PROTECTING REASONABLE EXPECTATIONS OF PRIVACY IN AN AGE OF DRONES: A FRAMEWORK FOR BALANCING PRIVACY INTERESTS WITH THE UTILITY OF DRONES IN LAW ENFORCEMENT

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ABSTRACT

People in the United States have become accustomed to law enforcement utilizing new surveillance technologies, but now a new aerial technology risks reshaping the American experience. The rapid proliferation of drones provides many benefits to law enforcement agencies and the communities they serve, but at the cost of threatening privacy interests. The Fourth Amendment jurisprudence permits the broad application of drone technology and offers little protection for privacy. The characteristics of drone technology permit greater intrusion into zones of privacy and are not adequately addressed by Fourth Amendment jurisprudence. Privacy rights advocates, and the public, have called for regulation to protect privacy interests, yet less than half of the States have addressed the issue to any degree. Many states that have addressed the issue have been reactionary: choosing to lock drones behind strict warrant barriers and stripping them of their beneficial applications. The Note proposes a three-step model rule for state legislatures that recommends (1) warrant requirements for targeted surveillance; (2) property-centric limitations; and (3) a drone advisory committee to further address the expanding nature of the technology and promote transparency with the public. The model rule is focused on preserving the core protections of the Fourth Amendment to statutorily preserve the reasonable expectations of privacy that existed before the proliferation of drones.

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INTRODUCTION

Drones.[1] Tools of law and order? Or the beginning of an Orwellian surveillance state?[2] Introducing drone technology into public airspace has opened a new door to complex legal issues involving balancing constitutional Fourth Amendment privacy rights with the utility this technology can offer law enforcement agencies.[3]

Some states have implemented legislation regulating law enforcement drones. In contrast, others rely on preexisting warrant requirements and the Supreme Court's Fourth Amendment framework to protect citizens' privacy interests.[4] Current Fourth Amendment jurisprudence is ill equipped to guard against the intrusive nature of drone technology, and reactionary legislation overly values privacy interests, which strips law enforcement agencies of beneficial applications of drone technology. States should enact legislation protecting the individual's right to be secure in the intimacies of their life and ensure the sustainability of that right in the future.

This Note proposes a three-step model rule for state legislatures that would permit broader applications of drones while securing recognized privacy rights by establishing warrant systems focused on the drone's activity and its interference with property, accompanied by a committee to create further guidelines and build trust with the public.[5] The three-step model rule finds the proper balance of privacy and utility while focusing on the core values of the Fourth Amendment.

Part I of this Note provides background on drones by addressing current drone technology and how law enforcement agencies use drones. Part II

1. Unmanned aircraft go by many names such as drones, unmanned aerial vehicles (UAV), unmanned aerial systems (UAS), quadcopters, remotely piloted vehicles (RPV), etc. *See* Michael L. Slack, *Automation in Transportation*, *2018 Emerging Technology: Legal Issues Involving Autonomous Vehicles*, ADVANCED INTELL. PROP. L § B(1) (2018). This Note will use the more commonly known term "drone." Congress defines an unmanned aircraft (i.e., a drone) as "an aircraft that is operated without the possibility of direct human intervention from within or on the aircraft." FAA Modernization and Reform Act of 2012, 49 U.S.C. § 44809.

2. *See generally* GEORGE ORWELL, 1984 (1949) (depicting a fictional dystopian surveillance state).

3. *See* Troy A. Rule, *Airspace in an Age of Drones*, 95 B.U. L. REV. 155, 157–58 (2015) (discussing the complicated process of integrating drones into the national airspace and some of the other problems still to be addressed regarding domestic drones); Michael J. Schoen & Michael A. Tooshi, *Confronting the New Frontier in Privacy Rights: Warrantless Unmanned Aerial Surveillance*, 25 AIR & SPACE L. 1, 19 (2012) (discussing the inherent risks of privacy intrusions of drones and the need to balance these risks with drone utility).

4. *See infra* Section II.B.

5. *See infra* Section V.B.

discusses the current legal landscape regarding aerial surveillance. Part III discusses the legislative response to drones to secure privacy interests. Part IV addresses the shortcomings of the Supreme Court's Fourth Amendment framework to protect privacy rights in an age of drones. Part V argues that state legislatures are in the best position to regulate law enforcement drone use.

I. BACKGROUND: DRONES

Many Americans are familiar with the term "drone" because of the extensive use in foreign military operations.[6] The focus has shifted from overseas to domestic drone use as the industry experiences exponential domestic growth.[7] The drones used domestically come in various shapes and sizes, from demilitarized versions of the large reaper systems available to the military[8] to small quadcopters capable of fitting in the palm of your hand.[9]

As of March 2023, the Federal Aviation Administration (FAA) reported that 872,248 drones were registered.[10] These drones are used across various domestic industries, including agriculture, real estate, mining, insurance, package delivery, construction, security, and filmmaking.[11] Drones have also garnered support

6. Drones first garnered the attention of the public with the applications of predator systems. However, the application of unmanned aerial vehicles dates back to as early as 1935. *See* Ben Zimmer, *The Flight of 'Drone' from Bees to Planes*, WALL ST. J. (July 26, 2013, 7:36 PM), https://www.wsj.com/articles/SB10001424127887324110404578625803736954968. Drones also played a role in the Vietnam War where a drone called the Firebee gathered military intelligence. Lexi Leuszler, *The History Behind and Future of Drone Warefare*, STEPPENWOLF, https://www.steppenwolf.org/articles/the-history-behind-and-future-of-drone-warefare (last visited Nov. 19, 2022).

7. *See* Douglas Y. Yang, *Big Brother's Grown Wings: The Domestic Proliferation of Drone Surveillance and the Law's Response*, 23 B.U. PUB. INT. L.J. 343, 344–45 (2014).

8. Stephanie Condon, *Pentagon Documents the Military's Growing Domestic Drone Use*, ZDNET (Jan. 25, 2019), https://www.zdnet.com/article/pentagon-documents-the-military s-growing-domestic-drone-use/ (detailing the pentagon's use of reaper drones for wildfire support in California and Oregon).

9. Amanda Lien, *Calif. PD Deploys New Indoor Micro-Drones*, POLICE1 (Feb. 12, 2020), https://www.police1.com/police-products/police-drones/articles/calif-pd-deploys-new -indoor-micro-drones-TJkW8PZGm0l81F7x/ (discussing a California police department's use of a drone the size of a fist); *see also* Austin Choi-Fitzpatrick, *Drones for Good: Technological Innovations, Social Movements, and the State*, 68 J. INT'L AFFS. 19, 20–21 (2014) (discussing innovations in drone technology that render drones more effective and intrusive).

10. *Drones by the Numbers*, FAA, https://www.faa.gov/uas (last visited Mar. 24, 2023).

11. Melanie Reid, *Grounding Drones: Big Brother's Tool Box Needs Regulation Not Elimination*, 20 RICH. J.L. & TECH. 9, 6–7 (2014). The first air carrier certification was awarded to a drone delivery company, "Wing Aviation," to carry out commercial package delivery in Blacksburg, Virginia. *U.S. Transportation Secretary Elaine L. Chao Announces*

from the public as hobbyists use drones for recreation and filmmaking.[12] As of 2022, drone markets are estimated to be worth $26.2 billion and are projected to be worth as much as $38.3 billion by 2027.[13]

The cost of drones,[14] the ease of operating drones,[15] and the ease of obtaining the necessary licenses make them an excellent way for anyone to get into the air quickly.[16] Although this is great for those seeking to get involved in this new aerial trend, it has the public fearful that people and government agencies will use drones for mischievous purposes and invade privacy.[17]

A. *Applications of Drones in Law Enforcement*

According to a study performed by Bard College, the number of state and local government agencies that had disclosed drone programs in 2020 was 1,578,

FAA Certification of Commercial Package Delivery, FAA (Apr. 23, 2019), https://www.faa.gov/newsroom/us-transportation-secretary-elaine-l-chao-announces-faa-certification-commercial-package?newsId=23554.

12. *See* Jennifer M. Bentley, *Policing the Police: Balancing the Right to Privacy Against the Beneficial Use of Drone Technology*, 70 HASTINGS L.J. 249, 253–54 (2018) (discussing the rise in popularity of recreational drones).

13. *UAV Market by Point of Sale, Systems, Platform (Civil & Commercial, and Defense & Government), Function, End Use, Application, Type (Fixed Wing, Rotary Wing, Hybrid), Mode of Operation, Mtow, Range & Region—Global Forecast to 2027*, MKTS. & MKTS., https://www.marketsandmarkets.com/Market-Reports/unmanned-aerial-vehicles-uav-market-662.html (last visited Apr. 18. 2023).

14. Anyone looking to buy a drone can buy one for as little as $30 or as much as $1,999 depending on the features and quality. *Best Drones for Sale July 2022 Summer Season*, MY FIRST DRONE, https://myfirstdrone.com/drones-for-sale (last visited Mar. 27, 2023).

15. Many drones use a dual thumb stick controller that is simple and approachable. *See How to Fly a Drone: A Beginner's Guide to Multirotor Systems & Flight Proficiency*, UAV COACH, https://uavcoach.com/how-to-fly-a-quadcopter-guide/ (last visited Mar. 27, 2023).

16. Recreational drone operators of any drone under fifty-five pounds must complete The Recreational UAS Safety Test (TRUST) and must comply with 49 § U.S.C. 44809. *See Recreational Flyers & Community-Based Organizations*, FAA, https://www.faa.gov/uas/recreational_flyers (last visited Mar. 27, 2023); *The Recreational UAS Safety Test (TRUST)*, FAA, https://www.faa.gov/uas/recreational_flyers/knowledge_test_updates (last visited Mar. 27, 2023). Any operator using a drone under fifty-five pounds for purposes other than recreation must become an FAA-certified drone pilot by passing a knowledge test and completing other requirements. *See* 14 C.F.R. §§ 107.1–.15 (2023); *Certificated Remote Pilots Including Commercial Operators*, FAA, https://www.faa.gov/uas/commercial_operators (last visited Mar. 27, 2023).

17. *See, e.g.*, Jay Stanley, *New Government Tracking System Paves the Way for Expanded Role of Drones*, ACLU (Feb. 9, 2021) [hereinafter Stanley I], https://www.aclu.org/news/privacy-technology/new-government-tracking-system-paves-the-way-for-expanded-role-of-drones (discussing the effect of regulation on security and privacy); *see also infra* Section I.B (discussing public response to drones in more detail).

which is 500 more since 2018.[18] The drones commonly deployed by law enforcement are capable of flight times ranging from thirty minutes to fifty-five minutes. They can be equipped with additional technologies such as high-definition cameras, thermal cameras, and biometric recognition technology.[19] The characteristics of drones make them more desirable than their manned counterparts for certain law enforcement operations.[20] Drone applications will likely increase in the coming years as the technology continues to advance rapidly, making drones more efficient,[21] smaller,[22] and capable of extended flight times.[23]

18. DAN GETTINGER, CTR. FOR THE STUDY OF THE DRONE AT BARD COLL., PUBLIC SAFETY DRONES 1 (Arthur Holland Michel ed., 3rd ed. 2020), https://dronecenter.bard.edu/files/2020/04/CSD-Public-Safety-Drones-3rd-edition.pdf.

19. *See* Bentley, *supra* note 12, at 257 (discussing the technology currently available to be equipped on drones and how some law enforcement agencies are utilizing drones); Shane Crotty, *The Aerial Dragnet: A Drone-Ing Need for Fourth Amendment Change*, 49 VAL. U.L. REV. 219, 228–29 (2014) ("The capabilities of drones and the technology they are equipped with make them effective law enforcement tools.").

20. *See* Jay Stanley, *We Already Have Police Helicopters, So What's the Big Deal Over Drones?*, ACLU (Mar. 8, 2013) [hereinafter Stanley II], https://www.aclu.org/news/smart-justice/we-already-have-police-helicopters-so-whats-big-deal-over (discussing how the financial barriers of manned aircraft are a natural protection against constant monitoring; a limit not shared by drones); Paul McBride, Comment, *Beyond Orwell: The Application of Unmanned Aircraft Systems in Domestic Surveillance Operations*, 74 J. AIR L. & COM. 627, 651–54 (2009) (explaining drones are more beneficial than manned aircraft because of the ability to be piloted remotely, having advanced camera systems, operating in silence, and eventually operating for longer periods); *cf.* GREGORY MCNEAL, BROOKINGS INST., DRONES AND AERIAL SURVEILLANCE: CONSIDERATIONS FOR LEGISLATURES 1, 2–3 (2014), https://www.brookings.edu/research/drones-and-aerial-surveillance-considerations-for-legislatures/ (stating that drones are less capable than manned aircraft because of limited flight times and inability to carry heavy, advanced equipment).

21. One recent suggestion to make drones more efficient is the use of "nests"—small charging pads that allow drones to be deployed instantly. *See* Curt Fleming, *Remote Drone Dispatch: Law Enforcement's Future?*, POLICE CHIEF MAG., https://www.policechiefmagazine.org/remote-drone-dispatch/ (last visited Apr. 18 2023); *see also* Rebecca L. Scharf, *Game of Drones: Rolling the Dice with Unmanned Aerial Vehicles and Privacy*, 2018 UTAH L. REV. 457, 462–67 (2018) (discussing the advancements made thus far in the drone industry).

22. The U.S. Air Force is currently working on creating drones as small as bugs. Bruce Crumley, *Bug off: US Military Planning Winged, Insect-Like Microdrone*, DRONEDJ (June 18, 2021, 4:26 AM), https://dronedj.com/2021/06/18/bug-off-us-military-planning-winged-insect-like-microdrone/.

23. New advancements in recharging technology is showing promise for a future drone capable of indefinite flight times. Jack Loughran, *Wirelessly Powered Drone Enables Indefinite Flight Time*, ENG'G & TECH. (Oct. 20, 2016), https://eandt.theiet.org/content/articles/2016/10/wirelessly-powered-drone-enables-indefinite-flight-time/.

Drones are used for various tasks, including search and rescue, investigating crime scenes, monitoring traffic, monitoring crowds, patrolling streets, responding to calls, monitoring natural disasters, monitoring criminal activity, locating fleeing suspects, and monitoring dangerous situations.[24] Drones are a particularly sought-after technology because they allow police to gain a bird's eye view of any situation quickly,[25] safely,[26] discreetly,[27] efficiently,[28] and cheaply.[29]

Chula Vista, California, has one of the most expansive drone programs in the country. The city uses drones in new ways by integrating them into everyday law enforcement activities.[30] For example, the police department uses drones to respond to emergency calls to increase police response times and enhance officer and community safety by improving situational awareness and de-escalating

24. *See* Bentley, *supra* note 12, at 257–58; *see also* Cade Metz, *Police Drones Are Starting to Think for Themselves*, N.Y. TIMES (Dec. 5, 2020), https://www.nytimes.com/2020/12/05/technology/police-drones.html (detailing drone operations in Chula Vista, California where police are using drones for a wide variety of tasks, including responding to emergency calls); Michael C. Heatherly, *Drones: The American Controversy*, 7 J. STRATEGIC SEC. 25, 32–34 (2014) (discussing the advantages that drones provide law enforcement officers in dangerous situations).

25. *See, e.g.*, *Drone Program*, CITY OF CHULA VISTA, https://www.chulavistaca.gov/departments/police-department/programs/uas-drone-program (last visited Mar. 27, 2023) (showing the average response time from a take-off site is 209.21 seconds from the time of receiving the call).

26. *See* Bentley, *supra* note 12, at 258–59 (noting New York Governor Cuomo's sentiments of increased officer safety); Mary Mara, *A Look at the Fourth Amendment Implications of Drone Surveillance by Law Enforcement Today*, 9 CONLAWNOW 1, 7–8 (2018) (stating that drones offer greater safety to officers by allowing them to acquire situational awareness).

27. Manned alternatives are loud and visible, whereas drones are quiet and small in comparison. The average drone puts out roughly fifty to fifty-five decibels from an altitude of 100 meters, whereas a helicopter at the same height is ninety-five decibels. *Drone Noise Levels*, AIRBORNE DRONES (Jan. 13, 2020), https://www.airbornedrones.co/drone-noise-levels/.

28. *See* UAV COACH, *supra* note 15 (explaining how easy drones are to operate).

29. Drones are cheap compared to their manned counterparts. A typical helicopter costs $500,000 to $3 million to acquire, another $200 to $400 per hour to operate, and may require multiple crew members. Stanley II, *supra* note 20. Conversely, the drones commonly deployed by police cost roughly $35,000 per drone with all of the equipment necessary, and because they are battery-powered, do not require refueling costs. Metz, *supra* note 24. The low cost and ease of use also make drones more available to law enforcement agencies in smaller jurisdictions that normally do not have access to surveillance technology. Mariana Oliver & Matthew B. Kugler, *Surveying Surveillance: A National Study of Police Department Surveillance Technologies*, 54 ARIZ. ST. L.J. 103, 117–18 (2022).

30. *See* CITY OF CHULA VISTA, *supra* note 25.

situations before officers arrive.[31] The number of success stories are staggering and will likely continue to increase as law enforcement agencies across the country adopt drone programs.[32]

While many of the operations commonly performed by drones pose few risks of intruding on the public's privacy, others are more controversial.[33] The capabilities of law enforcement drones to invade the public's privacy created a significant backlash.[34]

B. *The Public's Response to Law Enforcement Drone Use*

Public backlash typically accompanies the application of new intrusive technologies in law enforcement.[35] The response to drones has been no different. Recent studies have shown public disapproval of drone surveillance is as high as 78%.[36] Several privacy-focused organizations, such as the American Civil Liberties Union (ACLU), the Electronic Privacy Information Center (EPIC), and the Electronic Frontier Foundation (EFF), have been significant opponents to the integration of drones into law enforcement, citing fears of a surveillance state.[37]

31. *See id*. (noting 13,054 drones have responded to calls between 2018 and 2022 in Chula Vista); *see also* Kristal Dixon, *Metro Atlanta Police Are Using Drones to Respond to 911 Calls*, AXIOS ATLANTA (Mar. 21, 2022), https://www.axios.com/local/atlanta/2022/03/21/atlanta-police-drones-911-call (discussing similar efforts by the Atlanta Police Department).

32. *See, e.g.*, Haye Kesteloo, *Sheriff's Department Drone Saves Lives After 200 Successful Flights*, DRONEXL (Dec. 8, 2021), https://dronexl.co/2021/12/08/sheriffs-department-drone-saves-lives/ (stating the Winston County Sheriff's Department in Missouri had 195 successful drone flights within its first year of using drones); Veronika Spangler, *Drones to the Rescue During the Wildfires*, SUSTAINABLE REV. (Oct. 20, 2020), https://sustainablereview.com/drones-to-the-rescue-amid-the-wildfires/; Jack Karsten & Darrell M. West, *How Emergency Responders Are Using Drones to Save Lives*, BROOKINGS INST. (Dec. 4, 2018), https://www.brookings.edu/blog/techtank/2018/12/04/how-emergency-responders-are-using-drones-to-save-lives/.

33. *See* Bentley, *supra* note 12, at 251.

34. *See infra* Section II.B.

35. *See, e.g.*, ROBERT MUGGAH, EMILE BADRAN, BRUNO SIQUEIRA & JUSTIN KOSSLYN, IGARAPÉ INST., FILLING THE GAP: PRINCIPLES AND PRACTICES FOR IMPLEMENTING BODY CAMERAS FOR LAW ENFORCEMENT 1, 4–5 (2016) (describing privacy concerns raised by police body cameras).

36. Linda M. Merola & Ryan P. Murphy, *Understanding the Public's Opinions of UAV-Assisted Residential Monitoring by Police*, 49 FORDHAM URB. L.J. 763, 788 (2022).

37. *See* Bentley, *supra* note 12, at 259.

Public fears of drone integration into law enforcement have resulted in the dissolution of some efforts to implement drones into police departments.[38] The Mayor of Seattle ended an attempt to begin a drone program in the Seattle Police Department after residents and the Washington chapter of the ACLU protested the program, citing fears of privacy intrusion.[39] The public outcry was likely the result of poor transparency with the public and a lack of operational guidelines.[40]

A study by the Institute of Policy and Business Analytics at the University of North Dakota displayed that people were more receptive to law enforcement drones when they understood drone applications.[41] Another study by Linda Merola and Ryan Murphy examined the public response to drones, specifically in residential settings.[42] Perhaps one of the most interesting narratives arising from the study is that the altitude of drone operations influences the public's attitude toward drones.[43] The study found a significant difference between public attitudes toward drone operations performed at fifty feet versus 1,000 feet.[44]

These studies reveal that transparency and limits to drone operations are integral to garnering public support.[45] The drones are coming, and many might be surprised to find that their constitutional right to be free from warrantless searches likely does not provide many protections from drone technology.

II. THE SUPREME COURT'S PRIVACY FRAMEWORK

The protections against searches and seizures arise out of the Fourth Amendment of the Constitution:

38. *See, e.g.*, Carl Schwartz, Big Brother or Trusted Allies? How the Police Can Earn Community Support for Using Unmanned Aircraft 1, 32–34 (Dec. 2017) (Master's thesis, Naval Postgraduate School) (ProQuest) (discussing the failed attempt to start a drone program in Seattle); Clare O'Gara, *Police Department Cancels 'Pandemic Drone Flights' After Privacy Push Back*, SECUREWORLD (Apr. 27, 2020, 6:15 AM), https://www.secureworld.io/industry-news/covid-19-drone-flights-privacy (discussing the cancellation of drone flights to monitor COVID-19 in Westfield, Connecticut after public backlash).

39. *See* Schwartz, *supra* note 38, at 32–34.

40. *See id.* at 61–63.

41. *See* Tom Dennis, *National Survey Finds Americans Cautious but Upbeat About Drones*, UNIV. OF N.D. (Apr. 15, 2021), https://blogs.und.edu/und-today/2021/04/americans-support-high-value-uses-of-drones-und-survey-reports/.

42. *See* Merola & Murphy, *supra* note 36, at 793.

43. *See id.* at 793.

44. *See id.* at 788 (explaining study that found a 64% disapproval rate of targeted surveillance of property at 1,000 feet, versus a 78% disapproval rate of targeted surveillance of property at fifty feet).

45. *See id.* at 798 (discussing how increased transparency can increase support); Dennis, s*upra* note 41; *see also* Schwartz, *supra* note 38, at 73–75.

> The 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, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.[46]

The Supreme Court has incorporated the Fourth Amendment to apply to the states through the Fourteenth Amendment.[47] The Supreme Court has altered its position on the applicability of the Fourth Amendment, broadening its sphere of protection. Still, concerns exist about the scope of the Court's Fourth Amendment cases' applicability to modern-day drones.[48]

The Court's primary concern with government surveillance is determining whether a "search" has occurred.[49] If the facts indicate that a search did occur, the Court then determines whether the search was reasonable. A search can only be reasonable if it was performed pursuant to a valid search warrant[50] or if it fits under a judicially accepted exception.[51] If an unreasonable search occurs, the information obtained is subject to the exclusionary rule, making the evidence inadmissible in court.[52] In the context of drones, the federal government has remained largely uninvolved in strengthening privacy interests; instead, it aims to increase operational safety.[53] Meanwhile, some states have sought to strengthen privacy rights by protecting the public from warrantless drone surveillance through blanket warrant requirements.[54]

46. U.S. CONST. amend. IV.

47. *See* Mapp v. Ohio, 367 U.S. 643, 655 (1961).

48. *See* Alex S. Spelman, *Drones: Updating the Fourth Amendment and the Technological Trespass Doctrine*, 16 NEV. L.J. 373, 401–06 (2015) (discussing scenarios where the Fourth Amendment does not provide protections and describing the risks drones pose in those situations).

49. United States v. Jones, 565 U.S. 400, 405–06 (2012).

50. *See* Camara v. Mun. Ct. of S.F., 387 U.S. 523, 528–29 (1967).

51. *See* Birchfield v. North Dakota, 579 U.S. 438, 456 (2016).

52. The exclusionary rule operates as a deterrent by dissuading illegal means of obtaining evidence. It is not a remedy as it does nothing to address the injuries arising from such actions. *See* United States v. Calandra, 414 U.S. 338, 347 (1974); *see also* Mike Madden, *A Model Rule for Excluding Improperly or Unconstitutionally Obtained Evidence*, 33 BERKELEY J. INT'L L. 442, 447–48 (2015) (discussing the rationale for the deterrent-based policy of the exclusionary rule).

53. *See* FAA Modernization and Reform Act of 2012, 49 U.S.C. § 44809.

54. *See* Yang, *supra* note 7, at 368.

A. *The Fourth Amendment Cases Addressing the Bounds of Privacy*

From the late nineteenth to the mid-twentieth century, the Supreme Court interpreted the Fourth Amendment as property rather than privacy.[55] This sentiment is expressed in the Court's opinion in *Olmstead v. United States*,[56] in which the Court determined whether evidence obtained through phone lines outside of the defendant's residence was inadmissible due to a Fourth Amendment violation.[57] The Court concluded that the activity, despite not having been authorized by a warrant, was not a violation of the Fourth Amendment. The Court placed substantial weight on whether there was an actual physical intrusion of the defendant's property.[58] The Court concluded that there was no search and seizure within the meaning of the Fourth Amendment, as law enforcement obtained the evidence by intercepting communications without physically trespassing on the defendant's property.[59]

In his dissent, Justice Brandeis articulated the more modern view to come, recognizing Fourth Amendment protections of one's "indefeasible right of personal security, personal liberty and private property . . . ."[60] Brandeis, along with his fellow dissenters, wanted the Court to take a broader interpretation of the Fourth Amendment more catered to the modern world, where breaches of privacy would no longer require physical invasion, but could be accomplished through far-reaching means.[61] As Justice Holmes stated in his dissenting opinion, "it is in harmony with the rule of liberal construction that always has been applied to provisions of the Constitution safeguarding personal rights."[62]

In later years, the Supreme Court would chip away at the property framework of the Fourth Amendment and officially abandon it in *Warden v.*

55. *Compare* Boyd v. United States, 116 U.S. 616, 634–35 (1886) (establishing a property-based framework to Fourth Amendment reasonableness of warrantless searches), *with* Warden, Md. Penitentiary v. Hayden, 387 U.S. 294, 305–10 (1967) (assessing Fourth Amendment reasonableness in terms of the person rather than the property); *see also* Thomas K. Clancy, *The Fourth Amendment's Concept of Reasonableness*, 2004 UTAH L. REV. 977, 991–92 (2004) (describing the evolution of Fourth Amendment interpretations from 1886–1967).

56. 277 U.S. 438 (1928), *overruled by* Berger v. New York, 388 U.S. 41 (1967).

57. *Id.* at 456–57.

58. *Id.* at 466; *see also* Silverman v. United States, 365 U.S. 505, 507–10 (1961) (stating that touching a microphone antenna to a heating duct in the Defendant's property was a physical intrusion in violation of the Fourth Amendment).

59. *See Olmstead*, 277 U.S. at 466.

60. *Id.* at 474–75 (Brandeis, J., dissenting).

61. *Id.* at 475.

62. *Id.* at 487 (Butler, J., dissenting).

Hayden,[63] focusing instead on privacy.[64] *Berger v. New York*[65] would become the next breakthrough case, as the Court analyzed the invasion of privacy via spying technology in terms of what was being monitored, to what extent, and for how long.[66] The tides were changing for Fourth Amendment jurisprudence, and the Court embraced the change in its decision in *Katz v. United States*.[67]

In *Katz*, the Court considered whether a listening device attached to the outside of a telephone booth constituted an illegal search absent a warrant.[68] The arguments centered on whether the place was constitutionally protected. Still, the Court noted that both arguments were faulty because it is the person and not the place that the Fourth Amendment protects.[69] Keeping in line with this statement, the Court overruled the *Olmstead* standard and focused on the person's expectation of privacy, regardless of the setting.[70]

The *Katz* opinion was the official departure from the physical invasion test; however, the majority opinion did not offer a framework for analyzing when and where a person may have an expectation of privacy.[71] Justice Harlan's concurrence offered insight into how courts could evaluate Fourth Amendment cases by proposing a "reasonable expectation of privacy test."[72] Harlan stated 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.'"[73] Harlan's framework proved

63. 387 U.S. 294 (1967).

64. *Id.* at 304 ("We, have recognized that the principal object of the Fourth Amendment is the protection of privacy rather than property . . . ."). Although the focus had shifted to property, the physical invasion test established in *Olmstead* was still the framework of choice. *See, e.g.*, Silverthorne Lumber Co. v. United States, 251 U.S. 385, 391–92 (1920).

65. 388 U.S. 41 (1967).

66. *See id.* at 43–44 (1967); *see also* Yang, *supra* note 7, at 352–53.

67. 389 U.S. 347 (1967).

68. *Id.* at 348.

69. *Id.* at 349–50. The Court noted that "the 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." *Id.* at 351.

70. *See id.* at 359.

71. The majority opinion seems to take a revolutionary stance in upheaving the prior Fourth Amendment regime, yet does nothing to address how this newly expanded right to privacy is to be determined. Rather, it was Justice Harlan's concurrence that replaced the majority opinion in significance. Peter Winn, Katz *and the Origins of the "Reasonable Expectation of Privacy" Test*, 40 MCGEORGE L. REV. 1, 6–7 (2009).

72. *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

73. *Id.* at 361.

to be the standard going forward, and it remains the method used for evaluating Fourth Amendment cases today.[74]

Katz proved not to eradicate the physical invasion test, as the Supreme Court gave it new life in *United States v. Jones*.[75] In *Jones*, the Court was faced with determining whether the placement of a tracker on a car constituted a search.[76] The Court held that the reasonable expectation framework did not replace the physical invasion test, but joined it.[77] The physical invasion test and the reasonable expectation of privacy test encompass the approach to Fourth Amendment cases today. It is unclear how these tests would apply to drone technology, but some remote surveillance cases exist to illuminate the applicability of the tests to drone surveillance.

B. *Building on the Zones of Privacy and the Impact of Aerial Surveillance*

Although the Supreme Court has never addressed drone technology specifically, some cases following the *Katz* formulation provide insight into how the Court would likely approach the reasonable expectation of privacy test in the context of drone surveillance.

1. The Curtilage Doctrine

In *California v. Ciraolo*,[78] the Supreme Court determined the effect of the reasonable expectation of privacy test on aerial surveillance performed above one's curtilage.[79] The police flew a plane one-thousand feet above the defendant's property, revealing the presence of growing marijuana plants,

74. *See, e.g.*, Mancusi v. DeForte, 392 U.S. 364, 368 (1968) (applying Harlan's "reasonable expectation of privacy test" a year after *Katz*); Kyllo v. United States, 533 U.S. 27, 33 (2001) (applying the same test in 2001); Commonwealth v. DeJesus, 182 N.E.3d 280, 282 (Mass. 2022) (applying the same test in 2022).

75. 565 U.S. 400 (2012).

76. *Id.* at 402–03.

77. *See id.* at 406–07.

78. 476 U.S. 207 (1986).

79. *Id.* at 209; *see also* United States v. Dunn, 480 U.S. 294, 301 (1987) (stating that the factors for determining the bounds of a home's curtilage are "the proximity of the area claimed to be curtilage to the home, whether the area is included within an enclosure surrounding the home, the nature of the uses to which the area is put, and the steps taken by the resident to protect the area from observation by people passing by"); Oliver v. United States, 466 U.S. 170, 180 (1984) (stating curtilage is "the area to which extends the intimate activity associated with the 'sanctity of a man's home and the privacies of life'" (quoting Boyd v. United States, 116 U.S. 616, 630 (1886))); *Curtilage*, BLACK'S LAW DICTIONARY (11th ed. 2019) (defining curtilage as "[t]he land or yard adjoining a house, [usually] within an enclosure. Under the Fourth Amendment, the curtilage is an area [usually] protected from warrantless searches").

resulting in a search warrant and the defendant's arrest.[80] The Court recognized that the curtilage as an extension of the home warrants a higher expectation of privacy.[81] Despite these sentiments, the Court found that there was no reasonable expectation of privacy because the second prong was not met: whether society is willing to recognize the expectation of privacy as reasonable.[82]

Despite the Fourth Amendment's direct protection of the home,[83] the home does not enjoy blanket protections.[84] The majority in *Ciraolo* established the doctrine now commonly referred to as the "open view doctrine" in stating that "a man's home is, for most purposes, a place where he expects privacy, but objects, activities, or statements that he exposes to the 'plain view' of outsiders are not 'protected' because no intention to keep them to himself has been exhibited."[85] The Court held that any aerial surveillance performed with the unaided eye in the public airways is presumptively constitutional. In its analysis, the Court stated that Fourth Amendment protections only stretch so far, and that law enforcement officers are not required to shield their eyes whenever passing by areas that may bring about privacy concerns when such areas are readily observable from a particular vantage point.[86]

The Court would revisit *Ciraolo* in *Florida v. Riley*,[87] which contained facts like *Ciraolo*, except the mode used was a helicopter at the height of 400 feet.[88] The Court broadened the *Ciraolo* approach, stating that "the police may see what may be seen 'from a public vantage point where [they have] a right to be.'"[89] In addition, the Court focused on the legality of the surveillance, the duration, the method, the commonality of method, and the effect of the method on the person and property being surveilled.[90] The Court focused on the fact that helicopters flying at an altitude of 400 feet above one's home is not rare, lending credence

80. *See Ciraolo*, 476 U.S. at 209–10.

81. *Id.* at 212–13.

82. *Id.* at 212–14.

83. U.S. CONST. amend. IV.

84. Katz v. United States, 389 U.S. 347, 361 (1967) (Harlan, J., concurring).

85. *Ciraolo*, 476 U.S. at 215. Despite the Court using the phrase "plain view," the doctrine is commonly referred to as the "open view doctrine" to avoid confusion with the "plain view doctrine," a rule that permits officers to seize readily observable objects outside the grant of a warrant. *Compare* Coolidge v. New Hampshire, 403 U.S. 443, 465–67 (1971) (explaining the plain view doctrine), *with* State v. Rose, 909 P.2d 280, 283 (Wash. 1996) (referring to the rule articulated in *Ciraolo* as the "open view doctrine"); *see also* Yang, *supra* note 7, at 359 n.119.

86. *Ciraolo*, 476 U.S. at 212–14.

87. 488 U.S. 445 (1989).

88. *Id*. at 445.

89. *Id*. at 449 (alteration in original) (quoting *Ciraolo*, 476 U.S. at 213).

90. *Id.* at 451–52.

to the determination that society would not be prepared to recognize the expectation of privacy as reasonable.[91]

2. The Open Field Doctrine

Courts have recognized a difference between curtilage and "open fields" that warrants a distinction in the expectation of privacy.[92] The "open field doctrine," contrary to the use of the words "open" and "field," does not apply explicitly to either but to areas that exist beyond the curtilage where there is no expectation of privacy.[93] The "open field doctrine" permits a search of private property without a warrant.[94] The "open field" exists beyond the curtilage in an area where no person would find a reasonable expectation of privacy.[95]

The line between an "open field" and "curtilage" can become blurry, as seen in *Dow Chemical Co. v. United States*,[96] when the Court addressed which standard to use for outdoor industrial facilities.[97] In *Dow*, the Environmental Protection Agency (EPA) used a helicopter equipped with a precision mapping camera to obtain images of Dow's 2,000-acre facility in Michigan.[98] The Court concluded that the facility was in a precarious position, containing characteristics applicable to both doctrines but not sufficient to implicate either.[99] With the two doctrines in mind, the Court analyzed the nature of the facility, the ability of the public to view certain areas, and the nature of the surveillance.[100] The ultimate decision rested mainly on the nature of the surveillance, finding that the non-trespassory nature of the inspection did not warrant a heightened expectation of

91. *Id.* at 450.

92. *See* Hester v. United States, 265 U.S. 57, 58–59 (1924) (establishing the "open field doctrine"); Oliver v. United States, 466 U.S. 170, 174 (1984) (discussing the historic underpinnings and rationale for distinguishing between open fields and curtilage). For a general discussion of the difficulties with differentiating between curtilage and open field, see Carrie Leonetti, *Open Fields in the Inner City: Application of the Curtilage Doctrine to Urban and Suburban Areas*, 15 GEO. MASON U. CIV. RTS. L.J. 297, 310–19 (2005).

93. *See* Dow Chem. Co. v. United States, 476 U.S. 227, 235–36 (1986); *Oliver*, 466 U.S. at 178 (rationalizing that the open field doctrine exists because "an individual may not legitimately demand privacy for activities conducted out of doors in fields, except in the area immediately surrounding the home").

94. *Oliver*, 466 U.S. at 181 (stating "an individual has no legitimate expectation that open fields will remain free from warrantless intrusion by government officers").

95. *Id.* at 178.

96. 476 U.S. 227 (1986).

97. *Id.* at 227.

98. *Id.* at 229.

99. *Id.* at 236–37.

100. *Id.* at 236–38.

privacy.[101] The case shows the complicated relationship between the open field doctrine and the curtilage doctrine, and requires courts to address the doctrines on a case-by-case basis.[102]

3. Sense-Enhancing Technology and the Fourth Amendment

Sense-enhancing technology capable of implicating a search includes mechanical devices that allow law enforcement to obtain "information regarding the [home's] interior . . . that could not otherwise have been obtained without physical 'intrusion into a constitutionally protected area.'"[103] In *Kyllo v. United States*,[104] law enforcement used thermal imaging technology to detect heat signatures emanating from the inside of Kyllo's home to the outside, which was consistent with a marijuana grow.[105] Armed with this information, law enforcement obtained a warrant to search Kyllo's house, where marijuana was found.[106]

The Court stated, "[w]here, as here, the Government uses a device that is not in general public use, to explore details of the home that would previously have been unknowable without physical intrusion, the surveillance is a 'search' and is presumptively unreasonable without a warrant."[107] Since *Kyllo*, the Court has not expanded the limitation against sense-enhancing technology beyond thermal imaging.[108]

101. *Id.* at 239.

102. When articulating the open field doctrine, the Court in *Oliver* rejected the case-by-case approach because it makes it difficult for police to discern their scope of authority. Oliver v. United States, 466 U.S. 170, 181–82 (1984). However, contrary to this belief, courts have since leaned toward the case-by-case approach. *See* Yang, *supra* note 7, at 365; *see, e.g.*, State v. Pacheco, 101 S.W.3d 913, 918 (Mo. Ct. App. 2003) (stating that whether a driveway is curtilage or open field is determined on a case-by-case basis).

103. Kyllo v. United States, 533 U.S. 27, 34 (2001) (quoting Silverman v. United States, 365 U.S. 505, 512 (1961)).

104. 533 U.S. 27 (2001).

105. *Id.* at 29.

106. *Id.* at 30.

107. *Id.* at 40.

108. Alayna Holmstrom, *Big Brother Isn't Watching: How* State v. Jones *Transformed What One Can See with a Naked Eye into a Fourth Amendment Search*, 63 S.D. L. REV. 450, 480 (2018) (stating that no subsequent cases have found other technologies capable of implicating a *Kyllo* search); *see, e.g.*, Dow Chem. Co. v. United States, 476 U.S. 227, 238–39 (1986) (holding that an advanced mapping camera was not overly intrusive); Illinois v. Caballes, 543 U.S. 405, 409–10 (2005) (holding that a canine sniff did not implicate the *Kyllo* rationale).

C. *Drawing the Line Between Navigable Airspace and Private Property*

When applying the reasonable expectation of privacy test, a key question is, at what point is an aerial surveyor no longer in a place they ought to be, but rather trespassing upon private property? The answer is speculative, as the Court has not set a definitive standard below 400 feet.[109] In *Riley*, the Court stated that a helicopter flying at 400 feet was within the navigable airspace, and thus a search had not occurred. Still, the Court left open the determination of whether lower altitudes would implicate a reasonable expectation of privacy.[110]

Conversely, in *United States v. Causby*,[111] the Supreme Court found that aerial activities could constitute a trespass under certain conditions.[112] The Court analyzed whether a government taking had occurred when airplanes passed eighty-three feet above the Causbys' home on take-off and landing from a public airport that neighbored their property.[113] The proximity of the planes to the Causbys' residence resulted in a detriment to their enjoyment of their home and how they used it.[114]

Justice Douglas authored the majority opinion and established that a landowner owned "at least as much of the space above the ground as he can occupy or use in connection with the land."[115] This means that if the government or another party intrudes into that space, it should be treated in the same category as a trespass on the surface. The decision rested on the premise that a taking could occur if the flights were "so low and so frequent as to be a direct and immediate interference with the enjoyment and use of the land."[116] *Causby* recognized two classes of airspace: (1) the navigable airspace serving as a "public highway" where a landowner has no right to exclude; and (2) the airspace below where a landowner has some right to exclude.[117]

Drones pose a unique problem because they occupy an area below 400 feet, lower than the judicially recognized limit. Despite their unique characteristics and limited area of operation within the navigable airspace, neither Congress nor

109. *See* Florida v. Riley, 488 U.S. 445, 451 (1989); *see also* MCNEAL, *supra* note 20, at 12 (discussing the Court's "unclear" jurisprudence guided by the principle of "looking at whether the observation took place from [a] 'navigable airspace'").

110. *See Riley*, 488 U.S. at 451.

111. 328 U.S. 256 (1946).

112. *Id.* at 261.

113. *Id.* at 258–60.

114. In addition to the nuisance of the sound, the Causbys had to forego their chicken farm because the passing planes caused the chickens to run into walls and kill themselves. *Id.* at 259.

115. *Id.* at 264.

116. *Id.* at 266.

117. *See id.* at 260–62; MCNEAL, *supra* note 20, at 9.

the Supreme Court has addressed whether there is a reasonable expectation of privacy prohibiting drones from capturing images or videos of the public.

III. THE LEGISLATIVE RESPONSE

Absent robust Fourth Amendment protections, federal and state legislatures have sought to address the rising privacy concerns around law enforcement drone use. The FAA and Congress have focused on the safety of drone technology in recent years.[118] While federal efforts concentrate on safety, the states have taken aim at the privacy implications by passing legislation to create warrant barriers to drone use.[119] While some of these state approaches have increased privacy protections, they usually do so to the detriment of law enforcement agencies, overly depriving them of beneficial drone applications.

A. *Federal Legislation*

Drones are subject to congressional and FAA regulations because drones operate within the national airspace.[120] In 2012, Congress pushed for the FAA to create a plan to integrate drones into the national airspace when it passed the FAA Modernization and Reform Act of 2012.[121] Thus far, federal action has been targeted at integrating drone technology into the national airspace.[122] The FAA's

118. *See infra* Section III.A.

119. *See infra* Section III.B.

120. Congress gave the United States sovereignty over its airspace through the Air Commerce Act of 1926, Pub. L. No. 69-254, 44 Stat. 568, 572 (1926) and the Civil Aeronautics Act of 1938, 49 U.S.C. § 40103. The FAA was designated to regulate the national airspace through the Federal Aviation Act of 1958, Pub. L. No. 85-726, 72 Stat. 737 (1958) (repealed and recodified in scattered sections of 49 U.S.C.).

121. 49 U.S.C. § 44809.

122. *See, e.g.*, Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42063 (June 28, 2016) (codified at 14 C.F.R. § 107 (2023)); Remote Identification of Unmanned Aircraft, 84 Fed. Reg. 4390, 4403 (Dec. 31, 2019) (codified at 14 C.F.R. § 107 (2023)) (creating identification requirements for drones to "address safety, national security, and law enforcement concerns regarding the further integration of these aircraft into the airspace of the United States while also enabling greater operational capabilities").

primary concern with drones has been ensuring the safety and efficiency of the nation's airspace,[123] leaving privacy questions to the states.[124]

Currently, law enforcement agencies can operate drones under the "sUAS"[125] rules, or obtain a Certificate of Authorization (COA) to operate a drone as a public aircraft operator.[126] The sUAS rules were created as a part of the FAA's continued mission to integrate drones into the national airspace.[127] Among other limitations,[128] a certified pilot cannot fly outside of the line of sight,[129] over human beings,[130] in certain airspaces,[131] and above 400 feet of the ground or a structure.[132] COAs permit public operations for government purposes and have fewer restrictions upon approval from the Secretary of Transportation.[133]

123. *See* 49 U.S.C. § 44802(a)(2)(B) (discussing the goal of increased safety in the national airspace by integrating drones); 14 C.F.R. §§ 107.1–.15 (2023); Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42063, 42190 (June 28, 2016) (codified at 14 C.F.R. § 107 (2023)) ("[T]he FAA notes that its mission is to provide the safest, most efficient aerospace system in the world, and does not include regulating privacy.").

124. *See, e.g.*, Unmanned Aircraft System Test Site Program, 78 Fed. Reg. 12259, 12260 (Nov. 13, 2013) (codified at 14 C.F.R. § 91 (2023)) (stating that privacy concerns associated with the unmanned aircraft test site program are better left to state and local governments, and that such action is already being taken); *State and Local Regulation of Unmanned Aircraft Systems (UAS) Fact Sheet*, FAA 1, 4 (Dec. 17, 2015) [hereinafter *FAA Fact Sheet*], https://www.faa.gov/newsroom/faa-issues-fact-sheet-state-and-local-uas-laws.

125. "sUAS" stands for Small Unmanned Aircraft and refers to unmanned aircraft weighing less than fifty-five pounds. The sUAS rules are generally referred to as "Part 107." 14 C.F.R. § 107.3 (2023).

126. *Drones in Public Safety: A Guide to Starting Operations*, FAA (Feb. 2019), https://www.faa.gov/uas/public_safety_gov/drone_program.

127. *See* Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42063, 42070 (June 28, 2016) (codified at 14 C.F.R. § 107 (2023)) (discussing the importance of Part 107 to further the FAA's efforts to integrate drones into the national airspace).

128. For an exhaustive list of operating limitations under Part 107, see 14 C.F.R. §§ 107.11–.51 (2023).

129. *Id.* § 107.31.

130. *Id.* § 107.39.

131. Pilots may fly in B, C, D, or E class airspaces with prior approval from air traffic control. *Id.* § 107.41.

132. *Id.* § 107.51.

133. *See* 49 U.S.C. § 44806 (allowing any use of a drone under a COA by a government agency for public purposes but not for commercial purposes or to carry anyone other than a crewmember or qualified non-crewmember); *Applying for a Public COA vs. Part 107 Certification for Police and Fire Departments*, DRONE PILOT GROUND SCH. (Nov. 16, 2021), https://www.dronepilotgroundschool.com/coa-part-107/#:~:text=According%20to%20the%20FAA%2C%20federal,under%20the%20Part%20107%20rule.

Outside of the FAA, Congress has also shifted its focus to increasing safety from drone integration rather than privacy.[134] However, some members of Congress have attempted to address privacy rights, but the efforts failed.[135] All legislation introduced to address privacy has attempted to place blanket warrant requirements on drones.[136]

B. *State Legislation*

The FAA has acknowledged that state and local governments may make legislative decisions that reach into navigable airspace. Legislation related to navigable airspace is permissible if it is made pursuant to traditional police powers and does not contradict FAA regulations or enter the sphere of regulations traditionally left to the FAA.[137] Courts have interpreted several categories of aerial legislation that are federally preempted by the Federal

134. *See, e.g.*, Safeguarding the Homeland from the Threats Posed by Unmanned Aircraft Systems Act of 2022, S. 4687, 117th Cong. (2d Sess. 2022) (proposing increased safety measures against malicious drone activity); Stopping Harmful Incidents to Enforce Lawful Drone Use Act, S. 4801, 117th Cong. (2d Sess. 2022) (proposing counter UAV measures at airports to promote safe airspace).

135. *See, e.g.*, Drone Aircraft Privacy and Transparency Act of 2017, H.R. 1526, 115th Cong. (2d Sess. 2017); Preserving American Privacy Act of 2018, H.R. 6617, 115th Cong. (2d Sess. 2018); Preserving Freedom from Unwarranted Surveillance Act of 2013, H.R. 972, 113th Cong. (1st Sess. 2013).

136. *See* H.R. 1526 (restricting warrants for drone use to obtain evidence unless there is a risk of death or serious injury or a high risk of terrorist activity); H.R. 6617 (including evidence of organized crime as an exception to the warrant restriction and adding public notice requirements); H.R. 972 (including damage to property, escape of a suspect, and destruction of evidence as exceptions to the warrant restriction); *see also* Yang, *supra* note 7, at 366–67 (discussing proposed legislation addressing protecting privacy from drones).

137. The Ninth Circuit addressed the issue of preemption of state laws interfering with the navigable airspace. Skysign Int'l, Inc. v. City of Honolulu, 276 F.3d 1109, 1116–18 (9th Cir. 2002). The FAA has since acknowledged the decision and published literature to that effect. *See, e.g.*, *FAA Fact Sheet*, *supra* note 124, at 4; *see generally* Stephen J. Migala, *UAS: Understanding the Airspace of States*, 82 J. AIR L. & COM. 3 (2017) (discussing the intricacies of the navigable airspace and how drones have opened a new forum for state legislation and federal preemption); Robert A. Heverly, *The State of Drones: State Authority to Regulate Drones*, 8 ALB. GOV'T L. REV. 29 (2015).

Aviation Act of 1958.[138] Federal preemption applies to any legislation pertaining to aircraft safety[139] and airspace management.[140]

Thus far, nineteen states have addressed the issue of law enforcement drone use by implementing warrant requirements for drone operations.[141] Other states have been active in the field, and several proposals are pending to protect privacy interests from law enforcement drones.[142] Some require warrants for all drone uses absent a few legislative exceptions, and others merely enumerate the Fourth Amendment framework.[143] In addition, some states have sought to address the issue by creating committees and administrative bodies to oversee drone use.[144]

Strict warrant requirement states favor privacy requiring a warrant for most drone uses, including when a warrant would not be required for using a manned aircraft.[145] Strict warrant requirement states follow the same general formula,

138. *See* Federal Aviation Act of 1958, Pub. L. No. 85-726, 72 Stat. 737 (1958) (repealed and recodified in scattered sections of 49 U.S.C.).

139. Montalvo v. Spirit Airlines, 508 F.3d 464, 468 (9th Cir. 2007) ("The FAA preempts the entire field of aircraft safety through implied field preemption."); *see also* Abdullah v. Am. Airlines, Inc., 181 F.3d 363, 371 (3d Cir. 1999); Greene v. B.F. Goodrich Avionics Sys., Inc., 409 F.3d 784, 795 (6th Cir. 2005).

140. City of Burbank v. Lockheed Air Terminal, Inc., 411 U.S. 624, 626–27 (1973) (holding that an ordinance restricting jet use during certain hours of the day was preempted).

141. Currently Alaska, Florida, Idaho, Indiana, Illinois, Iowa, Maine, Minnesota, Montana, Nevada, North Carolina, North Dakota, Oregon, Tennessee, Texas, Utah, Vermont, Virginia, and Wisconsin have passed legislation creating warrant requirements for drones. *Current Unmanned Aircraft State Law Landscape*, NAT'L CONF. OF STATE LEGS. (Oct. 26, 2022), https://www.ncsl.org/transportation/current-unmanned-aircraft-state-law-landscape; Amanda Essex, *Taking Off: State Unmanned Aircraft System Policies*, NAT'L CONF. OF STATE LEGS. 1, 14, https://www.ncsl.org/research/transportation/taking-off-state-unmanned-aircraft-systems-policies.aspx (last visited Mar. 27, 2023).

142. *See, e.g.*, S.B. 1619, 192d Sess. (Mass. 2021); H.R. 2809, 101st Gen. Assemb., 2d Sess. (Mo. 2022); H.R. 417, 244 Gen. Assemb., 2d Sess. (N.Y. 2021); S. Res. 451, 220 Sess. (N.J. 2022).

143. *Compare* IND. CODE § 35-33-5-9 (2022) (stating that UAV usage without a warrant is permissible if a warrant would not be required absent the use of the UAV), *with* FLA. STAT. § 934.50 (2022) ("A law enforcement agency may not use a drone to gather evidence or other information, except . . . [i]f the law enforcement agency possesses reasonable suspicion that . . . swift action is needed to prevent imminent danger to life or serious damage to property . . . .").

144. *U.S. Drone Laws: Overview of Drone Rules and Regulations in USA by State*, 911 SEC. (Feb. 4, 2018), https://www.911security.com/hubfs/Complete%20State%20Drone%20Laws%202018.pdf (noting that nineteen states, "Alaska, Colorado, Connecticut, Georgia, Hawaii, Illinois, Indiana, Iowa, Louisiana, Maryland, Michigan, Nevada, New Mexico, Ohio, Oregon, Pennsylvania, Rhode Island, Utah, Wisconsin—have assembled committees, task forces, advisory boards or requested studies"); *see, e.g.*, ME. STAT. tit. 25, § 4501 (2022); OR. ADMIN. R. 738-080-0050 (2022).

145. Yang, *supra* note 7, at 373–74.

focusing on restricting all warrantless surveillance by drones unless a narrow set of exceptions exist.[146] For example, Virginia's law enforcement drone statute requires a warrant for drone uses except when:

> 1.) an Amber Alert, Senior Alert, or Blue Alert is activated; 2.) the use of an unmanned aircraft system is determined to be necessary to alleviate an immediate danger to any person; 3.) an officer is following an accident where reporting is required, and the use is for accident reconstruction and to record the scene; 4.) for training exercises; 5.) with consent from a person with legal authority; 6.) used to aerially survey a primary residence of the subject of the arrest warrant 7.) used to locate a person sought for arrest when such person has fled from a law enforcement officer or; 8) to support the Commonwealth or a locality for purposes other than law enforcement.[147]

Some strict warrant requirement states have a unique provision that requires a warrant for any intentional surveillance of a person or their private property.[148] For example, Florida's law enforcement drone regulation contains a provision that states:

> A person, a state agency, or a political subdivision . . . may not use a drone equipped with an imaging device to record an image of privately owned real property or of the owner, tenant, occupant, invitee, or licensee of such property with the intent to conduct surveillance on the individual or property captured in the image in violation of such person's reasonable expectation of privacy without his or her written consent. For purposes of this section, a person is presumed to have a reasonable expectation of privacy on his or her privately owned real property if he or she is not observable by persons located at ground level

146. *See, e.g.*, FLA. STAT. § 934.503 (prohibiting law enforcement from using drones to gather evidence unless an exception applies); OR. REV. STAT. §§ 837.310–.345 (2022) (prohibiting law enforcement from using an unmanned aircraft system absent exigent circumstances).

147. *See* VA. CODE ANN. § 19.2-60.1 (2022).

148. *See, e.g.*, FLA. STAT. § 934.503(b) (prohibiting drone use for the intention of surveying an individual or property); NEV. REV. STAT. § 493.112(2) (2022) (prohibiting operation of an unmanned aerial vehicle to gather evidence within the curtilage of an individual's residence); IDAHO CODE § 21-213(2)(a) (2022) (prohibiting use of an unmanned aircraft system with the intent to survey people on private property); N.C. GEN. STAT. § 15A-300.1 (2022) ("A person cannot survey a person in their own home, property, or curtilage without their consent.").

> in a place where they have a legal right to be, regardless of whether he or she is observable from the air with the use of a drone.[149]

This provision creates stronger protections than Fourth Amendment jurisprudence by restricting targeted aerial surveillance of individuals and their property, regardless of whether the drone was operating within the navigable airspace.[150]

While some states have implemented robust measures, others have created legislation that merely reflects the existing requirements under the constitutional framework.[151] These legislative enactments do not create any further protections of privacy than those that already exist by precedent. For example, Montana's law enforcement drone law states that information obtained from a drone is not admissible as evidence unless it was obtained pursuant to a warrant or a judicially recognized exception to the warrant requirement.[152] Although it appears to implement a preference towards privacy, the legislation does nothing more than recognize the judicial exceptions already in existence, placing it in the same category as those states that have not passed any legislation restricting law enforcement drone use.[153]

Some states have also sought to regulate law enforcement drone operations through legislation mandating broad reporting requirements.[154] Minnesota, for example, has one of the country's most robust reporting and transparency measures. Minnesota requires a law enforcement agency to document each drone use, provide a unique case number, provide a factual basis for the use, and

149. FLA. STAT. § 934.50(3)(b).

150. *Id.*; *see also* Florida v. Riley, 488 U.S. 445, 488–91 (1989).

151. *See, e.g.*, IOWA CODE § 808.15 (2022) (stating information obtained using an unmanned aerial vehicle is lawful when consistent with state or federal law); MONT. CODE ANN. § 46-5-109 (2022) (stating that information obtained from an unmanned vehicle is only admissible if obtained with a search warrant or under judicially recognized exception); N.D. CENT. CODE § 29-29.4-02 (2022) (stating that information obtained from a drone is only amissible if obtained pursuant to a warrant or a judicially recognized exception); *see also* Michael L. Smith, *Regulating Law Enforcement's Use of Drones: The Need for State Legislation*, 52 HARV. J. LEGIS. 423, 435–36 (2015) (discussing how some states have restraints on drones that do nothing more than explicitly state the already existing warrant requirements and exceptions, placing no meaningful requirements on law enforcement drone use).

152. *See* MONT. CODE ANN. § 46-5-109.

153. *See* Smith, *supra* note 151, at 436–37.

154. *See, e.g.*, MINN. STAT. § 626.19 (2022); MICH. COMP. LAWS § 259.331 (2022); LA. STAT. ANN. § 2:2.1 (2022).

identify the applicable exception used.[155] Each law enforcement agency that maintains a drone program is then required to report the information and its program's annual cost to the State Commissioner of Public Safety.[156] The Commissioner is then required to compile the reports, provide them to the House and Senate committees overseeing data practices and public safety, and make the information public on the department's website.[157]

IV. FOURTH AMENDMENT JURISPRUDENCE AND STRICT REGULATIONS DO NOT BALANCE THE UTILITY OF DRONES WITH PRIVACY

A. *The Fourth Amendment Cases Fall Short of Protecting Privacy*

Under current Fourth Amendment jurisprudence, a law enforcement officer may dispatch a drone and surveil a specific target anywhere, even the target's home, so long as the drone remains in an area where it has "a right to be."[158] This pervasive and continuous surveillance can reveal intimate details of one's life and habits and would certainly implicate disputes as to whether a reasonable expectation of privacy exists. Drones do not fit neatly within the Supreme Court's aerial surveillance jurisprudence.[159]

Despite the Supreme Court's annunciation that the Fourth Amendment protects the individual, the approach still appears primarily focused on the property when law enforcement uses aerial modes to surveil individuals.[160] The

155. MINN. STAT. § 626.19(5). The 2020 report shows that training and public relations are the most common warrantless drone uses, with 506 drones deployed for these purposes. Responding to an imminent threat to life or property was the second most common warrantless drone use, with 352 drones deployed. *See* MINN. BUREAU OF CRIM. APPREHENSION, LEGISLATIVE REPORT, 2020 USE OF UNMANNED AERIAL VEHICLES 7, 11 (2021), https://dps.mn.gov/divisions/bca/Documents/2021-Use-of-Unmanned-Aerial-Vehicles.pdf.

156. MINN. STAT. § 626.19(12).

157. *Id.*

158. *See* California v. Ciraolo, 476 U.S. 207, 213–15 (1986) (relying on the observing aircraft's location within the navigable airspace to find that no search had occurred); Merola & Murphy, *supra* note 36, at 796 (explaining that the public has the expectation that private property will not be subject to targeted surveillance absent a warrant, whereas the reality of the Supreme Court's precedent tells a different story); Crotty, *supra* note 19, at 252–53 (discussing how *Ciraolo* and its progeny would be used to analyze drone surveillance in future court cases).

159. *See supra* Section I.A. (discussing the differences between drones and manned operations); Nina Gavrilovic, *The All-Seeing Eye in the Sky: Drone Surveillance and the Fourth Amendment*, 93 U. DET. MERCY L. REV. 529, 530–31 (2016) (stating that in the face of drone surveillance, the Fourth Amendment provides little to no protection).

160. *See* Spelman, *supra* note 48, at 401–06 (discussing scenarios where the Fourth Amendment does not provide protection); Dow Chem. Co. v. United States, 476 U.S. 227,

Court focus on where the search is taking place rather than on the intrusive effects of the information obtained.[161] Drones pose significant hazards that their manned counterparts do not in that drones can operate at lower altitudes without disturbance, and eventually, for extended periods.[162]

Some proponents of the Fourth Amendment framework claim that the "not in general public use" theory emanating from *Kyllo* is the correct way to evaluate drone technology.[163] Although this is an interesting take that would limit warrantless searches, it is too rigid of a reading of *Kyllo* and the cases that follow. *Kyllo* has never been applied to other technologies, and relying on public use would only be a temporary solution to drones as the FAA works to integrate drones into the national airspace.[164] This formulation of *Kyllo* would also be severely limiting, possibly requiring a warrant when a drone is used, even though a manned aircraft can perform the same task but at a more significant expense.

B. *Restrictive State Legislation Strips Away Drone Utility*

Law enforcement has been open to embracing new drone technology, resulting in several programs that have offered considerable benefits to the communities they serve.[165] Despite this, some states have acted quickly to quash the benefits that drones can pose by sealing drones behind strict warrant requirements.[166] Although this method secures privacy, it does so at the cost of depriving law enforcement and communities of the beneficial applications of drones.[167]

Instead, officers are forced to turn to the means that they already have available, such as using helicopters and other expensive manned surveillance methods. This results in no change to privacy interests and wasteful spending and resource allocation. Instead, police can use drones in a way that takes privacy into account, recognizing that drone technology poses unique intrusive effects without unnecessarily depriving the user of a drone's useful application.[168] The

236–38 (1986) (focusing on the property to determine differences among curtilage and open fields); Crotty, *supra* note 19, at 260–62 (discussing the Court's continued focus on property and not the person in the context of aerial surveillance).

161. *See* Holmstrom, *supra* note 108, at 466–67.

162. *See supra* Section I.B.

163. *See, e.g.*, McBride, *supra* note 20, at 655–58.

164. *See supra* III.A. (discussing the federal trend to focus on air safety through integration of drones in the national airspace).

165. *See, e.g.*, CITY OF CHULA VISTA, *supra* note 25.

166. *See supra* note 141 and accompanying text.

167. Yang, s*upra* note 7, at 373–74 (stating that the requirement of a warrant for drone searches disadvantages law enforcement agencies); *see also supra* Section I.B.

168. In strict warrant states, efforts like those of Chula Vista would not be possible. *See* CITY OF CHULA VISTA, *supra* note 25; VA. CODE ANN. § 19.2-60.1 (2022).

three-step model rule proposes below still embrace warrant requirements, but they focus on bringing law enforcement drones into society to preserve the privacy rights the public had before drones entered the skies.[169]

The model rule focuses on the manner of drone use with a preference toward warrantless uses outside of private property. The rule uses warrants to protect privacy rights primarily considered by the Fourth Amendment, while recognizing that the unique characteristics of drones mandate further restrictions where privacy would be most vulnerable.

V. STATES SHOULD IMPLEMENT LEGISLATION TO BALANCE DRONE UTILITY WITH PRIVACY CONCERNS

A. *State Governments Are in the Best Positions to Regulate Law Enforcement Drones*

Setting the standards for the national airspace is the role of the FAA, but authority over the police still falls within the sphere of state and local governments.[170] Congress and the FAA have thus far aimed to regulate drones to increase safety and integrate them into the national airspace, rather than focusing on privacy.[171] This leaves states to deal with the fallout as fears rise regarding how far into one's privacy drone technology can delve. "Laws traditionally related to state and local police power—including land use, zoning, privacy, trespass, and law enforcement operations—generally are not subject to federal regulation."[172] Although the FAA is necessary for setting safety standards, there still needs to be action for privacy, and states are in the best position to address it.

States can workshop novel concepts and adjust as they see fit. So far, states have shown how this can be beneficial by implementing their warrant structures for drones.[173] As drones become more common within the national airspace and privacy concerns begin to heighten, rapid and controlled action will be required. Such action is best left to the states that have the resources to examine and attack the issue with a degree of restraint to ensure that the beneficial applications of drones are not legislated into irrelevance.

Meanwhile, Congress has failed to make any substantial privacy safeguards from drones. Instead, it has been the states that have been successful in passing

169. *See* United States v. Jones, 565 U.S. 400, 427 (2012) (Alito, J., concurring) (recognizing that under *Katz* new technologies pose a risk of changing the zone of privacy).

170. *See supra* Section II.B.

171. *See* FAA Modernization and Reform Act of 2012, 49 U.S.C. § 44809.

172. *FAA Fact Sheet*, *supra* note 124, at 3.

173. *See supra* Section III.B; Schwartz, *supra* note 38, at 916–17 (discussing the utility of states operating as workshops to shape the law).

legislation to protect privacy interests.[174] Additionally, a national system does not recognize a state's interest in regulating and overseeing its police forces.[175] The states, being smaller and more flexible, can pass legislation aimed at improving the understanding and knowledge associated with drone use.[176]

States should not wait for the Supreme Court to address the issue.[177] The last time the Court addressed aerial surveillance and intrusive technology was in *Jones* in 2012.[178] Even if the Court were to take up the issue, altering its course would require overturning over forty years of precedent. Additionally, the Court would only be able to establish a rigid, blanket rule that would be unlikely to account for the complexities of drone technology without severely interrupting prior law enforcement practices using other surveillance methods.[179]

Some states have been successful in creating legislation that protects privacy interests. Still, it does so at the cost of depriving law enforcement agencies of the beneficial applications of drones.[180] Instead, states should implement a model based on prior precedent and recognized notions of privacy. A successful model would allow individuals to maintain the exact expectations of privacy before the existence of drones while not limiting their uses to the point of irrelevance.[181] The below three-step model rule proposes to utilize existing warrant requirements to protect recognized privacy interests while allowing law enforcement agencies to use drone technology to benefit society.

174. *See supra* Section III.B.

175. *See* Bentley, *supra* note 12, at 289–90 (discussing how federal legislation could reach into areas left to the states).

176. This flexibility also enables states to adjust the limitations and methods used to address drones based on public attitude. Smith, *supra* note 151, at 448–50.

177. The Court is generally slow to react to changing technology, and even if it were to move away from aerial surveillance precedent, a ruling is likely to be too rigid to accommodate the privacy implications to the same degree as legislation. *See* Hillary B. Farber, *Eyes in the Sky: Constitutional and Regulatory Approaches to Domestic Drone Deployment*, 64 SYRACUSE L. REV. 1, 4–5 (2014); Bentley, *supra* note 12, at 288–90.

178. *See* United States v. Jones, 565 U.S. 400 (2012).

179. *See* Brittany Chiang, *FAA Best Practices, State Laws, Local Rules, and Police Efforts: A Multi-Faceted Approach to Regulating Police UAVs in the U.S.*, 38 U. LA VERNE L. REV. 201, 223–24 (2017) (stating that the judiciary is not the best body for addressing the privacy issue because caselaw would be potentially ineffective and unpredictable); Smith, *supra* note 151, at 440 (stating that a judicial reconstruction of the Fourth Amendment could unnecessarily restrict law enforcement practices that do not harm privacy).

180. *See supra* Section III.B.

181. *See* J. Tyler Black, *Over Your Head, Under the Radar: An Examination of Changing Legislation, Aging Case Law, and Possible Solutions to the Domestic Police Drone Puzzle*, 70 WASH. & LEE L. REV. 1829, 1864 (2013).

B. *The Three-Step Model Rule*

Step 1: Intentional Surveillance Restrictions

Unless the law enforcement agency reasonably believes that there is an imminent threat to life or property or the agency reasonably believes that a crime is actively being performed, a law enforcement agency will be required to obtain a warrant for drone use with the intent to surveil private property that is not readily observable from the ground level from a place where the operator would have a legal right to be.

Step 2: Elevation Requirements Above Private Property

A warrant shall be required for any drone use within the immediate reaches of private property that a person uses as their domicile, including the curtilage of such property, unless there is an imminent threat to life or property, the use is for search and rescue, flight within the immediate reach is necessary, or flight is with the owner's consent or the consent of an authorizing agent.

It is not a violation of this provision to operate a drone within the immediate reach of private property if such operation is the result of evasive measures to avoid possible impact, or if the cause of the violation was a malfunction, weather disturbance, or other force outside of the control of the operator.

Immediate reach is defined as the area extending 350 feet above private property.

Any suspected breach of these rules will warrant an automatic review by the Drone Advisory Committee, upon a finding of a violation, will result in the immediate destruction of any data obtained pursuant to the offense. Any evidence obtained in violation of these rules will be inadmissible in any criminal or civil court.

Step 3: Creation of the Drone Advisory Committee

A committee shall be created to oversee state and local law enforcement agencies that operate or intend to operate a drone program.

Any law enforcement agency that operates a drone program must submit reports to the committee identifying the number of drones deployed, a brief statement about the purpose of the use, the outcome of the use, whether the use was successful, whether a warrant was required, and if so, the duration of the warrant, the technology used, and the cost of maintaining the agency's drone operation.

The committee must publish the information obtained from the reporting agencies, with necessary redactions.

The committee must evaluate new technology and applications before acquisition by law enforcement agencies, conduct a cost-benefit analysis, and develop guidelines for introducing the technology to law enforcement agencies.

The committee will also be charged with examining violations of the provisions and determining proper remedies for violations consistent with these rules. The committee must submit an annual report to the relevant state committees containing information about violations with necessary redactions and the current status or results of the complaints. The report must be posted on a publicly accessible website.

C. *Discussion of the Model Rule*

To provide a greater degree of protection to privacy interests and maintain the beneficial applications of drones, state legislatures should create legislation that allows the public to retain the same degree of protection it had before the applications of drones. To make such a scheme, states should focus on regulating those aspects of drone technology that go to the core of the Fourth Amendment: the protection of the person and property.[182] The three-step model rule offers two warrant-based limitations derived from the Fourth Amendment. It then suggests increasing transparency with the public to garner further protections and support for drone applications.

1. Targeted Surveillance Limitation

An enumerated expectation of privacy from intentional surveillance finds a balance between privacy and the utility of law enforcement drone use.[183] Currently, the Fourth Amendment approach leaves complicated questions requiring an analysis of privacy rights and surveillance on a case-by-case basis.[184] Drone technology that can surveil an area from near and far without disturbing land or people further complicates this area of law.

Case-by-case approaches reduce the effectiveness of drones and increase public concern over intrusive surveillance. Law enforcement agencies are less likely to deploy the technology even in situations where it would be most beneficial out of fear of violating privacy interests. The model rule seeks to mend this issue by giving law enforcement agencies a bright-line standard to conduct their operations without having to concern themselves with complicated notions

182. *See* Katz v. United States, 389 U.S. 347, 361 (1967) (Harlan, J., concurring).

183. Florida and Idaho have provisions similar to the three-step model rule in addition to blanket warrant requirements. FLA. STAT. § 934.50(3)(b) (2022); IDAHO CODE § 21-213(2)(a) (2022).

184. *See supra* Section II.B.2.

of determining curtilage, open fields, trespass, and reasonable expectations of privacy.[185]

The Fourth Amendment is a protection of the individual and not just property.[186] Some privacy proponents have suggested that any intentional surveillance should require a warrant,[187] but the Supreme Court has never taken such a rigid approach to Fourth Amendment protections. Thus, drones likely pose no risk of affecting any expectation of privacy when used to surveil public areas.[188] Since Supreme Court precedent thus far holds that the public does not possess a right to privacy in most public places, introducing drones in these areas is not likely to violate the Fourth Amendment.[189]

Instead, the most significant risk of intrusion occurs on private property where drones capturing images or video overhead would create a greater question of whether there is a reasonable expectation of privacy.[190] Drones are a unique technology capable of greater mobility and secrecy than their manned counterparts.[191] The characteristics of drones pose a risk of privacy intrusion that manned aircraft and boots-on-the-ground law enforcement officers do not. Drones can expand the zones of privacy beyond the horizontal plane and ascend to obtain a complete picture of people and property, and they can do so with mobility in mind.[192] When a helicopter needs to refuel, a drone persists; when a police officer needs to return home or loses attention, a drone persists.

The three-step model rule, mainly modeled on the Florida approach, would permit many of the same operations as helicopters but limit drones to those open areas where a person has a lower, if any, expectation of privacy.[193] This rule provides broader protections than the Fourth Amendment framework by contemplating intentional surveillance of areas that an officer would not otherwise be able to view from the ground. The model rule also affords greater utility by allowing law enforcement to continue to deploy warrantless drone operations in various situations, including for investigations performed in areas

185. *See* Yang, *supra* note 7, at 365; Dow Chem. Co. v. United States, 476 U.S. 227, 239 (1986).

186. *See Katz*, 389 U.S. at 353 (majority opinion).

187. *See* IDAHO CODE § 21-213(2); Crotty, *supra* note 19, at 260–65 (discussing protections of the public thoroughfares).

188. *See* MCNEAL, *supra* note 20, at 4 (discussing the low risk of harm to expectations of privacy in public places because the Court has generally held there is no reasonable expectation of privacy in such areas).

189. *Id.*

190. *See* United States v. Jones, 565 U.S. 400, 427 (2012) (Alito, J., concurring) (recognizing that under *Katz* new technologies pose a risk of changing the zone of privacy).

191. *See supra* Section I.A.

192. *See* Mara, *supra* note 26, at 20–21 (discussing how drones are revolutionizing surveillance); *see also Jones*, 565 U.S. at 427.

193. *See supra* Section III.B.

where an individual would not have an expectation of privacy or has not made minimal efforts to conceal their activity.[194] Finding the appropriate balance between privacy and utility is afforded greater consideration when extended surveillance would be necessary upon discovering possible criminal activities or when life or property is in imminent danger. It creates a simple solution for those seeking to protect their property rather than allowing warrantless surveillance even though they have taken adequate steps to ensure privacy.[195]

2. Elevation Requirements Above Private Property

The three-step model rule seeks to enumerate trespass-related privacy rights.[196] A set limit of operation above areas where privacy interests are at their greatest provides clarity to law enforcement personnel. Since the Supreme Court has not addressed drones in the context of the Fourth Amendment, law enforcement are left to deal with the risk of being subject to the exclusionary rule without clear guidance from the Court.[197] By states setting a limit to drone operations, law enforcement officers can feel secure that they will not implicate the curtilage doctrine or commit a physical trespass like in *Causby*.[198]

Although the Court has never had to address aerial surveillance at an altitude below 400 feet, 350 is likely constitutional. Applying the Court's analysis in *Riley*, drones operating within 350 feet may not be sufficiently rare to create an

194. *See, e.g.*, Dow Chem. Co. v. United States, 476 U.S. 227, 236 (1986); California v. Ciraolo, 476 U.S. 207, 223–25 (1986) (Powell, J., dissenting) (discussing the irrationality of forcing people to erect barriers over their properties).

195. Such an approach protects the home to a greater degree because people are more capable of securing their privacy. *See, e.g.*, *Dow Chem. Co.*, 476 U.S. at 236 (recognizing that erecting a barrier over industrial property would be impractical and unfeasible, but the levels of privacy can be enhanced in certain areas where expectations of privacy may be greater); *Ciraolo*, 476 U.S. at 223–25 (Powell, J., dissenting) (discussing the irrationality of forcing people to erect barriers over their properties).

196. *See* Olmstead v. United States, 277 U.S. 438, 466 (1928), *overruled by* Berger v. New York, 388 U.S. 41 (1967) (stating that a violation of the Fourth Amendment required a search and seizure of the person, their papers, or their effects, or by physical invasion of their home or curtilage); *Jones*, 565 U.S. at 406–07 (reaffirming the property-based approach).

197. *See, e.g.*, Oliver v. United States, 466 U.S. 170, 175 (1984) (discussing the implications of police illegally obtaining evidence in searches); *Dow Chem. Co.*, 476 U.S. at 236–39 (holding that taking aerial photos of an industrial plant is not considered a search); MCNEAL, *supra* note 20, at 42 (discussing why a 350-foot boundary is an appropriate limit to privacy and operational efficiency of drones).

198. *See supra* Sections II.B.2, II.C; *see also* Florida v. Jardines, 569 U.S. 1, 11 (2013) ("One virtue of the Fourth Amendment's property-rights baseline is that it keeps easy cases easy.").

expectation of privacy.[199] Drones must fly within these limits to comply with FAA regulations.[200] This approach seeks to guarantee protections from the trespassory nature of drone surveillance above private property where expectations of privacy are at their highest.[201] It aims to quantify a set limit so that law enforcement can be well informed and operate, understanding their limitations while respecting the property interests of citizens.

Some privacy rights proponents have sought to set a firm property boundary at 350 feet or lower pursuant to a state's power to regulate property,[202] but the three-step model rule does not seek to go so far. Setting the entire boundary could pose regulative issues with the FAA and render drones utterly unusable in some places. Such a formulation also risks being preempted if Congress declares a rigid barrier between the navigable airspace and the space below.[203]

3. The Creation of a Drone Advisory Committee

Law enforcement applications of drones bring a slew of legal questions, and the rules enumerated here address some of the most pressing concerns of privacy interests.[204] A successful law enforcement drone program that maximizes the benefits to society and law enforcement agencies would require further oversight and a means to address changing circumstances. Drones are a rapidly evolving technology; as their applications grow, more protections may be necessary or become available.[205] Conversely, the law moves slowly, making it challenging to keep up with changing circumstances and technology. A committee would be in the proper position to oversee and research these expanded uses and develop ways of addressing rising concerns more efficiently.

199. *See* Florida v. Riley, 488 U.S. 445, 451–52 (1989) (holding that a helicopter at 400 feet was not so rare as to generate an expectation of privacy).

200. *See supra* note 120 and accompanying text.

201. This notion is further captured by the Fordham study showing elevation plays a role in public attitudes towards law enforcement drone operations. Merola & Murphy, *supra* note 36, at 796.

202. *See, e.g.*, Kyle Joseph Farris, *Flying Inside America's Drone Dome and Landing in Aerial Trespass Limbo*, 53 VAL. U. L. REV. 247, 290–91 (2018) (arguing for the creation of an absolute trespass rule for stationary or slow drone "arrivals" at any point above property); MCNEAL, *supra* note 20, at 13–17.

203. *See, e.g.*, Drone Integration and Zoning Act, S. 600, 117th Cong. (2d Sess. 2022) (recent bill proposing to set zoning boundary within 200 feet of private property).

204. *See, e.g.*, Katz v. United States, 389 U.S. 347, 353 (1967).

205. *See supra* Part I.

Additionally, transparency is essential to balance privacy interests with the utility of law enforcement drone programs.[206] A committee would provide more transparency to the public, allowing it to feel more confident that privacy rights are secured in an age of flying cameras. The committee would be able to provide detailed reviews of warrantless drone uses and monitor the financial and security success of drone programs.[207] Such a system would also allow greater access to information about the approaches taken and their success, increasing privacy across the nation and reducing costs by avoiding fruitless legislative approaches.

A committee is also imperative to ensure compliance with the three-step model rule and to adjust it as needed to ensure that the proper balance between privacy rights and utility are met. The rapidly changing landscape of drone technology requires cooperation with numerous state and federal agencies, so any approach must be flexible and well-informed.[208]

CONCLUSION

Law enforcement has entered a revolutionary new era as drone proliferation shows promise as a beneficial police technology. These benefits, however, do not come without risks. People can no longer look to the Supreme Court's Fourth Amendment framework when it comes to drones.[209] To protect privacy rights, federal and state legislative approaches provide insight into how law enforcement drones can be regulated. Congress has not been as productive in the field and has yet to address privacy, focusing instead on safety.[210] Conversely, state legislatures have shown that they are both capable and willing to protect privacy interests. However, states have been quick to over-legislate law enforcement drones, locking their use behind strict warrant requirements.[211]

206. *See* PRESIDENT'S TASK FORCE ON 21ST CENTURY POLICING, FINAL REPORT OF THE PRESIDENT'S TASK FORCE ON 21ST CENTURY POLICING 1 (2015), https://cops.usdoj.gov /pdf/taskforce/taskforce_finalreport.pdf ("Trust between law enforcement agencies and the people they protect and serve is essential in a democracy. It is key to the stability of our communities, the integrity of our criminal justice system, and the safe and effective delivery of policing services."); Schwartz, *supra* note 38, at 65–71 (discussing the correlation between successful law enforcement drone programs and a community action plan); Dennis, *supra* note 41 (explaining that understanding of drone operations tends to create more public acceptance of drone programs).

207. *See supra* note 144 and accompanying text (discussing states that created committees to oversee drones to improve public transparency).

208. *See FAA Fact Sheet*, *supra* note 124, at 4; *supra* Section III.A.

209. *See supra* Part I; Section IV.A.

210. *See supra* Section III.A.

211. *See supra* Sections III.B, IV.B.

Any approach taken must balance the interests of law enforcement to apply drones with the individual's interest in privacy.[212] A system capable of balancing these interests would recognize the expectation of privacy that existed before the introduction of drones into the national airspace and legislate to protect those privacy interests covered explicitly by the Fourth Amendment.[213] In addition to restrictions in use, states need to create advisory committees to build transparency and trust with the public.[214] These committees would also be integral to accommodate the rapidly changing circumstances of drone technology.[215]

To accomplish this goal, states should enact legislation focusing on the privacy protections that individuals had before the existence of drones. This requires a three-step approach to protect (1) the individual's privacy through targeted surveillance restrictions;[216] (2) protection of the property through a designated property line where a search is unreasonable; (3) the creation of a committee to protect privacy interests into the future.[217] With these considerations in mind, people can feel secure in their zones of privacy while enjoying safer communities and more effective law enforcement agencies.

212. *See* Black, *supra* note 181, at 1864.
213. *See supra* Part II.
214. *See supra* Sections I.B, V.B.3.
215. *See supra* Sections I.A, V.B.3.
216. *See supra* Sections V.B, V.C.1.
217. *See supra* Sections V.B, V.C.3.