

# 11 Ways Police Departments are Using Drones

*There is a paradigm shift occurring in law enforcement as drones become a critical element in almost every aspect of emergency operations*

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As drones continue to evolve, law enforcement agencies around the world are using them in more ways to save lives and enhance the safety of officers.

Drones have had a major impact in the areas of traffic crash reconstruction, reconnaissance before tactical deployments, SWAT overwatch, hostage situations, forensic investigations, patrol-deployed operations, searches for lost persons, tethered operations, traffic pattern evaluation and first response. Let's take a look at these specific applications.

## 1. Traffic Crash Reconstruction

One of the earliest drone uses was traffic crash reconstruction. Not only can drones accurately capture crash scenes, but they can also do so in a third of the time of traditional methods and create three-dimensional models that can be accessed later for review. Most important, the quicker process reduces the possibility of secondary accidents, which enhances safety for all involved.

**Police1 resource:** [Integrating laser scanning and UAV data gives investigators a new 3D view](#)

## 2. Pre-Tactical Deployment Reconnaissance

Pre-tactical deployment use of drones allows for early reconnaissance of dangerous scenes—for instance, providing information about a building before a drug-raid entry, enhancing officers' understanding of the lay of the land and people in the area. Additionally, drone overwatch can remain in place after the team enters, giving the incident commander a bird's-eye view while the operation unfolds.

Many times a drone records a suspect fleeing out other doors or windows, changing their shirts, or throwing drugs and guns into bushes and on roofs. Suspects who think they have successfully escaped are surprisingly apprehended. The Alameda County Sheriff's Office (ACSO) in California had one such incident that captured drugs and guns being discarded with the ultimate apprehension of all suspects. In another incident, the ACSO broke up a drug and gambling operation, see the video [here](#).

## 3. SWAT Operations

SWAT operations are extremely dangerous, as they often involve armed persons who have been in violent attacks. The drone provides overwatch as the SWAT team advances, and its view can be streamed in real-time to SWAT team members. This provides officers the ability to see around buildings, behind fences and into confined areas rather than moving forward blindly. The use of visual optics and thermal imaging provides versatile operations day or night.

In the past couple of years, the Federal Aviation Administration (FAA) approved a "Tactical Beyond Visual Line of Sight" (TBVLOS) waiver, which allows public safety agencies to fly drones around and over buildings during dangerous missions such as law enforcement tactical operations, hazmat incidents, searches of dangerous terrain and similar without having to contact the FAA for special permission. To obtain this waiver, an agency must have an FAA certificate of authorization (COA) that allows the agency to fly as a public aircraft operation. Find a guide for applying both a COA and the TBVLOS waiver in the Online Resource Center at [Droneresponders.org](http://Droneresponders.org).

**Police1 Resource:** [How to maximize the capabilities of SWAT drones](#)

## 4. Hostage Situations

Hostage situations create an even more complex and dangerous challenge. Drones have been used here in several ways. One is to position the drone in a way that it can see into a window and get information as to the location of the suspect(s) and/or hostage(s). This has provided police intelligence as to where and when to make entry. In a number of cases, it's helped mitigate the incident without injury. A specific example was in a deployment with the combined York County, Virginia Fire and Sheriff UAS team, which used a drone to guide an effective entry and mitigation with no injuries.

## 5. Patrol-Led Deployment

A patrol-deployed drone model places drones in the trunks of patrol vehicles, where they can be quickly deployed at incident scenes by secondary officers to provide situational awareness as to the locations of subjects, presence of weapons and other related hazards. This model can also provide complementary support and safety during K9 operations. This deployment model is exemplified by the Oklahoma City Police Department, which implemented its programs with [Skydio](#) drones and attributed that choice in large part to Skydio's detect-and-avoid technology.

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## **6. Forensic Investigations**

Drones in forensic investigations of incident scenes provide great value by capturing information from a top-down view and data from scenes that may have been missed from the ground. In some situations, bad actors may have entered buildings from or left evidence on rooftops. Similar to traffic crash reconstruction, drones allow the creation of 3D models that provide an overview of the entire scene and can be reviewed later. [Pix4D](#), [SkyeBrowse](#) and [DroneDeploy](#) are three promising solutions in this area, as well as traffic crash reconstruction.

## **7. Searching for Lost Persons**

Many Law Enforcement agencies perform searches for lost persons. Drones provide an invaluable resource that can be used to search areas of ground terrain too dangerous or difficult to access on foot. They also can search large open areas more quickly than ground searchers, and thermal optics can help identify and locate heat signatures of people during both day and night operations. There are numerous cases of LEOs in the United Kingdom locating lost persons during colder weather via drones and ultimately saving lives. The Alameda County Sheriff's Office has used this method numerous times to search seaside cliffs that would otherwise be difficult to access.

**Police1 resource:** [UAV teams in action: Alameda County Sheriff's Office](#)

## **8. Traffic Pattern Review**

Law enforcement is also helping evaluate new traffic patterns to ensure new routing is effective before making it permanent. During COVID-19 vaccination operations, drones reviewed vehicle movements and identified necessary adjustments for the most effective traffic flow during new routing for a vaccination facility. Tethered and stationary drones offer an easy way to capture this information.

## **9. Tethered Drones**

Tethered drones are another tool being deployed by law enforcement and other public safety agencies. The drones are deployed in a stationary mode, which allows continuous overwatch. The tether serves as its power source and negates the need to change batteries. The tethered operation is relatively simple: a one-button launch and one-button land. The tethered drone offers a way to maintain the scene perimeter and both visual optic and thermal images that can be streamed in real-time. Tethered drones can be mounted on a vehicle, in a compartment, or be portable in a Pelican case and launched in seconds. [Fotokite](#) is one of the more common tethered drones and sees significant deployment by fire departments.

## **10. Interior Drone Operations**

More recently, drones have become just as beneficial to deploy for indoor operations. In the past, officers would need to enter buildings and clear each individual room. This is one of the most dangerous and tense operations for law enforcement officers. Now drones can be flown into a building and conduct room searches remotely with no potential harm to the officer.

In situations where a person is holed up in a room, the drone can be positioned or "perched" to maintain surveillance. This intelligence also allows law enforcement officers to know the best time to enter. Some drones now offer the ability to not only see inside but also have two-way communication with a suspect. This enhances the ability to negotiate from a position of safety. In some cases, suspects have immediately surrendered without incident once seeing the drone. Brinc is breaking new ground with drones that can break windows, make entry and provide two-way communication with a suspect.

This past year the police departments in Dallas and Midlothian, Texas joined with the North Texas Public Safety Unmanned Response Team (PSURT) to develop "drone clear" protocols. These protocols create best practices in the use of drones to clear rooms. [Cytta Corp.](#) developed video and audio software to implement the drone clear protocols by flying and streaming video from drones to officers involved in incidents.

## **11. Drones as First Responders**

The last and perhaps most promising deployment of drones lies in the Drone as a First Responder (DFR) program, which resulted from an FAA pilot project and began with the Chula Vista Police Department in California. The DFR program launches a drone at the time of 9-1-1 dispatch and is designed to provide eyes on the scene prior to the arrival of ground units. The drone provides invaluable real-time situational awareness by streaming live video to officers before they reach the scene. The Chula Vista drones are flown remotely by teleoperators provided by [Flying Lion](#).

Chula Vista Police Chief Roxanna Kennedy says DFR is one of the most effective de-escalation tools in her department's toolbox. [Droneresponders.org](#) created a national DFR working group to share information on policies, privacy, safety cases and concepts of operations (CONOPS) through an online resource center. At this time, there are 16 departments actively deploying DFR programs and more than 100 agencies interested. Some operational remote pilot solutions include [Motorola's CAPE software](#), [DroneSense](#), [Axon Air](#) and more.

A recent advance in DFR waivers came with the waiver achieved by the Campbell (California) Police Department, which was

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approved in a record time of two weeks. Trending shows the key elements for the DFR waiver are the defined operational area, flying less than 400 feet above ground level, adhering to facility grid map ceilings, maintaining a two-mile visibility around the drone, and a CONOPS that covers these and other safety-related requirements. Anything beyond these conditions requires a Special Government Interest waiver from the FAA's System Operations Support Center.

The Droneresponders.org working group has been working on a new initiative with the FAA on the development of a DFR guidance document that will expedite approval of public safety DFR waivers.

In a very recent initiative, the Las Vegas Metropolitan Police Department's Steven Oscar has developed facility grid maps that determine where drones can fly around airports. These maps are created and maintained by the airports. As you might imagine, airports initially created maps that were ultraconservative, and many created maps that prevented the flight of drones in these grids. LVMPD reached out to its nearby airports, including Harry Reid Airport, and had great success in crafting maps that enabled public safety drone flight in grids where they were previously prohibited. So for agencies operating under COAs, custom public safety grids with approval from the airports can be submitted for FAA approval.

**A Paradigm Shift in Operations**

There is a paradigm shift occurring in law enforcement as drones become a critical element in almost every aspect of emergency operations. Drones enhance safety and provide improved operational effectiveness and real-time situational awareness. Presently, according to [Droneresponders.org](https://droneresponders.org) research, more than 5,000 public safety agencies have implemented drone programs, and an estimated two-thirds are law enforcement agencies. With today's law enforcement staff shortages and dangerous attacks on LEOs, drones are an essential tool to protect those who serve and protect us.

**ABOUT THE AUTHOR**

Chief Charles Werner is a 47-year veteran of public safety. He served 37 years with the Charlottesville (Virginia) Fire Department, retiring as Fire Chief. During his career, he served two years as a reserve deputy with the Albermarle County Sheriff's Office. Charles presently serves as director of Droneresponders Public Safety Alliance, is a member of the International Public Safety Association's UAS Committee, is chair of the Virginia Secure Commonwealth UAS Sub Panel, is an FAA-certified remote pilot, and is a member of the IACP Aviation Committee and APSA. Charles was recognized as Homeland Security Today Magazine's Person of the Year in 2019 for his work on public safety drone programs.



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