

# Exploring the Benefits of Expanding Drone Programs Beyond Exigent Circumstances.

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## **Abstract**

*The purpose of this research paper was to determine how recent changes to Florida statute have affected law enforcement agencies with drone units. This paper examines whether the drones currently in use by law enforcement agencies will comply with statutory changes and if agencies have plans to replace noncompliant drones with specific brands listed on the approved drone list. It also provides insight regarding whether agencies have begun using drones for non-exigent missions recently approved under the statute, to include surveillance of large gatherings, crime scene investigations, traffic crash investigations, and damage assessment after natural disasters. Through a survey of agency drone unit representatives, this research provided answers regarding non-exigent applications of drones and identified concerns regarding the current compositions of agency drone units as they compare to the approved drone list, as well as agencies' readiness to select approved replacements.*

## **Introduction**

Law enforcement agencies across the country have implemented unmanned aircraft systems (UAS), also known as unmanned aerial vehicles (UAV) and more commonly as drones, as an additional agency resource to be used in response to public safety incidents over the past several years. Drones are small aircraft with varying types of optical sensors that are operated by a licensed remote pilot in support of a variety of law enforcement operations. Improvements in drone technology and reductions in the cost of manufacturing have permitted more agencies to purchase and implement drone programs, allowing for an aerial response to critical incidents and reducing the costs associated with the maintenance and operation of traditional aircraft.

An early issue that Florida law enforcement agencies faced regarding their use of drones was the limitations imposed by statutory regulations under F.S. 934.50, Searches and Seizure Using a Drone (2013). This legislation was meant to regulate police usage of drones and address citizen concerns regarding personal privacy rights, but also imposed strict limitations regarding the way police drones could be used. After this legislation was enacted law enforcement agencies were only permitted to operate drones for searches that were authorized by a search warrant signed by a judge or in exigent circumstances. As a result, much of the training for remote pilots at Florida law enforcement agencies has traditionally revolved around rehearsing for search and rescue operations, tactical operations, and the safe recovery of drones due to technical problems or weather-induced malfunctions.

Recent revisions to Florida statute have allowed for several uses that were previously prohibited, to include monitoring large gatherings of people, assisting with

traffic management, collecting evidence at crime or traffic crash scenes, and assessing damage incurred during natural disasters (Searches and Seizure Using a Drone, 2021). While this gives law enforcement agencies more discretion to determine how they will use their drones, it also raises questions regarding the challenges they face in order to enhance their existing drone programs and successfully accomplish these new missions.

The purpose of this research study is to identify potential methods that agencies can use to respond to statutory changes governing police drone usage, especially in areas concerning policy development, improved training, forensic reconstruction of crime and crash scene, and the off-duty employment of agency drone operators. This paper will include surveys of Florida law enforcement agencies that currently operate a drone unit and will be used to glean the necessary information to further explore these challenges and potentially identify other areas of concern not initially recognized at the onset of this study.

## **Literature Review**

The proliferation of consumer and professional grade drones with advanced optical sensors has allowed more law enforcement agencies than ever before to add them to their arsenal of public safety tools. Public safety applications for drones have typically been implemented to replace or augment missions normally carried out by humans or involving human operators with the intent to reduce risk or provide cost benefits (Frederiksen et al., 2020). Drones have been adopted for a number of uses by law enforcement agencies across the country and around the world that, until recently, could not be replicated by law enforcement agencies in Florida due to statutory prohibitions. Examples of these uses, some of which will be explored in more detail later in this paper, include the use of thermal imaging to investigate arsons, photogrammetry of crash scenes for reconstruction purposes, photographing crime scenes immediately upon arrival to aid in later searches for evidence, and monitoring large crowds or public events to watch for disturbances (Fredericksen et al., 2020). Interestingly, some jurisdictions even utilize drones for traffic enforcement, deploying the drone overhead to monitor a roadway for infractions while a police vehicle is positioned further along the road, allowing the drone operator to communicate with the vehicle operator in order to stop violators and issue citations (Drew, 2020). While this approach is similar in theory to the operation of ground-based red-light cameras, drones will not currently be used for this purpose by Florida law enforcement as the updated Florida statute governing the use of police drones specifically prohibits the issuance of citations based on drone-captured images or video (Searches and Seizure Using a Drone, 2021).

Instead of traffic enforcement duties, police drone operators in Florida will be limited to assisting with traffic management, which could include the deployment of remotely piloted or autonomous drones to rapidly monitor sections of roadways that are particularly susceptible to congestion in order to address or mitigate traffic flow issues as quickly as possible (Tang et al., 2021). While this particular application is still relatively new, research conducted in the Tampa area showed promising results for identifying the best technologies and techniques for this type of application, including considerations for optical sensor types as well as altitude and relative position of the drone to the flow of traffic (Tang et al., 2021). Salvo et al. (2017) also concluded that drones could

successfully be used for traffic management in a way that allowed for more naturalistic behavior from drivers who were less likely to notice the drone than other instruments that might be mounted on the roadway or otherwise installed at eye level.

Related to traffic management duties is the use of drones to collect evidence during traffic crash investigations. Traditional traffic crash investigations, specifically those involving serious bodily injury or fatalities, typically require roadways to be closed for extensive periods of time and potentially expose investigators to increased risk as they photograph the involved vehicles and potential evidence, take measurements to determine speed and trajectory, and scan the crash scene using ground-based three-dimensional laser scanners. Three-dimensional laser scanners are used to collect environmental data from the crash scene that can be used to generate forensically sound reconstructions of the crash that may be used for civil or criminal litigation (Cerreta et al., 2020). Some studies have focused on how drones may be used for this purpose in order to reduce the associated risks, equipment costs, and congestion related to roadway blockages during site investigations. According to Cerreta et al. (2020) while it is not as accurate as a three-dimensional laser scanner, a drone with a 20-megapixel camera flown in a double grid and circle pattern at 100 feet above ground level (AGL) does collect accurate enough data to be used for forensic analysis and crash or crime scene reconstruction. The drones Cerreta et al. (2020) used that met these criteria are considered to be consumer grade to high-end consumer grade drones, which at the time this paper was written retail for approximately \$2,000.00 to \$5,000.00 including the drone, imaging payload, and controller, compared to approximately \$38,000.00 for a FARO Focus 350 three-dimensional laser scanner currently used by the Polk County Sheriff's Office Traffic Homicide Unit for crash scene reconstruction (3DScannertech, 2021). A similar study by Mat Amin et al. (2020) also concluded that UAV photogrammetry techniques carried out with modern consumer grade drones can be used to collect accurate enough data to render forensically acceptable three-dimensional models for crash and crime scene reconstruction, which would allow police to reduce the amount of time spent collecting data while maintaining an acceptable level of reliability. Additionally, Kamnik et al., (2020) concluded that the amount of time spent collecting data at the crash site could be substantially reduced when compared to traditional manual measurements and even to some degree when compared to modern three-dimensional laser scanning, allowing for reduced exposure of officers to hazards and a quicker release of the scene to normal conditions.

While these studies support the position that drones show promise when applied for these purposes, limitations to the use of drones in this role were addressed in other research. Padua et al (2020) cautioned that there may be environmental factors that prohibit the safe operation of drones for these missions, to include immovable obstacles that obscure the view of the scene or block the flight path of the drone, adverse weather conditions, or inadequate lighting. This would indicate that while drones can serve in this function, agencies that rely solely upon them for scene documentation and reconstruction may encounter circumstances that curtail their effectiveness or altogether restrict deployment. Additionally, drones would also be impractical for collection of data at crime scenes within enclosed structures or other locations with large numbers of natural obstacles, as can often be found in wooded areas or groves, although they could be used to photograph the overall area or environment of the crime scene in these latter

circumstances to help provide context or for reference. Additionally, agencies incorporating drones in the documentation of crime scenes should consider regulating the manner in which they are operated in order to preserve trace evidence. Bucknell and Bassindale (2017) discovered that the operation of a drone over a crime scene can significantly affect the recovery of trace evidence at the scene, to include the displacement and quantity of textile fibers or similar materials. The distance from where the drone was launched to the location of the crime scene, the size of the drone, the height at which it is flown, and the materials that make up the floor or surface of the crime scene all contributed to negative outcomes regarding evidence retention and location relevant to original placement (Bucknell & Bassindale, 2017). This indicates that drone usage inside enclosed environments should be limited until trace evidence has been recovered, and exterior operations should be completed with enough distance between the drone and the potential evidence to prevent the disturbance of trace evidence.

Another novel assignment for police drone operators in Florida would be the use of drones to monitor crowds of 50 or more people. This type of operation has a practical public safety application as it relates to spotting and quickly responding to acts of violence by protestors or counter-protestors in a large assembly or monitoring large outdoor events or festivals for criminal activity. For this type of usage to occur prior to 2021, it would have been necessary for a criminal incident or act of violence to occur prior to the deployment of a police drone. However, an important component of law enforcement is proactively addressing potentially hazardous situations before they can occur, or at least being in a position to mitigate threats that could arise. Drones provide police with the ability to rapidly assess a large gathering of people, follow dangerous individuals in the crowd, and provide informed intelligence to officers on the ground who can respond to quickly apprehend those individuals (de Moraes & de Freitas, 2020). Important components of these types of operations should always be the consideration of safety factors for civilians on the ground. The risk of a drone falling from the sky is never zero, and when they are being used for operations over large groups of innocent people, those risks should always be considered in operational planning for these events. For this very reason, federal regulations prohibit the operation of drones over human beings without a specific waiver granted by the Federal Aviation Authority (Small Unmanned Aircraft Systems, 2016). This does not necessarily prevent drones from being used to monitor crowds or conduct aerial surveillance, but care must be taken not to directly overfly civilians. Additionally, in order for Florida law enforcement agencies to use drones for this purpose, they must have policies and procedures in place that outline how the drones will be used, how the data is collected by the drones, to include how photographs and video will be stored, retained and disseminated, and that address the safety and constitutionality of the operations (Searches and Seizure Using a Drone, 2021). Surveillance of the public by law enforcement is often a heated topic of discussion, regardless of whether drones are involved or not, and whether public safety benefits outweigh what some see as concessions of rights granted by the Fourth Amendment. Research by Heen et al. (2018) also suggests that agencies that have been using drones for reactive applications, such as search and rescue operations or response to active crime scenes, may be able to gain public support for more proactive operations like public surveillance operations by maintaining transparency and public education efforts regarding the benefits of such usage.

The use of drones for damage assessment and recovery operations after natural disasters is also an area where law enforcement drones could prove useful. Florida is especially susceptible to damage created by severe weather events like strong thunderstorms, tornadoes, and hurricanes, and law enforcement officers are usually tasked with conducting post-storm assessments to identify roadway blockages, downed power lines, and other hazards that could pose risks to the officers. A study conducted by Tanner (2018) measured the perspectives of first responders involved in disaster response in North Carolina, Virginia, and Maryland and found that there was overwhelming support for the use of drones in these types of operations. Tanner (2018) concluded that drones were effective in assessing the risks associated with natural disasters and emergencies, including "flooding, wildfires, and damage from tornadoes, hurricanes, and chemical spills" (p. 50). Drones give remote operators the ability to gather and relay intelligence about the extent of the damage in an area and help to inform emergency managers as to what type of resources will be needed. While this application is promising, there are some limitations that must be considered by first responders. One concern noted by Tanner (2018) is that care must be taken to either follow federal visual line of sight restrictions, meaning that the drone must be operated within the visual line of sight of the remote pilot or a visual observer who is able to communicate directly to the remote pilot, or a specific waiver of this condition must be granted by the Federal Aviation Administration for operation beyond the visual line of sight. A number of environmental factors can affect whether a remote pilot can maintain visual line of sight of their craft, to include the presence of trees, buildings, or other physical obstacles in the affected area, as well as geographical topography.

A question that the research hopes to answer will be whether officers who receive specialized training that allows them to perform drone photogrammetry and forensic scene reconstruction for law enforcement purposes should be allowed to work off-duty details through their agencies and utilize their agency drones to perform these tasks for external customers for extra money. Many law enforcement agencies currently have policies and procedures that allow private citizens or businesses to request and pay for off-duty law enforcement personnel to perform law enforcement or security duties while utilizing their agency uniforms, equipment, and vehicles (Brunet, 2008). With this in mind, there is the potential for officers assigned to a drone unit and issued agency drone equipment to be hired to conduct site surveys for traffic management projects, take photographs or video for agriculture studies and crop-monitoring projects, or project analysis and worksite management for construction companies.

An additional aspect of the amended Searches and Seizure Using Drone (2021) statute affecting law enforcement drone programs that must be examined is the requirement that governmental agencies purchase or acquire drones produced by an approved manufacturer from a list that will be published by the Florida Department of Management Services by January of 2023. Although this list is not yet available, since the purpose of this requirement is to maintain security of data and refers to federal guidance in the development of the list, the current federal list of approved manufacturers, also referred to as the U.S. Department of Defense Blue sUAS Program, will be examined (U.S. Department of Defense, 2020). The current Blue sUAS approved drone manufacturers include FLIR, Parrot, Skydio, Teal, and Vantage Robotics (Defense Innovation Unit, 2021). While the approved vendors are selected for the Blue sUAS

Program based mostly on security specifications and partially on where they manufacture their equipment, there are also a number of technical requirements that must be met to be approved for the program. The minimum requirements that must be met for a drone to be considered acceptable for the Blue sUAS Program are that the drone must have a minimum operational range of at least three kilometers, a flight time of at least 30 minutes, an environmental rating of IP53 to allow for operation in dust or mild rain, an assembly time of two minutes or less, a take-off weight of less than three pounds, and high resolution day and night stabilized optics (Defense Innovation Unit, 2021). While equipment that meets these requirements will be optimal for the uncertain environmental factors encountered by law enforcement drone operations, the costs associated with this level of equipment will undoubtedly be much more costly than typical consumer grade drones that many agencies rely upon today and should be a factor that agencies consider when selecting drones for their programs.

## **Methods**

The purpose of this research was to identify how recent changes to Florida statutes governing the use of drones by government entities has affected the practices and policies of law enforcement agencies.

Data was collected through a ten-question survey that was given to drone unit coordinators at 46 law enforcement agencies across the state of Florida. The law enforcement agencies were a mix of state, county, college, and municipal jurisdictions that currently operate a drone unit. The survey was comprised of multiple choice, checkbox, and short answer questions and was designed to gather information about drones that are currently in use at the agencies, the selection of authorized drones under statutory mandates, the status of policy development, whether drones were being used for forensic reconstruction of crime and crash scenes, and the off-duty employment of agency drone operators.

The survey was created in Google Forms and was disseminated via email. While the survey was confidential and voluntary, the email addresses of the respondents were collected to ensure that only one survey was received from each agency. A weakness in the data collection is that there is a relatively small sample size based on the number of agencies currently operating drone units. Additionally, the list of approved drone manufacturers was released only a short time before the survey was distributed, which means that some unit coordinators may not have had enough time to research potential replacement drones prior to receiving the survey.

## **Results**

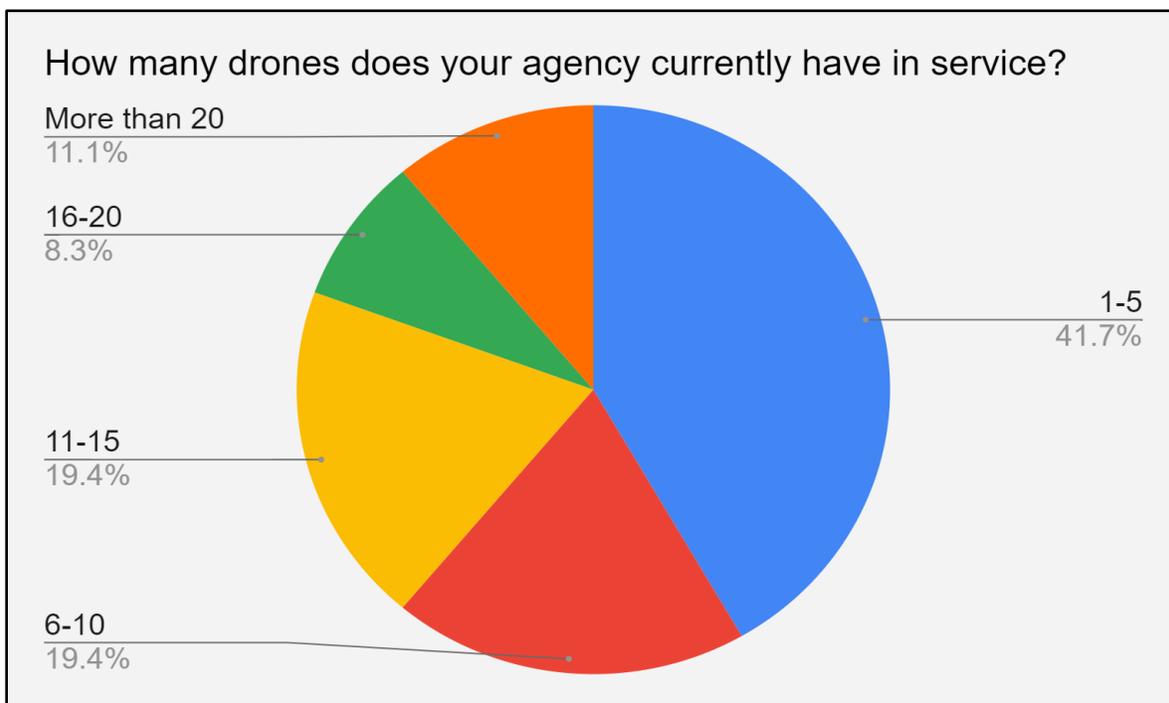
The survey was sent via email on February 1, 2022, to 46 individuals employed by state, county, college, and municipal law enforcement agencies in the state of Florida who were identified as the person in authority for their respective agency's drone program or unit. I received responses from 36 of the 46 individuals that were surveyed prior to closing the survey on March 4, 2022, for a response rate of 78.3%. Of the 36 respondents,

36 (100%) answered 9 questions while 35 (97.2%) answered all 10 questions. One respondent skipped Question 7 of the survey but gave an answer to the previous question that would have resulted in an answer of “N/A” for question 7.

The first survey question asked respondents to identify the number of drones that were currently in service at their agency.

- 15 indicated that they have 1-5 drones (41.7%),
- 7 indicated that they have 6-10 drones (19.4%),
- 7 indicated that they have 11-15 drones (19.4%),
- 3 indicated that they have 16-20 drones (8.3%), and
- 4 indicated that they have more than 20 drones (11.1%).

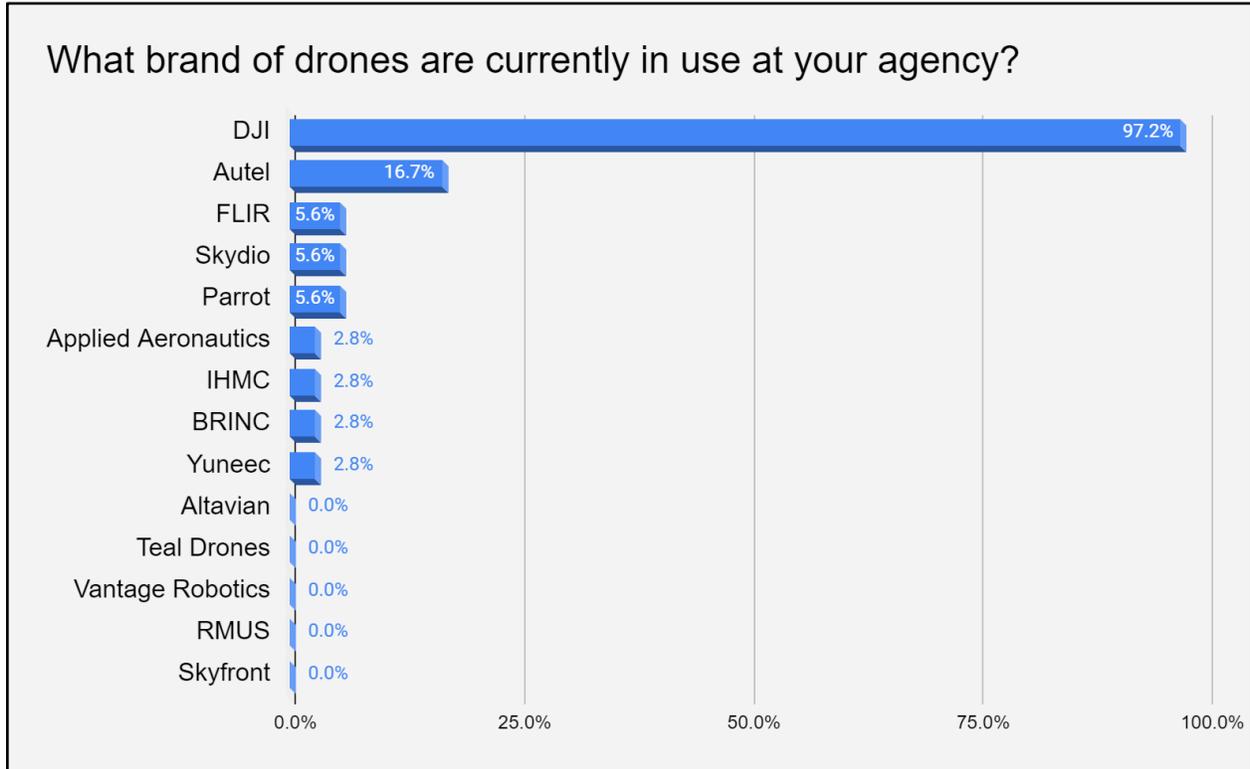
Table 1: How many drones does your agency currently have in service?



The second question asked respondents to indicate what brand of drones were currently being used at their agencies. Respondents could indicate more than one brand of drone to accurately reflect the composition of their fleet.

- 35 indicated that they use DJI (97.2%),
- 6 indicated that they use Autel (16.7%),
- 2 indicated that they use FLIR (5.6%),
- 2 indicated that they use Skydio (5.6%),
- 2 indicated that they use Parrot (5.6%),
- 1 indicated that they use Applied Aeronautics (2.8%),
- 1 indicated that they used BRINC (2.8%), and
- 1 indicated that they used Yuneec (2.8%).

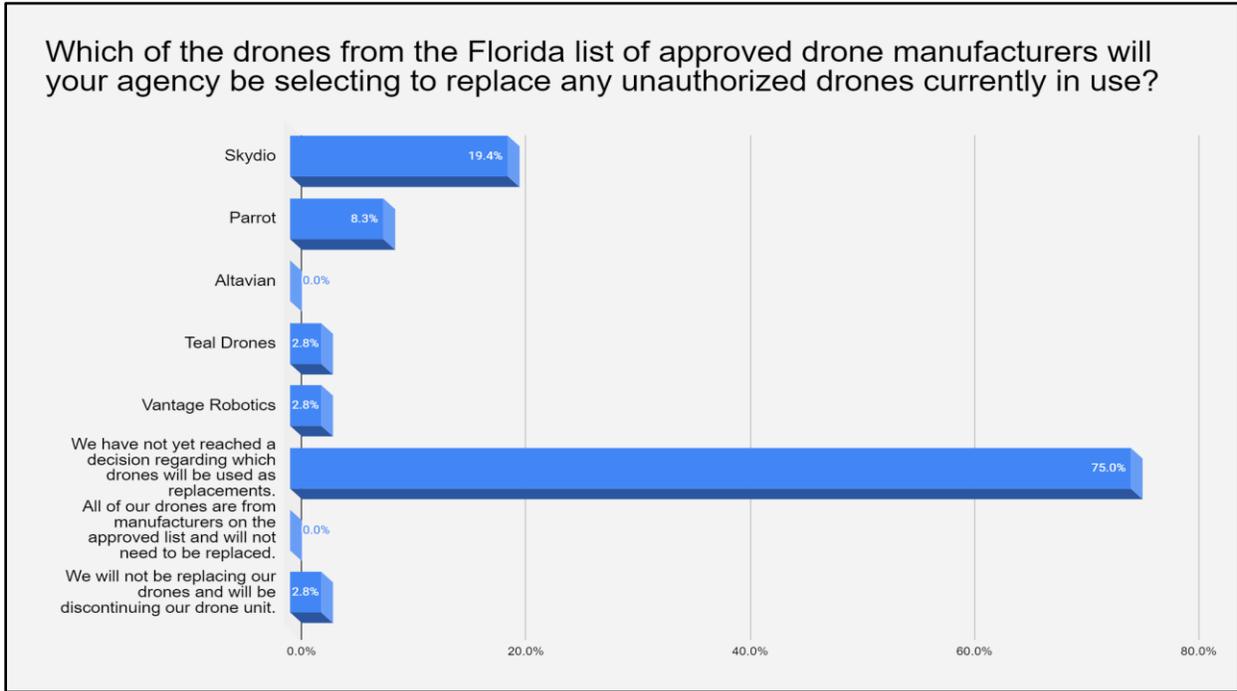
Table 2: What brands of drones are currently in use at your agency?



The third question asked respondents to identify which brands of drones from the Florida list of approved drones their agency would be selecting to be in compliance with F.S. 934.50. Respondents could indicate more than one brand of drone to accurately reflect their intentions.

- 7 indicated that they will use Skydio (19.4%),
- 3 indicated that they will use Parrot (8.3%),
- 1 indicated that they will use Teal Drones (2.8%),
- 1 indicated that they will use Vantage Robotics (2.8%),
- 27 indicated that they are undecided (75%), and
- 1 indicated that they will discontinue their unit (2.8%).

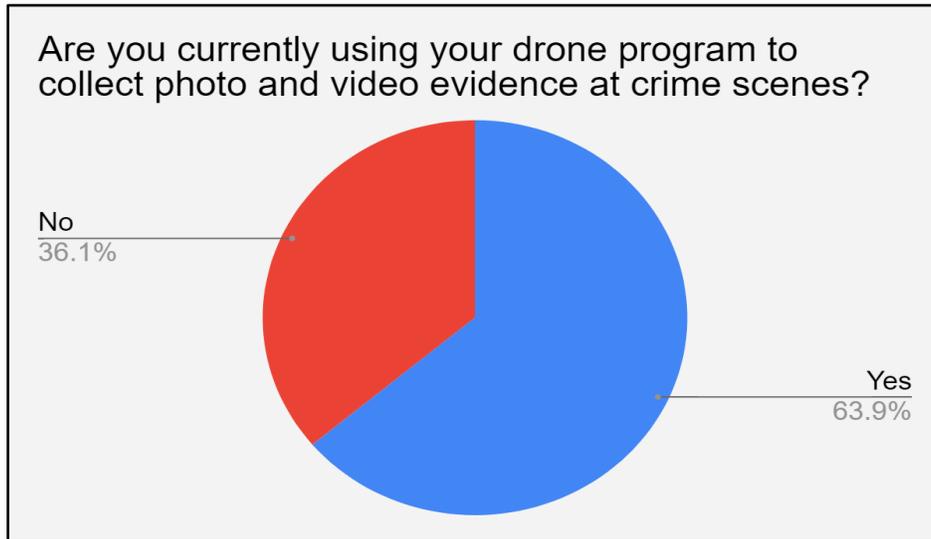
Table 3: Which of the drones from the Florida list of approved drone manufacturers will your agency be selecting to replace any unauthorized drones currently in use?



The fourth question asked respondents to indicate whether they are currently using their drone program to collect photo and video evidence at crime scenes.

- 23 indicated that they are (63.9%), and
- 13 indicated that they are not (36.1%).

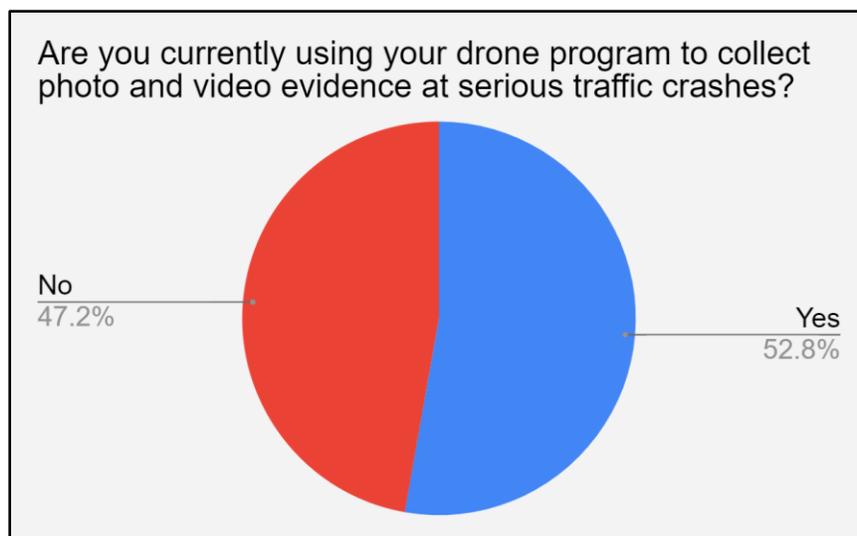
Table 4: Are you currently using your drone program to collect photo and video evidence at crime scenes?



The fifth question asked respondents to indicate whether they are currently using their drones to collect photos and video at serious traffic crashes involving serious bodily injury or fatalities.

- 19 indicated that they are (52.8%), and
- 17 indicated that they are not (47.2%).

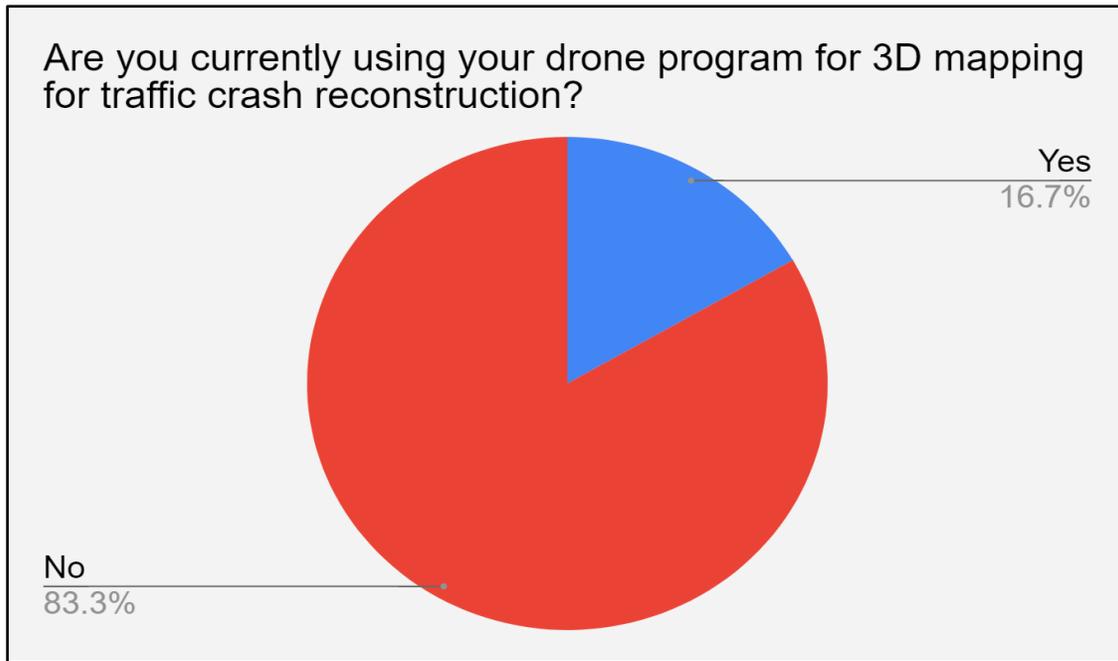
Table 5: Are you currently using your drone program to collect photo and video evidence at serious traffic crashes?



The sixth question asked respondents to indicate whether they are currently using their drone program for 3D mapping for traffic crash reconstruction.

- 6 indicated that they are (16.7%), and
- 30 indicated that they are not (83.3%).

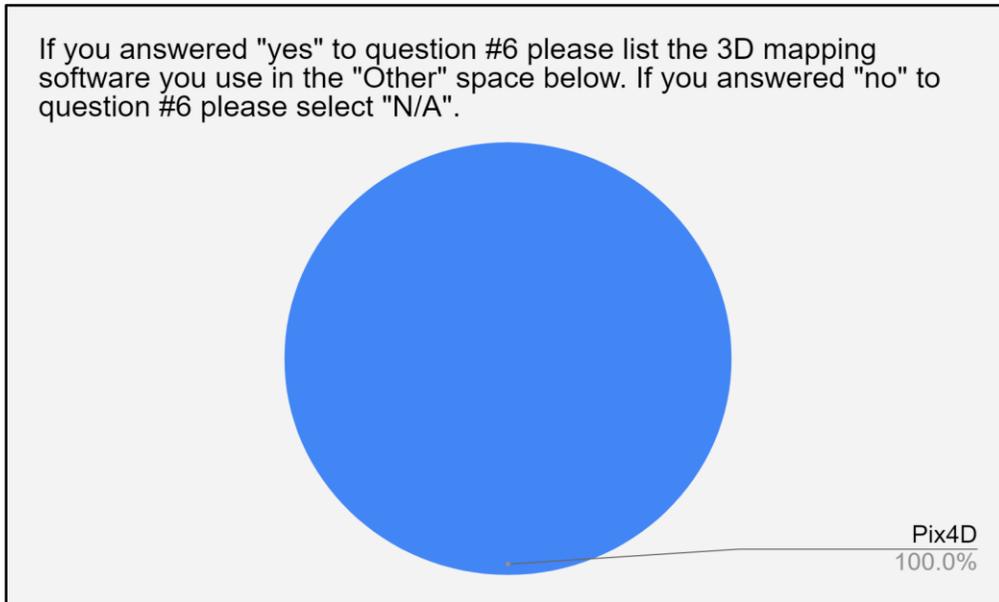
Table 6: Are you currently using your drone program for 3d mapping for traffic crash reconstruction?



The seventh question asked respondents to list the 3D mapping software they use if they answered yes to the previous question.

- 5 of the respondents indicated that they use Pix4D (100%).
- 1 respondent failed to answer this question.

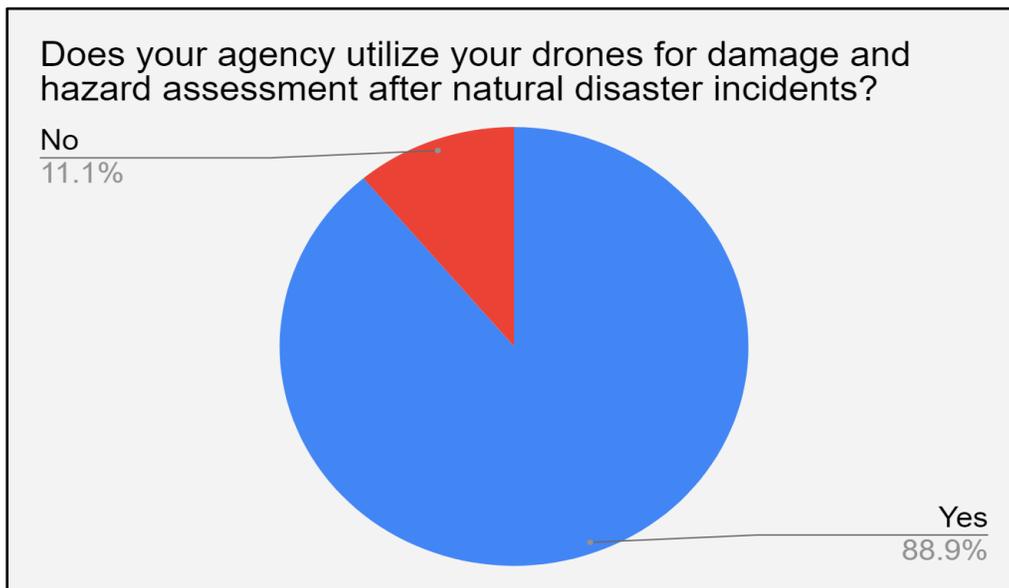
Table 7: If you answered “yes” to question #6, please list the 3D mapping software you use.



The eighth question asked respondents to indicate whether their agency drones were used for damage and hazard assessment after natural disaster incidents.

- 32 indicated that they do (88.9%), and
- 4 indicated that they do not (11.1%).

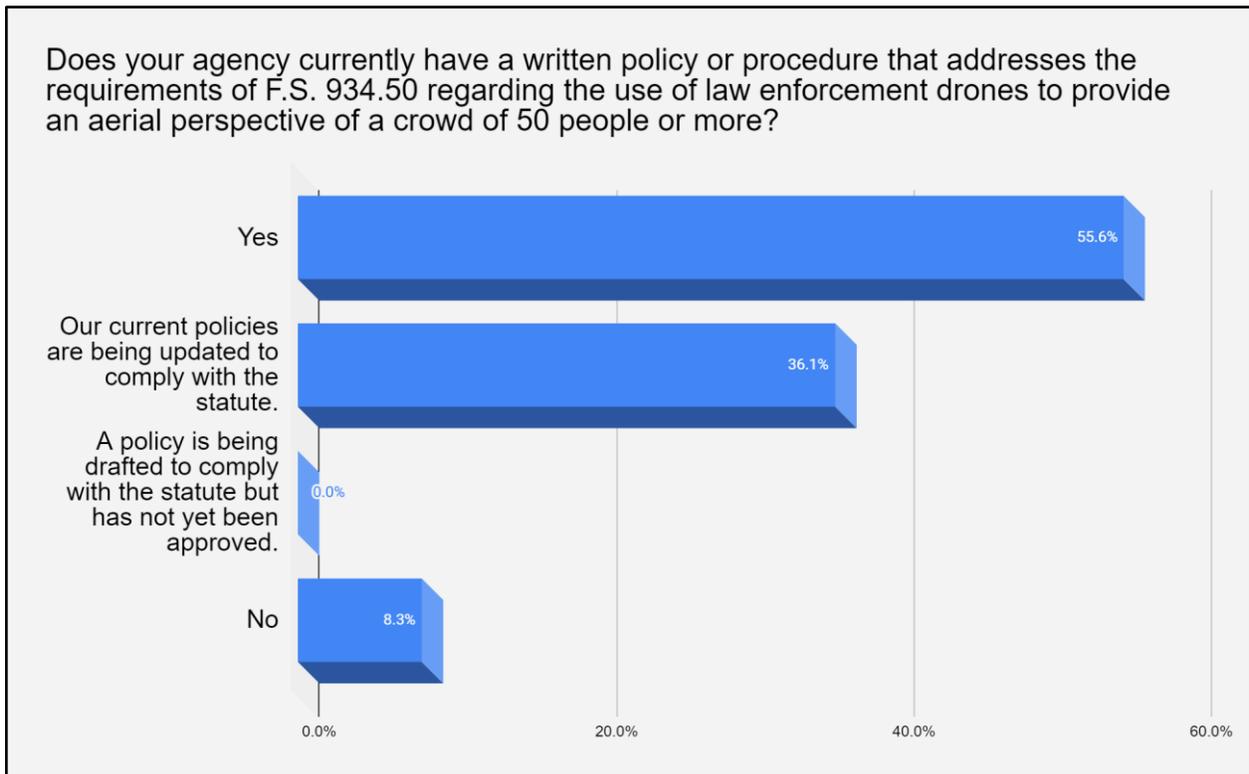
Table 8: Does your agency utilize your drones for damage and hazard assessment after natural disaster incidents?



The ninth question asked respondents to indicate whether their agency had a written policy or procedure for the use of drones to provide aerial perspectives of a crowd of 50 people or more that includes guidelines for the agency's use of a drone in this manner, for the proper storage, retention, and release of any images or video captured by the drone, and that addresses the personal safety and constitutional protections of the people being observed.

- 20 indicated that they do have a policy in place (55.6%),
- 13 indicated that their current policies are being updated to comply (36.1%), and
- 3 indicated no, they do not have a policy in place (8.3%).

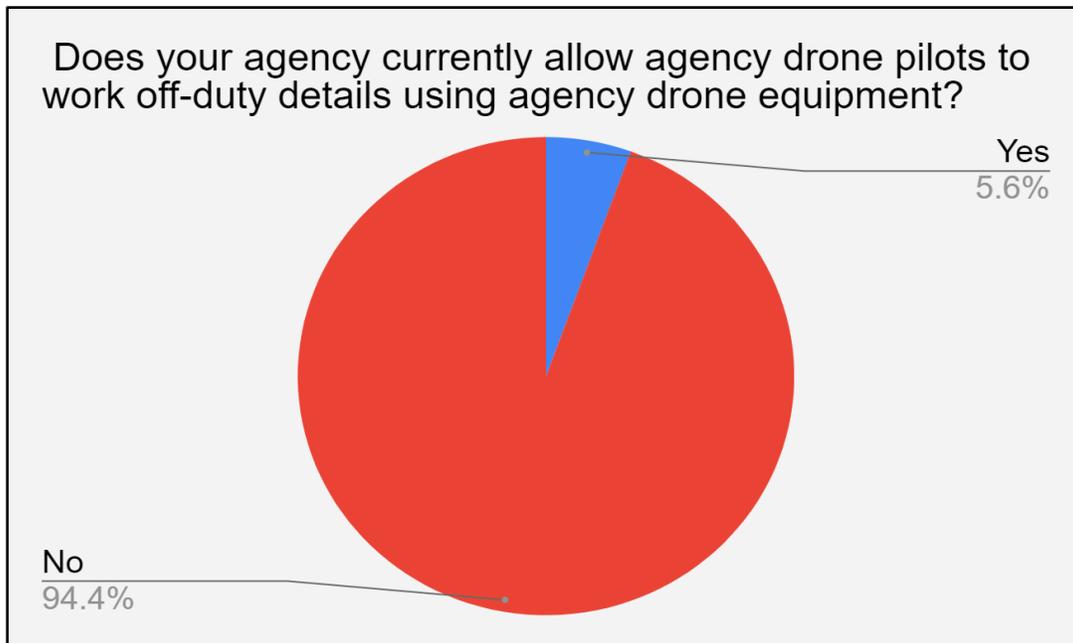
Table 9: Does your agency currently have a written policy or procedure that addresses the requirements of F.S. 934.50 regarding the use of law enforcement drones to provide an aerial perspective of a crowd of 50 people or more?



The tenth and final question asked respondents to indicate whether their agency currently allows agency drone pilots to work off-duty details using agency drone equipment.

- 2 indicated that they do (5.6%), and
- 34 indicated that they do not (94.4%).

Table 10: Does your agency currently allow agency drone pilots to work off-duty details using agency drone equipment?



### Discussion

An interesting result revealed by the survey is that almost all the respondents currently utilize drones that are not on the approved drone list for Florida governmental agencies, with DJI (97.2%) and Autel (16.7%) as the predominant brands. The survey further revealed that at present only six of the respondents have any drones in their fleet that are on the approved drone list (13.0%) while 30 of the 46 respondent agencies (65.2%) rely solely on drones that are not on the approved drone list. Remarkably, none of the agencies surveyed exclusively use drones from the approved drone list. This means that every law enforcement agency participating in this survey will be required to decommission some portion of their existing drone fleet, with many of them having to replace their entire fleet with drones from state-approved manufacturers prior to January 1, 2023. This data tends to suggest that the statutory requirements imposed by F.S. 934.50 have the potential to create significant logistical and financial difficulties for most of the agencies surveyed.

The survey also revealed that most respondent agencies (75%) are still undecided as to which manufacturer they will utilize to replace their existing drones, with one agency (2.8%) indicating that they will discontinue their drone unit in lieu of replacement. The approved drone list that was provided by the state is identical to the original Blue sUAS list provided for the federal government and military, but the mission requirements and expected use of drones by state and local law enforcement agencies differs greatly from

military sorties. Additionally, the drones that are available from the approved manufacturers are considerably more expensive than many drones currently in use by law enforcement agencies. The survey results indicate that the current selection of approved manufacturers may not meet the technical needs or budgetary limitations of state and local law enforcement agencies.

While the majority of agencies surveyed are currently using their drones to collect photographs and video at crime scenes (63.9%) major traffic crashes (52.8%), and damage assessment after natural disasters (88.9%), the survey revealed that only a few agencies are using drones for 3D mapping in traffic crash reconstruction (16.7%). In contrast, many agencies surveyed already have a policy in place to govern the use of drones for surveilling large crowds of people (55.1%). These results indicate that most agencies appear to be prepared to use their drones for basic aerial photography, videography, and surveillance, but may not be prepared to invest in the advanced training, software purchase, or technical requirements required for 3D mapping and traffic crash reconstruction. Additionally, only two of the agencies surveyed currently allow agency drone pilots to use their agency drone equipment for off-duty details, such as inspections or 3D mapping for civilian or public works projects (5.6%). This could be a result of most agencies not currently providing their drone pilots with the training needed to perform 3D mapping as it relates to traffic crash reconstruction.

### **Recommendations**

Based on the results of this survey, it would appear that very few law enforcement drone units are wholly confident they can affordably replace their existing fleet with comparable drones from the approved drone list. This situation could potentially be remedied in a number of ways. Perhaps the easiest and most expedient manner to address this issue would be for the Florida Department of Management Services to expand the list to include drone manufacturers from the Blue sUAS 2.0 list, which has already been approved at the federal level. While this would not be ideal for law enforcement agencies due to the much higher cost of these military-grade drones, it does still provide additional technological capabilities with a slightly expanded range of budgetary considerations.

Another potential resolution would be for the Department of Management Services to create their own list that addresses some of the security concerns raised in the legislation, but without relying solely on an existing list that is directed towards military and governmental agencies required to maintain top secret security clearances. This means that a subject matter expert or special projects team could be appointed by the department to develop a list of approved manufacturers that balances the concerns for security with affordability, technical specifications, and an understanding that law enforcement mission requirements differ greatly from military operations in sensitive areas.

Finally, agencies should consider the benefits of using their drones for 3D mapping and crash scene reconstruction. By providing additional training for their pilots to complete these types of missions when conditions are appropriate, there is evidence to suggest that 3D scans can be completed in less time by drones than through conventional

methods, which allows for roadways to be opened more quickly while also improving safety for those involved in the process. In relation to this recommendation, agencies should also consider allowing their drone pilots who have completed 3D mapping training to utilize their agency equipment for civilian or public works projects through agency details, which has the potential to save taxpayers money when compared to hiring private firms for the same jobs and generate additional income for drone pilots.

While the recent statutory changes regulating drone use by law enforcement has created opportunities for drones to be better utilized while still respecting the privacy of Floridians, it has also created some unexpected hurdles due to the implementation of a very restrictive list of approved drones with what appears to be an underwhelming investment in research or special considerations for law enforcement drone operations. Every law enforcement agency that has invested time, effort, and taxpayer dollars in their drone unit should work tirelessly to ensure that the Department of Management Services does its due diligence in determining what drone manufacturers should be considered for approval without simply relying on external lists that do not necessarily address local government and law enforcement needs.

Lieutenant Dave Bright has been in law enforcement for 22 years with the Polk County Sheriff's Office. He began his career as a deputy sheriff in 2000 and has been assigned to community-oriented policing and investigative units, including general crimes, fraud, and homicide. After his promotion to sergeant, he supervised the Northeast District General Crimes Unit and was the Campus Security Sergeant for Polk State College. He is currently a Lieutenant in the Safe Schools Division and is assigned as the Director of Safety and Security for Southeastern University. Lieutenant Bright has a bachelor's degree in biology from the University of North Carolina at Asheville and a master's degree in criminal justice from American Public University.

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## Appendix A

### Drone Program Expansion Survey

Thank you for taking the time to answer these questions. The information gathered in this survey will be used for a research paper for the FDLE Senior Leadership Program regarding statutory changes and how agencies are responding to expand their drone programs. To ensure that only one response is received from each agency, an email address will be collected on the survey. Your email address will not be disseminated or published, but may be used to contact you for follow-up information.

**\* Required**

**Email \***

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**1. How many drones does your agency currently have in service?**

*Mark only one oval.*

- 1-5
- 6-10
- 11-15
- 16-20
- more than 20

**2. What brand of drones are currently in use at your agency? (Select all that apply)**

*Check all that apply.*

- DJI
- Autel
- Yuneec
- BRINC
- RMUS
- Skyfront
- Skydio
- Parrot
- Altavian
- Teal Drones
- Vantage Robotics

Other:  \_\_\_\_\_

**3. To set security standards for governmental drone use F.S. 934.50 requires governmental agencies, including law enforcement agencies, to discontinue use of unapproved drones by January 1, 2023. Which of the following drones from the Florida list of approved drone manufacturers will your agency be selecting to replace any unauthorized drones currently in use? (Select all that apply)**

*Check all that apply.*

- Skydio
- Parrot
- Altavian
- Teal Drones
- Vantage Robotics
- We have not yet reached a decision regarding which drones will be used as replacements.
- All of our drones are from manufacturers on the approved list and will not need to be replaced.
- We will not be replacing our drones and will be discontinuing our drone unit.

Other:  \_\_\_\_\_

**4. Are you currently using your drone program to collect photo and video evidence at crime scenes?**

*Mark only one oval.*

- Yes
- No

**5. Are you currently using your drone program to collect photo and video evidence at serious traffic crashes (traffic crashes involving serious bodily injuries and/or fatal traffic crashes)?**

*Mark only one oval.*

- Yes
- No

**6. Are you currently using your drone program for 3d mapping for traffic crash reconstruction?**

*Mark only one oval.*

Yes

No

**7. If you answered "yes" to question #6 please list the 3d mapping software you use in the "Other" space below. If you answered "no" to question #6 please select "N/A".**

*Mark only one oval.*

N/A

Other: \_\_\_\_\_

**8. Does your agency utilize your drones for damage and hazard assessment after natural disaster incidents?**

*Mark only one oval.*

Yes

No

**9. F.S. 934.50 requires law enforcement agencies that use drones to provide an aerial perspective of a crowd of 50 people or more to have policies and procedures that include guidelines for the agency's use of a drone, for the proper storage, retention, and release of any images or video captured by the drone, and that address the personal safety and constitutional protections of the people being observed. Does your agency currently have a written policy or procedure that addresses these requirements?**

*Mark only one oval.*

Yes, we have an approved policy to comply with the statute.

Our current policies are being updated to comply with the statute.

A policy is being drafted to comply with the statute but has not yet been approved.

No

10. Does your agency currently allow agency drone pilots to work off-duty details using agency drone equipment?

*Mark only one oval.*

Yes

No