5 THINGS TO KNOW
About How Drones Are Being Used in Public Safety & Emergency Services in North America
Public safety officials ranging from firefighters to police officers to first responders recognize what kind of force multiplier drone technology represents. Whether it’s to help with search and rescue efforts or get a new perspective on a fire, drones can be quickly deployed to find out more information about a situation which allows responders to take action in more effective ways. Companies like DJI are working to keep track of how many lives have been saved by drone technology, and those numbers are constantly increasing.

However, the challenges that police and fire departments run into when pursuing adoption are especially unique, because many members of the public have expressed reservations related to privacy and security around their use of the technology. Public safety officials that are transparent about their intentions with drones and keep open lines of communication with the public have been able to mitigate some of these concerns, but acceptance is just the first step of the adoption process for many public safety officials.

Given their responsibilities to the public, departments across the United States need to have a keen understanding of drone technology in order to have success with it. That understanding is best defined by officials and departments that have integrated drone technology into their standard operating procedures to make a real difference in their communities.

**Drones are Being Used to Support Collision Scene Reconstruction**

The impact drones can make when lives are at risk has allowed some departments to approach emergency situations in a much more effective manner, but it’s important to realize that these departments are not just using the technology when the stakes are this high. The North Carolina Department of Transportation (NCDOT) found out that not only is it possible to use drones in low-light collision scene reconstruction, but it’s also cheaper to do so when compared to traditional approaches.

“The study was groundbreaking,” said Basil Yap, manager of NCDOT’s UAS Program Office. “We found that not only does it save thousands of dollars, but using drones instead of traditional ground-based reconstruction techniques also cuts the time each reconstruction takes from almost two hours to less than half an hour.”
While the NCDOT study provides specific insight for any DOT interested in lowlight collision reconstruction, it has also created a guide around the type of rigorous research that needs to be conducted before drones can be adopted into any SOP. Doing so will enable the technology to be utilized in emergency situations that range from fires to natural disasters that have countless variables associated with them.

They Won’t Just Save One Life, They’ll Save Hundreds

With fires and in emergencies, firefighters are heavily reliant on radio communication. Firefighters are taught to communicate over the radio in a way that paints a picture for the people in charge so they can make a decision based on what’s happening. That can include anything from ventilating a roof to evacuating a specific area in a brush. As effective as that communication has proven to be, the old expression of “a picture is worth 1,000 words” has never been more true, and the real-time pictures provided from drones have proven to make all the difference in the world for the Los Angeles Fire Department. Their approach to adoption has created a blueprint for the successful creation of a drone program in the public safety sector. However, it’s the real world differences that are most notable to firefighters in the department.

“I’ve had buddies blown up when they opened a door and the room exploded,” said LAFD Firefighter Derrick Ward. “Better situational awareness could have prevented that. If we just save one life, that’s worth it, but we’re not going to save one life with this, we’re going to save hundreds. Not just firefighter lives, but civilians too. That’s people lost, stranded, or in danger. That’s where all of this is going.”

News about the Los Angeles Fire Department’s (LAFD) use of drones to fight the Skirball fire was covered far and wide, with details about how the technology was used to increase firefighter safety and operational effectiveness. The drones were airborne for approximately 30 minutes doing aerial damage assessments and checking for hotspots in an area at the north end of Moraga Drive.
The foundation of the LAFD’s drone program all goes back to being able to provide this kind of enhanced situational awareness. Doing so opens up further opportunities related to safety and efficiency, but all of that is predicated on the LAFD being able to get a drone in the air, which itself is predicated on how the department made the public aware of their use of the technology.

Disaster Response Paradigms are Being Changed Thanks to This Technology

The difference UAV technology can make during emergency situations like hurricanes is evident, since drones provide a unique capability of approaching, hovering, and observing transportation infrastructure from much closer distances than manned aircraft. Those differences had previously been more theory than actuality, but that all changed when Hurricane Florence hit North Carolina in 2018 and the NCDOT launched their UAS response.

Hurricane Florence did not make a major landfall in North Carolina, but the flooding it caused created a major issue for the region. Once the hurricane ended, the team’s focus was to assess areas that could possibly be flooded and dams that could breach. They sent flight teams to assess these flooded areas and provide updates on areas that they were not aware of. As an example of what that meant in a practical sense, data gathered via drone was provided to emergency responders and news channels in order to tell people to avoid using I-40 and similar roads because of flooding.

As part of their post-hurricane assessment, their team used drones to live stream areas affected to NCDOT traffic management, division engineers and maintenance staff. This made a big difference as it helped plan recovery and response sooner. The team was able to live stream conditions to their leadership and emergency personnel, which has changed expectations around how information can be gathered and utilized to make key decisions during disaster response.

“The NCDOT plans to incorporate lessons learned from this deployment to better serve the state in future emergency response situations,” said Darshan Divakaran, NCDOT’s Division of Aviation UAS Program Engineer. “This will include operating weatherproof drones to deploy during a storm, establishing a larger command center, and setting up a mobile command center.”
Police Departments Are Using Drones as First Responders

Officers in police departments across the country respond to countless calls every day, and the information they receive about a given situation can vary from being incredibly specific to non-existent. Calls that come into dispatch are often from people who are traumatized or simply unable to provide accurate information, which means officers are often going into situations where they have to quickly make decisions. By using drones as first responders in these situations, officers in the Chula Vista Police Department are gathering real-time information to help make those tactical decisions and convey information to other officers about them.

“Providing senior managers and supervisors with this kind of front-row seat allows us as a department to really think about how we respond to a situation and decide what resources we need to deploy in a way that junior officers might not fully consider,” said Chula Vista Captain Vern Sallee. “This technology allows our supervisors and managers to have a virtual presence on routine calls to give us the best response and outcome.”

Everyone from patrol officers to supervisors can see and access the information a drone is capturing on their phones. How such capabilities are being incorporated into established police department processes along with the public’s acceptance of them doing so can be a challenge, which is why the CVPD’s successful approach to both has put them at the forefront to define what it means for public safety departments to think of and utilize drones as first responders.
5 Things to Know About How Drones are Being Used for Surveying & Mapping in North America

It Can Be Important to Start Small

The Menlo Park Fire Department has been able to utilize drone technology in especially powerful ways, but the genesis of their programs is critical to highlight. They started small and got it right around mundane takes, with an understanding around how all of that could scale to something bigger. They did routine things routinely, and that opened further applications for the technology.

One of those applications was seen during the Carr Fire, which is considered to be the 6th most destructive fire in California’s history. After destroying more than 1,000 homes, causing 3 firefighter fatalities, and burning through more than 220,000 acres, the Menlo Park Fire District helped combat the fire not only with Strike Teams and Fire Units but also with drones. By flying between 150 to 200 feet in elevation for the Carr Fire, the drone teams were able to capture high-resolution photography and video imagery to create zoom-in, zoom-out, 360-degree, stitched together aerial mosaics of the damaged and destroyed areas.

The Menlo Park FD worked up to this type of application though. Since 2014, the department has used drones during hazardous material incidents, grass, timber and structure fires, along with missions above the San Francisco Bay, or flooded areas, and direct support of water rescues or recoveries. Their process underscores the importance of taking action sooner rather than later with drones.

“The opportunity is here right now, so don’t let it pass you by,” said Menlo Park Fire Department Chief Harold Schapelhouman.

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