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UAS AND LAW ENFORCEMENT:

What agencies need to know before implementing a public safety drone program





EDITOR'S NOTE

In the same way body-worn cameras have been a game-changer for law enforcement operations, unmanned aerial vehicles are also revolutionizing many aspects of police work. As the technology has exploded in recent years, the relatively low cost of drones means agencies of all sizes can use them. For larger agencies, a drone is an essential addition to an air unit that can significantly reduce operational expenses. For smaller agencies, drones provide an airborne asset that was previously financially out of reach.

There are myriad public safety use cases for unmanned aerial systems. From assisting on search and rescue missions to capturing an aerial view of a vehicle collision for accident reconstruction, drones provide law enforcement with an unprecedented view of an incident scene. Drones also serve as a critical surveillance tool, whether it's monitoring activity at a drug house before a raid or scanning a crowd for potential terrorist activity.

The biggest advantage to UAS in law enforcement is the ability to go where officers cannot. From hazmat calls, surveying damage from natural disasters and responding to bomb threats, the technology can fundamentally change how police agencies respond to a wide range of incidents and help keep the public safe.

This articles in this eBook serve as a guide to the initial steps an agency should take when looking to add a drone to its arsenal of law enforcement tools. We detail how to help your community understand how drones can improve public safety; list seven factors to consider when purchasing a public safety drone; and outline how to find the funding to cover the purchase of the equipment and accessories, as well as pay for staff training.

Nancy Perry
Editor-in-Chief, PoliceOne.com

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How police can justify a drone acquisition to the public

Helping your community understand how unmanned aerial systems can improve public safety is key to overcoming public resistance

By Tim Dees

Unmanned aircraft systems (UAS) are cheap enough that almost any law enforcement agency can afford one. Gaining the community's approval for the purchase is a little harder.

Drones, or UAS (the current in-vogue terminology) are ubiquitous. Their size varies between a large insect and a medium military airplane, although most of the models used in public safety will be man-portable inside a Pelican™ case.

Drones in LE

This article takes an in-depth look at considerations for PDs looking to implement a UAS program, case studies of UAS in action, and much more.

They usually run on rechargeable batteries, with an endurance of less than 30 minutes. Pilots are trained and licensed in a few weeks, for a few thousand dollars.

Peter DeLisa is a former law enforcement officer who operates an aviation business, including [training UAS pilots](#) and preparing them for certification.

"I saw drone training as a natural merging of my expertise," said DeLisa, who cited instances where UAS have been helpful in locating lost children and seniors who had wandered from their homes.

Another business useful to public safety operations is [CRG Plans](#), operated by a retired New Jersey State Police officer. The company develops layered photographic maps that show interior floor plans (among other things) superimposed onto aerial photographs. "The maps are then overlaid with a grid, so that officers can be directed to grid coordinates, rather than to something like 'Loading Dock 2,' when they are unfamiliar with the layout of the building," DeLisa said.





The literary reference may be dated now, but some critics of public safety UAS cite a fear of “1984” style surveillance by police. In Orwell’s dystopian novel (written in 1948), the Thought Police used helicopters to spy into citizens’ windows, looking for seditious behavior. An aircraft with only a few minutes of available loiter time isn’t going to be especially useful for this, even if the police were inclined to do it. People should probably be more concerned about the data their smartphones and fitness bracelets are collecting about them.

EDUCATING THE PUBLIC ABOUT HOW DRONES CAN ASSIST POLICE OPERATIONS

While UAS in law enforcement applications are often compared to helicopters, there is a world of difference between the two. A helicopter is a multi-million-dollar purchase, costs hundreds of dollars an hour to operate, and requires at least one commercial pilot with years of expensive training. They have much more capability, as they can carry a lot more gear and travel hundreds of miles (beyond visual line of sight), where the payload on a UAS is typically limited to a few pounds and cannot be operated beyond the pilot’s visual line of sight.

While UAS aren’t meant to replace helicopters, these limitations don’t undercut the [utility of a police UAS](#). There are many law enforcement situations where just being able to see the situation from a high vantage point is huge.

UAS have been used to help locate lost children and seniors who have wandered from their homes. Crime scenes and accident investigation sites are another area where UAS are useful. A UAS can map a crime

scene much faster and probably more accurately than a human on the ground can. The UAS may reveal evidence that is invisible to those on the ground because of terrain features or other obstructions. The UAS may also be able to fly in weather conditions that would ground conventional aircraft.

In a Florida case, a fugitive tried to hide in a swamp. A thermal camera mounted on a UAS revealed the suspect’s hidden location, as well as that of some other swamp-dwellers. The cops were able to tell him over a PA system, “Come to us, or four alligators are coming to you.” The suspect took the first option.

During a protest in Richmond, Virginia, an overhead UAS was flown to prevent any conflict between pedestrians and vehicles, and assisted the police to successfully direct motor officers to stop traffic before it got intermeshed with the protesters.

After the Santa Rosa (CA) wildfire, a UAS recorded this [spectacular 360° high-resolution photo](#) of the damage.

Charles Werner of the [National Council on Public Safety UAS](#) recounted a deployment by a California sheriff’s office during the raid of a drug house: “Search warrants were issued and the UAS was flying overhead maintaining an overwatch when the deputies made entry, and could see all sides of the house. It saw and recorded people coming out of windows, drugs thrown into the bushes, and guns thrown onto the roof. The suspects were a block away and thought they were home free when units rolled up and arrested them.”

HOW TO OVERCOME PUBLIC OBJECTIONS ABOUT POLICE DRONES

Werner offered these tips to overcome public objections to the acquisition and deployment of a UAS:

1. Know what you are getting into, as a UAS program requires governance, policies/procedures, defining missions, selection of UAS and payloads, training/proficiency, maintenance and thorough documentation.
2. Engage your jurisdiction’s administration and elected officials.
3. Be up front and open (transparent).
4. Provide success stories from other localities (there are plenty).
5. Plan to use the UAS for multiple public safety missions and with other public safety agencies.
6. Where possible, create a multi-discipline public safety UAS team.
7. Where possible, create a regional team of public safety from multiple jurisdictions.
8. Develop a clear policy as to when UAS will be

used for surveillance and evidentiary purposes.

9. Provide the safeguards that will be in place to ensure personal privacy.
10. Explain recording policy and length of maintaining those video recordings.
11. Explain the extent to maintain training and safety protocols.
12. Consider involving the local ACLU in review of department UAS policies.
13. Ensure your pilots are certified and licensed under the [appropriate FAA regulations](#).

Follow these guidelines, and your agency may have its own [unmanned aircraft](#) ready to help keep the community safe. ■

About the author

Tim Dees is a retired police officer and the former editor of two major law enforcement websites who writes and consults on technology applications in criminal justice.

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7 FACTORS TO CONSIDER WHEN PURCHASING A PUBLIC SAFETY UAS

A UAS can be a powerful force multiplier for public safety agencies that is a safe, efficient and effective way to increase mission capabilities

By Michael Uleski

The past few years has seen an explosive growth of [unmanned aerial systems \(UAS\)](#), more commonly referred to as drones. We have seen drones go from fun toys to efficient business tools.

For public safety, a UAS offers a safe, effective and affordable option to have as an aviation asset immediately available for a [variety of missions](#).

In 2015, approximately six agencies in the United States had an active UAS unit. In 2017, over [350](#)

[agencies had an operating UAS unit](#). This year is on pace to [grow that number](#) exponentially.

With many UAS options, it can be difficult to know which system is right for your agency. This article outlines some of the most important factors to consider when purchasing a public safety UAS.

THINGS TO CONSIDER

From quadcopters and hexacopters to tethered systems and advanced sensors, there are a lot of UAS options on the market.

Many UAS models have been developed to meet a specific mission requirement, while others provide a wider range of general mission capabilities.

Here are 7 factors that are important for police departments to research prior to making a UAS purchase:

1 FLIGHT TIME FOR A POLICE UAS

This is typically the first question new UAS owners ask and is a critical factor to having a UAS that is effective for public safety missions. Most UAS are capable of flight times of 20-30 minutes, with more expensive models having flight time capability of 50 minutes. In addition to onboard battery power, tethered systems allow the UAS to be powered from a ground power unit that can allow indefinite flight times for long duration operations.

2 WEATHER CAPABILITIES

All UAS for public safety must deal with the weather, specifically wind, which can be a limiting factor regarding the mission capabilities. Depending on the model, some smaller UAS have a maximum wind speed capability of 20mph, whereas a larger, more powerful aircraft can effectively deal with winds in excess of 35 to 40mph. In addition to wind capability, various models allow for all-weather capability and are considered waterproof.

3 SENSOR AVAILABILITY

Many UAS are able to utilize sensors beyond the visual electro-optical (EO) camera. Zoom cameras provide the ability to have an effective standoff from the operational area. Thermal cameras allow for the detection of radiated heat. Infrared allows for the ability to see at night and LiDAR provides exceptionally accurate data for crime and accident scene documentation. Different UAS models may provide for plug-and-play installation of different sensor options, multiple simultaneous sensor mounting locations, or a single use installation.

4 PAYLOAD INSTALLATION AND DEPLOYMENT CAPABILITY

Having the ability to carry various payloads expands the mission profile of the public safety UAS. Installed payload options include spotlights, HAZMAT sample

cards, gas monitors and radio frequency tracking antennas. Deployable payload examples include life preservers, survival bags, GPS tracking units and small tools. In some cases, a grapple system can be utilized to pick up an item and then carry it to another location.

5 DUAL OPERATOR CAPABILITY

During some public safety operations it can be more effective to have the flight crew consist of both a pilot and a sensor operator. Various models allow the sensor operator to control the camera or sensor unit, allowing the pilot to concentrate on flying the UAS. This can be effective during search and rescue or suspect pursuit missions.

6 MANUFACTURER SUPPORT

There has been significant growth in the number of [UAS manufacturing companies](#). Always consider the ability to receive customer support from the manufacturer of your UAS. The purchase of a sophisticated system can be a significant financial investment for an agency. Having a UAS that becomes unsupported or unrepairable after purchase can be problematic.

7 POLICE UAS COST

Cost is always a major consideration, and typically the primary factor when purchasing a UAS. It is important to lay out a detailed list of needs and wants related to your public safety mission requirements. The needs must be met to be effective, and the wants are extras that would expand your mission envelope, but are not required to be effective for your primary mission. Also, make sure to include other necessary costs of accessories, extra batteries and, most important, [training](#).

HOW TO PAY FOR A PUBLIC SAFETY UAS

Even though a UAS is considerably more affordable than a manned aviation unit, it is still an expense that must be properly budgeted.

Many agencies will find themselves spending a minimum of \$3,000 to start a basic UAS unit. Agencies have found success in [police grants](#) for technology improvements, homeland security



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services, or privately funded grant programs. Others have utilized a forfeiture fund program.

Depending on your funding availability, you may need to be creative in finding sufficient funding.

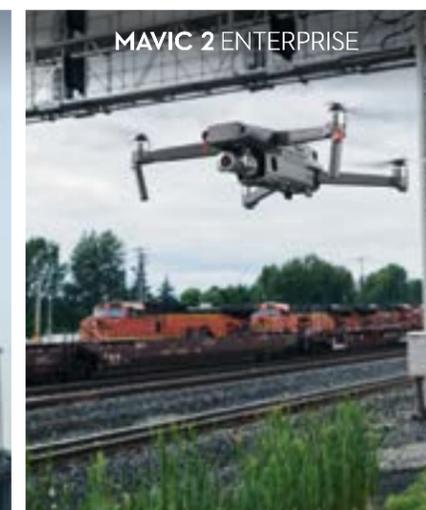
FINAL THOUGHTS

A UAS can be a powerful force multiplier for public safety agencies. It is a safe, efficient and effective way to increase mission capabilities. This role was traditionally filled by manned aviation units that are outside the budget of most agencies. Now, with careful research of the right drone for your police

department, this technology can be added to the toolbox and provide the advantages of an aviation unit at an affordable level. ■

About the author

Mike Uleski is the chief public safety instructor at DARTdrones and is an active sergeant who is cross trained as a law enforcement officer, firefighter, and EMT. He has a degree in Aeronautical Sciences from Embry-Riddle, a commercial pilot certificate with single-engine, multi-engine and instrument ratings, and 17 years of experience building and flying remote-controlled aircraft.



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How to fund a police drone



POLICE

If you are looking to add an unmanned aerial system to your law enforcement agency, check out this guide to funding options for drone acquisitions

By Therese Matthews

Police and other law enforcement agencies across the U.S. are seeing [drones](#) as another valuable asset in their crime fighting and first response toolbox. Over the past few years, [law enforcement has used drones](#) for search and rescue missions, criminal pursuit and surveillance, crowd monitoring, drug interdiction, accident investigations, inmate escapes and crime scene analysis.

[Finding the funding](#) to cover the purchase of the equipment, accessories and [staff training](#) can be challenging. Here's a variety of grant and other

funding options to consider that won't put a strain on your department's budget.

HOMELAND SECURITY FUNDING

Homeland Security funding is currently the most widely used grant source for police drones. Consider applying for [Homeland Security Grants](#) if your equipment will be used for search and rescue, crowd monitoring, bomb investigation, domestic or international terrorism events that threaten your community. Most of these federal grants are received through your state's homeland security or emergency management agency, but decisions on the uses of these funds are based on local planning. Grant applications for equipment that will be used as a regional asset may be received more favorably.

BYRNE JUSTICE ASSISTANCE GRANTS

[Justice Assistance Grants](#) (JAG) are the largest sources of grant funding to support law enforcement equipment and training. Many local municipalities across the country receive a [local JAG allocation](#) directly from the federal government based on their share of their state's three-year violent crime average. If your county or city is a local JAG recipient, encourage your grant administrators to earmark a portion of the funding for your drone equipment and training.

Each state and U.S. territory also receives an annual JAG award for grants to local and state agencies that don't qualify for the local allocations. Reach out to your [State Administering Agency \(SAA\)](#) representative to discuss your needs and inquire about the next application period.

FEDERAL HIGHWAY TRAFFIC SAFETY GRANTS

Planning to use the drone for accident investigations? Then your state's highway traffic safety funds would be a great source. Federal dollars are passed down to states through the [National Highway Transportation Safety Administration, Section 402](#) State and Community Highway Safety Grant Program has numerous focus areas, including reducing accidents and enhancing emergency services. States typically

offer grants to local law enforcement agencies through a competitive application process. Contact your state transportation department to inquire about how to apply for these funds.

HIDTA AND PROJECT SAFE NEIGHBORHOOD FUNDING

Is your agency part of a multi-agency task force in a High Intensity Drug Trafficking Area ([HIDTA](#)) or Project Safe Neighborhoods ([PSN](#)) district? If so, drones can be a valuable asset in your drug interdiction and violent crime reduction strategy. Approach your task force leadership and encourage them to include funding for drones in their budget request. Competitive HIDTA and PSN funding is available annually.

CORPORATE AND PRIVATE FOUNDATIONS

Most large corporations across the U.S. have foundations or "giving programs" offering grants or donations based on their established priorities. Often, the priority is supporting the community where they are located. Contact the managers of corporate offices in your area to inquire about this funding. Also search the corporations' website to find information about their grant or community giving programs.

Big box stores such as [Target](#), [Walmart](#) and [Sam's Club](#) offer grants to support public safety and community wellbeing. [Firehouse Subs](#) also provides grants for law enforcement and first responder equipment across the country. National freight railroad companies [CSX](#), [Union Pacific](#) and [BNSF](#) administer grants focusing on keeping the communities safe where their lines are operating. Reach out to your local bank, utility company or grocery store – many of them have grant programs operating within their corporate affiliate.

Private community foundations operating in your area may have funding available based on your location or public safety mission. The [Foundation Center](#) is a great source for locating community and other private funders.



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Read more about UAS



Watch videos about drones



ASSET FORFEITURE FUNDS

Many police agencies are using asset forfeiture dollars to support drone equipment, accessories and training. Speak with your department leadership and encourage them to consider allocating dollars from this fund to cover your purchase.

FINAL TIPS: KNOW YOUR GRANT RESTRICTIONS

Some federal grant programs list drones under the “controlled equipment” category and place certain restrictions on using federal funding to cover the purchase. The restrictions have been lifted or relaxed in the last year, but understand and follow the new guidelines set out by [FEMA](#) and the [Bureau of Justice Assistance](#) when using these grant sources for your purchase. You may need a waiver approved by the federal agency justifying your need for the equipment and documenting that privacy and other controls are in place to prevent misuse.

Most federal grants application periods occur in the spring and summer so now is a great time to look for funding. Continue to monitor the links noted in the article for upcoming deadlines. [Grants.gov](#) is also an excellent source for keeping on top of federal grant announcements or forecasted grants.

Persistence, following the application guidelines and drafting a strong justification letter will land you the drone you need for your important policing and public safety work. ■

About the author

Therese Matthews is a highly respected grant professional with over 25 years of experience in grant writing, grants management and program development.

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