

HOW WILL THE ILLEGAL USE OF UAV TEHCNOLOGY BY DRUG  
TRAFFICKERS IMPACT MIDSIZE CALIFORNIA LAW  
ENFORCEMENT AGENCIES BY 2020?

UAV AND CIVILIAN POLICING

By

John D. Noland  
Santa Rosa Police Department

April 2012

COMMAND COLLEGE CLASS 50

The Command College Futures Professional Article is a study of a particular emerging issue of relevance to law enforcement. Its purpose is not to predict the future; rather, to project a variety of possible scenarios useful for strategic planning in anticipation of the emerging landscape facing policing organizations.

This article was created using the futures forecasting process of Command College and its outcomes. Defining the future differs from analyzing the past, because it has not yet happened. In this article, methodologies have been used to discern useful alternatives to enhance the success of planners and leaders in their response to a range of possible future environments.

Managing the future means influencing it—creating, constraining and adapting to emerging trends and events in a way that optimizes the opportunities and minimizes the threats of relevance to the profession.

The views and conclusions expressed in the professional article are those of the author, and are not necessarily those of the CA Commission on Peace Officer Standards and Training (POST).

## How will the illegal use of UAV technology by drug traffickers impact midsize California law enforcement agencies by 2020?

Recently, a group of command managers at a suburban police agency met to discuss the subject of deploying unmanned aerial vehicles (UAVs) for civilian law enforcement. After an overview of the different types of available UAVs the presentation turned into a conversation about the impacts and possibilities of UAV use both by criminals and by law enforcement agencies charged with the safety of our communities. Interestingly, one issue of concern was the possibility that drug traffickers would use UAVs to support their criminal enterprise. To balance this possibility, the group felt police organizations had the opportunity to “get ahead of the curve” to adopt UAV as a component of their crime fighting tools. Of course, any new technology brings both an opportunity to enhance services along with the challenges of their use. A necessary first step for executives considering this option will be to understand the capabilities and limitations of UAV and the issues they will present. On the pages that follow we look at a brief history of UAVs and their use in theaters of combat, accompanying technologies, probable criminal uses of UAVs, law enforcement challenges and the potential for UAV use in civilian policing.

### HISTORY AND MODERN TYPES OF UAV

There is a significant variety of UAVs. Some employ reasonably basic and common technology, while others are much more complex. The U.S. military has spent billions of dollars in research and development and has the most sophisticated UAVs in

the world. From the first Gulf War in 1991, to more recent military campaigns in the Middle East, the public has become educated on what UAVs can do.

Military UAV pilots can “fly” a UAV from thousands of miles away and gather real-time information. With no actual pilot in the vehicle, there is no threat to human safety in the cockpit. It’s not uncommon for military flights to last several days. Different pilots participate in these multi-day flights; finishing their shift, turning it over to another pilot, and then returning another day to complete yet another shift. UAVs are such an important aspect of military preparedness that the Air Force states it now trains more UAV pilots than fighter and bomber pilots combined.

UAV come in both fixed wing (airplane) and rotor wing (helicopter) aircraft. Both types range in size from that of traditional aircraft to ones that fit into a backpack. For example, the MQ-1 Predator is larger than a traditional military fighter jet, can carry up to 4 Hellfire missiles and can fly hundreds of miles. The RQ-11 Raven is 4.2 pound hand launched UAV with an operating range of up to 6 miles. Typically, larger and more expensive UAVs have greater payload capabilities, fly further and higher and have longer flight times. However, UAV technology, like other technologies, is advancing quickly. Many smaller UAV planes and helicopters can conduct surveillance and transport small payloads. Some are small enough to fly indoors and others can fly in moderately rough weather. Smaller, faster UAVs or “micro drones” disguised as small birds or insects are becoming available. The “Mercury” is a Hummingbird style UAV made by Aero Vironment. It’s equipped with a built in video camera, fits in the palm of one’s hand, weighs less than an ounce and can fly up to twenty minutes.

## ACCOMPANING TECHNOLOGY AND ADVANCEMENTS

Flying is simply not enough. Two accompanying technologies that make UAVs so useful are GPS and high definition photography. GPS allows for very accurate mapping and surveillance and confirms exact locations. UAVs can be flown autonomously (with predetermined programming to guide flight parameters) or with a UAV pilot controlling all movements of the flight. In autonomous flight, the UAV flies a predetermined flight plan coordinated and assisted through GPS; the “pilot” never has to make adjustments as all flight movement has been predetermined and is automated. This type of flight is very useful for the mapping or general surveillance of a designated area such as a field, a park or other area. This flight configuration is especially useful when combined with UAV camera technology for photography and video capture. In fact, systems suited for UAV are actually more precise with better resolution than that available in satellites (cite). UAVs can fly closer to areas of interest and at different angles for better surveillance while beaming back real-time information to decision makers. UAVs can also have multiple cameras, which are controlled from the ground. They can zoom, rotate toward or fix on an object independent of the UAV’s flight. Many news agencies seek out the military footage of surveillance or weapon strikes provided by UAVs. If a picture is worth a thousand words, how much is video worth?

Another accompanying technology is the fuel or power sources for powering UAVs. Size, weight, design and power systems are creating new possibilities. Some UAVs use gasoline, diesel or aviation fuel. Others are powered by battery; some are capable of partial recharging while in flight. In December of 2010 Barnard Microsystems Limited set a UAV flight record that lasted 14 days. The UAV dubbed, Zephyr, was

constructed out of ultra-light carbon-fibre. It's powered with amorphous silicon arrays on its wings no thicker than sheets of paper.

Autonomous flight can accomplish many tasks. Tactical or guided flights are just as important. All the movement of a guided flight is controlled by the pilot. These flights allow for quick adaptations to changing circumstances. The pilot can fly over an area and if needed, return and surveil the area or an object from a different angle. Tactical flights also give the pilot the ability to follow a target that may be moving. There are several police applications for guided flights, just as there could be for the media, paparazzi and of course, criminals

#### CRIMINAL USE OF UAVs

Unfortunately, one of the industries influenced by UAVs is the illegal drug trade. Organized drug traffickers are committed to continue doing what has made them so powerful and rich. They are going to work hard at selling drugs. Just like other industries, they use modern technologies, and with many millions of tax-free dollars, they have plenty ability to purchase technologies that aid them. Traffickers have used aircraft for decades. Some drug traffickers already use ultra light aircraft to aid them along the southern and northern U.S. borders. Columbian drug cartels have used small submarines capable of housing four man crews and able to transport up to 8 tons of drug product.

After research of UAVs through web searches, books, media articles and a visit to a UAV factory, additional perspectives were sought. In June of 2011, a group of subject-matter experts was convened to analyze how the illegal use of UAVs by drug traffickers might impact law enforcement by 2020. The panel consisted of local, state and federal

law enforcement personnel as well as non-law enforcement personnel. Included in the group were an air traffic control manager, emergency room doctor and an IT specialist with a background in photography. The panel had rounds of discussion on different trends and events connected to possible illegal UAV use. They unanimously concluded drug traffickers would use UAV technology, and that such use would negatively impact California law enforcement.

They determined traffickers would most probably use UAVs to conduct surveillance, transport product and commit armed attacks. This was not and is not surprising. Traffickers already conduct surveillance and counter surveillance, transport product and commit armed attacks with the different technologies and tools available to them. Their use of UAVs to do the same presents unique challenges to California law enforcement.

The panel identified three primary areas that local, state and federal law enforcement agencies would need to address connected to the illegal UAV use. The three primary enforcement areas of concern were identified as the following:

- Laws clearly defining legal and illegal use of UAVs will need to be established.
- It will be necessary to track purchases and manufacturing of UAVs and accompanying technologies.
- An effective law enforcement strategy is required to create investigative techniques for illegal UAV use at the local, state and federal levels.

Each of these considerations must be addressed to create an effective strategy to not only use UAV for policing, but to mitigate the success of criminal who may also wish to use the technology to further their means.

### Defining Legal and Illegal UAV Use

The speed at which UAV technology is advancing can quickly outpace government's speed to address it. Recognizing this punctuates the need to quickly draft laws defining legal and illegal use. UAV laws need to appropriately address security issues and have a substantial penalty. Of course, a penalty will not discourage all persons from committing a crime with a UAV. However, penalties will discourage some and conviction of the crime can result in a longer incarceration, which will prevent at least that person from committing the same crime.

To begin to craft laws to address UAV crimes, law enforcement must first acknowledge the issue and participate in the process. Serious discussion on the topic of UAV laws between top law enforcement leaders and law enforcement organizations is required. State Chiefs and Sheriffs associations and national associations like the International Association of Chief of Police (IACP) are prime examples of organizations capable of facilitating this topic. Defining the legal and illegal uses of UAVs will impact and influence criminals, media and law enforcement. The time to weigh in on the subject is now, when their legal use is emerging and the conversation has just started.

### Tracking UAV Purchasing and Manufacturing

Crafting laws that define legal and illegal use of UAVs is not enough by itself to combat UAV crimes. Tracking the purchase, manufacturing and importation of UAVs and associated technologies is required. This type of intelligence can provide a picture of what may occur before it happens. These laws should be consistent with others currently in place to track a variety of items susceptible to misuse. Certain types of medicine, chemicals and firearms are all subject to these laws. UAV tracking laws can use these

other tracking methods as models to work from. While the crafting tracking laws may be difficult, the lack of such laws presents an even greater challenge to any investigation connected to a crime perpetrated with a UAV. Chiefs, Sheriffs and national law enforcement partners must work in the same direction to achieve such tracking efforts. The topic of legal and illegal UAV use is not a small issue. It's complex and requires multiple partners; partners at the local, state and federal levels.

#### Strategies for Investigating UAV Crimes

A considerable challenge for law enforcement will be establishing a strategy to investigate UAV crimes. Who should investigate? What type of crime is it? Whose jurisdiction is it? Whose responsibility is it? Answers to these questions will need clarification. Since the terrorist attack in New York City on September 11<sup>th</sup>, 2001, agencies at the local, state and federal level have had to deal with similar types of questions. The immediate goal is to recognize the threat of UAV crimes and begin the process of working solutions. The mobility of UAVs and the fact they can fly in federal air space reveals multiple agencies and jurisdictions will be involved.

Over time, law enforcement has developed strategies to investigate certain types of crimes. Whether trespassing, harassment, peeping into windows, arson or even some type of physical assault, the investigation would bring challenges we don't commonly deal with. Investigating who, what, when, where, why and how will be more difficult. Establishing strategies or best practices for the investigation of UAV crimes will greatly help all levels of law enforcement. The same laws will help as we also deploy UAV to protect the public.

## UAV AND CIVILIAN POLICING

All is not doom and gloom with regards to UAVs. Absolutely not! Where there are challenges, there are opportunities. One can quickly recognize the threats from illegal use of UAVs. Just as quickly, one can identify opportunities. In February of 2012 President Obama signed a bill designed to “expedite the safe integration” of UAV into national airspace. The bill sets an implementation date of 2015 to include UAV use by law enforcement, fire service and emergency responders. Since the ability to deploy UAV is becoming a reality, we need to be prepared to make informed choices about how we might use them.

Law enforcement needs a clear understanding what UAVs are capable of and how they work. Depending on the size and type, a UAV can fly over, through and around a location, sometime for long periods of time. They can provide real-time surveillance or counter-surveillance, carry varying payloads and even be an assault vehicle from the sky.

A positive way for UAV technology to impact law enforcement is to adopt it. Agencies and departments can become familiar with it, use and understand its capabilities. Some larger agencies have air programs that assist them with policing. Traditional aircraft and UAVs both have unique advantages. UAVs can augment an existing traditional air program or can be created by a single department or as a shared resource within a region. UAVs can be applied to a variety of public safety applications. From natural to man-made disasters, or significant incidents impacting public safety, UAVs can provide real-time information to field commanders and key decision makers. Whether dealing with an earthquake, flooding, fire or an active shooter incident, a “birds eye view” can supply critical information. Imagine being able to fly over your city or

town and in a matter of minutes have an aerial assessment on damaged overpasses, a fire or flooding. A SWAT team dealing with critical incident has real-time information as to where an active shooter may be or covering large areas with fewer people enhances search efforts for a lost child.

There are several law enforcement applications for fixed and rotor wing UAVs. Crime scene documentation, search and rescue, narcotics investigation, surveillance, tactical operations, traffic enforcement and evaluation of infrastructure after or during a disaster is a short list of the possible uses. Many of the tasks that a traditional law enforcement aircraft can conduct can be accomplished with a UAV. Of course, with no pilot or crewmember, certain tasks could not be performed. The UAV, at least at this point, doesn't have a crew that can exit and conduct tasks. However, some can hover over or fly through a creek bed covered by low hanging tree branches searching for someone or something. Each type of aircraft has a place in law enforcement.

There are a handful of agencies in the U.S. that have implemented UAV programs. The Miami-Dade Police Department and the Montgomery County Sheriff's Department in Texas are two such agencies with UAV programs. The Department of Homeland Security (DHS) is a federal agency currently deploying UAV for law enforcement purposes. DHS Secretary Napolitano has referred to UAVs as a "force multiplier." In August of 2010 she stated, "It (UAVs) gives us the capacity to have 24/7 air coverage along the entire Texas (Mexico) border." Now many police agencies are seeing the cost effectiveness of a UAV program, as the cost is a fraction of what many traditional law enforcement air programs cost.

The cost of a law enforcement UAV program varies. They can be as expensive as a traditional air program costing millions of dollars or much less. For example, a fixed wing 180-pound gasoline powered UAV airplane capable of several hours of flight can cost \$250,000. This type of UAV can provide several hours of surveillance or search and rescue efforts during a single flight. A rotor wing 4 pound tactical UAV helicopter capable of 10 to 30 minutes of flight can cost about \$35,000. This type of UAV can fly over around an even through some areas and provide real-time tactical information. UAVs and their accompanying technologies have become less expensive over time. The cost of a UAV program is determined by the type and number of UAVs. Some law enforcement agencies will be able to develop their own program and other may need to evaluate such a program as a shared resource.

As UAV technology advances law enforcement will find it more and more useful. Properly administered, UAVs could become a tool the public expects to be used by the police. UAVs could have as much or even more of an impact as patrol cars. Or as one command manager asked, can it (UAV) respond to a call for service? All the questions on how and when police agencies may use UAVs have not been answered. However, the new laws are expected to be designed toward tactical use of UAVs.

Advancement in UAV has and will continue to produce opportunities and challenges. The trends and events we have identified assist us in preparing for and impacting the future. Understanding UAV capabilities, how UAV are currently being used, and how other technologies have been used greatly assist us in preparing for a world that uses UAV. Law enforcement is in a great position to help shape that world.