of even a small manned helicopter or fixed wing airplane would certainly deplete their operating funds. However, the acquisition of a small drone could cost in the range of \$1,000 to \$4,000 depending on the system, range, and cameras features. For public safety agencies, high-quality aerial images provide the intelligence necessary to assess a situation immediately and without the risks associated with manned aircraft. Drones can hover

covertly at an extended range and gather high resolution images and video without putting personnel at risk. The benefits of drone use for public safety applications are many; however, the most immediate and important uses for public safety outlined in this examination include search and rescue, crime scene photography, and disaster response.

Generally, search and rescue missions are time consuming and costly. Manpower, as well as specialized and expensive equipment and resources are needed. Even with the deployment of so many assets, the operations are not always successful. Emergency responders can only walk so far and cover so much ground during a foot search. “In 2014, a drone helped locate an 82-year-old man who had been missing for three days. The drone searched a 200-acre field and located the man in 20 minutes” (Wells, 2016, para. 4). The use of camera-equipped drones provides first responders the ability to search hard to reach areas faster and more thoroughly without further endangering lives.

Search and rescue missions are simplified using drones because of their small size and light weight. Drones can be easily transported to a scene and deployed within minutes. They can enter difficult to reach areas and deliver supplies in dangerous areas under unfavorable conditions. “Rescue crews tried to reach the pair in a raft – but when the waves became overwhelming they paddled back to shore and used a small unmanned aircraft to tow a line over to the boys” (Stone, 2015, para. 1). Deployment in this manner is cost-effective, time-efficient, and safer.

The use of drones for emergency management during disaster response is also an evolving use of drones. In fact, Dr. Robin Murphy (2016), of the Center for Robot-

Assisted Search and Rescue (CRASAR) at Texas A&M University, identified six separate missions for emergency management response. The six missions included: “property management assessment, flood mapping and projection of impact, verification of flood inundation models, flood monitoring over time, justification for publicly accountable decisions and public information” (Murphy, 2016, para. 3). Responding to an area where a natural disaster occurred is challenging. Whether on foot or in a vehicle, debris and destruction block routes and make travel dangerous. Drones can provide an aerial view and give responders real time information on areas that are inaccessible. In fact, “the use of drones prevents personnel from entering a potentially hazardous scene before emergency managers understand exactly what they’re dealing with” (Knox, 2017, para. 3). As the use of drones shifts from military applications to domestic use, unmanned drones offer significant advantages in the safe and efficient response to disasters and critical incidents.

Drone use for crime scene photography serves as a link between the crime scene technicians and the crime scene investigator. Aerial photography is “a very helpful method of scene documentation which is useful in scene description and assessment” (Mendis, Dharmarathne, & Wanasinghe, 2016, p. 2). For example, while crime scene technicians gather data, video and images, they can enhance evidence collection by directing officers to precise evidence location. According to Mendis, Dharmarathne, & Wanasinghe (2016), the use of drones in this manner will “greatly enhance the efficacy of crime scene investigation. It also helps to gain access to inaccessible areas” (p. 2). Drones make documenting accident and crime scenes dramatically faster. They can reduce the time spent on scene and lower the human and

financial costs to first responders and drivers when roadways must be closed for a significant amount of time to complete an investigation. The high definition camera technology that most drones possess allows the crime scene investigator to take high resolution photographs from vantage points that were dangerous to access before. These high-resolution photos will assist in criminal prosecution. In an interview with Oklahoma City News9, Oklahoma Bureau of Investigations (OSBI) Special Agent Steven Neuman said, "We can study and we can present it in the courtroom in a 3D manner. It puts the jury right at the crime scene" (Mitchell, 2017, para. 7). Aerial photographs from a crime scene or a crash scene provide the investigator a bird's eye view and provide great evidentiary material for court.

COUNTER ARGUMENTS

One of the primary concerns of the public focus around privacy issues and violations of civil liberties. The fear of big brother is ever so present because of a drone's surveillance capabilities. According to California's Senator Dianne Feinstein, "drones were a huge privacy threat to Americans" (Kravets, 2013, para. 9). Feinstein's concerns were not alleviated because privacy structures were not identified. In Los Angeles, an organization called the "Stop LAPD Spying Coalition" was formed to oppose the use of drones for law enforcement. The organization cautioned about police militarization and spying (Kreps, 2016). Without strict controls on their use, drones could present a very serious threat to citizens' privacy.

Police departments already have policies in place that deal with privacy issues associated with cameras. The most recent example of this can be seen in the ongoing discussions about body cameras. Feeney (2016) says the best practices for police

body cameras can also be applied to cameras on drones. Already, the popularity of drone use by public safety agencies has produced regulatory limits at the Federal and the State level. According to the Texas Government Code §423.008 (2013), certain law enforcement agencies are required to file a report documenting the details of each individual drone flight. This law also requires this report to be posted on the law enforcement agencies website for public viewing.

The military use of drones gives the perception of large intrusive surveillance units that not only provide real time imagery but also have the capability to use weapons by operators that are long distances away from the target site (Gettinger, 2017). The reality is that “drones in the common vernacular are often perceived as machines that conjure images of large robotic birds of prey lurking high in the atmosphere in distant lands waiting patiently to strike” (Friedenzohn & Mirot, 2014, para.3). This description and the public’s image of drone use is continued by frequent media reports depicting the military use of drone technology. Researchers confirm that no law enforcement agency currently utilizes weaponized drones (Ortiz, 2017). Even though the use of drones for armed conflict has drawn scrutiny and criticism, drones have many uses far beyond combat.

Aerial disturbances and crashes are another civilian concern for the use of drones for public safety applications. As the number of drones in the skies increase, the drone industry is faced with concerns about safety. According to Kreps (2016), “the number of drones in U.S. airspace could reach 30,000 by 2020” (p. 1). With such a dramatic increase in the use and number of drones, property damage and interference with other aircraft will intensify, In fact, Kreps (2016) states that “a number of dangerous

incidents involving drones have been reported as individuals have increasingly invested in drones” (p. 119). The U.S. has an average of 87,000 manned flights a day, with 5,000 planes in the air at any given time, making U.S. airspace the busiest in the world (Simulyze, 2017). The Federal Aviation Administration (FAA) has safety regulations in place that, if strictly adhered to, will maintain safe airspace for all aircraft. During the development of these regulations, the FAA conducted a public risk analysis and determined that “small UAS operations whose parameters are well defined to mitigate risk to other aircraft would also pose a smaller overall public risk or threat to national security than the operation of a manned aircraft” (Federal Register, 2016, p. 42068). Most reputable drone companies, like DJI, include software in the aircraft that will prevent the aircraft’s motors from starting if the aircraft is within a 1.5-mile circumference of an airport.

In the recent past, law enforcement trust has come into question and there have been many instances and headlines about officers being unfair or abusing their authority. Now more than ever, actions by law enforcement are under examination. The introduction of camera-equipped drones will only exaggerate this scrutiny. According to Kreps (2016), “65 percent of Americans oppose the use of drones by police agencies” (p. 128). Giving the mounting issues with public perception, law enforcement organizations can design an outreach strategy before ever launching a drone program. With an effective communication strategy that outlines the types of situations that the drone would be used, these perception issues can be resolved. Friedenzohn & Mirot (2014), refer to this strategy as permission, transparency, and data. Fear of the unknown is expected; therefore, clear communication is crucial in

gaining the public's trust and support. Fortunately, the FAA is working to better communicate UAS regulations, which should help suppress many fears.

RECOMMENDATION

Public safety agencies across the nation are increasingly using drones to improve public safety, but they need clear operational policies and limits to win public trust. The use of drones for public safety applications are beneficial in the search for missing persons, disaster response, and crime scene photography, including traffic accident investigations. Law enforcement organizations are increasing their use of unmanned aircraft systems (UAS) for rescue missions, disaster response, pursuits, and other activities that are possibly dangerous or difficult to access on foot. Most public safety organizations looking to start a drone program will face challenges with public opinion playing a large role in the success of these programs. According to Feeney (2016), the "challenge for policymakers is to balance the benefits of police drones with the privacy concerns" (p. 2). Concerns about safety and privacy demand clear and accurate communication about the intended uses of drones in an organization's program. Even though law enforcement drone use is controversial, agencies can be successful if they use care in the implementation of a drone program. If applied and used sensibly, drones have the potential to be an incredible asset to law enforcement. Law enforcement agencies must take laws, regulations, and best practices into account when developing drone policies. The community needs to be able to trust that police will not use drones to spy on them or harm them. Agencies should meet with their citizens to determine what uses would be considered appropriate.

In a public safety agency's communication strategy, the agency must communicate the need for the drone's use, showing the drone's benefits to do a better and more efficient job than boots on the ground and emphasizing the drone's better access and suitability for tasks that are too dangerous for personnel. By emphasizing the benefits, the agency can alleviate the public's fears. As the acquisition of drones for public safety increase, the development and public release of departmental policies for the use of drones will be a "critical first step in understanding how this technology affects local communities" (Gettinger, 2017, p. 6). In other words, the key to balancing needs and rights lies in the development of sound policies and best practices. The development and existence of laws prohibiting certain conduct assure that "police drones can serve legitimate law enforcement goals without becoming tools of unnecessary and intrusive surveillance" (Feeney, 2016, p. 13). There must be support from the community to have a successful program.

The International Association of Chiefs of Police published recommended guidelines for the use of unmanned aircraft in August 2012. The paper recommends a community engagement plan, system requirements for the drone, recommended operational procedures and image retention recommendations (International Association of Chiefs of Police Aviation Committee, 2012). Good policies such as this are key in making sure public safety and law enforcement's use of drones does not violate citizen's rights. Recent privacy concerns with body cameras involved a balance of policy and engagement. This same approach can be applied to the use of drones in public safety. Any policy should include a strong statement about the importance of preserving privacy rights and absent a warrant or exigent circumstances, operators

should adhere to FAA guidelines and avoid intentionally recording or transmitting images of any location where a person would have a reasonable expectation of privacy. Once an agency's drone policy incorporates a strong privacy protection, they will be in a better place to engage community groups concerned about the use of law enforcement drones. Pointing to specific examples of how the agency intends to use the drone and how drones have aided in search and rescue operations can also provide constructive attention to such discussions.

Anytime an emerging technology interconnects with law enforcement, agencies are faced with a complex balancing act. On the one hand, drones represent an immense potential of new applications in public safety. On the other hand, agencies must guarantee safe, constitutionally sound use. A strong, concise drone policy is essential in achieving this balance. Finally, with drone laws and regulations changing and with new state legislation being introduced, it will be important for an agency to keep their policy and procedures up to date. If a public safety agency has established or is considering establishing a drone program, they must ensure that they have a way to stay current on changing Federal and State regulations.

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