

Drone Threats to Public Utilities

The Need for Federal Reform and Local Empowerment

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Unmanned aircraft systems (UASs or drones) are, as the name suggests, aircraft with no human pilot, crew, or passengers onboard. Rather, UASs either are controlled remotely or can be autonomous. While originally developed for military purposes, over the last 15 years, UASs have become increasingly more accessible to, and commonly used by, various groups and individuals, including government personnel, commercial businesses, and the public at large. Whether for policing and surveillance, infrastructure inspections, product deliveries, aerial photography, or other purposes, UASs are commonly flown throughout the United States today. It is because of this widespread use, as well as the sophisticated information-gathering capabilities of today's drone technology, that UASs pose a great security risk—particularly to municipal infrastructure assets—when in the wrong hands.

Due to rapid advances in drone technology and use, and the history of drone regulation, a shift in enforcement is necessary to protect the security of critical infrastructure, especially at the municipal level. Congress should empower the FAA to delegate drone enforcement authority to state and local governments, at a minimum with respect to areas surrounding critical infrastructure.

Military forces around the world have utilized drones for over a century. During the Vietnam and Cold Wars, the U.S. military relied on UASs for tasks like reconnaissance and intelligence gathering. As the 20th century drew to a close, the modern technological revolution took off. During this time, rapid advances in drone technology made them more sophisticated and versatile than ever before. By the time the War on Terror began in 2001, drones were versatile, lethal weapons, and their use by the U.S. military has since expanded to include activities like precision weapons targeting and thermal sensing. Today, the U.S. military heavily relies on drones for combat

activities, more so than ever before. It is conceivable to think that one day all U.S. fighter jets will be remotely operated. Warfare looks significantly different with the proliferation of drones and will continue to change as drone technology advances further. Take the current war between Ukraine and Russia as an example, where both countries are heavily relying on drones to carry out attacks and gather intelligence because they are effective and minimize loss of lives.

Not unlike the Jeep Wrangler, which began as a military combat vehicle in World War II and has since evolved into a beloved American sport utility vehicle driven by millions worldwide, drone technology has similarly made its way to the masses. Today, drones are used for every activity imaginable, from filming movies and television shows, to conducting endangered species monitoring, emergency response, search and rescue efforts, infrastructure inspections, mapping, surveying, and even farming. In addition to these practical-use applications, flying drones is now a common hobby. Novice drone aviators worldwide can quickly log onto Amazon and, within one or two days, get their hands on an inexpensive small UAS that was manufactured overseas by companies like DJI.

The time savings and efficiency afforded by expanded drone usage is hard to quantify, particularly for public agencies and utilities that are often understaffed and underfunded. Jobs that once took manned crews weeks or even months to complete can now be completed in a matter of hours using a drone equipped with the right technology and artificial intelligence. Take critical infrastructure surveys and inspections of hard-to-reach operational equipment as an example. Prior to the use of drones, public wastewater utilities would staff multiple crews of personnel that had to travel to, access, and inspect sewers and outfall infrastructure to ensure it was in good working order and compliant with all applicable laws and regulations. Now, a single drone operator can work with a small staff of visual

observers to fly a drone into hard-to-reach stormwater outfalls to quickly and safely inspect the infrastructure and identify any issues within a matter of minutes. Using drones in this manner not only results in time and money savings, but also cuts down on workplace injuries and frees up manpower, which then can be allocated to other critical tasks.

FAA Regulations Struggle to Address UAS Threats to Critical Infrastructure

While drones provide a significant number of benefits, their use does come with some measure of risk. The biggest threats posed by drones today are to critical infrastructure and public safety. The FAA's regulatory framework is struggling to keep pace with advances in drone technology and the proliferation of drone use across America. This delay in regulatory oversight is extremely dangerous and creates significant vulnerabilities for critical infrastructure, like public drinking water providers who deliver a life-sustaining resource to consumers on a constant basis.

According to the U.S. Geological Survey, it is estimated that up to 74% of water used in the United States is derived from surface water sources (e.g., rivers, lakes, streams). U.S. Geological Survey, *Surface-Water Use* (Mar. 2, 2019). Surface water resources that supply drinking water are often collected and stored in uncovered, open-air reservoirs prior to consumer distribution. While drinking water utilities are required to have strict security measures in place to protect their reservoirs, including the purity of water stored therein, they are prime targets for drone-based terrorism. Local governments and utility providers cannot independently control or restrict the airspace above the reservoirs. That falls exclusively within the jurisdiction of the FAA. As such, drones can easily be used to attack and contaminate public surface water supplies in a number of ways, the most concerning of which would be by dropping a biochemical agent into a distribution reservoir.

While the FAA is actively working to expand its list of security-sensitive restricted airspace designations, drinking water reservoirs are not commonly found on that list, and they are only protected if a request is submitted to, and approved by, the FAA. These security-sensitive designations are intended to protect critical national security assets such as military bases, national landmarks (e.g., the Statue of Liberty and Mount Rushmore), and certain types of critical infrastructure (e.g., nuclear powerplants) by prohibiting UAS operations from the ground up to 400 feet above a designated asset. FAA, *Critical Infrastructure and Public Venues* (updated Feb. 22, 2023). It is scary to think that the Statue of Liberty has a security-sensitive restricted airspace designation, but the countless number of open-air reservoirs that store and supply drinking water to cities like Boston, Denver, New York, Portland, and San Francisco may not be equally protected.

Congress vested the authority to regulate, control, and develop plans and policy for the use, management, and efficiency of the airspace of the United States in the Federal Aviation Administration (FAA). Based on the prevalence of UASs, in 2012 Congress mandated the FAA, by statute, to develop a comprehensive plan to accelerate the safe integration of UASs

into national airspace. FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, 126 Stat. 11. Subsequently, in 2016, Congress directed the FAA to develop a means of remote identification of UASs and mitigate threats posed by errant or hostile UASs, to continue development of a UAS traffic management system, and to address other UAS-related matters. FAA Extension, Safety, and Security Act of 2016, Pub. L. No. 114-190, 130 Stat. 615.

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The FAA promulgated 14 C.F.R. Part 107 (Part 107), which governs commercial and governmental operations of small UASs. 49 U.S.C. § 44809. A small UAS is defined as “an unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft.” 14 C.F.R. § 107.3. Part 107 outlines what is required for certification, safe operation, and compliance requirements for drone pilots. In order to operate commercially, pilots are required, under Part 107, to obtain a Remote Pilot Certificate from the FAA. The certificate demonstrates that the pilot understands the regulations, operating requirements, and procedures for safe operations of small UASs. Certificate holders are required to complete recurring training every two years to maintain up-to-date aeronautical knowledge and a current certificate. Part 107 ensures commercial drone operations are conducted safely and responsibly within the national airspace.

Part 107 requires drones weighing more than 0.55 pound to be registered, unless they are flying under the exception for limited recreational operations. The FAA also requires that drones be labeled with their FAA registration number before being flown. This is similar to a commercial airplane's tail number, which serves the same purpose. As of September 2023, the FAA also began requiring drones to broadcast their remote identification information (Remote ID), which enables third parties to receive identification and location information of a drone actively in flight. All of these requirements are aimed at ensuring safe and responsible drone operations within the national airspace. A drone operator's failure to adhere to these requirements and regulations poses a significant safety and security risk. For example, an unlicensed drone pilot may not know about the FAA's airspace restrictions for drones in the vicinity

of active airports. Flying a drone too close to a plane's takeoff or landing pathway increases the risks of collision, which could prove catastrophic. If that same drone is also operating without a Remote ID, the airport's air traffic controller may not be able to detect its presence and divert a landing plane's trajectory away from the danger before it is too late.

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The increasing prevalence of drones makes pilots' adherence to the Part 107 rules even more critical to ensure public safety and security. However, the ubiquitous nature of drones in the national airspace today also makes enforcement of these rules and requirements difficult for the FAA, which is chronically underfunded and understaffed. While one may assume that most drone pilots operate their UASs in good faith, the lack of consistent regulatory enforcement by the FAA for Part 107 violations is dangerous. As a general principle, active policing and regulatory enforcement, coupled with the imposition of civil penalties, serve to deter regulatory noncompliance. Even though the FAA has the authority to impose penalties, if it does not have the capacity and funding to enforce the rules, then the authorized consequences cannot encourage drone pilots to operate their drones in a compliant manner. Relaxed policing can open the door to bad actors, who may exploit the FAA's lack of enforcement by using unregistered drones to carry out acts of terror on innocent civilians or critical infrastructure assets such as reservoirs. While the FAA has come a long way in recent years in adopting and updating the nation's drone regulations, the agency must deploy more detection and enforcement mechanisms on an expedited basis to ensure maximum safety and security for the public.

Presidential Actions Aimed at UASs

Days before the end of the presidential term, the first Trump administration issued an executive order on ensuring security of UASs owned, operated, and controlled by the federal government. Exec. Order 13,981, Protecting the United States from Certain Unmanned Aircraft Systems, 86 Fed. Reg. 6821 (Jan.

22, 2021). While the title of this executive order, Protecting the United States from Certain Unmanned Aircraft Systems, suggested that it would be focused on regulation of UASs used by members of the public, the executive order actually affected government use of foreign-manufactured drones. The executive order called for the review of U.S. government operations that involved drones collecting and maintaining sensitive information and to identify ways to end those operations. An actual command to stop the use of drones was not in the executive order, perhaps because it was one of many executive orders in the final days of the lame-duck period of President Trump's first administration.

Under the Biden administration in 2023, the FAA issued the Updated Fact Sheet on State and Local Regulation of Unmanned Aircraft Systems (2023 Fact Sheet). In this fact sheet, the FAA made clear that it has exclusive authority to regulate aviation safety and the efficient use of the airspace by aircraft and that state and local regulation of the field is preempted pursuant to the Supremacy Clause of the U.S. Constitution. *See* USDOT, *2023 Fact Sheet* (July 14, 2023). In short, a state or local law is preempted if it is aimed at aviation safety or the efficient use of airspace, or if it seeks to advance other objectives but impairs the reasonable use of the airspace by UASs or conflicts with federal law.

At the close of 2024, multiple drones were spotted overhead in New Jersey. The Biden administration, in a multiagency statement, stated that they were drones and constituted a "combination" of lawful aerial activity—including hobbyist drones, law enforcement drones, manned fixed-wing aircraft, helicopters, and stars mistakenly reported as drones. While still president-elect, Donald Trump expressed his opinion that the drones should be shot down. This statement disregarded the safety risk to people and property on the ground from falling debris, as well as to the flying objects that were not definitively identified. Upon taking office in 2025, the Trump administration addressed the mysterious drones during its first press briefing, saying that the flights were authorized by the FAA for research and recreational purposes. Since then, the second Trump administration has been relatively quiet in the realm of drones.

State and Federal UAS Legislation

Since 2013, state legislatures have considered, and at times adopted, legislation addressing UASs numerous times. These have included, for example, state laws to (1) enumerate lawful uses for unmanned aircraft, (2) permit UAS operations by law enforcement agencies, (3) prohibit the operation of UAS over correctional facilities, (4) prohibit the operation of UAS within certain distances of critical infrastructure facilities, and (5) grant regulatory authority over UAS operations to state agencies, subject to federal law. While there has been a lot of consideration given to various legislative initiatives related to drones on the state level, the FAA has made clear its position that it has exclusive authority over aviation safety and the efficient use of the national airspace. To that end, there has not been sufficient authority granted to state and local governments to enforce or regulate UASs—let alone protect against the risk that drones pose to critical infrastructure.

Several bills were introduced in the last session of Congress that were aimed at expanding the authorities of federal agencies to protect critical infrastructure sites and other vulnerable facilities from unlawful UAS use. In the U.S. House of Representatives, H.R. 7586, introduced in March 2024, sought to authorize the Department of State to take actions to mitigate drone threats by establishing a Department of State Domestic Protection Mission relating to UASs. The actions that would have been authorized by this bill included tracking, warning operators, seizing, and potentially disabling, damaging, or destroying drones. This bill also would have mandated semi-annual briefings that would include a description of how state and local law enforcement agencies were engaged to implement and use the authorities granted by the bill. H.R. 7586 did not become law during the past congressional session.

Proposed legislation in the last session of Congress also aimed at creating pilot programs to expand the authority to employ counter-UAS technology to state, local, tribal, and territorial law enforcement agencies, as well as some private entities that operate sites vulnerable to drone attacks. To this end, Michigan Democratic Senator and Chairman of the Homeland Security and Governmental Affairs Committee Gary Peters introduced Senate Bill 1631, the Safeguarding the Homeland from the Threats Posed by Unmanned Aircraft Systems Act of 2023. A similar bill was introduced in the House, H.R. 4333, by U.S. Representative Chrissy Houlahan of Pennsylvania. This legislation aimed to expand the authorities that allow the Department of Homeland Security and Department of Justice to disable drones that pose a security risk. The bill also sought to provide state and local law enforcement agencies with the authority to use technology to help identify and mitigate urgent drone threats. The legislation would have established a five-year pilot program to train members of up to 60 state, local, territorial, or Tribal law enforcement agencies and provide them with the tools needed to mitigate threats from hostile drones. Riding the wake of the drone sightings over New Jersey, which emphasized the need for counter-drone authority, in December 2024 Senator Rand Paul of Kentucky objected to the unanimous consent request and spoke on the Senate floor in opposition to the bill, arguing it raised serious privacy and civil liberty concerns. The bill did not pass into law.

While none of the proposed legislation related to drones was passed by Congress in the last session, sponsors of many of these bills have expressed their intent to re-introduce them in the current congressional session. In addition to the expected reintroduction of these drone-related bills, several new bills have been introduced. The bipartisan Directing Resources for Officers Navigating Emergencies (DRONE) Act of 2025, H.R. 1058, was introduced in February 2025 by Representatives Lou Correa and Troy Nehls. The DRONE Act authorizes Department of Justice grants to law enforcement for purchasing and operating drones to benefit public safety.

Also in February 2025, Senators Tom Cotton and Jacky Rosen introduced S. 663, the Disabling Enemy Flight Entry and Neutralizing Suspect Equipment (DEFENSE) Act. This bill is a counter-drone measure that proposes to authorize the secretary of Homeland Security or the attorney general to deputize a state

or local law enforcement officer to protect certain events with temporary flight restrictions. The authority granted to state and local enforcement officers pursuant to the DEFENSE Act would be for the purpose of protecting large public gatherings, events, stadiums, and other venue sites where flight restrictions are in place by the Federal Aviation Administration. Several major sports organizations have endorsed the DEFENSE Act including the NFL, MLB, NCAA, and NASCAR. While drones and the public safety risk they pose continue to be discussed, none of these bills—even if passed into law—are enough to ensure the ability to maintain security of state and local infrastructure.

If the authority to enforce UAS operations was delegated to state and local entities for the purpose of maintaining security of public utility infrastructure, it would make a significant difference.

The Need for State and Local Enforcement of UAS Regulations

There is a great need for the FAA to delegate its enforcement authority over UASs to state and local agencies. Similar to the way the federal Safe Drinking Water Act creates avenues for the U.S. Environmental Protection Agency to grant primacy enforcement responsibility to states for public drinking water systems, Congress should pass a law that allows the FAA to grant UAS enforcement authority to state and local governments meeting certain primacy criteria to allow these agencies to police the airspace within their jurisdictional bounds. *See* 42 U.S.C. § 300g-2; *see also* 40 C.F.R. pt. 142, subpt. B. If the authority to enforce UAS operations was delegated to state and local entities for the purpose of maintaining security of public utility infrastructure, it would make a significant difference. While Part 107 sets a good framework for the requirements of drone operation, it is extremely difficult for the federal government to enforce these requirements and police the entirety of the national airspace. This leaves a gap for potential bad actors to use drones to compromise public utility infrastructure that provides residents with life-sustaining services like drinking water, which is often maintained by state or local entities. State and local governments should be authorized to take counter-drone measures to protect these critically important assets.

The second Trump administration has already expressed a desire to increase the role of state and local governments

in protecting water utilities, ports, and other critical infrastructure from cyberattacks. On March 19, 2025, President Trump signed an executive order launching a new National Resilience Strategy, which was to be implemented within 90 days of its issuance. Exec. Order 14,239, Achieving Efficiency Through State and Local Preparedness, 90 Fed. Reg. 13,267 (Mar. 21, 2025). This executive order states that the policy of the U.S. government is for state and local governments to play a more significant role in national resilience and preparedness, particularly with enhancing security of infrastructure. While this executive order does not speak to the use of drones or authorize counter-drone measures, it is a signal that the current administration is open to delegate authority to states and local governments to protect the critical infrastructure that is at risk from the lack of enforcement on drone operations.

Generally speaking, many of the second Trump administration's efforts thus far have been aimed at cutting away from authority provided only to the federal government, thereby putting increased responsibility on states. It would make sense for the Trump administration to implement and apply this policy to drone enforcement as well, as it would protect the nation's most critical assets. However, at this time, it is

unclear whether the administration will take this step. Only time will tell.

Drone prevalence and technology have been advancing at a rate beyond the ability of the federal government to ensure safe and responsible use of airspace. The FAA's authority over federal airspace and the accessibility of drones leaves a gap in the security of public infrastructure. While Congress has seen some drone legislation introduced, and less drone-related legislation passed, it has not accounted for this risk. The best and most effective way to protect the nation's most critical infrastructure assets from drone-based threats and terrorism is to allow state and local governments to police the portion of the national airspace within their jurisdictional boundaries. 

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