NYPD

STATEMENT OF KAZ DAUGHTRY AND JOHN CHELL
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HEARING ON "Unmanned Aerial Systems and Emergency Response: The Impact of Drones and Other Emerging Technology on U.S. Law Enforcement"

BEFORE THE U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON HOMELAND SECURITY

The Subcommittee on Emergency Management and Technology and the Subcommittee on Counterterrorism, Law Enforcement, and Intelligence

Thursday, May 16, 2024 at 10:00 a.m.
310 Cannon House Office Building.

Good morning Chairs D'Esposito and Pfluger, Ranking Members Carter and Magaziner, and members of the subcommittee. I am Kaz Daughtry, Deputy Commissioner of Operations for the New York City Police Department ("NYPD"). On behalf of Police Commissioner Edward Caban and Mayor Eric Adams, I am pleased to testify before your subcommittee today to discuss the importance of emerging technology in policing and how vital our federal partnerships are to the NYPD's public safety mandate.

With 8.8 million residents and 62.2 million visitors from every corner of the globe, New York City remains a city of possibility. Our police officers proudly patrol the city's 6,300 miles of streets and highways, 472 subway stations, and 274 public housing developments. In a city constantly on the move, our police department must continually look forward and adapt. I am proud to have spearheaded a number of strategies to better position our department in our crime fighting efforts and make New York City the safest big city in America. This call to action requires that we embrace technology.

I am proud to point to some of our success stories today. This is a showcase of some of our most exciting technology, and highlights the work of our Technical Assistance and Response Unit (TARU). They provide expertise in audio/visual technology, operate our Unmanned Aircraft Systems (UAS), commonly known as drones, and provide our officers a crucial advantage in emergency management. We are also focused on the importance of securing our ability to mitigate hostile drones over critical infrastructure and mass gatherings such as those in Times Square.

Our most prolific technology-based innovation has been the Department's use of drones. The NYPD has 85 drones. In 2023, our drone usage increased 419.8% compared to 2022. There are, of course, limited circumstances in which a drone can be used. We have self-imposed policies that place limitations and restrictions on our use of drones. Under these policies, drones are not used for warrantless surveillance, routine patrol, traffic enforcement or immobilizing vehicles of suspects. Drones are not used as weapons, and cannot be equipped with weapons of any kind.

But they can be used to preserve life: On Friday, April 5, 2024, after a 4.8 magnitude earthquake was felt throughout the Tri-State area, our department ordered our drones be deployed to examine the structural integrity of our bridges and buildings. If we detected an infrastructure flaw, we had the ability to share this information with the Department of Buildings in real time. Drone technology allows us to work closer with our partners, ensuring the community's safety.

Safety and security is always a priority, and our drones have played a vital role in those endeavors. Each year, hundreds of thousands converge on Times Square, the "Crossroads of the World," to ring in the New Year. This year, we utilized our drone technology to give a bird's eye view to our incident commanders, in order to prevent overcrowding.

As another example, on Sunday, September 3, 2023- 10,000 people rushed the entrance of the Electric Zoo concert, creating a dangerous situation. Due to safety concerns, NYPD leadership considered canceling the event entirely. To gain better situational awareness, we ordered TARU to deploy our drone truck. We put our tethered drone up, and the live footage showed us that the crowd was massed at the entrance but there were no dangers to life or safety. Using this

information, we gathered our resources, and we made the decision to allow the show to go on. Likewise, the possibility that hostile actors may use drones in a malicious manner at such a mass gathering is always at the forefront of our concerns.

In an effort to support innovation in public safety, five precincts have been selected for the Drone as First Responder Program, more commonly referred to as DFR. Chosen based on recent crime-trends, these precincts will each be outfitted to support two drone platforms affixed to their rooftops. Three of these precincts are in Brooklyn, with one precinct in the Bronx, and one at the Central Park Precinct in Manhattan. The plan, to be rolled out in the coming months, is to deploy these drones in response to certain 911 calls for service. The pilot however, will be remotely positioned in the Joint Operations Center, at Police Headquarters, rather than on scene. The information provided by DFR will be shared with responding officers. DFR will enhance officers' situational awareness as they arrive on scene, promote officer safety, and help us deploy resources more effectively.

In an effort to find technology-based solutions to reduce the number of vehicle pursuits, as well as reduce the risk to the public, the Department implemented a pilot program utilizing specialized GPS tracking equipment, known as StarChase. By attaching a GPS-enabled device to a vehicle, which can be tracked remotely, this technology permits us to pursue vehicles, while avoiding high speed chases that endanger the community and our officers. Since April of 2023, this limited pilot program has helped us recover 42 vehicles and make 58 arrests. This technology has saved valuable manpower hours while reducing the risks associated with vehicle pursuits.

To speak more broadly, our ability to adapt as a department is supported by critical federal funding assistance. The funding the city and the Department receive from the federal government, as well as our collaboration with federal partners, such as the FBI and ATF, have been key components in thwarting numerous attacks over the years. By responsibly leveraging technology, we are able to promote public safety in our city, and we appreciate your calling attention to this important issue through today's hearing.

Thank you again for this opportunity to testify today. I am happy to answer any questions you may have.

Unmanned Aerial Systems and Emergency Response: The Impact of Drones and Other Emerging Technologies for U.S. Law Enforcement

Statement of

Division Chief Kevin Fetterman

presented to the

SUBCOMMITTEE ON
EMERGENCY MANAGEMENT AND TECHNOLOGY

and the

SUBCOMMITTEE ON COUNTERRORISM, LAW ENFORCEMENT AND INTELLIGENCE

of the

COMMITTEE ON HOMELAND SECURITY

United States House of Representatives

May 16, 2024

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS
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Good morning, Chairman D'Esposito, Chairman Pfluger, Ranking Member Carter and Ranking Member Correa. I am Kevin Fetterman, Division Chief of Emergency Planning and Command with the Orange County Fire Authority in Orange County, California. I have personally been involved with unmanned aerial systems (UAS) or "drone" use on several all-hazard incidents, such as multi-alarm structural fires, wildland fires, building collapses, static water rescues/recoveries, and other incidents. I appreciate the opportunity today to discuss UAS and the role that this emerging technology plays in emergency response.

The IAFC represents the leadership of over 1.1 million firefighters and emergency responders. IAFC members are the world's leading experts in firefighting, emergency medical services, terrorism response, hazardous materials (hazmat) incidents, wildland fire suppression, natural disasters, search and rescue, and public-safety policy. Since 1873, the IAFC has provided a forum for its members to exchange ideas, develop best practices, participate in executive training, and discover diverse products and services available to first responders.

America's fire and emergency service is an all-hazards response force that is locally situated, staffed, trained, and equipped to respond to all types of emergencies. There are approximately 1.1 million men and women in the fire and emergency service – consisting of approximately 300,000 career firefighters and 800,000 volunteer firefighters – serving in over 30,000 fire departments around the nation. They are trained to respond to all hazards ranging from earthquakes, hurricanes, tornadoes, and floods to acts of terrorism, hazardous materials incidents, technical rescues, fires, and medical emergencies. We usually are the first at the scene of a disaster and the last to leave.

Orange County is the third-most populous county in California and the sixth-most populous in the United States. The population is larger than 21 states and the county is the second-most densely populated in California, behind San Francisco County. The Orange County Fire Authority (OCFA) is an all-hazard regional fire service organization. Over 1,500 career firefighters and staff serve 23 cities in the county and all unincorporated areas in a 586-square-mile coverage area. The OCFA protects nearly 2 million residents from its 78 fire stations, covers over 188,817 acres of wildland, and 658,659 dwellings. The OCFA responded to nearly 180,000 incidents in 2023.

First, I want to acknowledge the passing of a former member of the Committee. Representative Donald Payne, Jr. Representative Payne was always a longtime friend of the fire service. He often worked with first responders to ensure they had the support they needed. Just three months ago, Representative Payne held a workshop to help local fire departments receive federal grants, such as the Assistance to Firefighters Grant Program. Representative Payne's dedication to public service will be long remembered, and he will be sorely missed.

Situational Awareness

The first step to any sort of emergency response is establishing situational awareness. This is the ability to identify and decipher all aspects of an incident. UAS can be a game-changer when it comes to the situational awareness of an incident scene. Here are some examples on how drones can improve overall situational awareness:

- Drones provide real-time data and visual documentation of affected areas by capturing high-resolution aerial images and videos, which is vital for coordinating incident operations. High-resolution ortho-imagery can be critical in incident decision support. During the Surfside building collapse, the Incident Management Team's Planning Section worked in close coordination with the Florida State University Drone Team and provided real-time situational awareness and increased personnel safety by providing overwatch to first responders. Later, the imagery was used for advanced analysis, such as verifying volumetric analysis on the amount of rubble that needed to be moved offsite.

- Drones can also provide thermal imaging, such as what was utilized in the Tustin Hanger Fire, to determine the extent of the fire's spread on the structure in subsequent operational periods. This structure was so large and hazardous that it required personnel to be hundreds of feet away from the designated collapse zones.

- Drones can utilize LIDAR (light detection and ranging) to assess landslides and mud and debris flows.

- Drones have been utilized to locate and communicate with victims stranded during water rescue operations of swollen rivers and waterways.

- In the California fire service, wildland fire line leadership often ask the question, "What's over the next ridge?". While the question is simple, the answer is not. During a rapidly expanding wildfire in the urban interface which impacts structures, the need for real-time information about what is occurring over the next ridge is of paramount importance. Drones can provide this necessary information.

- By providing this type of information directly to common operation platforms, such as SARCOP, Tablet Command, TAK, or Intterra, this information can be properly analyzed. This allows first responders to make critical, time-sensitive decisions and keep their personnel safe.

- Drones can also take actionable roles, such as a PSD Drone (Plastic Sphere Dispenser), which can assist with firing operations in active fire areas, eliminating the need to utilize wildland firefighters in dangerous and technically challenging areas. This occurred when I managed a Division on the Dixie Fire in California. Without the use of the PSD drone, it is likely the operation would not have been successful, and the fire line not held.

Fire Traffic Areas (FTA)

Public safety's use of drones is drastically different than commercial users. The key to public safety's use of drones is communication and coordination. In 2001, after a serious mid-air collision, Fire Traffic Areas (FTA) were established as an interagency airspace management tool for standard communication protocols. In California, it is the Interagency Standard for Aerial Firefighting. The FTA can be further defined as airspace with a five nautical mile radius from an incident during suppression operations. Since its implementation, it has been adopted by the

United States Forest Service, and it has become policy at the Bureau of Land Management and the U.S. Department of the Interior.

Fire Traffic Areas also could be described as a layered approach to aeronautical management. After an incident and establishment of a FTA, coordination takes place with helicopters, fixed-wing fire suppression aircraft, command and control aircraft, intelligence gathering aircraft, as well as with drones that are being used by public safety. When non-coordinated drones intersect into a FTA, it eliminates any allowable area to fly in. Pilots are either provided with an additional clearance or told to hold until one can be provided to them. For a standard FTA, pilots are instructed to hold at seven nautical miles. Standards such as a FTA can help prohibit non-coordinated drones from interfering with critical life-saving missions.

Remote Identification of Drones

In the realm of fire suppression operations, every second counts. As a fire department leveraging drones for situational awareness and tactical advantage, our operations hinge on seamless coordination and airspace integrity. However, the presence of non-coordinated drones poses a grave threat to our efforts. Uncoordinated drones near structural fires and wildfires jeopardize not only our public safety drone operations but, more importantly, they pose a significant risk to our manned aircraft operations that are vital to firefighting. This is why remote identification capabilities, known as Remote ID, are so important, to discern between coordinated and non-coordinated drones in the skies in which we operate.

The uncoordinated presence of drones around wildfires significantly impairs our ability to swiftly mitigate fires, potentially tipping the scales between containment and catastrophe. Picture this: a drone operator, unaware of the ongoing firefighting efforts, sends their personal drone into the airspace, ignorant of the disruption it causes. The airspace above a wildfire becomes a complex environment, with firefighting aircraft maneuvering with precision and purpose. Yet, amidst this orchestrated chaos, the sudden appearance of a non-coordinated drone immediately impacts our operations, and often brings such operations to a complete halt. In California, the saying is, “If you fly, we can’t.”

The importance of Remote ID capabilities cannot be overstated. Not only does Remote ID empower us to swiftly identify and address unauthorized and non-coordinated drones, but it also bolsters the safety of our firefighting personnel and the public. Without this critical capability, the airspace would remain increasingly vulnerable to intrusion, threatening to disrupt our firefighting efforts at a moment's notice.

Beyond Visual Line of Sight Operations

The exigencies of firefighting often demand operations beyond what the Federal Aviation Administration’s (FAA) conventional visual line of sight rules permit. When battling unpredictable fires, navigating through smoke-columns and around steep terrain is routine. Yet, existing regulations on beyond visual line of sight operations remain cumbersome and ambiguous. Therein lies the conundrum: while drones could provide invaluable support in penetrating hazardous environments, procedural hurdles impede their deployment.

Failure to address this issue undermines our ability to leverage drones effectively, potentially hindering our capacity to save lives and protect property. Imagine a scenario where there is an explosive wildfire, engulfing homes and threatening lives. A drone equipped with thermal imaging could swiftly assess the extent of the fire spread, guiding firefighters to the area's most in need of attention. However, current regulations limit this potential, necessitating a reevaluation to align with the exigencies of firefighting.

In the heat of battle, time is of the essence. We cannot afford to be slowed down by procedural delays when lives are on the line. The urgency of revising visual line of sight regulations and expediting approval processes cannot be overstated. Only by embracing flexibility and innovation can we fully harness the transformative potential of drones in our firefighting efforts.

Zero Grid Airspace Drone Operations

In the high-stakes domain of firefighting, the need for rapid coordination and approvals in zero-grid airspace cannot be overstated. The FAA's UAS Facility Maps delineate areas where drone operations are restricted, aiming to safeguard critical airspace. However, in the dynamic context of fire response, agility is paramount. Fire departments require the flexibility to deploy drones swiftly within these zones for timely investigation and response.

Streamlined processes and real-time coordination mechanisms are indispensable in ensuring that drone operations remain a force multiplier in our firefighting arsenal, rather than an operational hindrance. Picture a scenario where every minute lost in obtaining clearance to deploy a drone translates to acres of land consumed by the fire or another room within a building being completely immersed in flames. The consequences of procedural delays in such situations are not merely logistical but have far-reaching implications for public safety and property preservation.

The intersection of regulatory frameworks and operational exigencies underscores the need for a proactive approach to zero-grid airspace operations. By fostering collaboration between firefighting agencies, regulatory authorities, and technology providers, we can develop agile solutions that balance safety imperatives with operational realities. Only through concerted effort and forward-thinking strategies can we unlock the full potential of drones in our firefighting efforts.

Artificial Intelligence (AI)

The inclusion of AI within UAS made significant improvements to their operational capabilities. The ability to detect hazards such as trees, powerlines, buildings, and other aircraft is otherwise known as avoidance technology. This can be critical in ensuring that aircraft work together in a coordinated and safe manner. Not every community in our nation has experience with establishing Fire Traffic Areas. AI can be a useful tool to assist in their place. Teaming of drone systems and manned aircraft is vital, as drone technology with the inclusion of Automatic Dependent Surveillance-Broadcast technologies, and other avoidance technologies, should ease the concerns of all pilots.

Autonomous, simultaneous coordinated drone operations conducted by a single operator controlling multiple drones (coordinated and waiver authorized) can maintain persistent situational awareness over emergency incidents for multiple operational periods. This provides incident commanders with the best information possible and directly correlates to lives and property saved. Similarly, the use of approved advanced drone technology with AI and advanced sensor arrays allows for even further flights, which are out of visual line of sight. Thereby extending the range an incident commander or division supervisor may peer into their areas of responsibility. This equates to better preparedness for impending fire behavior or fire advancement.

Examples of Usage of Drones by Public Safety

The use of drones by emergency responders is continuing to do wonders, especially when it comes to the proper deployment of resources. As described earlier, drones can be used to accomplish tasks that would otherwise put first responders at high risk. In rural communities, drones are revolutionizing the way response is being delivered. Instead of dispatching units out to every day fire calls, drones can now physically deliver automatic external defibrillators or the lifesaving drug NARCAN®. In communities where response time is typically greater than 10 minutes, drones can significantly improve the success of response. Now, drones can be dispatched to provide care in an efficient manner. This is noticeable when it comes to volunteer fire departments. For most volunteer fire departments, typically the firefighters must travel to the fire station, instead of living there while on duty. If volunteers can use drones during response, the likelihood of success will rise.

For example, Tangier Island, Virginia, is roughly 17 miles from land. It currently has about 500 residents. If a resident requires any blood tests, it can take a week or longer to transport specimens. With the use of drones, residents must no longer rely upon commercial mail carriers to transport medical specimens. The applications of drone pickup and delivery for medical professionals are practically endless. Since 2021, the Sacramento Metropolitan Fire District has operated a fleet of drones. Recently, the Sacramento Fire Authority has said that they will always respond to hazardous materials incidents with some sort of drone. Their drones can even drop life jackets to those who need assistance whom first responders cannot reach fast enough.

Finally, the use of tethered drones from public safety has yielded great results. The ease with which these can be deployed is remarkable. However, there are prohibitions to their use that are currently written into law. Provisions in the 2024 FAA Reauthorization Act will immensely strengthen this work for public safety. In 2018, Congress passed the FAA Reauthorization Act (P.L. 115-254) which defined “public actively tethered” unmanned aerial systems as UAS weighing 4.4 lbs. or less and physically tethered to a ground station. The Act directed the FAA to permit the use of public actively tethered UAS under certain conditions without obtaining further certificates or authority from the agency. The FAA determined that the word “public” in this section only applies to aircraft used by federal, state, or local governments, or a political subdivision of one of those groups. Unfortunately, the current FAA interpretation excludes numerous public safety groups who rely on actively tethered UAS to carry out life-saving operations—like volunteer fire departments. Approximately 65% of the country’s fire

departments are volunteer-based and thus fall outside the definition of "public" under the FAA's current interpretation.

Section 604 of the FAA Reauthorization Act of 2024 would expand the aperture so that tethered drones may be operated by any public safety organization. It also would require tethered UAS to have increased safety systems to prevent injury in the case of malfunction. Additionally, this bill would allow actively tethered UAS to be flown in zero-grid spaces, expanding public safety groups and first responders' flexibility to utilize UAS technologies when responding to emergencies. I urge the U.S. House of Representatives to support the final passage of H.R. 3935, Securing Growth and Robust Leadership in American Aviation Act (the FAA Reauthorization Act of 2024).

Conclusion

I thank you for the opportunity to address the use of drones and other UAS during emergency response. This emerging technology is already a lifesaving tool for first responders. Congress can also play a role in streamlining public safety's use of UAS. Passing the FAA Reauthorization Act of 2024 (H.R. 3935) can help empower first responders to better use and better understand this innovative technology. If first responders can keep pace with UAS innovations, the result will mean more lives are saved. The IAFC looks forward to working with the committee to ensure that first responders can utilize UAS to provide better service to their communities.

AERODOME®

WRITTEN STATEMENT FOR THE RECORD

TESTIMONY OF MR. RAHUL SIDHU
CHIEF EXECUTIVE OFFICER OF AERODOME, INC.
LOS ANGELES, CALIFORNIA

BEFORE THE U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON HOMELAND SECURITY
SUBCOMMITTEE ON EMERGENCY MANAGEMENT AND TECHNOLOGY
"UNMANNED AERIAL SYSTEMS: AN EXAMINATION OF THE USE OF DRONES IN EMERGENCY RESPONSE"
THURSDAY, MAY 16TH, 2024

INTRODUCTION AND BACKGROUND:

Good afternoon, Chairman D'Esposito, Ranking Member Carter, and members of the subcommittee on Emergency Management and Technology. On behalf of my organization and partners, I would like to thank you for inviting me to testify in front of you today.

My name is Rahul Sidhu, and I serve as the Chief Executive Officer of Aerodome, a company specializing in next-generation drone-as-first-responder technology. My previous company also operated within public safety, where I concentrated on developing customer service systems for local law enforcement agencies.

Over the past 14 years, I have served as a Paramedic, Crew Chief, and Police Officer in the city of Redondo Beach, where I continue to serve as a reserve officer. I am not merely a business executive looking to profit from working with public safety agencies; I consider myself a police officer first and a business executive second.

THE BIRTH AND SUCCESS OF DFR PROGRAMS:

I am here to speak about the application of unmanned aerial systems, more commonly known as drones, and their role in public safety. I recognize that many of you may already be acquainted with the use of drones in emergency response over the past decade. Previous applications have included perimeter security, safely searching the interior of residences for tactical teams, reconstructing accident scenes, and search and rescue. Many police and fire agencies have

adopted similar programs, and they have found tremendous value in doing so.

I am not here to discuss previously understood and established drone use cases. I am here to talk about the future. This future is anchored in the concept of "drone-as-first-responder." To explain this further, let me share how this future came to be.

In May 2018, my colleague Fritz Reber, who now serves as a Vice President at Aerodome and was previously a Captain with the Chula Vista Police Department, launched an experiment. He deployed drones directly from the police department's rooftop to respond in real-time to the scenes of 911 calls. Since these drones responded to calls directly, he referred to this initiative as "drone-as-first-responder," also known as DFR. I was particularly intrigued when I learned about this program, as I had heard that it virtually reduced their response time to emergencies by more than 50%.

Recognizing the importance of true DFR, I followed in Captain Reber's footsteps and spearheaded the development of the nation's second-ever DFR program. In March of 2020, I served as a reserve police officer with the Redondo Beach Police Department, where I continue to serve. Like many police and fire agencies at the time, we were short-staffed due to COVID. It's worth noting that many agencies are still short-staffed today. The Police Executive Research Forum yearly survey revealed that since 2020, sworn numbers across responding agencies are down 4.8%.

We knew DFR could revolutionize our approach to staffing challenges. By implementing this cutting-edge program, we achieved several significant improvements:

- **Centralized Drone Launching:** By launching drones directly from a central location to calls-for-service throughout the city, we reduced our average visual response time by nearly 70%.
- **Efficient Triage of Responses:** We triaged police and fire response more efficiently, reducing approximately 25% in the number of low-priority calls that patrol officers had to respond to.
- **Improved High-Priority Response Time:** This ripple effect accelerated patrol officers' physical response time to high-priority calls.
- **Increased Apprehension of Suspects:** This program also led to a significant increase in the apprehension of suspects fleeing the scene of crimes, resulting in safer outcomes for our community.
- **Longevity and Impact:** This program has remained operational at the Redondo Beach Police Department for nearly four years, with over 5,000 DFR flights to date.

UNDERSTANDING AND DEFINING DFR:

It's crucial to understand what constitutes DFR and what does not. DFR is defined as utilizing a system of pre-positioned drone launch points, flying drones directly from these launch points to the scene of an emergency. These drones are remotely piloted through a computer, typically beyond a visual line of sight, from a central location. To clarify, simply launching drones at the scene of an emergency is not drone-as-first-responder. Patrol-based drone programs have been around for nearly a decade, and while they can be helpful, they are not DFR programs. DFR programs are designed to have the drone arrive on the scene first before any first responders on the ground arrive. If the system isn't specifically designed to send a drone to an incident within seconds of learning of an emergency, it is not a drone-as-first-responder program.

I want to emphasize why DFR exists: its undeniable impact on saving American lives. Today, dozens of agencies have received the necessary waivers from the FAA to fly Beyond Visual Line of Sight to support their DFR programs, with more than double that amount currently working to do the same. These agencies have seen tremendous success with their DFR programs, sharing countless stories of lives saved, including those of children. Their DFR programs have been critical in modern crime-fighting strategies, significantly reducing retail theft, violent crime, and property crime. Just last month, our system was used to find and rescue an unconscious victim of a violent assault and rape who likely would have bled out if the drone had not located them on time.

The agencies are leveraging DFR programs not only to locate individuals needing rescue, apprehend dangerous criminals, and protect first responders but also to de-escalate potentially fatal encounters. For instance, many agencies have reported sending drones to incidents where people reported a man with a firearm threatening the public. In these situations, drones flew overhead and verified that the firearm was not real. This information was relayed to officers, allowing them to safely approach these individuals without resorting to deadly force.

THE IMPACT AND FUTURE OF DFR, NEXT-GENERATION DFR 2.0:

Most of the public safety agencies I’m referring to are implementing the first iteration of DFR, which we call DFR 1.0. DFR 1.0 is limited, as it requires two staffed personnel per drone launch site and can only be operated during hours in which these launch sites are fully staffed. I want to introduce you to DFR 2.0, also known as next-generation DFR.

Aerodome is currently the sole provider of DFR 2.0 technology, which refers to a fully remote, automated, multi-station, and multi-drone operation. This involves several advanced features:

- **City-Wide Drone Coverage:** Positioning drone stations across various locations within a city while managing the launch and flight of the drones remotely from a central hub.
- **Fully Remote Operations:** Drones can safely operate day or night without a visual observer, utilizing a suite of ground sensors such as 3D radar, radio frequency, remote ID, and ADS-B.
- **Automated Docking Station:** Once their mission is complete, the drones return to their docking station, where robotic arms swap out their batteries, preparing them for the next mission.
- **24/7 Operations:** Enables the launch of drones 24/7, in various weather conditions, from mobile devices, without needing to rely on full staffing.

DFR 2.0 significantly reduces personnel requirements, allowing agencies to operate fully functional DFR programs with a fraction of the staff needed for DFR 1.0. Moreover, it provides scalable, sustainable, and affordable next-generation air support coverage, enabling every city in America to benefit from this advanced technology.

Although our agencies are still working with the FAA to obtain the necessary waivers to operate without visual observers, our DFR 2.0 technology is already deployed in cities like Redondo Beach, where the average drone response time to an emergency is now 85 seconds.

ETHICAL RESPONSIBILITY AND TRANSPARENCY:

We recognize that as leaders in the space, it is our responsibility to build this technology ethically and with the best interest of community members at the forefront of our minds. As with all advancements in public safety technology, police accountability and transparency should not only be considered but should advance alongside the technology itself. For instance, today's conventional helicopter-based air support video recordings are uploaded usually only when deemed evidentiary, with no straightforward process for the public to submit Freedom of Information Act requests to view them.

DFR 2.0 systems record and upload entire flights, much like bodycams. All flight logs are then uploaded to a community dashboard, where the details of each flight are readily accessible to the public, with any personally identifying information redacted.

Furthermore, several key differences emerge when comparing traditional helicopter-based air support programs to highly advanced DFR 2.0 programs. Few agencies can afford helicopters due to their high costs and unpredictable ongoing expenses. Helicopters can be unsafe, and using them has resulted in numerous public safety aviation-related deaths in the past decade. Additionally, they significantly pollute the environment, rivaling private jet usage and generating noise complaints nationwide. DFR 2.0 can supplement these traditional helicopter programs,

making air support more affordable, effective, efficient, safe, and environmentally friendly for every city and county in America.

DFR 2.0 AND ALTERNATIVE RESPONSE:

As DFR 2.0 systems continue to be implemented in public safety agencies nationwide, it is essential to understand how they can adapt to unique public safety challenges. With some hardware and software modifications, DFR 2.0 systems can be stationed in remote wilderness areas, rapidly detecting wildfires as they emerge. This capability can significantly decrease firefighter response times, reducing the likelihood of wildfires spreading and causing property damage or loss of life. Larger drones, capable of carrying water and fire retardants, can be operated remotely to deploy firefighting payloads onto these fires before they spread, potentially extinguishing them early enough to eliminate the need for firefighter response. This can be managed through a DFR 2.0 air traffic awareness system that prevents drones from interfering with manned aircraft operating in the same airspace.

Lastly, it's essential to understand how DFR 2.0 systems can play a role in improving our response to things like natural disasters, school shootings, and terrorist attacks by domestic and foreign adversaries.

How much more quickly could the drone have located the terrorists who killed 14 people in San Bernardino on December 2, 2015?

How many more people could we have located and rescued during our response to Hurricane Katrina?

How many children could we have saved during school shootings by locating the shooter sooner for responding officers?

How many lives could we have saved if we more quickly detected and potentially extinguished the California wildfires in 2018?

Incorporating DFR 2.0 systems into our public safety infrastructure will revolutionize how we respond to emergencies, providing faster, more efficient, and safer solutions to crises that threaten our communities. The potential to save lives, reduce injuries, and mitigate damage is immense, making the adoption and integration of these advanced technologies a crucial step toward a safer future for America.

CONCLUSION:

In conclusion, I implore this esteemed committee to acknowledge the indispensable role of DFR 2.0 in modern emergency response strategies. We must rally support for the widespread adoption of DFR 2.0 nationwide. By allocating resources to invest in advanced American drone technology and fostering collaboration among public safety agencies, federal regulatory bodies, and forward-thinking companies, we can collectively pave the way for a safer and more resilient future for all Americans.

Thank you for your attention and consideration. I eagerly anticipate our ensuing discussion and want to assure you that we remain steadfast in our mission to build this future for our first responders so they can continue to save lives.

TESTIMONY OF

Michael Robbins
President & Chief Executive Officer
Association for Uncrewed Vehicle Systems International (AUVSI)

BEFORE

U.S. House of Representatives
Committee on Homeland Security
Subcommittee on Emergency Management and Technology
Subcommittee on Counterterrorism, Law Enforcement, and Intelligence

ON

May 16, 2024
Washington, DC

Introduction

Thank you Chairmen D'Esposito and Pfluger, Ranking Members Carter and Magaziner, and distinguished members of the Committee. My name is Michael Robbins, and I am the President & CEO of the Association for Uncrewed Vehicle Systems International (AUVSI), the world's largest industry association representing the uncrewed systems, robotics, and autonomy industry. Our members create systems that operate in the air, on the ground, and in the water across the civil, commercial, and defense domains. The use of our industry's technology in public safety is unquestionably a very positive use case.

Drones are saving lives in emergency response operations. They are being relied on to reduce the risk posed to first responders, every day, in communities across the nation.

As one first responder noted to me last week, "drones help public safety make better decisions on actionable intelligence." They are often used as tools to de-escalate situations, reduce response times, provide overwatch, and identify missing persons – those that are lost, and those that do not wish to be found. Drones can augment police forces that are shorthanded. They can enter buildings and disaster zones where it would be unsafe to send in a human. Drones can monitor fires and wildfires, enabling more effective decision-making and resource allocation. Drones can deliver life-saving medical supplies to those in need of urgent care.

In emergency response situations, drones have quickly become a critical, effective, lifesaving tool.

And to be clear, while I believe most of this hearing today is focused on aerial drones, everything I just detailed applies to ground and maritime drones too. AUVSI member companies in all operational domains are working with public safety agencies to understand their needs and to develop products that serve the public safety community effectively.

While drones in public safety is absolutely a good news story, there are points of friction.

The Federal Aviation Administration (FAA) deserves tremendous credit for the progress made in recent years towards enabling more Tactical Beyond Visual Line of Sight (BVLOS) waivers and allowances of Drones as First Responder (DFR) programs. That said, the FAA must move forward on the Part 108 BVLOS rulemaking to allow for operations to safely scale and grow. AUVSI sincerely appreciates the leadership the United States Congress has demonstrated with the recent passage of the FAA Reauthorization Bill, which requires the FAA to release a draft BVLOS rule in the next four (4) months and a final rule within sixteen (16) months after the release of the draft. That mandate is certainly welcome, but with that timeline a rule is still twenty (20) months away. Accordingly, while that rulemaking is underway, the FAA should move faster towards a template exemption for BVLOS operations for public safety and DFR. This would enhance the number of operations nationwide, which would increase public safety. Furthermore, the increase in operations would increase the demand for drone systems and components, thereby lowering prices and making the industry more robust and leading to even greater adoptions.

Funding also remains a point of friction. Across the nation, the demands on public safety are increasing while budgets are decreasing. Accordingly, Congress should enact the Drones for First Responders Act, which was just recently introduced, which would establish a new revenue neutral grant program for first responders to purchase secure drones manufactured in the U.S. or manufactured in allied nations. Funds for this grant program will be raised through existing and enhanced tariffs on drones imported from the People's Republic of China (PRC). Further, Congress should also move forward on broader efforts to support the U.S. drone industry with manufacturing tax incentives, loan guarantees, and other programs to level the playing field for U.S. drone companies against subsidized competition, largely from the PRC.

In short, we need a robust, bipartisan drone competitiveness package – akin to the CHIPS Act or the Solar Energy Manufacturing Act – targeted towards the drone and robotics industry to ensure America doesn't lose complete control over this critical technology to the PRC and to level the playing field. Further, a drone competitiveness package would leverage federal dollars to drive significantly greater private capital investment domestically, and with our allies.

AUVSI believes that we must move away from being reliant on Chinese companies and intellectual property for our drones, as the U.S. is doing with other critical technologies. A reasonable, common-sense transition is required to ensure that these critical lifesaving tools are available to public safety, while at the same time we move rapidly to diversify manufacturing and technology supply lines outside of China.

AUVSI is advocating for a multi-pronged effort to support policies that would encourage investment, innovation, and ultimately scaled production of drone supply chains within the United States and its allied partners to lead us to a more balanced level of self-sustainment. This is important because multiple U.S. government agencies – including the Departments of Defense[1], Treasury[2], Commerce[3], Homeland Security[4], and the FBI[5] – have made it quite clear that the continued reliance on PRC drones is a risk to national security. Nevertheless, despite a shift away from PRC-drones by some public safety departments, approximately 90% of public safety agencies nationwide with drone programs are still using at least some Chinese drones as part of their fleets, despite the U.S. government's warnings about the security threats these drones pose.[6]

AUVSI is firmly in the middle between those that want to preserve the status quo – which isn't working very well – and those that want to bring about an immediate ban on PRC drones – which would be extremely problematic, as we saw in Florida, which was an action we resolutely opposed.

Our objective is simple: To support a strong and competitive industrial base and to build global leadership in this critical industry that is relied on by so many agencies and enterprise organizations, including public safety.

[1] https://www.defense.gov/News/Releases/Release/Article/2706082/department-statement-on-dji-systems/
[2] https://home.treasury.gov/news/press-releases/jy0538
[3] https://www.federalregister.gov/documents/2020/12/22/2020-28031/addition-of-entities-to-the-entity-list-revision-of-entry-on-the-entity-list-and-removal-of-entities
[4] https://www.cisa.gov/resources-tools/resources/cybersecurity-guidance-chinese-manufactured-uas
[5] Ibid
[6] Airborne International Response Team, 2024 Public Safety UAS Survey, Initial Analysis for Public Release, 11 May 2024

Grant programs for public safety, like the DFR Act would create, will ensure public safety has the tools they need to do their jobs, and demand is generated for platforms produced outside the PRC, which will kickstart the flywheel for innovators and manufacturers. This is vital to reduce risk, and to build the industrial base that is sorely lacking – for all users, including public safety.

Drones for Emergency Response

In preparation for this hearing, I spoke with many AUVSI member companies that work on behalf of public safety agencies, as well as directly with multiple public safety agencies across the nation, about how drones are being used for emergency operations.

The top takeaway is that public safety agencies are using drones in innovative ways to enhance their operations, response times, and overall efficiency and safety. Drones have become indispensable tools that offer a variety of enhanced capabilities.

It is truly remarkable how public safety leaders have put drones to work to protect citizens and save lives nationwide. In Southern California, the Chula Vista Police Department led the way on the Drones as a First Responder program with the FAA. In Texas, the Department of Public Safety has state-wide authorization to use drones to cover everything from the U.S.-Mexico border to protecting the state Capitol in Austin. In New York City and Virginia, city and state police forces are using drones to monitor campus protests.

Here is a snapshot of what AUVSI has heard about how drones (which in this context can apply in most cases to uncrewed aerial systems (UAS) and ground robotics) are being used in public safety missions nationwide:

Law Enforcement Support: Police departments across the U.S. utilize drones for surveillance, crowd monitoring, and tactical operations, including Special Weapons and Tactics (SWAT). Drones provide aerial views during crime scene investigations, monitor active incidents, and assist in tracking suspects, enhancing the capabilities of law enforcement agencies. Police departments increasingly use Drones as First Responders (DFR), providing aerial views for situational awareness (overwatch), suspect tracking, two-way communication, and more. When a drone is onsite first, providing real-time high-resolution imagery back to officers responding to an incident, the knowledge the officer has before arriving on scene can be meaningfully enhanced, which will very likely inform how they respond. This is saving lives – blue lives as well as those of the public.

> The Chula Vista Police Department (CVPD), under the capable leadership of Chief Roxanne Kennedy and Captain Miriam Foxx, has led the way with demonstrating the incredible utility of DFR programs. CVPD has flown nearly 20,000 DFR missions with zero critical airspace incidents, which has allowed them to avoid dispatching patrol units over 4,200 times and achieve an average response time of approximately 90 seconds.[7]
>
> Today, other departments around the country are also successfully using DFR programs. Pearland, Texas has a fully BVLOS DFR program using ground-based airspace monitoring. New York City and Oklahoma City are using patrol-led DFR programs,

[7] https://www.chulavistaca.gov/departments/police-department/programs/uas-drone-program

where a responding officer on the ground deploys a drone that is piloted by command staff at headquarters.

Firefighting and Wildfire Monitoring: Both urban and rural fire departments across the country are using drones for wildfire monitoring and prevention, and even spraying dry powder to extinguish flames. Drones equipped with thermal imaging cameras have become invaluable tools for firefighters in detecting hotspots, monitoring fire spread, and assessing structural damage during firefighting operations. Drones provide critical data to firefighters, enabling more effective decision-making and resource allocation, ultimately enhancing safety and saving lives.

Search and Rescue Operations: Drones equipped with high-resolution cameras and thermal imaging can quickly cover large areas and provide real-time visuals to aid in locating missing persons or individuals in distress, especially in rugged or remote terrain. There are numerous well documented instances where lives of people missing in the wilderness have been saved due to the effective deployment of a drone. Urban search and surveillance missions benefit from drones' ability to navigate congested or inaccessible areas, providing aerial views for reconnaissance, monitoring suspicious activities, or assisting in anti-terrorism efforts.

Disaster Response and Assessment: Drones are deployed to assess damage, monitor hazards, survey affected areas, and deliver aid following disasters such as tornadoes, hurricanes, earthquakes, wildfires, and infrastructure collapses. They provide valuable situational awareness to emergency responders and help them coordinate relief efforts.

Traffic Management and Accident Reconstruction: Drones equipped with high-resolution cameras are employed to monitor traffic flow, identify congestion points, and assist in accident reconstruction. Drones help improve roadway safety and optimize traffic management strategies.

Threat, Hazmat, and Environmental Monitoring: Drones are being used to assess active shooter situations, suspicious packages, bomb threats, hostage situations, and other extortionary threats. Drones equipped with specialized sensors can detect hazardous materials, monitor air quality, and assess environmental risks in industrial settings or areas prone to pollution. Drones help safeguard public health and facilitate timely responses to environmental emergencies.

Public Event Management: Drones are deployed to monitor large public gatherings, such as protests, parades, concerts, or sporting events, to ensure public safety, manage crowds, and respond swiftly to any emergencies or security threats.

Delivery and Rescue Operations: Drones can deliver life-saving medical supplies, including snakebite antivenom, EPIPENs, prescription medications, and defibrillators to those in need of urgent care but out of reach from traditional modes of delivery. Drones equipped with flotation devices or life-saving equipment have been deployed in water rescue missions to deliver aid, conduct swift water searches, or provide assistance to lifeguards and marine rescue teams.

As part of an initiative funded by DoT's Strengthening Mobility and Revolutionizing Transportation (SMART) Grants Program, Riverside Health System, Virginia Institute for Spaceflight & Autonomy (VISA) at Old Dominion University, Accomack-Northampton

Planning District Commission (A-NPDC), an AUVSI member company has put together a drone delivery program for medicine and medical supply delivery to the area, including Tangier Island, which is seventeen miles off coast and only accessible by sea or air. Over the last year, the company has delivered hypertension medication to patients in a two-to-three-mile radius of Riverside Health System facilities. The SMART Grant Phase 1 is meant to be a demonstration exercise, and as the team progresses towards a Phase 2 application, it will enable consistent operations with the intent to improve patient outcomes and prescription adherence.

Another AUVSI member company recently announced that they have made more than one million deliveries, many of which have been health care supplies, including blood, vaccines, and prescriptions.

The continued integration and advancement of drone operations hold great promise for further improving public safety and emergency preparedness efforts, and AUVSI's members are motivated to be part of this mission set working with public safety officials to deliver the tools they need with the capabilities, cost, service, and support they require.

FAA Airspace Access

The FAA has made significant progress in recent years towards enabling more Tactical Beyond Visual Line of Sight (BVLOS) waivers and allowances of Drones as First Responder (DFR) programs. [8] The true full potential of drones in public safety, however, awaits the Part 108 BVLOS rule. AUVSI appreciates the support of the U.S. Congress of the BVLOS rule, putting timelines on the FAA for moving forward with that rulemaking progress in the FAA Reauthorization Act of 2024.

AUVSI encourages the FAA to work on an accelerated timeline to complete the rule, which will safely unlock scalability for public safety missions. Our industry stands ready to work with the FAA to ensure a timely rule that enhances safety; we need not take the full twenty months to get this right.

While the BVLOS rulemaking is underway, the FAA should move faster towards a template exemption for BVLOS operations for public safety and DFR. This would enhance the number of operations nationwide, which would thereby increase public safety. The public safety drone use cases, especially DFR use cases, are often consistent across the country, and public safety operators are already a trusted public entity who are accustomed to producer-based operations and concepts like safety management.

By using the exemption process for public safety, the FAA would then gain operational data to inform additional BVLOS rulemaking, such as characterization of low altitude airspace in urban environments, the effectiveness of ADS-B as a primary mitigation for airborne collisions, common practices for remote pilot in command (RPIC) and operational training, mean time to failure for specific components of the system, and more.

[8] https://www.faa.gov/sites/faa.gov/files/uas/public_safety_gov/public_safety_toolkit/TBVLOS_Waiver_Final.pdf

Drone Capabilities and Cost

A common misconception is that the only viable drone options for public safety departments to employ are from the People's Republic of China (PRC). This is not true, but is a convenient myth propagated by PRC drone companies and their spokespeople. Dozens of the companies that AUVSI represents across operational domains offer leading technology designed for public safety use cases. Further, U.S. technology innovation is dynamics and rapidly evolving. The platforms offered today will most certainly be different from those offered in the years ahead.

Many public safety experts I spoke with stated that, even if they are using PRC drones today, they would like to move away from using them in the future. Many have already transitioned away from PRC drones, are in the process of doing so, or have a strong desire to do so as soon as practicable.

In the past, there have been at least two major hurdles for public safety agencies acquiring non-PRC drones, causing them instead to default to Chinese drones: capabilities and cost.

For many years, the capability gap between drones designed and manufactured in the PRC and drones designed and manufactured anywhere else in the world, including the United States, was real and it was, to varying degrees, quite wide. That is no longer the case. Due to the investments in innovation and advanced manufacturing, in recent years U.S. and other non-PRC drone companies have largely closed the capability gap in most use cases. With continued investment, this gap will disappear entirely.

AUVSI is confident in U.S. and allied innovation. There are now a wide variety of drones available on the market that provide the same level of capability, or in some cases even greater capability, than PRC drones.

Many of the departments that I spoke to that use U.S. or allied nation drones are pleased with their investments. Those with mixed fleets often noted that support from PRC drone companies was often lacking, whereas service and support was often outstanding from U.S. and allied nation drone companies.

This is not to say, "mission accomplished." Much work remains, as the non-PRC drone industry is still fractional in size compared to the state-supported PRC drone industry. Many U.S. drone companies have successfully narrowed or closed the capability gap with Chinese drone companies, but there remains a significant cost gap. This gap is undoubtedly an area of ongoing friction within the public safety community with limited budgets.

PRC subsidies have allowed their drone companies to scale production and flood the U.S. market (a practice known as "dumping"). This monopolistic position created barriers to the development of U.S. and other non-PRC supply chains for the drone industry by effectively excluding them from the largest markets. The results have been devastating to the domestic manufacturing industry, resulting in difficulty attracting the capital investments to scale operations, and thereby drive down costs over time.

The cost gap is one of the reasons why AUVSI is a strong supporter of programs to support the U.S. drone industry to level the playing field, as well as grant programs to help public safety transition away from PRC drones. As the next sections will detail, given very real supply chain risks and national security concerns highlighted by the U.S. government, the transition away from unsecure PRC-drones to non-PRC manufactured secure drones must occur in a common-sense and reasonable timeframe, and that transition should begin immediately.

Leveling the Playing Field for U.S. Drone Manufacturing & Ensuring a Robust, Secure Supply Chain of Drones for Public Safety Users

U.S. drone manufacturers and their component supply chain have struggled to compete against foreign subsidized competition, which hinders the availability of American-made UAS on the market and impedes workforce growth and investment. Accordingly, the U.S. government must foster a more competitive and fair playing field for U.S.-based drone manufacturers. AUVSI is advocating for specific proposals that would generate demand for U.S.-made drones and supply-side measures that level the playing field for U.S. drone and component manufacturers against subsidized competition and dumping practices.

The U.S. government should also coordinate activities with allied and partner nations to create a stronger, more secure supply chain. AUVSI believes it is essential to advance security and competitiveness in a thoughtful way that respects existing investments while building toward a more secure, sustainable future that puts U.S. interests first, including security, the economy, and overarching values. In practice, this means any effort to support the growth of U.S. drone manufacturers and the drone supply chain should account for the large investments, both of time and capital, made by U.S. companies.

Congress has enacted several laws, including the American Security Drone Act, that will strengthen our national security by limiting the purchase and use of certain drones manufactured in the People's Republic of China. Future legislation should focus on creating incentives for U.S. companies directly, and indirectly through demand generation, by providing grants, tax incentives, and loan guarantees.

Congress should enact a new program designed to help public safety agencies acquire more drones to enhance public safety and provide first responders with critical tools. Programs should also be designed to transition public safety agencies away from using Chinese drones to secure, non-PRC options.

AUVSI has been working closely with Members of Congress on these types of efforts, including the Drones for First Responders (DFR) Act, which was recently introduced. The legislation would establish a new revenue neutral grant program for first responders, critical infrastructure providers, and farmers to purchase secure drones manufactured by the U.S. or our allies. Funds for this grant program will be raised through a new tariff on PRC drones. AUVSI urges Congress to support public safety users of drones in their transition away from PRC technology by passing the DFR Act into law in 2024.

Congress should also enhance existing federal grant programs for first responders, ensuring that programs to support first responders are adequately funded to enable state and local agencies to transition to secure drone solutions. This should include the Department of Homeland Security's (DHS) Urban Areas Security Initiative (UASI) Program, the Federal Emergency Management Agency's (FEMA's) Homeland Security Grant Program, and grants administered by the U.S. Department of Justice. Critically, these and other federal grant programs for first responders must allow grant recipients to purchase drones. At present, the Justice Department's Bureau of Justice Assistance flatly prohibits the use of grant funds to purchase UAS, as does FEMA's Assistance to Firefighters Grants (AFG) Program. Enabling these programs to support the purchase of U.S.-made drones would significantly benefit first responders.

Bolstering new drone manufacturing capabilities and the associated workforce will require infrastructure and capital expenditures. Providing tax incentives, loan guarantees, and other mechanisms to spur that spending would accelerate growth and development that would have otherwise been delayed or denied. Manufacturer tax credits for the production and sale of certain UAS equipment and components produced and sold in the U.S. would benefit the industry and its competitiveness and would decrease reliance on subsidized, foreign drones.

This has worked in other industries. According to the *Financial Times*, U.S. manufacturing commitments doubled — to more than $200 billion, creating 82,000 jobs — based on the success of tax incentive programs for other industries, including solar panels, semiconductors, electric vehicles, and other clean technologies.[9]

> In the solar industry alone, since the passage of the Solar Energy Manufacturing Act (SEMA), more than $100 billion in private sector investment has been made into fifty-one new manufacturing facilities in the United States, ultimately representing more than 20,000 additional U.S. jobs to be created and significant capacity added for domestic solar panel production.[10] During a 2023 hearing on the CHIPS and Science Act, it was stated that since the law was enacted, along with $39 billion in government appropriations and 25% investment tax credit to spur domestic production of semiconductors, more than $200 billion in additional private sector funding has flowed into the industry in the U.S.[11] Recently, the U.S. Energy Department made $15.5 billion in new funding available to spur domestic battery manufacturing through cost-shared grants and loans[12] and an additional $20 billion is being invested in crane manufacturing to onshore production of secure cranes for U.S. ports.[13]

The time has come for the U.S. Government to act to similarly spur investment into the U.S. drone and component marketplace to level the playing field as it has done for other critical technologies. Congress should act on the following:

Manufacturing tax credits: To promote domestic drone manufacturing capacity, Congress needs to develop a tax incentive program for drone manufacturing. This program can leverage

[9] https://www.ft.com/content/b1079606-5543-4fc5-acae-2c6c84b3a49f
[10] https://www.seia.org/research-resources/impact-inflation-reduction-act
[11] Senate Committee on Commerce, Science, and Transportation CHIPS and Science Implementation and Oversight, October 4, 2023: https://www.commerce.senate.gov/2023/10/chips-and-science-implementation-and-oversight
[12] https://www.energy.gov/articles/biden-harris-administration-announces-155-billion-support-strong-and-just-transition
[13] https://www.whitehouse.gov/briefing-room/statements-releases/2024/02/21/fact-sheet-biden-harris-administration-announces-initiative-to-bolster-cybersecurity-of-u-s-ports/

the language and model the frameworks of SEMA, CHIPS, the House's Bioeconomy Research and Development Act of 2021 (America Creating Opportunities for Manufacturing, Pre-Eminence in Technology and Economic Strength (COMPETES) Act of 2022), and the Senate's United States Innovation and Competition Act (USICA) on semiconductors and other technologies.

Loan guarantees: Congress should develop a program of loan guarantees to U.S. drone and component manufacturers modeled around language included in the Advanced Technology Vehicles Manufacturing Direct Loan Program.

Ensuring critical mineral access: Access to rare earth driven components is a challenge to U.S. drone and component manufacturers. Congress should enact legislation along the lines of H.R. 8981, the Securing America's Mineral Supply Chains Act, from the 117th Congress.

AUVSI does not support policies that would immediately ban the use of PRC drones in the United States, as this would have a negative impact on public safety given the number of safety agencies with PRC drones in their fleets.

> When the State of Florida instituted an immediate ban, we witnessed the very real challenge this imposed on public safety, removing a critical, life-saving tool from their operations overnight. Ultimately, Florida authorized a $25 million program for public safety agencies acquire fleets of non-PRC, secure drones;[14] a move AUVSI applauds. Going forward, Florida should serve as an example to other entities seeking to transition away from PRC drones; immediate bans should be avoided, transition times should allow for a reasonable period of changeover, and funding should be made available to public safety agencies for the transition to new, secure drone fleets.

To ensure a robust, secure supply chain, we need a robust, bipartisan competitiveness package – like the CHIPS Act – targeted towards the drone and robotics industry to ensure America doesn't lose complete control over this critical technology to the PRC, and which leverages federal dollars to drive private capital investment domestically and with our allies.

The next section of our testimony details the "why" support for the transition away from PRC drones is so critical.

PRC National Security Laws & Direct Threats to U.S. National Security

Public safety agencies, as well as other users of drones, cannot be reliant on the PRC, a strategic competitor and an increasingly hostile foreign adversary, for critical technology such as drones and ground robotics. It is not logical to allow such power over public safety technology in the hands of the Chinese Communist Party (CCP). Should the U.S. enter a conflict with the PRC, a scenario our member companies are actively working to prevent through the success of strategic deterrence, access to PRC technology would end immediately.

Lawfare observes, "A foreign adversary dominating the world market could deny the U.S. effective drone support in warfighting or potentially disable U.S. drones in a conflict."[15] The *Lawfare* article proved prescient, confirming the fear that Chinese companies would in fact use software updates to disable drones to meet CCP policy goals – something that could also happen

[14] https://www.fdle.state.fl.us/FDLE-Grants/Open-Funding-Opportunities/Funding-Opportunities/Drone/FY23-24-DRONE
[15] https://www.lawfareblog.com/us-reliance-chinese-drones-sector-next-chips-act

to every Chinese drone in the United States. Just six months ago, in December 2023, a firmware update from Autel Robitcs, a PRC drone company, disabled all drones in "conflict zones" as defined by the company.[16] This action, however, presumably came via direct influence from the CPP and the People's Liberation Army (PLA), as the drone deactivating extended into international conflicts in Ukraine and Israel, but also, aligning with CCP and PLA policy, into the entire island of Taiwan and the disputed the Arunachal Pradesh region on the border of India and the PRC.[17] This is a disturbing example of CCP and PLA policy extending directly into corporate supply chain interdiction as a weapon of war. U.S. users of drones, including public safety users, are vulnerable to these same software updates, that could come at any time and without warning. The U.S. must have a plan to transition away from PRC drones forthwith, as AUVSI has set forth.

Furthermore, the U.S. government has raised multiple security concerns associated with Chinese drone companies, which are obligated to comply with China's national security laws.[18]
In December of 2023, in recognition of the threat PRC drones pose to the United States, the American Security Drone Act was signed into law as part of the 2024 National Defense Authorization Act, prohibiting the U.S. government from purchasing and operating PRC drones, as well as drones from other "covered entities" including Iran, Russia, and North Korea.[19]

In January 2024, the Cybersecurity and Infrastructure Security Agency (CISA), along with the Federal Bureau of Investigation (FBI), released a warning memo noting that, "The use of Chinese-manufactured UAS in critical infrastructure operations risks exposing sensitive information to PRC authorities, jeopardizing U.S. national security, economic security, and public health and safety."[20] Assistant Director of the FBI's Cyber Division, Bryan Vorndran stated, "the widespread deployment of Chinese-manufactured UAS in our nation's key sectors is a national security concern, and it carries the risk of unauthorized access to systems and data."[21]

In October 2022, the DoD identified Shenzhen-based Da Jiang Innovations, or DJI as it is commonly known, as a "Chinese military company" operating in the U.S. under Section 1260H of the Fiscal Year 2021 NDAA.[22] The Section 1260H list catalogs companies that the DoD believes contribute to the modernization goals of the People's Liberation Army, ensuring its access to advanced technologies as part of China's military-civil fusion strategy. The U.S. Department of Commerce placed DJI on the Entity List,[23] and the U.S. Department of the Treasury placed DJI on the Office of Foreign Assets Control's (OFAC) list of Chinese tech firms that are part of the Chinese military-industrial complex.[24] These lists restrict U.S. investments in DJI based on allegations of support of human rights abuses against the Uyghur people.

It is not good public policy to rely upon the goodwill of a strategic foreign competitor, which is known for using supply chain control as a weapon of war and is beholden to PRC's military and national security laws, for public safety drones.[25] AUVSI challenges Congress to act

[16] https://dronexl.co/2023/12/24/autel-robotics-drone-no-fly-zones-conflict/
[17] Ibid
[18] https://www.wsj.com/articles/china-adopts-sweeping-national-security-law-1435757589 / Article 7 of National Security Law of China states "All organizations and citizens shall support, assist, and cooperate with national intelligence efforts in accordance with law, and shall protect national intelligence work secrets they are aware of."
[19] https://www.congress.gov/bill/118th-congress/house-bill/2670/text?s=2&r=2&q=%7B%22search%22%3A%22national+defense+authorization+act+of+2024%22%7D
[20] https://www.cisa.gov/sites/default/files/2024-01/Cybersecurity%20Guidance%20Chinese-Manufactured%20UAS_final508_16JAN2024.pdf
[21] https://www.cisa.gov/news-events/news/release-cybersecurity-guidance-chinese-manufactured-uas-critical-infrastructure-owners-and-operators
[22] https://www.defense.gov/News/Releases/Release/Article/3180636/dod-releases-list-of-peoples-republic-of-china-prc-military-companies-in-accord/
[23] https://www.bis.doc.gov/index.php/documents/regulations-docs/2326-supplement-no-4-to-part-744-entity-list-4/file
[24] https://sanctionssearch.ofac.treas.gov
[25] https://warontherocks.com/2023/05/the-art-of-supply-chain-interdiction-to-win-without-fighting/

immediately on the policy areas detailed earlier in this testimony to ensure public safety departments continue to have cost-effective, capable, life-saving drone technology, while also safeguarding the U.S. from the very real threat of reliance on PRC drones.

Drone Security

The Defense Innovation Unit's (DIU) Blue UAS program is an effort to curate, maintain, and improve a robust roster of policy-approved commercial drone technology that is compliant with the FY 2020 and FY 2023 National Defense Authorization Acts (NDAA).[26] Blue UAS is intended to meet the needs of Department of Defense (DOD) users and addresses cybersecurity and supply chain requirements. DIU does not assess drones that will not be used to accomplish DOD objectives. Congress has not mandated or provided funding to DIU to take on the responsibility of assessing all commercial sector drones and components that could serve the needs of all government agencies or other users, including public safety.

The limits of the Blue UAS program for non-DOD users left a void in cybersecurity and supply chain validation for much of the industry that was not part of the Blue UAS program. This was a source of significant friction; accordingly, AUVSI moved towards the friction to solve this problem. In close collaboration with DIU, AUVSI provides Green UAS as a solution to fill the gaps between the Blue UAS Cleared List and drones that meet non-DOD needs.[27] AUVSI's goal is to assess and certify additional platforms and components beyond those on the Blue UAS list as secure, widening the offering of secure, vetted drones available for procurement by non-DOD agencies, including public safety. Green UAS was designed to develop a standing application for NDAA-compliant technology and validate them preemptively. Green UAS builds upon DIU's Blue UAS program and brings it into the commercial realm, while still offering any company that obtains Green UAS certification the opportunity to undergo Blue UAS certification if they wish to sell to DOD. Last month, AUVSI and DIU strengthened our partnership with a new data-sharing Memorandum of Understanding.[28]

For public safety agencies seeking drones meeting validated cybersecurity and supply chain requirements, in addition to those cleared on the Blue List, AUVSI offers the Green UAS program. This initiative expands certification beyond the Blue UAS list, providing more options that meet public safety operational needs while continuing to comply with the appropriate cybersecurity and supply chain compliance standards. The Green UAS program mirrors Blue requirements for the certification process and also expands upon it, including a Remote Operations and Connectivity assessment (5G, WiFi, Bluetooth, Remote ID, etc.) that has become increasingly important across use cases, especially for first responders and public safety mission requirements.[29]

AUVSI supports the Drone Evaluation to Eliminate Cyber Threats Act of 2024 (DETECT Act), which directs the National Institute of Standards and Technology (NIST) to develop cybersecurity guidelines for the federal government's use of drones, which could also be extrapolated to public safety and other users.[30] Notably, the legislation specifically notes AUVSI's Green UAS as a best practice for NIST to consider.

[26] https://www.diu.mil/blue-uas
[27] https://www.diu.mil/latest/auvsi-launches-green-uas-cybersecurity-certification-program-for-commercial
[28] https://www.c4isrnet.com/unmanned/2024/04/26/defense-innovation-unit-moves-to-ease-commercial-drone-certifications/
[29] https://www.auvsi.org/green-uas-framework
[30] https://www.congress.gov/bill/118th-congress/senate-bill/3758/text

PRC Flooding the U.S. Market with Subsidized Drones and "No Limits' Government Support

In 2015, the PRC launched "Made in China 2025," a ten-year whole-of-society effort to invest in key industries, primarily in the technology area, to ensure China's world leadership and market dominance.[31] In a distinct role reversal with high-tech capitalist economies in the West, China has removed red tape to development while enabling sophisticated market mechanisms to spur rapid growth. While much of the discussion on PRC government involvement in the industry has centered around direct subsidization, the scope of their support is far greater. No Chinese company or investment firm is free of Chinese Communist Party (CCP) involvement.

The U.S. Department of Commerce (DOC) labels "dumping" as an illegal trade practice.[32] In 2019, U.S. Undersecretary for Defense Ellen Lord highlighted this challenge with respect to drones, noting, "We don't have much of a small UAS industrial base because DJI dumped so many low-price quadcopters on the market, and we then became dependent on them."[33]

The flood of inexpensive drones into the U.S. has resulted in PRC drones accounting for more than 90% of the first responder market, according to 2024 data from the Airborne International Response Team (AIRT).[34] As a former U.S. Deputy Assistant Secretary of Defense put it, "China's domination of drone manufacturing has been deliberately cultivated through aggressive government subsidies, direct investment, and strategic regulations to develop a domestic industry and gain a technological edge."[35]

DJI has been a major beneficiary of the "Made in China 2025" policy and the resulting subsidies.[36] In a February 2022 report, *The Washington Post* found that DJI's investors included at least four Chinese investment firms with close ties to the government of the People's Republic of China (PRC).[37] The company's investors include "China Chengtong Holdings Group, which is directly administered by Beijing's State-owned Assets Supervision and Administration Commission, a ministerial-level organization tasked by China's State Council to manage the country's state-owned enterprises."[38] According to the *Post* report,

> "Other funds that list DJI as an investment include the Shanghai Venture Capital Guidance Fund, which is administered under the Shanghai Municipal Government. Guidance funds in China mix state assets with private funds to advance Beijing's industrial development goals in emerging industries. A Chinese-language S&P global report released in March 2021 says that state-run Guangdong Hengjian Investment Holding invested in DJI alongside SenseTime, which was also added to a U.S. sanctions list in December 2021 by the Biden administration over alleged human rights abuses in Xinjiang.[39] SDIC Unity Capital, a fund administered by the State Development &

[31] https://www.csis.org/analysis/made-china-2025
[32] https://www.trade.gov/us-antidumping-and-countervailing-duties: Unfair foreign pricing and government subsidies distort the free flow of goods and adversely affect American business in the global marketplace. Enforcement and Compliance, within the International Trade Administration of the Department of Commerce, enforces laws and agreements to protect U.S. businesses from unfair competition within the United States, resulting from unfair pricing by foreign companies and unfair subsidies to foreign companies by their governments.
[33] https://foreignpolicy.com/2019/08/27/pentagon-seeks-to-counter-chinas-drone-edge/
[34] Airborne International Response Team, 2024 Public Safety UAS Survey, Initial Analysis for Public Release, 11 May 2024
[35] https://www.thedefensepost.com/2023/10/13/drone-war-chinese-equipment/
[36] https://www.csis.org/analysis/made-china-2025
[37] https://www.washingtonpost.com/national-security/2022/02/01/china-funding-drones-dji-us-regulators/
[38] Ibid
[39] https://www.washingtonpost.com/technology/2021/12/10/us-investment-ban-sensetime/

> Investment Corporation, a state-owned investment holding company approved by China's State Council, also lists DJI as an investment on its website."[40]

The PRC's support for its drone industry, to the detriment of U.S. manufacturing and global competition, was recently reinforced by a Shenzhen visit from high-level government officials who noted "no-limits support" to DJI and the Shenzhen-based drone and component industry.[41] This unequivocal support for the PRC drone industry increasingly extends to another Shenzhen-based drone company, Autel Robotics, which has been growing in market share in recent years.[42] Autel has received similar preferential tax rates and government subsidies as DJI, and as a result is similarly flooding the U.S. market with drones, crowding out U.S. and non-PRC manufacturers who must compete on unequal footing with the government-backed PRC companies.[43] The founder of Autel, Li Hongjing, described the PRC's support for the company as "indispensable oxygen" to the company.[44]

The results of PRC support for the domestic drone industry, and the subsequent PRC drone dumping, have been devastating to the U.S. drone manufacturing industry. Non-PRC companies in the U.S., and across the global, struggle to attract capital to scale operations, and thereby drive down costs. This is an area of friction that Congress can address, and AUVSI challenges Congress to take immediate action on the policy solutions communicated in this testimony to level the playing field for U.S. drone manufacturers, ensuring secure and robust drone supply chains are available to public safety and other enterprise users.

Conclusion

The use of drones in public safety operations is a tremendous boost to the effectiveness, efficiency, and ultimately safety of various missions. Drones are saving lives in public safety across multiple use cases. Points of friction remain – including airspace access, the need for a BVLOS rule for expanded operations, funding for secure drone operations, and transitioning away from unsecure PRC drone technology – but Congress has the playbook, as detailed in this testimony, for action. Thank you again. I am looking forward to answering your questions.

[40] https://www.washingtonpost.com/national-security/2022/02/01/china-funding-drones-dji-us-regulators/
[41] https://www.scmp.com/economy/china-economy/article/3238118/shenzhen-trip-dji-visit-chinas-vice-premier-offers-no-limits-support-amid-us-tech-curbs
[42] https://www.reuters.com/markets/asia/dji-is-more-elusive-us-target-than-huawei-2021-12-17/
[43] https://www.defensenews.com/opinion/2023/09/15/dji-isnt-the-only-chinese-drone-threat-to-us-security-meet-autel/
[44] https://selectcommitteeontheccp.house.gov/sites/evo-subsites/selectcommitteeontheccp.house.gov/files/evo-media-document/11.29.23-letter-to-austin-yellen-and-raimondo-autel-drones-final-.pdf