During my time on a National Guard Weapons of Mass Destruction (WMD) Civil Support Team, I helped support WMD monitoring at major events like the Pope’s 2015 visit, the 2016 Democratic National Convention, and the commissioning of the U.S.S. Zumwalt. At a planning conference for one such event, the tabletop exercise was a hypothetical response to a small UAS spraying an unknown substance. Out of the dozens of multiple federal, state and local authorities assembled, there was no clear organizational lead, nor was any viable course of action presented. The conclusion was a collective shrug.

Despite warning signs like this, we are failing to field a domestic response capability to this growing threat. The World Trade Center was attacked in 1993, but it took the same building being attacked in 2001 to cause a significant change to U.S. Department of Homeland Security’s posture. When it comes to facing the small UAS challenge, we are living in that gap.

Small unmanned aerial systems (UAS) have already gotten disturbingly close to national political figures. A fringe German political party crash-landed a drone feet away from German Chancellor Angela Merkel Sept. 15, 2013. A couple years later a two-pound drone landed on the White House lawn after Secret Service agents were unable to bring it down Jan. 26, 2015.

Small unmanned aerial systems (UAS) have also been used to carry dangerous chemical, biological, radiological and nuclear (CBRN) materials. A protestor flew a drone, carrying a sample of sand from Fukushima containing radioactive Cesium 134 and 137 April, 9, 2015, onto the roof of the Japanese prime minister’s office. The drone was discovered, by accident, April 22. Dà-Jiāng Innovations Science and Technology Company in China sells an agricultural drone with a 10-liter tank that can cover up to 10 acres in an hour with pesticides. In comparison, the Aum Shinryko subway attack killed 12 people and injured over 4,000 with only 24 liters of Sarin.

Small UAS also cause issues for local law enforcement. Police officers shot down a privately owned drone — technically a federal offense — that was flying near a Dakota access pipeline protest Oct. 23, 2016. Following the downing, the Federal Aviation Administration emplaced a flight ban on the area and the North Dakota National Guard fielded an Avenger missile system to the protest site in January of this year.

The FAA enacted rules in 2016 that require mandatory training and registration for any small UAS from .55 to 55 pounds, with increased regulations for larger UAS, or UAS for commercial purposes. The guidelines also direct that small UAS operators remain within line of sight of their UAS, only fly during the day, respect no-fly zones and follow other common-sense restrictions.

This addresses most of the “good actor” small UAS operators. For the “bad actor,” a variety of counter-UAS technologies exist to include acoustic and radio frequency detection systems, firmware fencing, electronic countermeasures, rifle-fired nets, anti-UAS, and even trained falcons. But the legal framework to guide their use and the tactical doctrine to employ them has not been adapted. We cannot make the perfect enemy of the good and wait to develop a one-size-fits-all solution to the small UAS problem instead of codifying how to use what we have now.

Current response operations

The National Guard’s Weapons of Mass Destruction Civil Support Teams (WMD-CST) is made of 22-servicemembers (both Army and Air Guard), active guard and Reserve units chartered to provide state-controlled, Department of Defense-trained, CBRN detection and response in support of state and local governments. All members of the team are trained hazardous materials technicians with hundreds of hours of additional specialized training. A total of 57 civil support teams (CSTs) currently exist, one per state and territory with an additional team in Florida, New York and California. The Title 32 status enables DoD standardization and training while permitting unfettered state-level use, specifically for answering the small unmanned aerial system challenge in a DSCA environment

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use in concert with local law enforcement without posse comitatus conflicts.

Each team consists of a survey section that conducts contaminated area operations; a communications section to facilitate downrange operations and technical reach back; a medical section to treat team members and serve as on-scene CBRN medicine advisors; an analytical section to run the unit’s mobile laboratory, as well as supporting support; operations and command sections. CST’s regularly provide standby support at events of state or national significance, assist state and local law enforcement on routine presence patrols, offer training and expertise to government and industry and are prepared to respond (on short notice) to real-world emergencies. Much of the intent and doctrinal framework that exists for the CST’s (as outlined in National Guard Regulation 500-3, “Weapons of Mass Destruction Civil Support Team Management” and Field Manual 3-11.22, “Weapons of Mass Destruction—Civil Support Team Operations” could be adapted to a domestic air defense application.

Possible approach

Similar to the National Guard’s WMD civil support teams, the DoD could field National Guard air defense artillery civil support teams. In this hypothetical construct, the leadership and personnel on the teams would be staffed by ADA Soldiers. While this problem is not currently a core mission of the ADA, the branch has the institutional mindset of fighting a three-dimensional battle from the ground and is the best proponent to face this new challenge.

Doctrine and training would have to be developed by the Fires Center of Excellence, specifically tailored with Defense Support of Civil Authorities (DSCA) considerations and the small UAS threat in mind. Similar to the WMD-CSTs, all team members would go through an additional skill identifier or special qualifications identifier training program tailored to the mission. This would also ensure a baseline of interoperability, minimum qualification and assist in personnel management.

Existing facility space likely exists at Fort Sill, Okla., that could support this additional requirement. Within the states, assigning armory space for a small team would not be extremely onerous. Finding local training areas may prove contentious, but the security benefits offered by such a team would hopefully overcome any state, local or federal issues in a given jurisdiction. However, practicing in an open field away from prying eyes is not good enough. States would have to train and exercise in built-up areas in order to prepare for the difficulty of conducting operations while coping with operational security, radio frequency, airspace and physical challenges.

The organization of a proposed air defense artillery civil support team (ADA-CST) could counter the small UAS threat. As envisioned, the core, operational element of the team would consist of three squads, with a squad leader overseeing a two-service member “killer” fire team and a two-service member “hunter” fire team. The ADA civil support teams would require a robust communications capability in order to communicate with first responders and to provide a technical reach-back capacity. It would be less than that of a WMD-CST as the WMD-CST’s communications package is intended to work in the aftermath of a catastrophic WMD incident. Without the need for medical or analytical sections, additional personnel could be devoted to both the operational elements of the team and to assuming the key airspace management and airspace control systems that would be essential to the safe and effective employment of the team.

Three squads would allow for a “red/white/blue” readiness model with one team on standby at all times. Squads could be immediately dispatched throughout the state to support emergencies, provide standby support during holidays or special events, or advise local law enforcement, industry or private citizens on best practices. Similar to the WMD-CSTs, each team would belong to a Federal Emergency Management Agency region and would operate on a “bronze/silver/gold” readiness model to support emergencies in nearby states.

Teams would not employ standard, doctrinal air defense artillery materiel solutions to destroy threat UAS in a DSCA setting due both to safety considerations and a capability mismatch between the small UAS threat and equipment designed to shoot down large airframes with considerable heat signatures. Rather, teams would receive a suite of technology ranging from high-tech electronic warfare solutions to low-tech less-than-lethal shotgun rounds. This would tailor their force posture to the threat level and environment and to provide redundancy.

Policy implications are potentially the most difficult hurdle to overcome. Commercial airports, local law enforcement, homeowners or stateside military units need clear rules of the use of force, tactics, techniques and procedures (TTPs) to be employed in counter-UAS operations, with emphasis on potential WMD delivery devices. A working group comprised of a variety of actors—DoD, Department of Homeland Security, FAA, Federal Communication Commission (FCC), as well as state and local officials, industry, international partners, and the do-it-yourself and UAS operator communities — must convene and clarify the way forward.

In addition to responding to incidents or pre-positioning at special events, ADA-CSTs could serve as the state-level, one-stop solution to resolve potential FCC and FAA conflicts while actively mitigating the domestic threat. Rather than relying on multiple federal, state and local agencies to field their own equipment, develop their own tactics, and ensure their counter-UAS programs met FCC and FAA requirements, these considerations could be “baked in” from the birth of the ADA-CST. Some federal, state and local law enforcement would undoubtedly still want to possess their own counter-UAS capabilities, and the ADA-CST could serve as the local clearinghouse for TTPs, best practices, training and civil compliance.

As an alternative to growing force structure, the existing National Guard CBRN Response Enterprise – the Homeland Response Force (HRF), CBRNE Enhanced Response Force Package (CERF-P), or the WMD-CSTs could be furnished the equipment and training necessary to assume this mission. However, of those organizations, the WMD-CSTs are the only all-air to ground ranging force capable of a rapid response. WMD-CSTs are already extensively utilized, stretched thin both operationally and intellectually, required to maintain a robust in-house knowledge and certifications to respond to both standard and non-standard CBRN threats. The HRF and CERF-P are considerably larger, but have limited full-time manning and would almost certainly require increased full-time allocations to meet this additional mission requirement.

Whatever the solution ends up being, the time for a cross-jurisdictional, nation-wide domestic response to the small UAS threat that can cut across federal, state and local lines has come. The National Guard has a proven track record of fielding specialized teams to respond to technical threats in just this manner. While the constructs suggested above may not be the solution, and decision-makers may deem that the National Guard is ultimately not the best place for such a capability, the inescapable truth remains that some form of response is badly overdue.

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