A LOOK AT THE FOURTH AMENDMENT IMPLICATIONS OF DRONE SURVEILLANCE BY LAW ENFORCEMENT TODAY

*Mary Mara**

Imagine for a moment that you are sitting in your back yard on a pleasant, peaceful, and sunny afternoon. Perhaps you are gardening, sunbathing, entertaining friends, or simply enjoying a moment of solitude behind the ten-foot privacy fence that surrounds your property. Now imagine that an unmanned aircraft system (i.e., drone) hovers overhead, even if just for a moment. You would likely wonder who is operating the technology and whether it was used to take video, photographs, audio recordings, or otherwise document your activities. Taking this scenario a step further, what if the technology was owned and operated by your local police department? Do you have an expectation of privacy from the prying eyes of law enforcement under these circumstances? And if you do have such an expectation, is it one that society is prepared to honor and uphold? The answers to these questions are far from settled despite the ever-expanding use of drone technology by police agencies across this country today.

This paper will examine the current state of drone technology and its increasing prevalence in private and public settings. As police agencies seek to incorporate this new technology into their crime-fighting arsenal, serious Fourth Amendment privacy considerations arise. Although a national debate rages in this country about the impact of modern technology on privacy rights, Congress, the Federal Aviation Authority (FAA), and the Supreme Court have yet to weigh in on the Fourth Amendment implications of warrantless drone surveillance by

* J.D., Michigan State University Law School, 1991; L.L.M., Homeland and National Security Law, 2017. Since graduating, I have devoted my career to all matters impacting public safety. As an Assistant Prosecuting Attorney, I prosecuted crimes with a special emphasis on the investigation and prosecution of child sexual predators. I have served in my current capacity as litigator for Oakland County Corporation Counsel since 2002, with a special emphasis on the defense of Oakland County Sheriff deputies in federal court against claimed civil rights violations arising under 42 U.S.C. § 1983.

law enforcement. Furthermore, while some states have attempted to step into the breach by passing legislation which limits the use of drone technology by law enforcement under certain circumstances, legal waters surrounding the use of this technology by police are murky at best. Simply put, the Fourth Amendment implications of drone use by law enforcement is woefully uncertain and this uncertainty gives privacy advocates, as well as police agencies who are eager to employ this new technology reason to be concerned.

I. THE EXPANDING DEVELOPMENT AND USE OF DRONES

Drones have evolved both in technology and use, expanding from training tools into military weapons, domestic medical and disaster aids, private hobbies, and law enforcement mechanisms. "From the beginnings of aerial combat, antiaircraft gunners practiced marksmanship by shooting at target sleeves, which were essentially large windsocks towed behind airplanes**.**"[1] Target sleeves were unsatisfactory (not to mention hazardous) for both the pilot above and the gunners-in-training below.[2] When interviewed by a Los Angeles newspaper in 1935, Reginald Denny, a famous actor[3] and avid airplane hobbyist, stated that he saw no reason why a target plane couldn't be sent up by radio control. When Denny made this visionary comment, radio-controlled planes were in their infancy and experimental flights often ended in a destructive crash making this potential training method cost-prohibitive, unreliable, and completely impracticable.[4] He spent the next several years researching and developing a radio-controlled airplane which could be used by recreational hobbyists and aircraft gunners-in-training alike. By 1940, Denny produced and sold 15,000 radio-controlled planes to the U.S. military for use in training anti-aircraft gunners for World War II.[5] These aircraft, called Remotely Piloted Vehicles (or RPV, for short), represent just one in a long line of technological baby-steps which have led to modern-day RPVs commonly referred to today as drones, unmanned aircrafts (UA), and

1. D.B. Matthews, *Flying for Fun*, MODEL AVIATION (July, Aug. & Sept. 2004), https://www.modelaircraft.org/files/DennyReginald.pdf.

2. *Id.*

3. Reginal Denny's more familiar roles include Commander Schmidlapp in *Batman*, Henry Percival in *Cat Ballou*, the police chief in *Around the World in 80 Days*, Frank Crawley in *Rebecca*, Algy Longworth in the *Bulldog Drummond* series and, most notably, the architect in *Mr. Blandings Builds His Dream House* in 1948 starring Cary Grant and Myrna Loy as the Blandings.

4. Matthews, *supra* note 1, at 10.

5. *Id.* at 4.

unmanned aerial systems (UAS).[6]

Although Reginald Denny was clearly ahead of his time, it's unlikely that even he could foresee the technological advances and commercial availability of RPVs in the modern era. These technologies, whether called drones, unmanned aircrafts, or unmanned aerial vehicles, all have a few basic features which set them apart from other airborne technology: they are unmanned, controlled remotely, and can transmit data back to a ground source. Despite these similarities, they come in a variety of shapes and sizes ranging from small, radio-controlled devices operated by hobbyists to military machines larger than the average human being.[7]

A. Drones Have Redefined the Character of Modern Warfare

Drones now play a prominent role in military operations in ways which far surpass their humble beginnings as training tools for anti-aircraft gunners. "In World War II, radio-controlled B-24s were sent on bombing missions over Germany. Remotely controlled aircrafts carried still-photo cameras over battlefields in Vietnam. The Israeli army used drones for surveillance and as decoys over Lebanon's Bekaa Valley in 1982."[8] The Predator, a twenty-first century version of this technology, is equipped with video cameras that provide a 60-mile panorama from a platform which can stay airborne almost permanently. It was the Predator which located Osama bin Laden in Afghanistan in 2000, after the terrorist group Al Qaeda had been tied to the 1993 World Trade Center bombing and the 1998 bombings of two U.S. embassies in Africa.[9] Soon after the World Trade Center attacks on September 11,

6. Before RPVs, President Lincoln used air balloons to make thousands of aerial reconnaissance flights during the Civil War. These balloons were tethered to the ground, "piloted" by an "aeronaut," and used to create aerial maps and gather intelligence regarding enemy encampments and movements. For more information on early aerial reconnaissance, *see* Tom Crouch, *On This Spot*, SMITHSONIAN NAT'L AIR AND SPACE MUSEUM, (Mar. 30, 2009), https://airandspace.si.edu/stories/editorial/spot. For an in-depth analysis of the evolution of unmanned aerial warfare in this country, *see* Major Bishane A. Whitmore, Evolution of Unmanned Aerial Warfare: A Historical Look at Remote Airpower - A Case Study in Innovation (October 6, 2016) (unpublished Master's thesis, U.S. Army Command and General Staff College), available at https://www.hsdl.org/?view&did=795248.

7. Chenda Ngak, *Drone Technology Myths, Facts and Future Feats*, CBS NEWS (May 17, 2013), http://www.cbsnews.com/news/drone-technology-myths-facts-and-future-feats/.

8. Mark Bowden, *How the Predator Drone Changed the Character of War*, SMITHSONIAN.COM (Nov. 2013), http://www.smithsonianmag.com/history/how-the-predator-drone-changed-the-character-of-war-3794671/?no-ist.

9. *Id.*

2001, the first weaponized Predators, armed with Hellfire missiles,[10] were flying over Kabul and Kandahar in Afghanistan. Eventually, cameras and sensors on the Predators were linked to a global communication system which allowed drones to be piloted—and their live-feed viewed and their missiles aimed—from anywhere in the world.[11] Unlike anti-aircraft gunners of yore, modern-day pilots can now be insulated from the risks of combat thanks to the evolution of drone technology.

B. Domestic Drones Have Also Taken Flight

Mirroring their military counterparts, today's domestic drones come with an impressive array of capabilities and applications. Some of the more remarkable technological advances include miniaturized drones designed to be nimble and fit into places humans cannot. "In recent years, engineers have worked to shrink drone technology, building flying prototypes that are the size of a bumblebee and loaded with even tinier sensors and cameras."[12] Although researchers have thus far managed to miniaturize almost every part of these devices, they struggle to reduce the brains of the operation–the computer chip.[13] As engineers at Massachusetts Institute of Technology (MIT) work to design a computer chip small yet powerful enough to process enormous amounts of streaming data from on-board cameras and sensors, they ultimately envision disaster-response and search-and-rescue missions in which insect-sized drones flit in and out of tight spaces to examine a collapsed structure or look for trapped individuals.[14] The capabilities and application of miniaturized drones are limited only by the imagination. A lead researcher at MIT offered one imagined use for this technology by the American consumer: "Imagine buying a bottlecap-sized drone that can integrate with your phone, and you can take it out and fit in in your palm. . . . If you lift your hand up a little, it would sense that, and start to fly around you and film you. Then you open your hand again and

10. Hellfire missiles are air-to-ground, laser guided, subsonic missiles with significant anti-tank capacity. They can also be used as an air-to-air weapon against helicopters or slow-moving fixed-wing aircraft. *See AGM-114 Hellfire*, MILITARY.COM, http://www.military.com/equipment/agm-114-hellfire (last visited July 30, 2017).

11. *Id*.

12. Jennifer Chu, *Miniaturizing the Brain of a Drone*, UNMANNED AERIAL (July 25, 2017), https://unmanned-aerial.com/miniaturizing-brain-drone.

13. *Id*.

14. Jennifer Chu, *Miniaturizing the Brain of a Drone: Method for Designing Efficient Computer Chips May Get Miniature Drones Off the Ground*, MIT NEWS (July 11, 2017), http://news.mit.edu/2017/miniaturizing-brain-smart-drones-0712#.WXEKwwyS-QE.twitter.

it would land on your palm, and you could upload that video to your phone and share it with others."[15]

Researchers elsewhere are working to create a drone that can deliver defibrillator equipment to the scene of a life-threatening emergency. As currently developed, these drones weigh just 6.5 pounds and have a range of 31 miles.[16] However, a human would still need to perform the actual act of cardiopulmonary resuscitation.[17] As envisioned, "[a] person would connect the electrodes and then obey instructions given to them by the drone, either on a screen or through voice prompts."[18] Drones equipped with life-saving equipment could reach a medical emergency faster than an ambulance stuck in traffic.[19] This technology may also be used to distribute life-saving blood products, vaccines, tourniquets, medicine, and other light-weight medical supplies to the scene of disaster areas, critical access hospitals, mass casualty scenes, and even off-shore ships with seriously injured or gravely ill passengers.[20]

Although drone ownership was rare and cost-prohibitive for most consumers as recently as 2013, technological advances since that time have driven down costs, making them accessible to the average consumer.[21] With just a quick internet search, the American consumer today can purchase a beginner-level drone equipped with an on-board camera for as low as $54.98.[22] At this entry-level price-point, it's not surprising that drone sales have skyrocketed over the last several years. The FAA predicts that by 2020 there will be seven million domestic drones sold in the United States per year.[23] For the year 2020, the majority of these purchases (4.3 million, to be exact) are expected to be made by hobbyists purchasing model aircrafts and the remaining sales

15. *Id*.

16. David Grossman, *Defibrillator Drone Wants to Save Your Life: A Shocking, Electric Use of Drone Technology*, POPULAR MECHANICS (July 28, 2017), http://www.popularmechanics.com/technology/gadgets/a27539/drone-defibrillator-mit/.

17. *Id.*

18. *Id.*

19. *Id.*

20. *Medical Drones Poised to Take Off*, MAYO CLINIC, http://www.mayoclinic.org/medical-professionals/clinical-updates/trauma/medical-drones-poised-to-take-off (last visited July 29, 2017).

21. A.J. Agrawal, *5 Ways Marketers Can Take Advantage of Drone Technology*, FORBES MAGAZINE (June 10, 2017), https://www.forbes.com/sites/ajagrawal/2017/06/10/5-ways-marketers-can-take-advantage-of-drone-technology/#19af410358cc.

22. AMAZON, https://www.amazon.com/s/ref=nb_sb_noss_1?url=search-alias%3Daps&field-keywords=drone (last visited July 31, 2017).

23. *FAA Aerospace Forecast*, FED. AVIATION ADMIN. 31 (2016), https://www.faa.gov/data_research/aviation/aerospace_forecasts/media/FY2016-36_FAA_Aerospace_Forecast.pdf.

(2.7 million) are expected to be commercial non-model aircrafts.[24]

Recent comments by Michael Huerta, the current Administrator of the FAA, underscore the ever-expanding growth and prevalence of drone technology today. While speaking at the second annual FAA Unmanned Aircraft Systems Symposium, Huerta commented that "[w]e're ushering in a new age of American aviation: the unmanned aircraft era. And it's moving at a quicker pace than anything we've seen before."[25]

C. Governmental Agencies are Finding a Use for Drones as Well

Given the ever-expanding application of drone technology, it's not surprising that many law enforcement agencies today view drones as a desirable and highly effective tool for their crime-fighting arsenal. Before operating a drone, however, federal, state and local police agencies must first obtain a certificate of authorization (COA) or waiver from the FAA.[26] Upon receiving such an application, the FAA conducts a comprehensive operational and technical review of the proposed UAS before a COA is issued.[27] Although exact numbers are difficult to calculate, an April 2017 study indicates that "at least 347 state and local police, sheriff, fire, and emergency departments in the United States have acquired drones" with law enforcement agencies leading the way.[28] This trend is picking up speed; more acquisitions by police departments took place in 2016 than in all previous years combined.[29]

---

24. *Id.*

25. Kaya Yurieff, *U.S. Drone Registrations Skyrocket to 770,000*, CNN TECH (Mar. 28, 2017), www.money.cnn.com/2017/03/28/technology/us-drone-registrations/index.html.

26. Unmanned Aircraft Operations in the National Airspace System, 72 Fed. Reg. 6689 (Feb. 13, 2007) (codified at 14 C.F.R. pt. 91).

27. *See generally* FAA, *Certificates of Waiver or Authorization (COA)*, https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/aaim/organizations/uas/coa/ (last visited Aug. 5, 2017).

28. Dan Gettinger, *Drones at Home: Public Safety Drones*, CENTER FOR THE STUDY OF THE DRONE AT BARD COLLEGE (Apr. 6, 2017), http://dronecenter.bard.edu/drones-at-home-public-safety-drones/. According to this report, the following Michigan agencies have drones registered with the FAA: Berrien County, the Big Rapids Township Fire Department, the Grand Traverse County Sheriff's Office, the Oakland County Sheriff's Office, and the Oakland County Fire Mutual Aid Association. The Michigan State Police (MSP) led the way in this endeavor, purchasing an Aeryon SkyRanger in September of 2013 to support law enforcement missions. MSP received authorization from the FAA to start doing training flights with the drone near MSP Academy in Diamondale, Michigan in February of 2014. *See* Kyle Feldscher, *Michigan State Police May Be First Police Agency to Use Drones for Crime and Crash Investigations Statewide*, MLIVE (Jan. 28, 2015), http://www.mlive.com/lansing-news/index.ssf/2015/01/michigan_state_police_testing.html. *See also*, FAA, FREEDOM OF INFORMATION ACT RESPONSES, https://www.faa.gov/uas/resources/foia_responses/ (last visited Aug. 5, 2017).

29. Gettinger, *supra* note 28.

According to the Police Foundation, a non-profit organization whose stated mission is to "advance policing through innovation and science," the advantages of drone technology in law enforcement in place of (or as a complement to) more traditional manned aircrafts (i.e., fixed-wing planes and helicopters) are easy to spot.[30] They include:

- Low cost**:** Drones are about 90% less expensive than manned aircraft:
  - It costs approximately $25 per hour to operate a drone while traditional manned aircraft cost between $256 and $600 per hour.
  - Drones suited for use by law enforcement can be obtained for a cost between $1,000 and $50,000, depending on the features sought, while manned aircraft can cost between $600,000 and $1 million.
  - Drones cost $0 to store while manned aircraft can cost $300-$500 per month to store.

- Portability/rapid deployment: Drones can be removed from storage, assembled, and launched in minutes. This means operations can happen quicker with fewer officers involved. Deployment of traditional aircraft is a much slower and more labor-intensive endeavor.

- Wide range of public safety and operational applications:
  - Traffic crash reconstruction: using mapping software, drones can map the most complex crash scenes.
  - Support of fire operations: Police drones can be used to support fire operations by improving situational awareness and resource deployment.
  - Disaster response: Drones can be launched much quicker than manned aircraft to begin damage assessment and search and rescue.
  - Officer safety: Drones give an aerial view of dangerous situations and allow for constant situational awareness.[31]

30. *About Us*, POLICE FOUNDATION, https://www.policefoundation.org/about/ (last visited Aug. 2, 2017).

31. *sUAS and Public Safety Infographic*, POLICE FOUNDATION, https://www.policefoundation.org/suas-and-public-safety-infographic/ (last visited Aug. 2, 2017).

When state and local police agencies lack a drone of their own, they have been known to borrow them from the Department of Homeland Security (DHS). The *Washington Times* reported on an incident in 2011 when a Predator drone was summoned into action to spy on a North Dakota farmer who allegedly refused to return six of his neighbor's cows that had strayed onto his pasture.[32] The farmer had become engaged in a standoff with the local police so local authorities called upon DHS to deploy a multimillion dollar drone to surveil the farmer and his family. According to the *Washington Times*, this little-noticed incident in North Dakota marks the first time that a drone owned by the U.S. government was commissioned for use by a local law enforcement agency. Since that time, numerous reports have surfaced that "DHS and its Customs and Border Protection agency have deployed drones—originally bought to guard American borders—to assist local law enforcement and other federal agencies on several occasions."[33] Since coming to light, this practice has raised questions about whether DHS and the CBP have created an "ad-hoc, loan-a-drone" program without formal rules regarding taxpayer reimbursement, privacy protection and rules of engagement.[34]

A recent report by Fox News illustrates just how beneficial and cost-effective drone technology can be in the fight against crime.[35] Specifically, just one week after the sheriff's office in Cecil County, Maryland added a drone to its crime-fighting arsenal, it received a tip from authorities in neighboring states that $500,000 worth of stolen construction equipment was likely being stored on private property within the Cecil County Sheriff's jurisdiction. The sheriff sent his newly-acquired Typhoon H Pro drone[36] into the air to investigate. While flying overhead, the drone captured video containing several pieces of stolen construction equipment on the property below. This evidence was

32. Kimberly Dvorak, *Homeland Security Increasingly Lending Drones to Local Police*, WASH. TIMES (Dec. 10, 2012), http://www.washingtontimes.com/news/2012/dec/10/homeland-security-increasingly-loaning-drones-to-l/.

33. *Id.*

34. *Id.*

35. Rick Leventhal, *Drones Become Newest Crime-Fighting Tool for Police*, FOX NEWS TECH (July 19, 2017), http://www.foxnews.com/tech/2017/07/19/drones-become-newest-crime-fighting-tool-for-police.html.

36. This drone is equipped with 4K Ultra High Definition Video and available at Amazon.com for $1,466.00. *Yuneec Typhoon H Pro with Intel RealSense Technology*, AMAZON, https://www.amazon.com/Yuneec-Typhoon-Intel-RealSense-Technology/dp/B01HHVLDQO (last visited Aug. 2, 2017).

enough to convince a judge to sign a search warrant leading to the seizure of stolen equipment and an arrest that same night.[37]

Fox News reported that the Cecil County incident is "believed to be the first successful use of a drone in a criminal case of this kind."[38] While it's hard to believe this is true given the prevalence of drones within law enforcement today, the story nevertheless demonstrates just how useful, efficient, and cost-effective drone technology can be when it comes to matters of public safety. Although the advantages of drone use by law enforcement are clear, the unregulated use of drone technology by police has privacy advocates worried. When interviewed about the drone use in Cecil County, an American Civil Liberties Union (ACLU) policy analyst commented,

> We don't have any problem with police using drones for common sense specific purposes for accident or crime scene photography or finding somebody lost in the woods or even if they need aerial backup while they are executing a warrant . . . . What we don't want to see is drones become a tool for pervasive, suspicionless surveillance, basically a way of letting the government look over all our shoulders all the time.[39]

Following this logic, a defense attorney in the Cecil County case could file a motion to suppress evidence found by the sheriff on Fourth Amendment grounds. As demonstrated more fully below, however, Fourth Amendment jurisprudence has a long way to go before it can catch up with and address constitutional issues raised by the implementation of drone technology by law enforcement as a means of surveillance and/or criminal investigation.

II. SO, WHERE DO WE BEGIN? A LOOK AT OUR CURRENT LEGAL FRAMEWORK FOR ANALYZING FOURTH AMENDMENT IMPLICATIONS OF DRONE USE BY LAW ENFORCEMENT

The Fourth Amendment provides that:

> [t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause,

37. Leventhal, *supra* note 35.
38. *Id.*
39. *Id.*

> supported by Oath or affirmation, and particularly describing the place to be searched and the persons or things to be seized.[40]

As one legal analyst recently noted, "[t]he Supreme Court has addressed Fourth Amendment privacy questions raised by new technologies such as GPS locators, thermal scanners, and smartphones. However, the Court has yet to tackle the Fourth Amendment questions raised by the emergence of drones."[41] As discussed below, existing Supreme Court precedent dating back to the 1980s (long before the current phenomenon of drone technology) provides the best starting point for analyzing the Fourth Amendment implications of drone use by law enforcement in this country.

One of the most influential and lasting doctrines arising out of Fourth Amendment jurisprudence is the "reasonable expectation of privacy" test set forth in the 1967 case of *Katz v. United States.*[42] In *Katz*, the Supreme Court determined that the FBI violated Katz's Fourth Amendment right to privacy when it attached a listening device to the outside of a public telephone booth Katz used to communicate illegal gambling wagers across state lines.[43] On this issue, the Court stated:

> [T]he Fourth Amendment protects people, not places. What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection. But what he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.[44]

In a concurring opinion, Justice Harlan devised a two-part reasonable expectation of privacy test which still endures today:

> The question . . . is what protection [the Fourth Amendment] affords to . . . people. Generally, as here, the answer to that question requires reference to a "place." My understanding of the rule that has emerged from prior decisions is that there is a twofold requirement, first that a person have exhibited an actual (subjective) expectation of privacy and, second, that the expectation be one that society is prepared to recognize as "reasonable." Thus, a man's home is, for most purposes, a place where he expects privacy, but objects, activities, or statements

40. U.S. CONST. amend. IV.

41. Matthew Feeney, *Surveillance Takes Wing: Privacy in the Age of Police Drones, Cato Institute Policy Analysis*, CATO INSTITUTE (Dec. 13, 2016), https://object.cato.org/sites/cato.org/files/pubs/pdf/pa807_1.pdf.

42. 389 U.S. 347, 360 (1967).

43. *Id.* at 354.

44. *Id.* at 351.

> that he exposes to the "plain view" of outsiders are not "protected" because no intention to keep them to himself has been exhibited.[45]

The Supreme Court applied the *Katz* expectation of privacy test to two separate (albeit similar) police aerial search cases in the 1980s. In the first case, *California v. Ciraolo*,[46] the Santa Clara police received an anonymous telephone tip that marijuana was growing in Ciraolo's backyard. Police were unable to observe Ciraolo's yard from ground level because a six-foot outer fence and a ten-foot inner fence completely enclosed the yard. Later that day, an officer secured a private plane and flew over Ciarolo's house at an altitude of 1,000 feet. From this vantage point, the officer readily observed marijuana plants which were 8 to 10 feet tall growing in a 15 foot by 25 foot plot in Ciraolo's yard. The officer took photographs of the plants with a 35-millimeter camera and later used these photographs to obtain a search warrant for Ciraolo's property. Ciarolo was subsequently arrested for cultivating marijuana, a felony under California law.[47]

Ciraolo moved to suppress evidence of the search, arguing that because the area observed by the police from the sky was within the curtilage of his home, the police were required to obtain a warrant to conduct an overhead search. The State countered by arguing that Ciraolo had "knowingly exposed" his backyard to aerial observation, because all that was seen was visible to the naked eye from any aircraft flying overhead. The State analogized its mode of observation to a knothole or opening in a fence, arguing that if there is an opening, the police may look.[48]

In a five-to-four decision, the Supreme Court sided with the state and concluded that although Ciraolo had manifested a subjective expectation of privacy by erecting fences around his garden, he lacked an objective expectation of privacy in his garden because the officer made his observation "within public navigable airspace, in a physically nonintrusive manner . . . [with his] naked eye."[49] According to the Court, "[a]ny member of the public flying in this airspace who glanced down could have seen everything that these officers observed" and therefore Ciraolo's "expectation that his garden was protected from such

45. *Id.* at 361.
46. 476 U.S. 207, 209 (1986).
47. *Id.* at 217.
48. *Id.* at 211.
49. *Id.* at 213.

observation is unreasonable and is not an expectation of privacy that society is prepared to honor."[50]

Although the Court acknowledged privacy protections typically afforded to the curtilage of a home under common law, it concluded that an area within the curtilage of a home, although entitled to heightened protection from government intrusion, is not always insulated from warrantless government intrusion.[51] As explained by the Court, "[i]n an age where private and commercial flight in the public airways is routine, it is unreasonable for respondent to expect that his marijuana plants were constitutionally protected from being observed with the naked eye from an altitude of 1,000 feet."[52]

In a strongly-worded dissent, Justice Powell offered an analysis likely to find its way into any future legal analysis regarding the Fourth Amendment implications of drone use by law enforcement. Justice Powell stated:

> Concurring in *Katz v. United States*, . . . Justice Harlan warned that any decision to construe the Fourth Amendment as proscribing only physical intrusions by police onto private property "is, in the present day, bad physics as well as bad law, for reasonable expectations of privacy may be defeated by electronic as well as physical invasion." Because the Court today ignores that warning in an opinion that departs significantly from the standard developed from the standard developed in *Katz* for deciding when a Fourth Amendment violation occurred, I dissent.[53]

---

50. *Id*. at 214.
51. *Id.* at 213.

> The history and genesis of the curtilage doctrine are instructive. At common law, the curtilage is the area to which extends the intimate activity associated with the sanctity of a man's home and the privacies of life. The protection afforded the curtilage is essentially a protection of families and personal privacy in an area intimately linked to the home both physically and psychologically, where privacy expectations are most heightened. The claimed area here was immediately adjacent to a suburban home, surrounded by high double fences. This close nexus to the home would appear to encompass this small area within the curtilage. Accepting, as the State does, that this yard and its crop fall within the curtilage, the question remains whether naked-eye observation of the curtilage by police from an aircraft lawfully operating at an altitude of 1,000 feet violates an expectation of privacy that is reasonable.

Id. at 212-13.

52. California v. Ciraolo, 476 U.S. 207, 215 (1986).
53. *Id.* at 215-16.

In arguing his position, Justice Powell emphasized that "[t]echnological advances have enabled police to see people's activities and associations, and to hear their conversations, without being in physical proximity. Moreover, the capability now exists for police to conduct intrusive surveillance without any physical penetration of the walls of homes or other structures that citizens may believe shelters their privacy."[54] Given these technological advancements, Powell argued, the analysis should not turn upon whether police committed a physical trespass because such trespasses were no longer required with modern technology. The focus, he argued, must instead be upon whether the surveillance in question involved a constitutionally protected reasonable expectation of privacy. Given the traditional sanctity afforded to one's home and, by extension, the curtilage surrounding it, Justice Powell argued that the officer's aerial surveillance of Ciraolo's home without judicial oversight afforded by a warrant amounted to an unreasonable invasion of his privacy under *Katz*.[55]

Finally, Justice Powell rejected the majority's conclusion that Ciraolo lacked an objective expectation of privacy in the curtilage of his home because it was exposed to members of the public flying overhead in the public navigable airspace. On this point, he argued that the actual risk to privacy from commercial or pleasure aircraft is virtually nonexistent. Such flyers, he argued, normally obtain, at most, a fleeting, anonymous, and non-discriminating glimpse of the landscape and buildings over which they pass. The risk that such a flyer might observe private activities and link them to a particular person was simply too trivial to protect against. "It is no accident," he argued, "that, as a matter of common experience, many people build fences around their residential areas, but few build roofs over their backyards.[56] Therefore, contrary to the Court's suggestion, "people do not 'knowingly expose' their residential yards 'to the public' merely by failing to build barriers that prevent aerial surveillance."[57]

The Supreme Court was called upon to consider the issue again three years later in *Florida v. Riley*.[58] The police in *Riley* received an anonymous tip that Riley was growing marijuana on his property. In response to this tip, an investigating officer circled Riley's property twice in a helicopter at 400 feet. From this perspective, the officer

54. *Id.* at 218.
55. *Id.*
56. *Id.* at 224.
57. *Id.*
58. 488 U.S. 445 (1989).

observed what appeared to be marijuana growing in a greenhouse with his naked eye. Unlike Mr. Ciraolo, Riley took measures to shield his activity from prying eyes above when he elected to grow his marijuana in a mostly enclosed greenhouse. This structure, located 10 to 20 feet behind Riley's mobile home, was enclosed on two sides and the remaining two sides were obscured from view by surrounding trees, shrubs, and Riley's dwelling. The roof of the greenhouse was covered in corrugated roofing panels, some translucent and some opaque. When the officer flew overhead, two panels on top of the greenhouse were missing, leaving approximately ten percent of the greenhouse interior exposed to overhead aerialists.[59]

The issue in *Riley* was whether government surveillance of the interior of a partially covered greenhouse in a residential backyard from the vantage point of a helicopter located 400 feet above the ground constitutes a "search" for which a warrant is required under the Fourth Amendment. Citing *Ciraolo*, the Court held that no warrant was required because Riley lacked an objective expectation of privacy (i.e., an interest that society is prepared to honor).[60] In a five-to-four decision, the Court relied heavily upon the fact that the helicopter at issue was operating within full compliance of FAA safety regulations when it hovered over Riley's property at an altitude of 400 feet. On this point, the Court stated,

> [I]t make[s no] difference for Fourth Amendment purposes that the helicopter was flying at 400 feet when the officer saw what was growing in the greenhouse through the partially open roof and sides of the structure. We would have a different case if flying at that altitude had been contrary to law or regulation. But helicopters are not bound by the lower limits of the navigable airspace specified by law. But it is of obvious importance that the helicopter in this case was not violating the law, and there is nothing in the record before us to suggest that helicopters flying at 400 feet are sufficiently rare in this country to lend substance to the respondent's claim that he reasonably anticipated that his greenhouse would not be subject to observation from that altitude.[61]

Writing for the dissent, Justice Brennan found many aspects of the majority's opinion troublesome but his disagreement with the court's reliance upon FAA regulations to summarily conclude that the police

59. *Id.*
60. *Id.* at 448-49.
61. *Id.* at 451.

officer was in a place he "had the right to be" was particularly strong.[62] "It is a curious notion," Brennan argued, "that the reach of the Fourth Amendment can be so largely defined by administrative regulations issued for purposes of flight safety."[63] On this point, he prophetically argued:

> Imagine a helicopter capable of hovering just above an enclosed courtyard or patio without generating any noise, wind, or dust at all—and, for good measure, without posing any threat of injury. Suppose the police employed this miraculous tool to discover not only what crops people were growing in their greenhouses, but also what books they were reading and who their dinner guests were. Suppose, finally, that the FAA regulations remained unchanged, so that the police were undeniably "where they had a right to be." Would today's plurality continue to assert that "the right of the people to be secure in their persons, houses, papers and effects, against unreasonable searches and seizures" was not infringed by such surveillance? Yet that is the logical consequence of the plurality's rule that, so long as the police are where they have a right to be under air traffic regulations, the Fourth Amendment is offended only if the aerial surveillance interferes with the use of the backyard as a garden spot. Nor is there anything in the plurality's opinion to suggest that any different rule would apply were the police looking from their helicopter, not into the open curtilage, but through an open window into a room viewable only from the air.[64]

Clearly, modern day drones are the "miraculous tools" envisioned by Justice Brennan when crafting his dissent in *Riley*.[65] Capable of hovering overhead without generating any noise, wind, or dust and without positing any threat of injury, today's drone technology is designed to observe and record details with the aid of cameras capable of capturing the tiniest detail below. Although *Ciraolo* and *Riley* provide a solid jumping-off point when evaluating Fourth Amendment implications of drone surveillance by law enforcement, these cases were decided more than thirty years ago and before the advent of today's "miraculous" drone technology. It's difficult to predict where the Supreme Court would land on a Fourth Amendment claim like the one presented by the search conducted recently in Cecil County, Maryland. And this uncertainty has privacy advocates and state legislatures across the country concerned.

62. *Id.* at 456.
63. *Id.* at 459.
64. *Id.* at 462-463.
65. *Id.* at 462.

III. A CASE IN POINT: *ELECTRONIC PRIVACY INFORMATION CENTER (EPIC) V. FAA*

Congress enacted the FAA Modernization and Reform Act of 2012 (FMRA),[66] calling for the integration of unmanned aircraft systems into the national airspace by September of 2015. More specifically, the FMRA required the Agency, in consultation with representatives from the aviation and drone industries and federal agencies that employ drones in the national airspace, to "develop a comprehensive plan to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system."[67] The FAA was also directed to speed up its licensing process for government drone use and to open national airspace to UAS for commercial and private use by October of 2015.[68] While the FMRA focused heavily on issues of safety and speedier integration of drones into the airspace, it was completely silent on the issue of privacy.

The lack of privacy provisions within the FMRA failed to go unnoticed by privacy advocates across the country. A mere ten days after the FMRA was signed into legislation, the Electronic Privacy Information Center (EPIC) petitioned the FAA to engage in a public rule-making process[69] in order to ensure that forthcoming drone regulations would specifically address "the threat to privacy and civil liberties that will result from the deployment of aerial drones within the United States."[70] This petition, signed by more than one hundred consumer rights, human rights, technology, and civil liberty organizations across the country, argued that creation of such a plan "provide[d] a timely opportunity for [the FAA] to address this critical question."[71] The FAA responded to EPIC's petition by asserting that drone privacy implications "did not raise an immediate safety concern."[72] The D.C. Circuit dismissed EPIC's petition as time-barred, prohibiting it from challenging the denial of EPIC's petition, and

66. Pub. L. No. 112-95, §§ 331-336 (2012).

67. *Id.* at § 332.

68. *Id.*

69. For an in-depth discussion of an administrative agency's rulemaking process under the Administrative Procedure Act, *see* Section 2:80, Purpose of notice-and-comment procedure, 2 Fed. Proc., L. Ed. (Sept. 2017).

70. Elec. Privacy Info. Ctr. (EPIC), *Petition to FAA* 1 (Feb. 24, 2012), https://epic.org/privacy/drones/FAA-553e-Petition-v-1.1.pdf.

71. *Id.* at 1.

72. Respondent's Motion to Dismiss at 7, Elec. Privacy Info. Ctr. v. Fed. Aviation Admin., 821 F.3d 39 (D.C. Cir. 2016).

premature in challenging the Small Drone Rulemaking because it was not a final, reviewable order.[73]

When the FAA published its much-anticipated rules regarding drones under the FMRA in 2016, rules relating to privacy concerns raised by EPIC and other privacy advocates were conspicuously absent.[74] The rules provide, in fact, that although privacy concerns have been raised regarding the integration of drones into the national air space privacy issues "are beyond the scope of this rulemaking."[75] EPIC immediately filed a second petition for review with the United States Court of Appeals for the District of Columbia Circuit.[76] Within its petition, EPIC urged the Court "to hold unlawful the FAA's withholding of unmanned aircraft systems privacy regulations, which the FAA has previously recognized as an important part of U.S. integration, from the June 28, 2016 Final Rule."[77] The FAA responded to EPIC's petition arguing, in pertinent part, that "[e]ven assuming FAA had discretion to engage in a privacy rulemaking, it was certainly not arbitrary or capricious for FAA to decline to promulgate privacy rules. FAA's mission is aviation safety, not the regulation of privacy interests between third parties."[78] The Court has yet to rule or schedule oral argument with respect to EPIC's second petition. It has yet to be determined, therefore, whether the Court will direct the FAA to implement privacy rules although in order to do so, the Court would have to find that the FAA's failure to do so was arbitrary and capricious. This seems unlikely given the fact that Congress made absolutely no mention of the privacy when it enacted the FMRA.

IV. STATE LEGISLATURES ARE STEPPING INTO THE BREACH

Privacy advocates like EPIC aren't the only ones attempting to weigh-in on privacy-related concerns. There is also a long and growing list of states that, concerned with the potential of wide-spread invasions of privacy within their communities, have introduced and, in many cases, passed legislation designed to limit the use of this technology by

73. EPIC v. FAA, 821 F.3d 39, 41 (D.C. Cir. 2016).

74. Operation and Certification of Small Unmanned Aircraft Systems, 80 Fed. Reg. 35 (Feb. 23, 2015) (to be codified at 14 C.F.R. §§ 21, 43, 45, 47, 61, 91, 101, 107, 183).

75. *EPIC v. FAA: Challenging the FAA's Failure to Establish Drone Privacy Rules*, EPIC.ORG, https://epic.org/privacy/litigation/apa/faa/drones/ (last visited Sept. 15, 2017).

76. EPIC v. FAA II, No. 16-1297 (D.C. Cir., Aug. 22, 2016).

77. Petitioner's Petition for Review at 2, Elec. Privacy Info. Ctr. v. Fed. Aviation Admin., 821 F.3d 39 (D.C. Cir. 2016).

78. Brief for Respondent at 15, Elec. Privacy Info. Ctr. v. Fed. Aviation Admin., 821 F.3d 39 (D.C. Cir. 2016).

public safety agencies and private citizen alike. The National Conference of State Legislatures (NCSL) reports that as of January 24, 2017, thirty-one states had enacted laws addressing drone issues and an additional five states had adopted resolutions.[79] Breaking this number down:

- Privacy legislation: Twenty-two states have passed legislation that falls into the broad category of privacy. This includes legislation related to warrant requirements for drone use by law enforcement agencies and protection from privacy violations committed by non-government operators including peeping toms.[80]

- Warrant legislation: Eighteen states have passed legislation requiring law enforcement agencies to obtain a search warrant to use UAS for surveillance to conduct a search. This legislation typically contains an exigent circumstance exception which allows police, under certain circumstances outlined in the legislation, to conduct a warrantless aerial search. Such circumstances typically include such things as the prevention of imminent destruction of evidence, pursuit of a fleeing suspect or protecting an individual from imminent danger.[81]

- Protection from non-governmental actors: At least twelve states have passed legislation providing privacy protections from other citizens that are specific to drones.[82]

79. Amanda Essex, *Taking Off: State Unmanned Aircraft Systems Policies*, NATIONAL CONFERENCE OF STATE LEGISLATURES, http://www.ncsl.org/Portals/1/Documents/transportation/TAKING_OFFSTATE_%20UNMANNED_%20AIRCRAFT_SYSTEMS_%20POLICIES_%20%28004%29.pdf (last visited Sept. 3, 2017).

80. The privacy legislation states are Alaska, Arkansas, California, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Mississippi, Montana, Nevada, North Carolina, North Dakota, Oregon, Tennessee, Texas, Utah, Vermont, Virginia, and Wisconsin. *See id.*

81. *Id.* These states include Alaska, Florida, Idaho, Illinois, Indiana, Iowa, Maine, Montana, Nevada, North Carolina, North Dakota, Oregon, Tennessee, Texas, Utah, Vermont, Virginia, and Wisconsin.

82. These states include Arkansas, California, Florida, Idaho, Kansas, Mississippi, Nevada, North Carolina, Oregon Tennessee, Texas, and Wisconsin. *Id.*

V. THE FAA HAS SOMETHING TO SAY ABOUT STATE DRONE LEGISLATION

Recognizing that states and localities were beginning to pass legislation limiting or otherwise regulating drone use in the national airspace, the FAA released a fact sheet on December 17, 2015, to provide guidance to state and local governments on this issue.[83] The FAA used this fact sheet as an opportunity to remind state legislatures that the agency has exclusive jurisdiction when it comes to safety in the national airspace. The FAA cautioned that actions taken by state legislatures to regulate drones could, under certain circumstances, threaten airspace safety and intrude into an area under the exclusive jurisdiction of the FAA. On this point, the FAA stated:

> Substantial air safety issues are raised when state or local governments attempt to regulate the operation or flight of aircraft. If one or two municipalities enacted ordinances regulating UAS in the navigable airspace and a significant number of municipalities followed suit, fractionalized control of the navigable airspace could result. In turn, this "patchwork quilt" of differing restrictions could severely limit the flexibility of FAA in controlling the airspace and flight patterns, and ensuring safety and an efficient air traffic flow. A navigable airspace free from inconsistent state and local restrictions is essential to the maintenance of a safe and sound air transportation system.[84]

Although the FAA cautioned states against overstepping their jurisdiction in this area, it did recognize that there is some room for state legislatures to operate in this area as long as the legislation deals with areas of traditional police-powers. Regarding drones, the FAA's fact sheet suggests that the following areas may be regulated by the state without overstepping into areas reserved for the FAA:[85]

- Requirement for police to obtain a warrant prior to using a drone for surveillance;

---

83. FAA Office of the Chief Counsel, *State and Local Regulation of Unmanned Aircraft Systems (UAS) Fact Sheet*, (Dec. 17, 2015), https://www.faa.gov/uas/resources/uas_regulations_policy/media/uas_fact_sheet_final.pdf.

84. *Id.* at 2. *See* Montalvo v. Spirit Airlines, 508 F.3d 464 (9th Cir. 2007), and French v. Pan Am Express, Inc., 869 F.2d 1 (1st Cir. 1989); Arizona v. U.S., 567 US 387 (2012) ("Where Congress occupies an entire field . . . even complimentary state regulation is impermissible. Field preemption reflects a congressional decision to foreclose any state regulation in the area even if it is parallel to federal standards"); *see also* Morales v. Trans World Airlines, Inc., 504 U.S. 374, 386-87 (1992).

85. FAA, *UAS Fact Sheet*, *supra* note 83, at 3.

- Specifying that UAS may not be used for voyeurism;
- Prohibitions on using UAS for hunting or fishing, or to interfere with or harass an individual who is hunting or fishing; and
- Prohibitions on attaching firearms or similar weapons to drones.[86]

State legislatures that limit their lawmaking to the areas which fall within the traditionally-recognized police powers of the state are likely to pass constitutional muster, at least as far as issues of federal preemption are concerned.[87]

VI. WHAT DOES THIS ALL MEAN WHEN IT COMES TO THE FOURTH AMENDMENT IMPLICATIONS OF DRONE USE BY LOCAL LAW ENFORCEMENT AGENCIES TODAY?

Just as drones have transformed the character of modern warfare, this new and ever-expanding technology also stands to revolutionize law enforcement in ways previously unimagined. The so-called "miraculous tools" envisioned by Justice Brennan in *Riley* are the new reality and the use of drones by law enforcement is becoming more and more common as the recent case out of Cecil County, Maryland so aptly demonstrates.

"It's like having 20 officers on patrol or more," said Tijuana Police Chief, Alejandro Lares, who uses drones to patrol residential neighborhoods in the Mexican border town.[88] "Even the bad guys . . . they're going to know now there's something in the air that might be watching them. It may be a small step in community policing, but it's huge for our future."[89] A similar sentiment was voiced by Dayton, Ohio Police Chief Richard Biehl who commented upon advanced surveillance capabilities of drones today and said he wants the public to feel watched. "I want them to be worried that we're watching. . . . I want them to be

86. *Id.*

87. *Id.* at 3.

88. Matt Alderton, *To the Rescue! Why Drones in Police Work Are the Future of Crime Fighting*, REDSHIFT, (Apr. 30, 2015), https://redshift.autodesk.com/drones-in-police-work-future-crime-fighting/.

89. *Id.*

worried that they never know when we're overhead."[90]

As more and more police agencies embrace drones as a cost-effective and efficient way to fight crime, privacy advocates such as EPIC and state legislatures across the country are sounding an alarm, arguing that the use of this technology to surveil traditionally private spaces, although expedient, comes with an unacceptable price tag: a loss of Fourth Amendment privacy rights for criminals and law-abiding citizens alike. As the debate rages on at the national level, Congress and the FAA have yet to weigh in on the topic. And although the issue will undoubtedly land before the Supreme Court within the next several years given the increasing prevalence of drone technology today, the cases we do have for guidance (*Ciraolo* and *Riley*) were written at a time when drones (i.e., "miracle tools") were mere figments of Justice Brennan's imagination.

For law enforcement agencies located in states with legislation requiring them to obtain a warrant before conducting surveillance of private property, the path forward is clearly defined; there can be no surveillance without a warrant unless, of course, the scenario falls within one of the delineated exceptions to the warrant requirement. But for agencies in states where no such laws have been passed, the way forward is murky at best. Unless and until Congress, the FAA, and/or the courts of this land weigh in on the constitutional implications of warrantless drone surveillance by law enforcement agencies, police agencies like the one in Cecil County, Maryland that elect to conduct this type of warrantless surveillance do so at their own peril.

90. Craig Timberg, *New Surveillance Technology Can Track Everyone in An Area for Several Hours at a Time*, WASH. POST (Feb. 5, 2014), https://www.washingtonpost.com/business/technology/new-surveillance-technology-can-track-everyone-in-an-area-for-several-hours-at-a-time/2014/02/05/82f1556e-876f-11e3-a5bd-844629433ba3_story.html?utm_term=.8315a11322d0.