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Never Alone: Why the Inevitable Influx of Drones Necessitates a New Fourth Amendment Standard That Adequately Protects Reasonable Expectations of Privacy

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NEVER ALONE: WHY THE INEVITABLE INFLUX OF DRONES
NECESSITATES A NEW FOURTH AMENDMENT STANDARD
THAT ADEQUATELY PROTECTS REASONABLE
EXPECTATIONS OF PRIVACY

*Paul Burgin**

I. INTRODUCTION

In June 2011, North Dakota cattle rancher Rodney Brossart became the first American to be arrested with the aid of a drone (Unmanned Aircraft System(s) or UAS) operated by law enforcement.¹ Six cows found their way onto Brossart's property, and he refused to turn them over to law enforcement officials.² Brossart and a few family members chased police officers off of his property at gunpoint, and police later returned with a warrant and SWAT team.³ A sixteen-hour standoff ensued until police called in the assistance of a UAS to pinpoint Brossart's exact location.⁴ Shortly thereafter, SWAT officers rushed in, tased, then arrested Brossart on various charges including terrorizing a sheriff.⁵

A federal judge rejected a motion to dismiss the case on the ground that law enforcement officials did not have a warrant to conduct the surveillance.⁶ On January 14, 2014, Brossart was sentenced to three years in prison.⁷

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1. Joe Wolverton, II, J.D., *First Man Arrested by Aid of Drone Convicted in North Dakota*, THE NEW AM. (Feb. 1, 2014), <http://www.thenewamerican.com/usnews/constitution/item/17534-first-man-arrested-by-aid-of-drone-convicted-in-north-dakota>.

2. *Id.*

3. *Id.*

4. *Id.*

5. *Id.*

6. Michael Peck, *Predator Drone Sends North Dakota Man to Jail*, FORBES (Jan. 27, 2014, 7:27 PM), <http://www.forbes.com/sites/michaelpeck/2014/01/27/predator-drone-sends-north-dakota-man-to-jail/>.

7. *Id.*

Law enforcement use of UAS for domestic surveillance has sparked vigorous debate among the American public.⁸ Increased use of UAS will greatly improve law enforcement's abilities to serve and protect the American public.⁹ However, the promise of innovative technology with substantial benefits does not come without its share of detractors. Opponents of UAS surveillance express legitimate concerns over potential abuse of this technology and erosion of Americans' privacy interests.¹⁰

The Fourth Amendment of the United States Constitution protects Americans from unreasonable searches and seizures.¹¹ Courts have consistently wrestled with how to properly analyze and apply this 18th century provision to constantly emerging and evolving 21st century technologies.¹² The Supreme Court has yet to rule on whether domestic UAS surveillance is a "search" under the Fourth Amendment, and its current Fourth Amendment jurisprudence does not provide a clear answer.¹³ As with all new technologies, the Supreme Court must strike a proper and unambiguous balance between the legitimate interest of public safety and one's constitutionally protected right to privacy.¹⁴

This comment examines UAS developments and assesses whether current legislation and Fourth Amendment jurisprudence will adequately protect individual privacies against government UAS surveillance. Part II gives background on UAS technology and capabilities, practical uses, differences from manned surveillance systems, and current and proposed FAA regulations. Part II also analyzes the Supreme Court's current Fourth Amendment jurisprudence. Part III applies current Fourth Amendment case law to a potential challenge to UAS surveillance and discusses how courts

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8. RICHARD M. THOMPSON II, CONG. RESEARCH SERV., R42701, DRONES IN DOMESTIC SURVEILLANCE OPERATIONS: FOURTH AMENDMENT IMPLICATIONS AND LEGISLATIVE RESPONSES I (2013).
 9. J. Tyler Black, Note, *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, 1830 (2013).
 10. THOMPSON, *supra* note 8, at 1.
 11. U.S. CONST. amend. IV.
 12. THOMPSON, *supra* note 8, at 4.
 13. Andrew B. Talai, Comment, *Drones and Jones: The Fourth Amendment and Police Discretion in the Digital Age*, 102 CALIF. L. REV. 729, 732 (2014).
 14. Orin S. Kerr, *The Fourth Amendment and New Technologies: Constitutional Myths and the Case for Caution*, 102 MICH. L. REV. 801, 861 (2004) ("It is generally agreed that the general pragmatic goal of both constitutional and statutory law governing search and seizure is to create a workable and sensible balance between law enforcement needs and privacy interests. . . . A secondary goal is rule clarity.").

should respond to ensure greater privacy protections against UAS observations. Part IV suggests that privacy protections from improper UAS surveillance may best come in the form of legislation. Part IV also discusses potential legislative solutions that will protect against constitutionally impermissible UAS surveillance.

II. HISTORY OF UAS TECHNOLOGY AND FOURTH AMENDMENT JURISPRUDENCE

A. UAS Technology and Capabilities

UAS are a class of aircrafts that vary in size, capability, are operated through remote piloting, and do not require a human pilot in the aircraft.¹⁵ Some UAS models are the size of insects, while others may be as large as a traditional jet.¹⁶ To date, the largest UAS is the \$200 million U.S. Air Force Northrop Grumman RQ-4 Global Hawk (Global Hawk).¹⁷ This aircraft can reach 65,000 feet in altitude, has the wingspan of an airliner, and can take part in non-stop, thirty-five hour missions.¹⁸ The Global Hawk can also film targets from a distance of 140 kilometers (86.992 miles).¹⁹

In contrast, the Norwegian-developed Black Hornet, which weighs sixteen grams, is one of the smallest UAS.²⁰ The Black Hornet is only ten centimeters long and can operate for twenty-five minutes in a radius of more than one kilometer.²¹ Small, less complex UAS can be purchased online or in local stores for the price of a smart phone.²² However, one should not be misled by UAS that appear to be less sophisticated, as many are capable of “autonomous flight, live video streaming cameras, [and] GPS guidance.”²³

15. Sara Love, *Surveillance in the Free State: Electronic Communications, Location Tracking, Automatic License Plate Readers, Drones and Facial Recognition*, ACLU MD. 11 (Feb. 23, 2014), http://www.aclu-md.org/uploaded_files/0000/0490/privacy_report.pdf.

16. THOMPSON, *supra* note 8, at 2.

17. David Goldberg et al., *Remotely Piloted Aircraft Systems & Journalism: Opportunities and Challenges of Drones in News Gathering*, REUTERS INSTITUTE FOR THE STUDY OF JOURNALISM 5 (June 2013), http://reutersinstitute.politics.ox.ac.uk/sites/default/files/Remotely%20Piloted%20Aircraft%20and%20Journalism_0.pdf.

18. *Id.*

19. *Id.* (citing Mark Corcoran, *Revealed: US Flew Spy Drone Missions from Australia*, ABC (Sept. 4, 2012), www.abc.net.au/news/2012-09-03/revealed-us-flewdrone-missions-from-australia/4236306).

20. *Id.* at 7.

21. *Id.*

22. *Id.* at 5.

23. *Id.*

UAS can be supplied with sophisticated and innovative technologies.²⁴ For example, the U.S. Army has a 1.8 gigapixel camera that can attach to UAS and “can track objects on the ground 65 miles away from an altitude of 20,000 feet.”²⁵ Individuals can equip UAS with infrared technology capable of using thermal imaging in order to see through roofs,²⁶ and laser radar that can “see through trees and foliage.”²⁷ A U.S. Customs and Border Protection UAS equipped with a thermal imaging camera aided law enforcement officials in the arrest of Randy Brossart in North Dakota.²⁸ The UAS flew more than two miles above a farm to locate Brossart and two others before their arrest.²⁹ “[UAS] technology now allows an individual to be recorded in their homes by drones as small as birds and immediately uploaded to the internet.”³⁰ This is in no way an exhaustive list of UAS technology, and just scratches the surface of their sophisticated, innovative capabilities.³¹

B. UAS Can Be Useful in Military Missions, The Apprehension of Domestic Terrorists, And Other Emergency Situations Such As Detecting and Fighting Forest Fires

UAS may be most familiar to Americans for their pervasive military use abroad.³² They are especially useful in a country with rugged terrain such as Afghanistan, where they can perform dangerous, behind-the-lines surveillance and pursue suspected enemies.³³ UAS have been used to kill presumed members of Al

24. THOMPSON, *supra* note 8, at 3.

25. *Id.* at 3 n.21.

26. David Alan Coia, *US Domestic Drone Use Sidesteps Warrants for Thermal Imaging*, NEWS MAX (Aug. 11, 2013, 7:51 AM), <http://www.newsmax.com/US/drones-warrants-thermal-imaging/2013/08/11/id/519767/>. Thermal imaging was also the subject of *Kyllo v. United States*, in which law enforcement officials suspected Kyllo of growing marijuana in his home, and used thermal imaging devices to determine the amount of heat emanating from the house. *Kyllo v. United States*, 533 U.S. 27, 29–30 (2001). The Court ultimately ruled that this was an impermissible search under the Fourth Amendment because a technology was used that was not in general public use “to explore details of the home that would previously have been unknowable without physical intrusion.” *Id.* at 40.

27. THOMPSON, *supra* note 8, at 4 n.24.

28. Coia, *supra* note 26.

29. *Id.*

30. *Drones: Getting Smaller and More Intrusive*, STRATEGIC CULTURE FOUND. (Apr. 4, 2014, 3:12 PM), <http://www.strategic-culture.org/pview/2014/04/11/drones-getting-smaller-and-more-intrusive.html>.

31. See THOMPSON, *supra* note 8, at 3–4.

32. *Id.* at 2.

33. Black, *supra* note 9, at 1840.

Qaeda and various other terrorist organizations.³⁴ UAS are incredibly desirable to the military due to their affordability and safety.³⁵ Military UAS are operated from facilities in the United States, which prevents military personnel from entering enemy territory in order to carry out these missions.³⁶

UAS are valuable tools that could assist in the apprehension of domestic terrorists.³⁷ For instance, UAS could have been an essential asset to first responders in the April 15, 2013 Boston Marathon bombings.³⁸ At various points throughout the emergency, law enforcement officials were forced to ground a helicopter because it needed to refuel.³⁹ The use of multiple UAS would have solved that issue, and provided officials “with critical situational awareness in areas too dangerous or difficult for manned aircraft to reach.”⁴⁰ UAS are ideal for use during emergencies and disasters due to their quick response time, economic feasibility, and ability to fly lower than helicopters.⁴¹

The Department of Homeland Security (DHS) utilizes UAS to guard the nation’s border and prevent unlawful border crossings.⁴² Additionally, DHS uses UAS to detect and prevent the smuggling of

34. THOMPSON, *supra* note 8, at 2.

35. Black, *supra* note 9, at 1840.

36. *Id.*

37. Jason Koebler, *Industry: Drones Could Have Helped Boston Marathon Bombing Responders*, U.S. NEWS AND WORLD REP. (Apr. 16, 2013, 3:18 PM), <http://www.usnews.com/news/articles/2013/04/16/industry-drones-could-have-helped-boston-marathon-bombing-responders>.

38. *Id.*

39. *Id.*

40. *Id.* While law enforcement officials had to drive through a neighborhood looking for one of the suspects in the bombing, many contend that a UAS could have found the suspect quicker while simultaneously putting fewer individuals in danger. Maggie Clark, *Boston Bombings Show Future Use for Police Drones*, HUFFINGTON POST (May 1, 2013, 9:50 AM), http://www.huffingtonpost.com/2013/05/01/boston-bombing-drones_n_3192694.html.

41. *Id.*

42. THOMPSON, *supra* note 8, at 3. UAS have helped prevent illegal border crossings by criminals, aliens and terrorists. *Id.* DHS has ten drones flying to protect the borders, at a cost of \$62 million a year. Jeff Pegues, *Homeland Security Drone Program Not Justifying Expense, Says Study*, CBS NEWS (Jan. 6, 2015, 7:21 PM), <http://www.cbsnews.com/news/homeland-security-drone-program-not-justifying-expense-report-says/>. UAS accounted for 2,220 border arrests in 2013. *Id.* At roughly \$27,000 per arrest, this has raised legitimate concerns about the expense and effectiveness of the UAS program. *Id.* Customs and Border Protection disagrees with the portrayal of the UAS program, as it led to the detection of nearly 8,000 suspected illegal immigrants in 2014. *Id.*

drugs, weapons, and other illegal imports into the country.⁴³ In 2014, UAS missions aided in the seizure of nearly \$253 million worth of cocaine and marijuana.⁴⁴

Moreover, emerging UAS technology provides the capability to detect and fight fires.⁴⁵ UAS can enter dangerous territories and combat fires at all hours of the day in any weather conditions, without risking lives.⁴⁶ In August 2013, firefighters battling a giant wildfire in Yosemite National Park were aided by a UAS.⁴⁷ The UAS alerted officials to new developments in the wildfire that they otherwise would not have immediately seen.⁴⁸ While ground commanders relied on helicopters that had to refuel every two hours, the UAS was able to remain over the fire for 22 hours at a time “allowing fire commanders to monitor fire activity, determine the fire’s direction of movement, the extent of containment and confirm new fires ignited by lightning or flying embers.”⁴⁹ This ensured the safety of firefighters and helped them better contain and eventually extinguish the fire, which provided for the safety of the general population.⁵⁰

C. UAS Are Starkly Different from Manned Aerial Surveillance Systems

Many have inquired as to how UAS surveillance differs from manned aerial surveillance systems and police helicopters that have been in operation for quite some time.⁵¹ First, manned helicopters are significantly more expensive than UAS, making their pervasive use not economically feasible.⁵² A police helicopter costs between

43. THOMPSON, *supra* note 8, at 3.

44. Pegues, *supra* note 42.

45. Jane Wells, *Could the Next Wildfire Be Fought by a Drone?*, CNBC (Nov. 20, 2014, 9:51 AM), <http://www.cnn.com/id/102200957#>.

46. *Id.* UAS can also deliver cargo and other materials to firefighters. *Id.*

47. Brian Skoloff & Tracie Cone, *Firefighters Use Drones to Battle Yosemite Rim Fire*, NORTHJERSEY.COM (Aug. 28, 2013, 5:30 PM), <http://www.northjersey.com/news/california-launches-drone-to-aid-wildfire-battle-1.695666>.

48. *Id.*

49. *Id.*

50. *Id.*

51. Jay Stanley, *We Already Have Police Helicopters, So What's the Big Deal Over Drones?*, ACLU (Mar. 8, 2013, 11:26 AM), <https://www.aclu.org/blog/technology-and-liberty-criminal-law-reform/we-already-have-police-helicopters-so-whats-big-deal>.

52. *Id.*

\$500,000 and \$3 million,⁵³ while some UAS can be purchased for less than \$100.⁵⁴ Additionally, a police helicopter costs roughly \$500 an hour to fly, while it is estimated that a UAS only costs \$30 per hour.⁵⁵ Part of this can be attributed to the fact that manned helicopters require gasoline, and UAS do not.⁵⁶ Another factor is that unlike UAS, a manned helicopter requires additional labor, such as a pilot (or two) and routine maintenance that can be very expensive.⁵⁷ The economic burden helicopters place on police departments mean that they are used very sparingly.⁵⁸ In fact, many police departments cannot afford helicopters and many have had to “abandon their air-division because of the cost.”⁵⁹ However, the comparative inexpensiveness of UAS surveillance may lead to more prevalent use, which arouses serious privacy concerns, as “it could lift a practical barrier to what has been a [legal] barrier to abuses.”⁶⁰

UAS are also much more maneuverable than helicopters, which poses increased privacy concerns.⁶¹ UAS are able to fly into a garage

53. *Id.*

54. Ann Zaniewski, *As Drone Use Grows, So Do Privacy, Safety Concerns*, USA TODAY (Mar. 7, 2013, 1:00 AM), <http://www.usatoday.com/story/news/nation/2013/03/07/drone-use-raises-privacy-safety-concerns/1969653/>. When a gunman who had killed one police officer and shot at many others “barricaded himself on the top floor of his Mich[igan] home. . . . [a police deputy was sent] to a Brookstone store to buy a \$300 Parrot A.R. Drone 2.0 App-Controlled Quadricopter.” *Id.* Reluctant to send more officers into the home and put their lives at risk, the County Sheriff hoped the UAS would be able to see into the home in order to better evaluate the situation at hand. *Id.*

55. Gregory D. Lee, *Police Drones are for Saving Lives and Money, Not for Spying on You*, FAM. SECURITY MATTERS (Dec. 24, 2011), <http://www.familysecuritymatters.org/publications/detail/police-drones-are-for-saving-lives-and-money-not-for-spying-on-you>.

56. See Stanley, *supra* note 51.

57. See Lee, *supra* note 55.

58. Stanley, *supra* note 51.

59. Lee, *supra* note 55.

60. Edward Humes, *Eyes in the Sky*, CAL. LAW. (Aug. 2013), http://www.callawyer.com/Clstory.cfm?eid=930175&wteid=930175_Eyes_in_the_Sky. “When the expense of sending a human pilot on a mission is not worth it, a drone will do.” Talai, *supra* note 13, at 748.

61. Stanley, *supra* note 51. A Rasmussen Reports telephone survey revealed that 65% of likely U.S. voters oppose the use of UAS for domestic police work. *65% Oppose Use of Drones for U.S. Police Work*, RASMUSSEN REP. (Oct. 28, 2013), http://www.rasmussenreports.com/public_content/politics/general_politics/october_2013/65_oppose_use_of_drones_for_u_s_police_work. Additionally, 35% in an Associated Press-National Constitution Center poll said they were “extremely concerned” or “very concerned” that police use of UAS for surveillance might cause them to lose privacy. Joan Lowy, *AP-NCC Poll: A Third of the Public Fears Police Use of Drones for*

or hover unseen outside of a bedroom window.⁶² Not even the smallest manned helicopters possess these abilities.⁶³ Not only can UAS maneuver into smaller spaces than manned helicopters, they also make little to no noise or appearance in the sky while doing so.⁶⁴ While the loud noises of helicopters may help one become aware of potential surveillance, some UAS are silent, providing no such notice.⁶⁵ Understandably, the intrigue and demand for UAS has increased among law enforcement agencies.⁶⁶

D. FAA Process in Evaluating Requests to Utilize UAS

Public entities that wish to fly UAS in the United States must obtain a Certificate of Waiver or Authorization (COA) from the FAA.⁶⁷ The FAA reviews the online requests and evaluates whether the proposed use of the UAS can be accomplished safely.⁶⁸ The COA specifies a designed block of airspace in which the operator may use the UAS and includes special requirements and protocols for the proposed UAS use.⁶⁹ COAs are issued for a specific period of time,

Surveillance Will Erode Their Privacy, ASSOCIATED PRESS (Sept. 27, 2014), <http://ap-gfcpoll.com/uncategorized/our-latest-poll-findings-13>.

62. Stanley, *supra* note 51.

63. *Id.*

64. Black, *supra* note 9, at 1840–41.

65. Stanley, *supra* note 51. In his dissent in *Florida v. Riley*, Justice Brennan, with great trepidation, hypothesized a helicopter with capabilities strikingly similar to UAS. 488 U.S. 445, 462 (1989). “Imagine a helicopter capable of hovering just above an enclosed courtyard or patio without generating any noise, wind, or dust at all Suppose the police employed this miraculous tool to discover not only what crops people were growing in their greenhouses, but also what books they were reading and who their dinner guests were.” *Id.*

66. See FED. AVIATION ADMIN., FACT SHEET-UNMANNED AIRCRAFT SYSTEMS (UAS) (Feb. 15, 2015) [hereinafter FAA FACT SHEET], http://www.faa.gov/news/fact_sheets/news_story.cfm?newsid=18297. From November 1, 2012 to June 19, 2014, eight police departments and eleven sheriff departments applied for authorization to acquire UAS. Shawn Musgrave, *Finally, Here’s Every Organization Allowed to Fly Drones in the US*, MOTHERBOARD (Oct. 6, 2014, 3:00 PM), <http://motherboard.vice.com/read/every-organization-flying-drones-in-the-us>.

67. FAA FACT SHEET, *supra* note 66.

68. *Id.* Safety appears to be the prominent issue, as opposed to potential violations of privacy. *Id.* “‘Anyone who wants to fly an aircraft—manned or unmanned—in US airspace needs some level of authorization from the FAA to ensure the safety of our skies,’ [said] Ian Gregor, a FAA spokesman for the Pacific Division” Cyrus Farivar, *Who’s Getting FAA Approval to Fly Drones? A Kansas Town, Among Others*, ARS TECHNICA (Oct. 20, 2014, 4:20 PM), <http://arstechnica.com/tech-policy/2014/10/whos-getting-faa-approval-to-fly-drones-a-kansas-town-among-others/>.

69. See FAA FACT SHEET, *supra* note 66.

sometimes up to two years.⁷⁰ From November 1, 2012 to June 19, 2014, 935 COAs were completed by military units, government agencies, universities, and law enforcement agencies.⁷¹ Over 500 of the applications are currently active, while the remainder are pending review.⁷² However, a congressional mandate for widespread integration of UAS into national airspace may render the current COA process of case-by-case evaluation insufficient and obsolete.⁷³

E. FAA UAS Proposals

In 2012, Congress passed the FAA Modernization and Reform Act of 2012, which required the FAA to develop and implement a strategy to safely integrate UAS into national airspace.⁷⁴ Congress's main focus in this legislation appears to be safety and not privacy.⁷⁵ Section 332 of the Act, which details the integration process, does not mention privacy a single time, yet refers to safety numerous times.⁷⁶ The focus on safety and conspicuous absence of privacy is consistent with the FAA's stated goals for the integration process.⁷⁷ The Act called upon the FAA to integrate UAS into national airspace by no later than September 2015.⁷⁸

The FAA stated it wanted to announce new rules and regulations for the commercial use of UAS before the end of 2014, but it failed to do so.⁷⁹ On February 15, 2015, the FAA released its long-awaited

70. *Id.*

71. Musgrave, *supra* note 66. Universities and colleges consist of 25% of over two-hundred government agencies that submitted COAs during this period. *Id.*

72. *See id.* From November 1, 2012 to June 19, 2014, only five COA applications were disapproved, all of which were from academic institutions. *Id.* A large portion of COA applications stem from the military, including National Guard units in nine states. *Id.* During this period, eight police departments and eleven sheriff departments submitted COA applications. *Id.*

73. Black, *supra* note 9, at 1844.

74. FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, § 332(a)(1), 126 Stat. 11, 73.

75. *See id.*

76. *Id.*

77. *See FAA Makes Progress with UAS Integration*, FED. AVIATION ADMIN. (May 14, 2012), <https://www.faa.gov/news/updates/?newsId=68004> ("The FAA's sole mission and authority as it focuses on the integration of unmanned aircraft systems is safety.").

78. § 332(a)(3), 126 Stat. at 73. "The plan . . . shall provide for the safe integration of civil unmanned aircraft systems into the national airspace system as soon as practicable, but not later than September 30, 2015." *Id.*

79. Jeff Pegues, *Some Drone Decisions Expected Soon, with Final Rules Likely Years Away*, CBS NEWS (Dec. 29, 2014, 11:26 AM), <http://www.cbsnews.com/news/some-drone-decisions-expected-soon-with-final-rules-likely-years-away/>. The FAA's

UAS proposal.⁸⁰ The proposal would allow UAS weighing up to fifty-five pounds to fly within sight of their remote operators.⁸¹ The UAS also must stay below 500 feet in the air and fly less than 100 miles per hour.⁸² Similar to the FAA Modernization Act of 2012, this proposal targets the safety of UAS use, and does not address privacy concerns.⁸³

The FAA requested sixty days of public comment on its proposal, and “industry experts expect the analysis of comments could take 18 months or longer before the rules are completed.”⁸⁴ It is apparent that the FAA will not meet the September 2015 integration ordered by Congress, with 2017 as a more realistic time frame.⁸⁵

F. President Obama’s Presidential Memorandum Governing UAS Use by Federal Agencies

On the same day as the FAA’s release of its UAS proposal, President Obama issued a presidential memorandum, which has the same legal effect as an executive order, requiring agencies to draft and publish UAS policies within one year.⁸⁶ The Memorandum emphasizes that UAS should be used in a manner consistent with the U.S. Constitution, federal law, and any other applicable policies and regulations.⁸⁷ Agencies may “only collect information ‘to the extent that such collection or use is consistent with and relevant to an authorized purpose.’”⁸⁸ The Order addresses privacy concerns and dictates that any personally identifiable information (PII)⁸⁹ collected by UAS:

commercial ban on UAS remain in place, and the Association for Unmanned Vehicle Systems International estimates that for every day UAS are not integrated into U.S. airspace, the nation loses \$27.6 million. *Id.*

80. Bart Jansen, *FAA Unveils Drone Rules; Obama Orders Policy for Agencies*, USA TODAY (Feb. 16, 2015, 8:12 AM), <http://www.usatoday.com/story/news/2015/02/15/faa-drone-rule/23440469/>.

81. *Id.*

82. *Id.*

83. *Id.*

84. *Id.*

85. *Id.* A Congressional transportation subcommittee chastised the FAA for its snail-like pace in implementing these rules. *Id.*

86. *Id.*

87. Gregory S. McNeal, *What You Need to Know About the Federal Government’s Drone Privacy Rules*, FORBES (Feb. 15, 2015, 1:40 PM), <http://www.forbes.com/sites/gregorymcneal/2015/02/15/the-drones-are-coming-heres-what-president-obama-thinks-about-privacy/>.

88. *Id.*

89. Personally identifiable information is information that can be used on its own or with other information to identify, contact, or locate a single person, or to identify an

shall not be retained for more than 180 days unless the retention is determined to be: necessary to an authorized mission of the retaining agency, maintained in a system of records covered by the Privacy Act, or is required to be retained for a longer period by any other applicable law or regulation.⁹⁰

The Memorandum requires agencies to ensure their policies in regards to collection, use, retention, and dissemination of information do not violate the First Amendment or discriminate illegally against people based on race, gender, religion, sexual orientation, or ethnicity.⁹¹ Agencies will be required to ensure that oversight procedures for UAS use comply with existing policies and regulations.⁹²

The Order also seeks to provide transparency in regards to agency UAS activities, requiring them to provide notice to the public as to where they are permitted to operate UAS in the national airspace.⁹³ In an effort to balance privacy interests with security and safety, an agency is not compelled to release this information if the release is reasonably expected to compromise law enforcement or national security.⁹⁴

To further ensure transparency, agencies will be required to inform the public of their UAS programs and notify them of any alterations that may significantly impact privacy rights.⁹⁵ Agencies must also publish an annual summary of their UAS operations, which will include, in pertinent part, a brief and general description of missions flown.⁹⁶

Although the agencies' policies are still forthcoming, UAS requests and usage will only continue to increase, with law enforcement

individual in context. *Guidance on the Protection of Personal Identifiable Information*, U.S. DEP'T OF LABOR, <http://www.dol.gov/dol/ppii.htm> (last visited Mar. 31, 2016).

90. McNeal, *supra* note 87.

91. Jansen, *supra* note 80.

92. McNeal, *supra* note 87.

93. *Id.*

94. Memorandum on Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems, 2015 DAILY COMP. PRES. DOC. 103, 3 (Feb. 15, 2015) [hereinafter Presidential Memorandum].

95. McNeal, *supra* note 87.

96. *Id.*

agencies among the most interested parties.⁹⁷ With increased utilization by law enforcement agencies, it is inevitable that courts will soon be charged with applying Fourth Amendment principles in order to determine when a search by UAS has occurred.⁹⁸

G. An Overview of Fourth Amendment Jurisprudence

The Fourth Amendment of the United States Constitution protects Americans from unreasonable searches and seizures.⁹⁹ Fourth Amendment doctrinal analysis is one of frequent change, but its intent has always been to shield individuals from overbearing and excessive government intrusion in order to secure privacy interests.¹⁰⁰ Fourth Amendment jurisprudence continues to evolve with the emergence of new technology in order to secure the privacy interests of Americans.¹⁰¹ As UAS use becomes more common, Fourth Amendment case law will no doubt undergo another change, but we must first examine jurisprudence most applicable to UAS use.

1. Modern Fourth Amendment Law Began with *Olmstead v. United States* and the Law of Trespass

The Supreme Court's 1928 decision in *Olmstead v. United States* is the beginning of the evolution of Fourth Amendment jurisprudence.¹⁰² In *Olmstead*, the Supreme Court held that a wiretap of the defendant's telephone was not a "search" under the Fourth Amendment because the wiretap did not require a physical invasion or trespass onto Olmstead's property.¹⁰³ The Court opined that if one's home, curtilage, person, papers, or tangible possessions were not physically invaded, then a Fourth Amendment search did not occur.¹⁰⁴

In a colorful dissent, Justice Brandeis argued that the majority opinion was ignorant to technical advances that could never have been conceptualized when the Constitution was written.¹⁰⁵ Justice Brandeis contended that when the Fourth Amendment was adopted, "force and violence" were the only means by which the government

97. FAA FACT SHEET, *supra* note 66 (explaining UAS interest from various domestic parties, and continuous growth in the issuance of UAS authorizations).

98. Black, *supra* note 9, at 1848.

99. U.S. CONST. amend. IV.

100. THOMPSON, *supra* note 8, at 4.

101. *Id.*

102. *Olmstead v. United States*, 277 U.S. 438 (1928).

103. *Id.* at 466.

104. *Id.*

105. *Id.* at 473-74 (Brandeis, J., dissenting).

could invade property.¹⁰⁶ Therefore, Fourth Amendment protections were limited to address only conceivable forms of “force and violence.”¹⁰⁷ Justice Brandeis argued that technological advances have allowed the government to invade privacy in more subtle and far-reaching ways, without constitutional protection.¹⁰⁸ He posited that given these technological advances, the Supreme Court must shift Fourth Amendment jurisprudence in order to protect individuals from unjustifiable government intrusions on privacy, regardless of the means employed.¹⁰⁹

2. The Shift from Property to Privacy Interests: *Katz v. United States* (1967)

In *Katz*, the police used a bug in order to eavesdrop on the defendant’s telephone conversation from a public phone booth with the door closed.¹¹⁰ The Court held that although the defendant was in a public telephone booth and there was no physical trespass of a “constitutionally protected area,” bugging the telephone was considered a search in violation of Mr. Katz’s Fourth Amendment rights.¹¹¹ The Supreme Court dramatically altered its conception of the Fourth Amendment when it held that the Fourth Amendment “protects people not places.”¹¹² Therefore it was not constitutionally significant that the device the police used did not “penetrate the wall of the [phone] booth.”¹¹³ This shifted the emphasis of Fourth Amendment inquiries from trespass law to privacy concerns.¹¹⁴

The Court articulated that the inquiry in determining whether a search violated the Fourth Amendment hinges on whether the individual had a reasonable expectation of privacy given the circumstances.¹¹⁵ One of the tests currently relied upon by courts stems from Justice Harlan’s concurrence in *Katz*.¹¹⁶ Justice Harlan established a two-prong test to determine whether or not a Fourth

106. *Id.* at 473.

107. *Id.*

108. *Id.* at 473–74.

109. *Id.* at 478–79.

110. *Katz v. United States*, 389 U.S. 347, 351–52 (1967).

111. *Id.* at 350–51, 359.

112. *Id.* at 351.

113. *Id.* at 353.

114. *See id.*

115. *Id.* at 355–56. The Court held that because Katz had a reasonable and justifiable expectation of privacy in the telephone booth, recording his conversations violated his Fourth Amendment rights and was considered a search. *Id.* at 353.

116. *Id.* at 361 (Harlan, J., concurring).

Amendment search had occurred.¹¹⁷ A court must consider whether an individual has a subjective expectation of privacy in the area where the search occurred and whether society recognizes that expectation as reasonable.¹¹⁸ While the Court held that the Fourth Amendment “protects people not places,”¹¹⁹ Justice Harlan noted that courts should consider the location of the alleged search in its consideration of how much protection is required.¹²⁰ Courts will likely hold an individual’s expectation of privacy as more reasonable if the events in question occurred in areas regarded as private, such as the home.¹²¹ Although the Court moved away from solely using trespass law to determine whether a search under the Fourth Amendment occurred, the location of the alleged search remained a relevant factor in the Court’s new test, which focused on an individual’s reasonable expectation of privacy.¹²²

3. Fourth Amendment Protection of the Home Against Emerging Technology and its Limitations

Historically, the home has been a focal point for American life, and as a result, courts afford this area the greatest Fourth Amendment protection.¹²³ The Supreme Court articulated that “the Fourth Amendment has drawn a firm line at the entrance to the house.”¹²⁴ This is rooted in the text of the Fourth Amendment, which states, “[t]he right of the people to be secure in their . . . houses . . . against unreasonable searches and seizures, shall not be violated”¹²⁵

While it may be easy to detect physical entry into the home, the Court soon had to grapple with advancing technology and its ability to penetrate this fortress of solitude and privacy. In *Kyllo v. United States*, the Supreme Court analyzed the government’s use of a thermal imaging device to examine heat patterns inside the home of Danny Kyllo.¹²⁶ The Court held that the use of sense-enhancing technology to infiltrate the home was a search within the meaning of the Fourth Amendment.¹²⁷ In addressing the impact advancing

117. *Id.*

118. *Id.*

119. *Id.* at 351 (majority opinion).

120. *Id.* at 361 (Harlan, J., concurring).

121. *Id.*

122. *Id.* at 360–61.

123. THOMPSON, *supra* note 8, at 6.

124. *Payton v. New York*, 445 U.S. 573, 590 (1980).

125. U.S. CONST. amend. IV.

126. *Kyllo v. United States*, 533 U.S. 27, 29 (2001).

127. *Id.* at 40.

technology has on our conceptions of privacy, Justice Scalia, writing for the majority, noted that “obtaining by sense-enhancing technology any information regarding the interior of the home that could not otherwise have been obtained without physical ‘intrusion into a constitutionally protected area,’ . . . constitutes a search—at least where (as here) the technology in question is not in general public use.”¹²⁸ Since the thermal imaging device used was not in general public use, and the information gathered could only have been obtained by entering the home, the Court ruled that there was a search in violation of the Fourth Amendment.¹²⁹

Fully aware of the privacy implications of advancing technology, Justice Scalia wrote “[i]t would be foolish to contend that the degree of privacy secured to citizens by the Fourth Amendment has been entirely unaffected by the advance of technology.”¹³⁰ In *Kyllo*, the Court attempted to increase privacy protections while also accounting for technological advances that can penetrate the barriers of the home.¹³¹ While technology that improves observation and surveillance beyond what one can see with the naked eye certainly warrants scrutiny from courts, *Kyllo* does not give the home absolute protection from government surveillance.¹³² In his dissent, Justice Stevens wrote that “searches and seizures of property in plain view are presumptively reasonable. Whether that property is residential or commercial, the basic principle is the same: ‘What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection.’”¹³³ This is consistent with Justice Harlan’s concurrence in *Katz*, in which he emphasized that what a person exposes to the plain view of the public is not protected because he or she showed no intent to keep the information private.¹³⁴ In order for this exception to come into force, law enforcement officials must conduct the surveillance from a lawful viewpoint, and the evidence they gather must be immediately apparent.¹³⁵

128. *Id.* at 34 (quoting *Silverman v. United States*, 365 U.S. 505, 512 (1961)).

129. *Id.* at 40.

130. *Id.* at 33–34.

131. *Id.* at 40.

132. *Id.* at 42 (Stevens, J., dissenting).

133. *Id.* (quoting *California v. Ciraolo*, 476 U.S. 207, 213 (1986)) (citation omitted).

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

135. THOMPSON, *supra* note 8, at 6.

4. The Use of Manned Aircrafts to Conduct Surveillance of Areas Open to Public View is Not a Search Prohibited by the Fourth Amendment

In 1986, the Supreme Court heard two cases that began to define individuals' reasonable expectations of privacy from aerial surveillance.¹³⁶

In *California v. Ciraolo*, the Court examined the constitutionality of law enforcement officials' observations and photographs of a fenced-in backyard made from a plane 1,000 feet above ground level.¹³⁷ Even though the respondent believed the fences he erected gave him a reasonable expectation of privacy, the Court deemed this expectation of privacy to be unreasonable.¹³⁸ The Court held there was no search because respondent had no reasonable expectation of privacy with regard to his marijuana plants that could be observed with the naked eye from 1,000 feet above ground.¹³⁹ There was no reasonable expectation of privacy because "[a]ny member of the public flying in this airspace who glanced down could have seen everything that these officers observed."¹⁴⁰ The Court emphasized the fact that the plane was in publicly navigable airspace, as defined by federal statute.¹⁴¹

In *Dow Chemical Co. v. United States*, also decided in 1986, Dow Chemical Company refused to let the Environmental Protection Agency (EPA) inspect their commercial plant.¹⁴² The EPA then hired an aerial photographer to take photos of the 2,000-acre commercial plant "from altitudes of 12,000, 3,000, and 1,200 feet with a very sophisticated camera."¹⁴³ The Court noted that while the camera was sophisticated and precise, it was conventional and not so unique nor penetrating into private realms so as to violate one's Fourth Amendment rights.¹⁴⁴

Additionally, the Court asserted that this was not a search and the facility was not protected from police observation through an industrial curtilage doctrine, similar to that of a private residence.¹⁴⁵

136. See *Ciraolo*, 476 U.S. at 207; see also *Dow Chem. Co. v. United States*, 476 U.S. 227 (1986).

137. *Ciraolo*, 476 U.S. at 213.

138. *Id.* at 214-15.

139. *Id.* at 215.

140. *Id.* at 213-14.

141. *Id.* at 213 (citing 49 U.S.C. app. § 1304 (Supp. 1982)).

142. *Dow Chem. Co. v. United States*, 476 U.S. 227, 229 (1986).

143. *Id.* at 229, 238.

144. *Id.* at 238-39.

145. *Id.* at 234-35.

Rather, an industrial complex is more analogous to an open field, which is subject to observation by those in public airways.¹⁴⁶ The Court again focused its analysis on the position of the aircraft and noted that it was “lawfully in the public airspace immediately above” the complex.¹⁴⁷ As such, Dow Chemical had no reasonable expectation of privacy in its open-air facility, and thus no Fourth Amendment search occurred.¹⁴⁸

Three years later, in *Florida v. Riley*, law enforcement officials received a tip that an individual was growing marijuana in a greenhouse on his property.¹⁴⁹ Since officers could not see the inside of the greenhouse from the ground, they flew a helicopter over the property.¹⁵⁰ From an altitude of 400 feet, an officer was able to see marijuana plants through cracks in the greenhouse roof.¹⁵¹ The Court held, in a five to four vote, that there was no search, and the four-justice plurality¹⁵² again emphasized that the plane was in navigable airspace where it had a legal right to be.¹⁵³ As a result, the public was free to inspect the greenhouse from the same location as law enforcement officials in the plane.¹⁵⁴ Therefore, the Court held that no reasonable individual would have had a justifiable expectation of privacy in the greenhouse because it was subject to both public and official observation.¹⁵⁵

While Justice O’Connor agreed with the final judgment, her reasoning differed from that of the plurality.¹⁵⁶ Justice O’Connor deemphasized the fact that the officers in the plane complied with FAA regulations, and instead focused her analysis more on the reasonableness of the individual’s expectation of privacy.¹⁵⁷ O’Connor reasoned that the FAA’s “purpose is to promote air safety, not to protect [Fourth Amendment rights].”¹⁵⁸ O’Connor sided with the plurality because she concluded that the defendant did not prove

146. *Id.* at 239.

147. *Id.* at 238–39.

148. *Id.* at 239.

149. *Florida v. Riley*, 488 U.S. 445, 448 (1989).

150. *Id.*

151. *Id.*

152. The plurality opinion consisted of Justices White, Scalia, Rehnquist, and Kennedy. *See id.* at 447.

153. *Id.* at 449.

154. *Id.* at 449–50.

155. *Id.* at 450–51.

156. *Id.* at 452 (O’Connor, J., concurring).

157. *Id.* at 452–53.

158. *Id.* at 452.

that public use of the airspace in question was so uncommon that he had a justified expectation of privacy.¹⁵⁹

Justice Brennan's dissent, joined by Justices Stevens and Marshall, held this to be a Fourth Amendment search and criticized the plurality for abandoning the reasonable expectation of privacy standard, set forth in *Katz*.¹⁶⁰ Justice Brennan argued that the defendant's reasonable, justified expectation of privacy was violated, yet the plurality disregarded the intrusiveness of the plane because its positioning was legal according to the FAA.¹⁶¹ Justice Brennan observed that part of the plurality's rationale that there was no search hinged on the fact that "there was no undue noise, and no wind, dust, or threat of injury."¹⁶² He then asked the Court to:

Imagine a helicopter capable of hovering just above an enclosed courtyard or patio without generating any noise, wind, or dust at all Suppose the police employed this miraculous tool to discover not only what crops people were growing in their greenhouses, but also what books they were reading and who their dinner guests were.¹⁶³

Justice Brennan, with great unease, appears to have hypothesized a device with very similar qualities to UAS.¹⁶⁴ This passage illustrates many of the legitimate privacy concerns our society faces with the emergence of UAS, especially given the plurality's emphasis on the legality of the location of the observing aircraft.¹⁶⁵

5. Government Tracking and the Eventual Return to the Trespass Test

The Supreme Court is divided over how to handle the resulting privacy implications of "rapidly advancing surveillance technologies."¹⁶⁶ In general, "individuals have reduced—and in some contexts no—Fourth Amendment protection from government tracking of their travel in public places."¹⁶⁷ In *United States v. Knotts*, law enforcement officials placed a beeper inside a canister of chloroform purchased by the defendant.¹⁶⁸ Law enforcement officials then monitored the beeper in order to track the defendant's

159. *Id.* at 453.

160. *Id.* at 456 (Brennan, J., dissenting).

161. *Id.* at 461.

162. *Id.*

163. *Id.* at 462.

164. *See id.*

165. Black, *supra* note 9, at 1856.

166. *Id.* at 1862.

167. THOMPSON, *supra* note 8, at 8.

168. *United States v. Knotts*, 460 U.S. 276, 278 (1983).

movements on public roadways.¹⁶⁹ The Court held that no Fourth Amendment search occurred because people traveling on public streets have no reasonable expectation of privacy in their movements.¹⁷⁰ The Court analogized the beeper surveillance to police following the defendant in an unmarked car, which is legal and would not constitute a search.¹⁷¹ The Court stated that law enforcement officials could have legally obtained the same information from conventional surveillance measures, and the use of a more efficient means of observation does not make it unconstitutional.¹⁷² As a result, no Fourth Amendment search occurred and no warrant was required for the observation.¹⁷³

While the government may monitor individuals' movements on public roads, this warrantless tracking must cease once people enter a private residence or any area where there is a reasonable expectation of privacy.¹⁷⁴ In *United States v. Karo*, police placed a beeper in a can of ether possessed by the defendant.¹⁷⁵ Law enforcement officers tracked the beeper on public streets and while the beeper was in the defendant's residence.¹⁷⁶ The Supreme Court held that this was a Fourth Amendment search because it revealed details of the home, a "location not open to visual surveillance."¹⁷⁷ The Court distinguished this from *Knotts*, because in this case the beeper revealed information about the interior of the home, which law enforcement "could not have otherwise obtained without a warrant."¹⁷⁸

In *United States v. Jones*, the Court examined whether the attachment of a Global Positioning System (GPS) device on an individual's vehicle, and subsequent month-long tracking, constituted a search.¹⁷⁹ The Court looked primarily to trespass law, rather than the *Katz* standard in its conclusion that this constituted a search.¹⁸⁰ Justice Scalia explained that the Fourth Amendment protects people's "persons, houses, papers, and effects, against unreasonable searches

169. *Id.*

170. *Id.* at 281.

171. *Id.* at 282.

172. *Id.* at 284.

173. *Id.* at 285.

174. *United States v. Karo*, 468 U.S. 705, 714–15 (1984).

175. *Id.* at 708.

176. *Id.*

177. *Id.* at 714.

178. *Id.* at 715.

179. *United States v. Jones*, 132 S. Ct. 945, 948–49 (2012).

180. *Id.* at 950.

and seizures,” and that an automobile is an “effect,” deserving of Fourth Amendment protection.¹⁸¹

Justice Scalia, who authored the four-justice plurality opinion, acknowledged that while the Court did look mostly to trespass law to conclude there was a search, this was not a substitute for the *Katz* test of reasonable expectation of privacy.¹⁸² Rather, the trespass test was to be added to the *Katz* test.¹⁸³ Justice Scalia articulated that there was no need to undergo a *Katz* analysis because a search had already been established by the officer’s trespass upon an “effect” of the defendant.¹⁸⁴ While Justice Scalia did not undergo a *Katz* inquiry, he foreshadowed the need to potentially do so in similar matters absent a trespass.¹⁸⁵

Justice Alito’s concurrence cautioned that new technology has led to methods in which the government can invade a person’s privacy that the Framers of the Constitution never fathomed.¹⁸⁶ As a result, the protections of the Constitution must adapt along with technology.¹⁸⁷ He opined that the use of long term GPS surveillance of an individual impinges upon one’s expectations of privacy, because no individual suspects that law enforcement officials would, or could, surreptitiously monitor and record their every movement for an extensive period of time.¹⁸⁸ He wrote that in the past, “constant monitoring of the location of a vehicle for four weeks . . . would have required a large team of agents, multiple vehicles, and perhaps aerial assistance.”¹⁸⁹ However, GPS technology has made “long-term monitoring relatively easy and cheap.”¹⁹⁰

In a separate concurrence, Justice Sotomayor opined that future government conduct could certainly intrude upon privacy, “even in the absence of a trespass.”¹⁹¹ She criticized the majority’s trespassory test because it provides little guidance “[i]n cases of electronic or other [emerging methods] of surveillance that do not [require] a

181. *Id.* at 949 (citing *United States v. Chadwick*, 433 U.S. 1, 12 (1977)).

182. *Id.* at 954.

183. *Id.* at 953.

184. *Id.* at 954.

185. *Id.* Justice Scalia wrote that “[w]e may have to grapple with . . . ‘vexing problems’ in some future case where a classic trespassory search is not involved and resort must be had to *Katz* analysis; but there is no reason for rushing forward to resolve them here.”
Id.

186. *Id.* at 958–59 (Alito, J., concurring).

187. *Id.*

188. *Id.* at 958.

189. *Id.* at 963.

190. *Id.* at 964.

191. *Id.* at 954 (Sotomayor, J., concurring).

physical intrusion on property.”¹⁹² Justice Sotomayor possessed concerns similar to Justice Alito in regard to tracking an individual for an extended period of time.¹⁹³ She noted that tracking individuals even for a short period of time “reflects a wealth of detail about her familial, political, professional, religious, and sexual associations.”¹⁹⁴ She asserted that while the government may obtain certain information from GPS monitoring legally, its aggregation of this information may violate reasonable expectations of privacy.¹⁹⁵ People may not reasonably expect their movements to be recorded and compiled in a manner that allows the government to discover intimate details such as sexual habits, political and religious beliefs, etc.¹⁹⁶ Although not binding authority, these two concurrences suggest that the length of time an individual is under surveillance may be instructive on whether a Fourth Amendment search occurred.

Similar to Justice Scalia in *Kyllo*, Justice Alito’s concurrence warned that emerging technology consistently alters reasonable expectations of privacy:

[T]he *Katz* test rests on the assumption that this hypothetical reasonable person has a well-developed and stable set of privacy expectations. But technology can change those expectations. Dramatic technological change may lead to periods in which popular expectations are in flux and may ultimately produce significant changes in popular attitudes. New technology may provide increased convenience or security at the expense of privacy, and many people may find the tradeoff worthwhile. And even if the public does not welcome the diminution of privacy that new technology

192. *Id.* at 955.

193. *Id.*

194. *Id.* Justice Sotomayor elaborated that:

Disclosed in [GPS] data . . . will be trips the indisputably private nature of which takes little imagination to conjure: trips to the psychiatrist, the plastic surgeon, the abortion clinic, the AIDS treatment center, the strip club, the criminal defense attorney, the by-the-hour motel, the union meeting, the mosque, synagogue or church, the gay bar and on and on.

Id. (quoting *People v. Weaver*, 909 N.E.2d 1195, 1199 (N.Y. 2009)).

195. *Id.* at 956.

196. *Id.*

entails, they may eventually reconcile themselves to this development as inevitable.¹⁹⁷

Justice Alito's and Justice Sotomayor's concerns with GPS technology can be applied to UAS and the potential ramifications of their widespread use by law enforcement officials.

III. APPLYING FOURTH AMENDMENT JURISPRUDENCE TO UAS SURVEILLANCE

While the Supreme Court has not yet heard a case on law enforcement's use of UAS, it could conceivably do so in the near future. After the *Jones* opinion, it is undisputed that a UAS cannot conduct surveillance by trespassing on an individual's private property.¹⁹⁸ Under the doctrine, law enforcement officials would have to land a UAS on a defendant's property or personal belongings to commit a trespass.¹⁹⁹ UAS have the ability to fly or hover over a target without committing trespass.²⁰⁰ When UAS surveillance occurs without any kind of a trespass, the surveillance would be examined under the *Katz* reasonable expectation of privacy test.²⁰¹

A. Existing Fourth Amendment Jurisprudence Will Fail to Adequately Protect the Home and its Curtilage From UAS Surveillance.

In *Ciraolo* and *Riley*, the Court reviewed the constitutionality of government surveillance of the home and its curtilage using a manned aircraft.²⁰² In both cases, the Court held the surveillance to be constitutional because law enforcement officials were in navigable airspace, where they, along with any other member of the public, had a legal right to be.²⁰³ Since any member of the public could have made the observations, any expectation of privacy was unreasonable.²⁰⁴

In *Riley*, the valid surveillance occurred from 400 feet above ground, which indicates that manned aerial surveillance is acceptable

197. *Id.* at 962 (Alito, J., concurring) (footnote omitted).

198. *Id.* at 964.

199. *Id.* at 955 (Sotomayor, J., concurring).

200. *Id.*

201. *Id.* at 953 (majority opinion).

202. *See supra* Part II.G.4.

203. *See Florida v. Riley*, 488 U.S. 445, 450–51 (1989); *California v. Ciraolo*, 476 U.S. 207, 213–14 (1986).

204. *Riley*, 488 U.S. at 448.

from 400 feet and above.²⁰⁵ The Court's rationale in using the legality of an aircraft's altitude to determine a reasonable expectation of privacy will not be tenable when examining UAS surveillance. The FAA's proposal for governing UAS requires the aircrafts to stay below 500 feet in the air, which means UAS would legally be able to operate between zero and 500 feet.²⁰⁶ If the Court follows the legally navigable airspace precedent set forth in *Ciraolo* and *Riley*, then law enforcement officials would be permitted to conduct UAS surveillance of the curtilage of one's home from zero to 500 feet above ground. Under this reasoning, since any member of the public who uses a UAS could make observations from these altitudes, individuals would not have a reasonable expectation of privacy. This would effectively eliminate any privacy and Fourth Amendment protections individuals possess in the curtilage of their homes. As a result, in aerial surveillance cases, the Court should depart from the credence it lends to the search occurring from publicly navigable airspace.

Furthermore, in *Kyllo*, Justice Scalia acknowledged that advancing technology has reduced the degree of privacy the Fourth Amendment provides individuals.²⁰⁷ The Court held that there was a search not because information was acquired that could not have otherwise been obtained without physical entry into the home, but rather, because the technology law enforcement officers used was not in general public use.²⁰⁸ The Court inferred that when the technology used is available to the general public, no search occurs.²⁰⁹ Although UAS have only recently come into general public use, their demand among law enforcement agencies and other domestic parties is continually increasing.²¹⁰ The FAA estimates that up to 15,000 UAS may be in the nation's skies by 2020.²¹¹

Evaluating reasonable expectation of privacy based on changing public usage of a technology will be confusing for police and the general public. While it is unclear how pervasive a technology must

205. *Id.*

206. *Id.*

207. *Kyllo v. United States*, 533 U.S. 27, 33–34 (2001). Justice Alito echoed this sentiment in his concurring opinion in *Jones*. *United States v. Jones*, 132 S. Ct. 945, 959 (2012) (Alito, J., concurring).

208. *Kyllo*, 533 U.S. at 34.

209. *Id.*

210. FAA FACT SHEET, *supra* note 66 (explaining UAS interest from various domestic parties, and continuous growth in the issuance of UAS authorizations).

211. FED. AVIATION ADMIN., FAA AEROSPACE FORECAST: FISCAL YEARS 2010-2030, at 48 (2010).

be for it to be considered common, once UAS are considered in public use, *Kyllo* dictates that the government, without a warrant, may be able to use them to reveal information that otherwise could not have been obtained without a physical intrusion into the home.²¹² Under this standard, there would be no justified expectation of privacy from UAS surveillance of the home, eliminating all Fourth Amendment protections from the area that has consistently been afforded the greatest protection.²¹³ As a result, the Supreme Court must abandon the weight it places on the public prevalence of a technology in determining reasonable expectation of privacy.

B. In Its Formulation of Reasonable Expectation of Privacy, The Court Should Base its Analysis on the Level of Intimacy of the Details Revealed

In *Katz*, the Court expanded Fourth Amendment protections to intangible interests such as privacy, but certain passages in the opinion resulted in the loss of “protection for anything a person exposes to the public or another person.”²¹⁴ The majority opinion noted that “[w]hat a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection.”²¹⁵ This has instructed the Court’s subsequent Fourth Amendment jurisprudence and led to the view that once an individual discloses a fact to the public in any way, the information is no longer entitled to Fourth Amendment protections.²¹⁶ Therefore, privacy and Fourth Amendment protections depend on complete secrecy of information.²¹⁷

However, requiring secrecy in order to consider information private and protected by the Fourth Amendment is inconsistent with *Katz*.²¹⁸ In the majority opinion, Justice Stewart wrote, “what [an individual] seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.”²¹⁹ As a result, Professor Miriam Baer asserts that the Supreme Court should shift its conceptualizations of expectations of privacy to focus on the

212. *Kyllo*, 533 U.S. at 34.

213. See THOMPSON, *supra* note 8, at 6.

214. RICHARD M. THOMPSON II, CONG. RESEARCH SERV., R43586, THE FOURTH AMENDMENT THIRD PARTY DOCTRINE 6 (2014), <http://www.fas.org/sgp/crs/misc/R43586.pdf>.

215. *Katz v. United States*, 389 U.S. 347, 351 (1967).

216. THOMPSON, *supra* note 8, at 7.

217. Daniel J. Solove, *Conceptualizing Privacy*, 90 CALIF. L. REV. 1087, 1107 (2002).

218. *Katz*, 389 U.S. at 351.

219. *Id.*

intimacy of the details surveillance reveals.²²⁰ In her *Jones* concurrence, Justice Sotomayor candidly questioned the Court's conception of privacy as secrecy, which renders any information disclosed to the public or a third party unprotected by the Fourth Amendment.²²¹ She argued that it may be necessary for Fourth Amendment case law to stop regarding "secrecy as a prerequisite for privacy."²²² She then expanded upon this in her declaration that she "would not assume that all information voluntarily disclosed to some member of the public for a limited purpose is, for that reason alone, disintegrated to Fourth Amendment protection."²²³

While her opinion did not explicitly suggest a new Fourth Amendment test, she laid the groundwork for a more practical notion of Fourth Amendment privacy.²²⁴ Justice Sotomayor conceptualizes privacy not as secrecy, but rather as something that resembles intimacy.²²⁵ Her apprehension of GPS monitoring was its ability to reveal, at a low cost, a "substantial quantum of *intimate* information about any person whom the Government, in its unfettered discretion, chooses to track."²²⁶ GPS tracking, as well as other emerging technologies, may reveal "a wealth of detail about [one's] familial, political, professional, religious, and sexual associations."²²⁷ Additionally, in Justice Blackmun's dissent in *Bowers v. Hardwick*, he declared that "the right of an individual to conduct intimate relationships in the intimacy of his or her own home seems . . . to be the heart of the Constitution's protection of privacy."²²⁸

While intimate may be difficult to define, it is a more workable conception than privacy as secrecy because "it offers more stable protection in a dynamic world."²²⁹ An objective understanding of what is and is not considered intimate is more stable than an objective understanding of what is and is not secret due to consistently

220. Miriam H. Baer, *Secrecy, Intimacy, and Workable Rules: Justice Sotomayor Stakes Out the Middle Ground in United States v. Jones*, 123 YALE L. J.F. 393, 402 (2014), <http://www.yalelawjournal.org/forum/secrecy-intimacy-and-workable-rules>.

221. *United States v. Jones*, 132 S. Ct. 945, 957 (2012) (Sotomayor, J., concurring).

222. *Id.*

223. *Id.*

224. Baer, *supra* note 220, at 396.

225. *Id.* at 402.

226. *Jones*, 132 S. Ct. at 956 (Sotomayor, J., concurring) (emphasis added).

227. *Id.* at 955.

228. *Bowers v. Hardwick*, 478 U.S. 186, 208 (1986) (Blackmun, J., dissenting), *overruled by Lawrence v. Texas*, 539 U.S. 558 (2003).

229. Baer, *supra* note 220, at 403.

evolving technology.²³⁰ It is incredibly difficult to ascertain whether something is truly secret or not due to advanced technology. An individual may wholeheartedly believe an activity to be secret, but with advanced technological monitoring, how is one to know if that activity is truly secret? Perhaps, unbeknownst to the individual, there is another party somehow surreptitiously watching or listening. It is almost impossible to know whether something is actually secret because there is always the prospect that a person or technological device not known to be present intercepts the activity or information.

However, while certain communities and societies may have slightly different concepts of what is intimate and what is not, generally speaking, certain information and activities will always be presumed intimate.²³¹ Intimacy, even in the objective sense, unlike secrecy, is not a rapidly shifting expectation and does not hinge on the potential for unexpected intrusions or technological invasions.²³² Unless somehow disseminated to the general public, information regarding an individual's sexual activities and sexual organs will always be regarded as intimate. Furthermore, as articulated by Justice Scalia, details inside the home will always be held as intimate.²³³

As the law currently stands, "voluntary communication of information enabled by technology leads to exploitation of citizens' expectation of privacy that the *Katz* test should protect," but subsequently fails.²³⁴ Emails, text messages, telephone conversations transmitted digitally, and countless other intimate communications will receive no Fourth Amendment protection because

230. *Id.*

231. See *Kyllo v. United States*, 533 U.S. 27, 37–38 (2001) ("In the home, our cases show, all details are intimate details, because the entire area is held safe from prying government eyes.").

232. *See id.*

233. *Id.* at 37; *see also* *United States v. Dunn*, 480 U.S. 294, 300–01 (1987) (articulating that the scope of curtilage protected under the Fourth Amendment depends on whether the location in question contains the intimate activity connected with the sacredness of the home and life's privacies).

234. Lauren Elena Smith, *Jonesing for a Test: Fourth Amendment Privacy in the Wake of United States v. Jones*, 28 *BERKELEY TECH. L.J.* 1003, 1017 (2013); *see also* *United States v. Jones*, 132 S. Ct. 945, 957 (2012) (Sotomayor, J., concurring) ("I would not assume that all information voluntarily disclosed to some member of the public for a limited purpose is, for that reason alone, disintitiled to Fourth Amendment protection."); *id.* ("Those who disclose certain facts to a bank or phone company for a limited business purpose need not assume that this information will be released to other persons for other purposes." (quoting *Smith v. Maryland*, 442 U.S. 735, 749 (1979) (Marshall, J., dissenting))).

communications through network servers are not entirely secret.²³⁵ It is inconceivable for only secret information to have Fourth Amendment protection, because privacy is much more than just secrecy.²³⁶ If privacy is viewed as secrecy, then only a recluse or a shut-in has true privacy.²³⁷ The concept of privacy is much more significant than secrecy, as it is “the *right to control* knowledge about our personal lives, the right to decide how much information gets revealed to whom and for which purposes.”²³⁸ Intimate details shared with friends and loved ones are no longer secret, but it is reasonable for one to believe that they are still private, and the Fourth Amendment protects privacy, not secrecy.²³⁹

On the other hand, intimate and personal information made widely available to the general public is no longer private.²⁴⁰ An intimate email sent to a significant other is still private, even though it is exposed to a network server and no longer secret.²⁴¹ However, if one of the parties in this communication posts the email on a website, or a billboard, then the communication is no longer private, despite the fact that it contained intimate information.²⁴²

Brookings Institute fellow John Villasenor also indicates a potential shift in the Fourth Amendment standard toward something resembling privacy as intimacy.²⁴³ He wrote that, “the Court will not grant the government the unconstrained power to perform warrantless UAS surveillance. Instead, the Court is more likely to adopt a test tied to the amount of detail revealed”²⁴⁴ This may refer to both the specificity of the revelations and the quantity of evidence gathered.²⁴⁵ The test envisioned by Villasenor points to intimacy as the decisive factor in the legality of the surveillance.²⁴⁶ In doing so, this test addresses Justice Sotomayor’s concerns of the government’s ability to compile a large collection of evidence from extensive

235. STEPHEN J. SCHULHOFER, *MORE ESSENTIAL THAN EVER: THE FOURTH AMENDMENT IN THE TWENTY FIRST CENTURY* 129–30 (2012).

236. *Id.* at 130.

237. *Id.*

238. *Id.*

239. *Id.* at 130–31.

240. *Id.* at 131.

241. *See id.* at 129, 131.

242. *See id.* at 131.

243. John Villasenor, *Observations from Above: Unmanned Aircraft Systems and Privacy*, 36 HARV. J.L. & PUB. POL’Y 457, 516 (2013).

244. *Id.*

245. *See id.*

246. *See id.*

surveillance (quantity), as well as her apprehension of short-term surveillance that reveals a “wealth of detail” of private, intimate matters (specificity).²⁴⁷

1. Evaluating Privacy as Intimacy Will Greatly Enhance Fourth Amendment Protection of the Home

Conceptualizing privacy as intimacy will ensure that the home continues to be the area that enjoys the greatest Fourth Amendment protection where individuals can maintain high expectations of privacy. Absent a trespass, privacy as intimacy will protect the inside of the home from warrantless UAS surveillance. In *Kyllo*, Justice Scalia articulated that “[i]n the home, our cases show, *all* details are intimate details, because the entire area is held safe from prying government eyes.”²⁴⁸ This standard will continue the American tradition of affording the home the greatest Fourth Amendment protection and allow individuals to continue to have reasonable expectations of privacy in their home.

One might question whether this is a workable principle. This approach will prohibit law enforcement officials from performing “unreasonable searches” of the home, but will not thwart their ability to conduct warranted or reasonable searches. Law enforcement may still search the home if, upon a showing of probable cause, they obtain a warrant issued by a neutral magistrate.

Another legitimate inquiry is whether this conflicts with the Court’s proclamation in *Ciraolo* that “[t]he Fourth Amendment protection of the home has never been extended to require law enforcement officers to shield their eyes when passing by a home on public thoroughfares.”²⁴⁹ If officers, absent a trespass, witness illegal activity in the home that is in plain public view, this standard would not demand the procurement of a warrant in order for these observations to be admissible in court or to be considered lawful surveillance. Rather, the Court may choose to shift its view on what constitutes a search, and hold that examining part of the home that is in plain public view is a search, but a reasonable one, and thus not violative of the Fourth Amendment.²⁵⁰

247. See *United States v. Jones*, 132 S. Ct. 945, 955–56 (2012) (Sotomayor, J., concurring).

248. *Kyllo v. United States*, 533 U.S. 27, 37 (2001).

249. *California v. Ciraolo*, 476 U.S. 207, 213 (1986).

250. See *Minnesota v. Carter*, 525 U.S. 83, 104 (1998) (Breyer, J., concurring) (concluding that an officer’s observation, from a public vantage point, of drug activity in the defendant’s home was a reasonable, and thus lawful, search).

2. The Supreme Court has Previously Examined Privacy as a Form of Intimacy in its Analysis of Aerial Surveillance of Curtilage

The privacy as intimacy test is not solely limited to inside the home. The Supreme Court has used an “intimate details” test in previous aerial surveillance cases in order to determine whether or not a search of curtilage occurred.²⁵¹ In holding that no search occurred in *Dow Chemical Co.*, the Supreme Court distinguished the covered buildings and offices on the complex, in which petitioner had a reasonable expectation of privacy, from the remainder of the complex.²⁵² Chief Justice Burger wrote that “[t]he intimate activities associated with family privacy and the home and its curtilage simply do not reach the outdoor areas or spaces between structures and buildings of a manufacturing plant.”²⁵³ The Court also based part of its holding on the fact that the photographs taken were “not so revealing of intimate details as to raise constitutional concerns.”²⁵⁴

In *Ciraolo*, decided on the same day as *Dow Chemical*, the Court recognized that “[a]erial observation of curtilage may become invasive, either due to physical intrusiveness or through modern technology which discloses to the senses those intimate associations, objects or activities otherwise imperceptible to police or fellow citizens.”²⁵⁵ In its determination that no search occurred, the Court held that no intimate details of this nature were revealed, and thus the petitioner could not have had a justified expectation of privacy.²⁵⁶

The Court again looked to the intimacy of details revealed by the surveillance in question in its decision in *Riley*.²⁵⁷ The Court concluded that the surveillance was not a “search” under the Fourth Amendment because the plane was in publicly navigable airspace and “no intimate details connected with the use of the home or curtilage were observed.”²⁵⁸ These holdings suggest that absent a trespass, even from publicly navigable airspace, the surveillances would have been deemed searches if they revealed intimate details associated with the use of the home or curtilage. This provides curtilage with

251. See *Florida v. Riley*, 488 U.S. 445 (1989); *Dow Chem. Co. v. United States*, 476 U.S. 227 (1986); *Ciraolo*, 476 U.S. at 207 (1986).

252. *Dow Chem. Co.*, 476 U.S. at 239.

253. *Id.* at 236.

254. *Id.* at 238.

255. *Ciraolo*, 476 U.S. at 215 n.3 (alteration in original) (quoting Brief for Petitioner at 14–15, *Ciraolo*, 476 U.S. 207 (1986) (No. 84-1514)).

256. *Id.* at 212–14.

257. *Florida v. Riley*, 488 U.S. 445, 452 (1989).

258. *Id.* at 451–52.

sufficient Fourth Amendment protection from the invasive capabilities of UAS and other emerging technologies, while implying privacy is not limited to what one keeps secret. The Court's penchant for assessing whether or not a search revealed intimate details indicates that a shift to use a test that conceptualizes privacy as intimacy would be reasonable and not an outlandish departure from current precedent.²⁵⁹

3. Privacy as Intimacy Outside of the Parameters of the Home and its Curtilage

Outside of the home, it is much more difficult to determine what is considered sufficiently intimate, and thus subject to Fourth Amendment protection. Activities outside the home are less likely to be considered intimate, but that is not to say that once one leaves the home his or her actions should be devoid of all Fourth Amendment protections.²⁶⁰ While a bright-line rule is more conceivable when analyzing surveillance of the home, scrutiny of surveillance outside the home is more likely to undergo multi-faceted tests or rest on legislative standards.²⁶¹

Professor Baer created a test she believes will sufficiently separate "intrusions on intimacy," which will be considered searches, from common public observations, which will not be considered searches.²⁶² The test derives from Justice Sotomayor's concurrence in *Jones*, where Sotomayor expressed apprehension that GPS tracking "generates a 'precise, comprehensive record' of the person's public movements, which in turn convey intimate information such as her 'familial, political, professional, religious, and sexual associations.'"²⁶³ As a result, Professor Baer suggests that the constitutionality of surveillance should be analyzed based on:

1. how *comprehensively* it generates information regarding an individual who is the target of such investigative activity and;
2. the *degree of precision* with which it has generated that information regarding a single target or group of targets; [and]

259. *Id.* at 452.

260. Baer, *supra* note 220, at 403.

261. *Id.* at 407; see discussion *infra* Part IV for legislative recommendations for UAS searches.

262. Baer, *supra* note 220, at 404.

263. *Id.* (quoting *United States v. Jones*, 132 S. Ct. 945, 955 (2012) (Sotomayor, J., concurring)).

3. the extent to which the activity in question proceeds *surreptitiously* and is *regulated by a coordinate branch* and therefore more or less prone to abuse.²⁶⁴

The first prong analyzing the comprehensiveness of the information speaks to Justice Sotomayor's concern with the government's ability to use extended surveillance in order to amass a large, thorough collection of evidence, that when aggregated, can reveal many intimate privacies.²⁶⁵ The second prong, analyzing the precision with which the information is collected, addresses Justice Sotomayor's trepidation that even short-term surveillance may reveal a "wealth of detail" of private, intimate matters.²⁶⁶ While precise, short-term surveillance may certainly reveal intimacies violating expectations of privacy, Justice Sotomayor expressed more concern over the extensive, long-term surveillance capabilities of GPS tracking (capabilities also possessed by UAS).²⁶⁷ Although short-term surveillance can reveal individual, discreet, intimate actions, it is less likely to invade upon "a person's 'zone' of intimacy" than constant, twenty-four hours a day surveillance for weeks at a time.²⁶⁸

The third prong originates from Justice Sotomayor's suggestion that a "coordinate branch" should potentially be charged with oversight of police surveillance.²⁶⁹ This leaves open the realistic option "that such supervision might stem from legislative, rather than judicial, action."²⁷⁰ This could be evidence of the Court's desire to punt responsibility of making guidelines to another branch, most likely the legislature.²⁷¹

264. Baer, *supra* note 220, at 404.

265. See *Jones*, 132 S. Ct. at 955–56 (Sotomayor, J., concurring).

266. *Id.*

267. *Id.*

268. Baer, *supra* note 220, at 406.

269. *Jones*, 132 S. Ct. at 956 (Sotomayor, J., concurring) ("I would also consider the appropriateness of entrusting to the Executive, in the absence of any oversight from a coordinate branch, a tool so amenable to misuse, especially in light of the Fourth Amendment's goal to curb arbitrary exercises of police power to and prevent 'a too permeating police surveillance.'" (quoting *United States v. Di Re*, 332 U.S. 581, 595 (1948))).

270. Erin Murphy, *Back to the Future: The Curious Case of United States v. Jones*, 10 OHIO ST. J. CRIM. L. 325, 339 (2012).

271. *Id.*

The third prong of this analysis also analyzes the extent to which the surveillance was performed surreptitiously.²⁷² Justice Sotomayor articulated that GPS monitoring is inexpensive and proceeds surreptitiously (as will UAS), which enables it to “evade[] the ordinary checks that constrain abusive law enforcement practices: ‘limited police resources and community hostility.’”²⁷³ This will help prevent exceedingly clandestine surveillance that impinges upon individuals’ reasonable expectations of privacy.

In *United States v. Jones*, Justices Sotomayor and Alito opined in their concurrences that the long-term surveillance impinged upon reasonable expectations of privacy and even absent a trespass, constituted a Fourth Amendment search.²⁷⁴ The GPS tracking in *Jones* lasted twenty-eight days.²⁷⁵ In the plurality opinion, Justice Scalia neglected to mention whether reasonable expectations of privacy had been violated and whether there would have been a search absent the trespass.²⁷⁶

Let’s assume *arguendo* that a majority of the Court would have found that absent a trespass, the constant, twenty-eight day GPS monitoring was a search because it violated the defendant’s reasonable expectations of privacy. One may then reasonably assume that this Court would also hold constant, twenty-eight day UAS surveillance violates justified expectations of privacy and is a search, even absent a trespass. However, I do not believe that a majority would hold that constant, GPS surveillance for four days would violate reasonable expectations of privacy. Justice Alito stated, “[u]nder this approach, relatively short-term monitoring of a person’s movements on public streets accords with expectations of privacy that our society has recognized as reasonable.”²⁷⁷ The Court would likely hold that four day GPS surveillance of one’s public movements would not be a search because a person does not have a reasonable expectation in his or her public movements from one place to another.²⁷⁸ Under current jurisprudence, absent a change in Fourth Amendment standards, the Court would probably come to the same

272. Baer, *supra* note 220, at 404.

273. *Jones*, 132 S. Ct. at 956 (Sotomayor, J., concurring) (quoting *Illinois v. Lidster*, 540 U.S. 419, 426 (2004)).

274. *Id.* at 954–57; *id.* at 957–64 (Alito, J., concurring).

275. *Id.* at 946 (majority opinion).

276. *Id.* at 954.

277. *Id.* at 964 (Alito, J., concurring).

278. See *United States v. Knotts*, 460 U.S. 276, 281 (1983) (“A person travelling in an automobile on public thoroughfares has no reasonable expectation of privacy in his movements from one place to another.”).

holding if the observations were done by a UAS and not a GPS.²⁷⁹ The Court would likely reason that the search was not the kind of long-term search Justices Sotomayor and Alito cautioned against in their concurrences in *Jones*, and that as dictated in *Knotts*, individuals do not have a reasonable expectation of privacy in their public movements.²⁸⁰

However, the Court's current conception of privacy as secrecy does not adequately account for the potential invasions of privacy posed by new technologies such as UAS. Even absent a trespass, permitting constant four-day UAS surveillance is far more intrusive than four days of GPS tracking. While a GPS tracker only identifies the movement and location of its target, UAS can capture images, video, and sound recordings of its target.²⁸¹ This makes UAS surveillance significantly more intrusive than GPS tracking, and the Court must amend its notions of privacy to prevent erosion of the concept altogether.²⁸²

In this example, the privacy as intimacy concept will better protect against the invasive UAS surveillance than current Fourth Amendment standards. Granted, the constitutionality of this surveillance under the privacy as intimacy test will hinge on the degree and amount of intimate information collected, but a four-day constant surveillance that provides pictures, video, and sound recordings will likely reveal a large degree of intimate information.

If one were to analyze this surveillance under Professor Baer's privacy as intimacy test, one would first look at the comprehensiveness of the information about the target that is revealed.²⁸³ "Comprehensive" can be defined as "[c]omplete; including all or nearly all elements or aspects of something" or "[o]f large content or scope; wide-ranging."²⁸⁴ A constant four-day UAS observation will be quite comprehensive because it will encompass almost everything the individual has done throughout the course of the surveillance.²⁸⁵ The information generated will be far more comprehensive than GPS tracking because it will not be limited to

279. *Id.*

280. *Jones*, 132 S. Ct. at 954–57 (Sotomayor, J., concurring); *id.* at 957–64 (Alito, J., concurring); *Knotts*, 460 U.S. at 281.

281. Villaseñor, *supra* note 243, at 496.

282. *See id.*

283. Baer, *supra* note 220, at 404.

284. *Comprehensive*, OXFORD DICTIONARIES, http://www.oxforddictionaries.com/us/definition/american_english/comprehensive (last visited Mar. 31, 2016).

285. *See* discussion *supra* Section II.A.

where the individual is and at what time.²⁸⁶ The data will not be constrained to merely one aspect of the individual's life.²⁸⁷ For example, a grand jury subpoena served on a bank for months' worth of historical bank records does not extend to all aspects of the individual's life and "provide[s] far less comprehensive information than around-the-clock surveillance."²⁸⁸ Still images, video, and sound recordings from UAS will provide complete insight into nearly all elements of an individual's life for the four-day period. Naturally, as the duration of the UAS observation increases, the information obtained will be more comprehensive because there will be more information compiled and aggregated. Nonetheless, while constant four-day GPS surveillance may not generate information comprehensive enough to be deemed a search, the all-inclusive nature of a four-day UAS observation will produce sufficiently comprehensive information that violates reasonable expectations of privacy and will weigh toward an impermissible search.

The second prong in Professor Baer's test is to analyze "the degree of precision with which [the observation] has generated that information regarding a single target or group of targets."²⁸⁹ Precise can be defined as "[m]arked by exactness and accuracy of expression or detail."²⁹⁰ GPS surveillance is only precise in the fact that it reveals an individual's location and the exact time he or she was there.²⁹¹ However, UAS are even more precise in this regard because they can pinpoint exact locations with greater accuracy.²⁹² While a GPS may relay an address, a UAS can use pictures and videos to show exactly where the target went, and how they entered the location.²⁹³ A UAS can show if the target entered a location through the front door, back door, garage, or if they entered suspiciously through a window, etc. UAS can also reveal if the target surveyed

286. See Villasenor, *supra* note 243, at 496 ("While . . . UAS surveillance is like GPS tracking in that it gathers information using technology . . . in one respect it is very different: A GPS tracker only identifies the movement of the single vehicle or other object to which it is attached . . .").

287. *Id.* at 494 ("With present-day imaging capabilities, it would be an easy matter to use a UAS . . . within navigable airspace to acquire imagery that includes 'intimate details.' For example, a government UAS at an altitude of several hundred feet could identify the topic of an electronic or paper news article being read by a person sitting . . .").

288. Baer, *supra* note 220, at 406.

289. *Id.* at 404 (emphasis omitted).

290. *Precise*, OXFORD DICTIONARIES, http://www.oxforddictionaries.com/us/definition/american_english/precise (last visited Mar. 31, 2016).

291. See Villasenor, *supra* note 243, at 496.

292. *Id.*

293. *Id.* at 494.

the premises before entering, if he immediately walked in, or if he knocked in order to gain entry, and how he knocked.²⁹⁴

For example, if an individual travels to an outdoor shopping mall, a GPS may not be able to reveal the actual stores the individual visited. However, a UAS would allow law enforcement to know exactly what stores the person frequented, and in what order. A UAS may be able to capture still images or video of the purchases the individual made in each store, and could also potentially capture sound recording of the individual discussing why he purchased those items.

The maneuverability and surreptitious nature of UAS allows for the possibility to gather video and sound recording of in-person conversations and telephone conversations, some of which may reveal very private information.²⁹⁵ Some UAS can also read text messages, which displays intrusive exactness and finite details far beyond the capabilities of GPS.²⁹⁶

Furthermore, UAS are precise enough to reveal the clothing an individual wears, how he walks, his facial expressions, mannerisms, what he eats and drinks, and much more.²⁹⁷ The exactness of UAS surveillance can aid law enforcement in discerning and compiling incredibly specific, private information about an individual that other technologies such as GPS would not be able to reveal. The precision of these observations is far greater than those gathered from GPS and can further expose “a wealth of detail about [one’s] familial, political, professional, religious, and sexual associations,” much of which may reveal private, personal information.²⁹⁸

Of course whether the second prong of the analysis will weigh toward a search or non-search depends on the precision and detail of data gathered, and some observations may reveal more exact information than others. Nevertheless, a constant four-day UAS surveillance of a target that captures pictures, video, and sound recordings will presumably gather highly precise information and personal details of one’s life that should weigh toward an invasion of

294. Did the individual knock hesitantly? Did they knock aggressively? Did they seem to knock in some sort of code? These inquiries and observations may arouse suspicion in law enforcement officials, and are examples of very precise information that UAS can gather but GPS cannot.

295. See Erin Van der Bellen, *Spy Drone Hacks WiFi Networks, Listens to Calls*, WUSA9 (Dec. 12, 2014, 12:42 PM), <http://www.wusa9.com/story/news/local/2014/12/11/spy-drone-hacking-cell-phones-text-messages/20214047/>.

296. *Id.*

297. See THOMPSON, *supra* note 8, at 3–4.

298. See *United States v. Jones*, 132 S. Ct. 945, 955 (2012) (Sotomayor, J., concurring).

reasonable expectations of privacy and lend credence to the notion that a search occurred.

The final step in the proposed analysis is to examine “the extent to which the activity in question proceeds surreptitiously and is regulated by a coordinated branch and therefore more or less prone to abuse.”²⁹⁹ Currently there is little oversight and regulation for UAS surveillance. Some states have UAS policies that provide oversight for state and local agencies, but this does not prevent federal agencies from conducting UAS observations in these areas.³⁰⁰ There is no congressional legislation that serves as a check on UAS surveillance, with President Obama’s presidential memorandum serving as the only potential regulation that can prevent abuse.³⁰¹ However, in these early stages, the Order only requires agencies to draft and publish UAS policies within one year.³⁰² In the meantime, until agencies compose their policies, oversight is limited and potentials for abuse are widespread.

While agencies will be required to provide notice to the public as to where they are permitted to operate UAS,³⁰³ this broad measure does not change the fact that UAS are surreptitious by nature, and will not prevent the strong possibility of abusive observations. In an investigation such as the one proposed, an agency would likely not release this information because it would assert that disclosure would “compromise law enforcement.”³⁰⁴

Until agencies compose their UAS policies, oversight is negligible at best. Even once agencies compose and publish their UAS policies, this will merely be self-regulation by the Executive branch. While this is a passable initial step towards regulation, it is in no way the final solution. Self-regulation within the executive branch is not “regulat[ion] by a coordinate branch” and represents an insufficient amount of oversight necessary to quell the enormous risk for abuse.³⁰⁵ Until Congress enacts legislation and precludes the Executive branch from self-regulating their UAS operations, there will be a tremendous risk for abuse and insufficient oversight. The current UAS regulations indicate that the third prong of this analysis undoubtedly

299. Baer, *supra* note 220, at 404 (emphasis omitted).

300. See David L. Hudson Jr., *How Should States Regulate Drones and Aerial Surveillance?*, A.B.A J. (Feb. 1, 2015, 6:24 AM), http://www.abajournal.com/magazine/article/how_should_states_regulate_drones_and_aerial_surveillance/.

301. See Presidential Memorandum, *supra* note 94.

302. *Id.*

303. *Id.*

304. See *id.*

305. See Baer, *supra* note 220, at 404 (emphasis omitted).

will weigh toward a search.³⁰⁶ Accordingly, under a privacy-as-intimacy test, a constant four-day UAS surveillance would likely be considered a Fourth Amendment search.

The privacy-as-intimacy test will definitely generate questions and criticism, as terms such as “comprehensiveness” and “precision” are left open to interpretation.³⁰⁷ However, this test will certainly be more suitable than the current privacy as secrecy concept the Court seems to have reached under *Katz*.³⁰⁸ Privacy as intimacy will uphold the long-standing history of the home as the bastion of American life and the area of the greatest Fourth Amendment protections. This test will also allow individuals to maintain a reasonable expectation of privacy in the intimate workings of their daily lives, halting the potential erosion of Fourth Amendment protections once UAS and other emerging technologies are prevalently used to surveil.

IV. LEGISLATION MAY BEST ADDRESS PRIVACY CONCERNS ELICITED BY UAS

While the privacy as intimacy test is the most suitable standard of analysis for Fourth Amendment jurisprudence, as Justice Sotomayor implied, it is entirely possible that oversight of surveillance may instead come from legislative guidelines.³⁰⁹ Statutory guidelines may help create a reasonable expectation of privacy based on what governments deem to be legal or illegal in regards to UAS surveillance. Justice Alito’s concurrence in *Jones* also suggested that the Legislature may be best suited to protect privacy interests in the face of extensive technological change.³¹⁰ He wrote that “[a] legislative body is well situated to gauge changing public attitudes, to draw detailed lines, and to balance privacy and public safety in a comprehensive way.”³¹¹

306. *Id.*

307. *Id.*

308. *Id.* at 405.

309. *United States v. Jones*, 132 S. Ct. 945, 956 (2012) (Sotomayor, J., concurring).

310. *Id.* at 964 (Alito, J., concurring).

311. *Id.*

A. Warrant Requirements for UAS Surveillance Will Impose Greater Restrictions on Law Enforcement Officials Than Required by the U.S. Constitution, and Will Not Serve as a Long-term Solution to Privacy Concerns Due to Constantly Changing Technology

While the case law on UAS use is incredibly scarce, many states recognize the privacy threats it presents and are considering regulation.³¹² More than twenty states have passed laws related to UAS.³¹³ In 2013, Virginia became the first state to institute UAS legislation when it instituted a two-year moratorium on all UAS use by law enforcement agencies.³¹⁴ Therefore, even pursuant to a search warrant, law enforcement officials may not use UAS for surveillance, except in certain emergency situations (Amber alerts, search and rescue missions, etc.).³¹⁵

In contrast, Idaho, the second state to enact UAS legislation, requires warrants for their use by law enforcement.³¹⁶ The legislation stipulates that UAS surveillance may only be used without a warrant in emergencies, “for safety, search and rescue or controlled substance investigations.”³¹⁷ This is not a blanket ban on government use of UAS for surveillance.³¹⁸ Instead, the statute requires the government to show probable cause and obtain a warrant in order to conduct surveillance with UAS.³¹⁹

Some criticize warrant requirements because they impede police work and impose limitations stricter than the Fourth Amendment demands.³²⁰ In September 2014, California Governor Jerry Brown vetoed legislation that would require law enforcement to obtain a warrant for UAS surveillance missions, except in certain emergency situations.³²¹ After clearing the California State Assembly with a 59-

312. Hudson, *supra* note 300.

313. *Id.*

314. 2013 Va. Acts ch. 755 (placing a moratorium on the use of unmanned aircraft systems); Jason Koebler, *Virginia Becomes First State to Pass Drone Regulations*, U.S. NEWS & WORLD REP. (Feb. 5, 2013, 4:42 PM), <http://www.usnews.com/news/articles/2013/02/05/virginia-becomes-first-state-to-pass-drone-regulations->.

315. 2013 Va. Acts ch. 755.

316. IDAHO CODE § 21-213 (Supp. 2015); *2013 Unmanned Aircraft Systems (UAS) Legislation*, NAT'L CONF. ST. LEGIS. (July 7, 2015), <http://www.ncsl.org/research/transportation/2013-state-unmanned-aircraft-systems-uas-legislation.aspx>.

317. § 21-213(2)(a).

318. Hudson, *supra* note 300.

319. *Id.*

320. *Id.*

321. *Id.*

5 vote, the California State Senate voted 25-8 in favor of the bill.³²² However, Governor Brown vetoed the bill because he claimed it “would put greater standards on law enforcement than those required by the U.S. and state constitutions.”³²³ He said while there are certainly circumstances in which a warrant would be necessary for UAS surveillance, the bill would have impinged upon the rights of law enforcement officials.³²⁴

According to Villasenor, while in theory a warrant requirement may bolster privacy interests, it may be impractical and imprudent.³²⁵ Villasenor details a scenario in which a warrant requirement would mandate the suppression of significant criminal evidence:

Suppose that a brutal assault that takes place on a sidewalk is captured on video by a government-operated UAS that happens to be monitoring traffic on the adjacent street. Suppose further that the video from the UAS turns out to be the only available evidence that can identify the perpetrator. It would defy common sense if the police or prosecutors were barred by new UAS privacy rules from making use of this information.³²⁶

A blanket warrant requirement would treat information from UAS differently than information gathered by manned aircrafts and police officers in person.³²⁷ Current Fourth Amendment case law does not require law enforcement officials to avert their eyes from wrongdoing until they have a warrant, and it would be nonsensical to impose a requirement of this kind on the collection of information by UAS.³²⁸ One must ask what public policy objectives are advanced by the suppression of evidence of a crime documented by UAS, when identical evidence would be admissible if gathered from a manned aircraft or from a police officer on patrol.³²⁹

Additionally, imposing a warrant requirement for all UAS surveillance would only be a short-term solution. Statutes of this

322. Mike Segar, *California Governor Vetoes Bill Requiring Warrants for Police Drones*, RT (Sept. 29, 2014, 8:33 PM), <http://rt.com/usa/191660-california-brown-drone-veto/>.

323. See Hudson, *supra* note 300.

324. Segar, *supra* note 322.

325. See Villasenor, *supra* note 243, at 511.

326. *Id.*

327. Gregory McNeal, *Drones and Aerial Surveillance: Considerations for Legislators*, in THE ROBOTS ARE COMING: THE PROJECT ON CIVILIAN ROBOTICS, at 23 (Brookings Inst., 2014), http://www.brookings.edu/~media/Research/Files/Reports/2014/10/drones%20aerial%20surveillance%20legislators/Drones_Aerial_Surveillance_McNeal_FINAL.pdf.

328. *Id.*

329. *Id.* at 24.

kind would only apply to UAS surveillance, so inevitably, when a new advanced technology emerges there would be a need for new legislation. Furthermore, it is quite possible that a warrant requirement for only UAS surveillance will prompt law enforcement officials to conduct the same surveillance, but argue in court that what they used was not a UAS due to some minimal difference or alteration, thus excusing them from the warrant requirement. This would not enhance privacy interests, and would simply congest the court systems with trivial technological arguments, as law enforcement will merely attempt to distinguish their search technology from UAS.

B. Legislation That Limits the Retention of Data Gathered Through UAS Observations Will Help Limit Pervasive Surveillance That Violates Reasonable Expectations of Privacy

Laws that address the retention of data the government gathers through UAS will help prevent law enforcement officials from abusing UAS surveillance and invading privacy rights.³³⁰ This would help deal with the legitimate concern of pervasive surveillance that allows the government to know what individuals are doing at any point in time, as well as the government's ability to review footage years after its collection.³³¹ This problem is not unique to UAS and exists with all video and imagery collection.³³² Legislation that puts limitations on collection and retention of information, in addition to storage and access, will address privacy concerns with all surveillance technologies and not be limited to UAS.³³³ Data should be more difficult to access as time passes.³³⁴ After a decided period of time following data collection, the data should only be accessible with a showing of reasonable suspicion that it relates to an ongoing investigation or contains evidence of a crime.³³⁵ After an additional number of days, data should not be able to be accessed unless the government has probable cause that the information is relevant to an ongoing investigation or contains evidence of a crime.³³⁶ Finally, after an additional period of time, all data should be automatically

330. Villasenor, *supra* note 243, at 512.

331. McNeal, *supra* note 327, at 18.

332. *Id.*

333. *Id.*

334. *Id.*

335. *Id.* at 19.

336. *Id.*

deleted so the government does not amass a long-term archive of information about individuals.³³⁷

As dictated by President Obama's Order, such legislation should place an emphasis on limiting the data retention of personally identifiable information.³³⁸ Personally identifiable information is most intrusive and violative of privacy rights because it can be used to identify, contact, or locate an individual.³³⁹ Personally identifiable information can reveal private information about an individual and does not consist of insignificant observations of little to no personal importance.³⁴⁰ Therefore, it is crucial that data retention legislation highlights limitations to the collecting and storing of personally identifiable information.

This will ensure compliance with President Obama's memorandum because collected and stored data will be relevant to the "authorized purpose" of the UAS observations, and law enforcement officials will not be able to intrusively gather and aggregate data irrelevant to its approved objective.³⁴¹ These legislative safeguards will make sure that all data not connected to an ongoing investigation or evidence of a crime is destroyed, which will prevent law enforcement officials from unreasonably invading justified expectations of privacy.

C. Legislators Should Write Duration-Based Statutes That Limit the Amount of Time a UAS May Be Deployed for Surveillance in Order to Prevent Unreasonably Pervasive and Extensive Observation

Long-term surveillance may be impossible or impractical with other technologies, but UAS allows for the realistic possibility of extended surveillance.³⁴² While no Supreme Court case has explicitly ruled on extended surveillance with UAS, long-term surveillance was discussed in *United States v. Jones*.³⁴³ In his concurrence, Justice Alito wrote that extended GPS surveillance of one's movements in public is unconstitutional and that "the use of longer term GPS monitoring in investigations of most offenses impinges on

337. *Id.*

338. See McNeal, *supra* note 87.

339. NAT'L INST. STANDARDS & TECH., U.S. DEP'T COM, SPECIAL PUB. 800-122, GUIDE TO PROTECTING THE CONFIDENTIALITY OF PERSONALLY IDENTIFIABLE INFORMATION (PII) 2-1 (2010), <http://csrc.nist.gov/publications/nistpubs/800-122/sp800-122.pdf>.

340. *Id.*

341. See McNeal, *supra* note 87.

342. See, e.g., Skoloff & Cone, *supra* note 47.

343. *United States v. Jones*, 132 S. Ct. 945 (2012).

expectations of privacy.”³⁴⁴ Justice Sotomayor, in a separate concurring opinion, had similar concerns about extended surveillance of individuals.³⁴⁵

UAS surveillance is similar to GPS tracking in that it gathers data that in the past was not feasible to collect because it would have required “a large team of agents.”³⁴⁶ However, one major difference between the technologies is that a GPS tracker only identifies the movement and location of the object it is attached to, while UAS can capture images and recordings of its target.³⁴⁷ This makes UAS surveillance more intrusive than GPS tracking.³⁴⁸

To address this concern, “[l]egislators should craft . . . duration based legislation” applicable to all technologies, in order to limit pervasive and extensive surveillance of individuals.³⁴⁹ This will prevent law enforcement officials from using UAS or any other technologies to follow individuals and oversee their daily actions and travels.³⁵⁰ This will also speak to the trepidation individuals possess that UAS or other surveillance technologies will hover directly above their domiciles for extended periods of time in order to gather a large aggregation of evidence about their home life and day-to-day activities.³⁵¹ Durational limitations on surveillance should be decided based on whether the jurisdiction wants to place a stronger value on privacy or public safety.³⁵²

Gregory McNeal, a professor at Pepperdine University School of Law, suggests that one plausible formulation of durational limitations would permit continued surveillance of an individual for up to sixty minutes at an officer’s discretion.³⁵³ Any surveillance that lasts from sixty minutes to forty-eight hours would require reasonable suspicion and a court order, while a warrant and probable cause would be required for surveillance of longer than forty-eight hours.³⁵⁴ According to McNeal, clearly delineated durational limits on surveillance “creates public policy that is clearer and easier to follow,

344. *Id.* at 964 (Alito, J., concurring).

345. *Id.* at 955 (Sotomayor, J., concurring).

346. *Id.* at 963 (Alito, J., concurring).

347. Villasenor, *supra* note 243, at 496.

348. *Id.*

349. McNeal, *supra* note 327, at 17.

350. *Id.*

351. *Id.*

352. *Id.*

353. *Id.*

354. *Id.*

easier for courts to adjudicate, and doesn't allow for loopholes based on technology."³⁵⁵

Although duration-based limitations such as this are unambiguous and transparent, they may not pose that significant of a hurdle to intrusive law enforcement surveillance efforts. This proposed plan allows for up to sixty minutes of surveillance at an officer's discretion, but does not specify how long the UAS or surveillance device must be grounded for before it may resume observations. Under this proposed legislation, the government may observe an individual for sixty minutes, land the surveillance technology for a paltry amount of time, and then send the technology back in the air to resume surveillance for another sixty minutes.³⁵⁶ This would inconvenience law enforcement officials in their surveillance efforts, but it would not substantially protect against pervasive and extensive surveillance. As a result, under each elicited durational limitation, legislation must contain a minimum amount of time in which the surveillance technology must be grounded before it resumes observations with a renewed time clock. This will better protect against pervasive, continued surveillance, and serve as more than a mere inconvenience to law enforcement in their intrusive observations.

D. Statutes That Require Law Enforcement to Publicize Detailed Surveillance Records Will Protect Against Abusive and Intrusive Searches

Villasenor also argues for regulations that mandate law enforcement officials "to keep thorough records identifying the details of flight operations, including the date and time, location, who was operating the aircraft, and what sort of data was collected."³⁵⁷ Not only should these records be kept, but they should also be published for public review in order to prevent abusive surveillance. However, as President Obama specified in his memorandum, a proper balance should be made between privacy and security, so disclosure of information should not be compelled if it may compromise law enforcement investigations or national security.³⁵⁸ If disclosure compromises an investigation or security, then the information should be kept confidential until the close of the

355. *Id.* at 18.

356. *Id.* at 17.

357. Villasenor, *supra* note 243, at 512.

358. See Presidential Memorandum, *supra* note 94.

investigation, or until revelation of the information no longer poses a threat. This type of transparency will hold law enforcement officials accountable and prevent abuse of UAS surveillance.³⁵⁹

Additionally, UAS should only be sent on specific missions, and not sent to comb the city for criminal activity.³⁶⁰ This is consistent with the specification in President Obama's Order that agencies may "only collect information 'to the extent that such collection or use is consistent with and relevant to an authorized purpose.'"³⁶¹ Tennessee addresses this in its Freedom from Unwarranted Surveillance Act.³⁶² The statute provides that "[n]o data collected on an individual, home, or areas other than the target that justified deployment may be used, copied or disclosed for any purpose. Such data must be deleted as soon as possible, and in no event later than twenty-four (24) hours after collection."³⁶³ The law also allows aggrieved parties to civilly sue law enforcement agencies for violations.³⁶⁴ These accountability measures will hold agencies responsible for their actions and serve to ultimately protect individuals from violations of their Fourth Amendment privacy rights.

V. CONCLUSION

UAS will inevitably become more widespread in our national airspace and will be utilized more frequently by law enforcement agencies. UAS possess significant surveillance benefits for law enforcement agencies, however many of these advantages may pose substantial risks to Fourth Amendment privacy rights. It is almost certain that in the near future courts will be called upon to assess the constitutionality of observations performed by UAS. The Supreme Court has yet to rule on whether domestic UAS surveillance is a "search" under the Fourth Amendment, and its current Fourth Amendment jurisprudence does not provide a clear answer.³⁶⁵

It is unlikely that current Fourth Amendment jurisprudence will be able to shield individuals from invasive UAS surveillance, even within the sanctity of their own home. The emphasis the Court in *Kyllo* placed on whether the technology was in general public use will all but eliminate reasonable expectations of privacy from UAS

359. McNeal, *supra* note 327, at 19–20.

360. Black, *supra* note 9, at 1866.

361. McNeal, *supra* note 87.

362. Freedom from Unwarranted Surveillance Act, TENN. CODE ANN. § 39-13-609 (LEXIS through 2015 Sess.).

363. *Id.*

364. *Id.*

365. Talai, *supra* note 13.

surveillance as it becomes more prevalent.³⁶⁶ Furthermore, in aerial observation cases, the Court must reevaluate the importance it places on whether the surveillance occurred from legally navigable airspace.³⁶⁷ The FAA's proposal for UAS use mandates the aircrafts to stay below 500 feet in the air.³⁶⁸ Following current precedent would allow for warrantless UAS surveillance from 0 to 500 feet above ground, and eliminate any reasonable expectations of privacy individuals possess in the curtilage of their homes.

It is evident that courts must rework their Fourth Amendment case law in light of rapidly advancing technology to ensure privacy protections, especially in the home and intimate details of one's life. The Court must shift its expectation of privacy analysis away from an emphasis on secrecy of information, and more toward the intimacy of the information observed.³⁶⁹ This will protect the intimate activities of individuals' daily lives and return the home to an area of supreme Fourth Amendment protections. As Justice Scalia once articulated, "[i]n the home, our cases show, *all* details are intimate details, because the entire area is held safe from prying government eyes."³⁷⁰

Legislatures may also be called upon to safeguard justified expectations of privacy from UAS and other advanced technological surveillance.³⁷¹ A warrant requirement for UAS surveillance will impose greater restrictions than mandated by the U.S. Constitution and will not be a long-term solution for privacy concerns.³⁷² Legislation that imposes durational limitations on surveillance, restricts data retention, and requires law enforcement agencies to publish detailed records of UAS use will help prevent impermissible privacy invasions in observation.³⁷³

While UAS will provide immense benefits and assistance to law enforcement officials, courts and legislatures must take active measures to properly balance public safety and personal privacy to prevent the erosion of Fourth Amendment protections.

366. See THOMPSON, *supra* note 8, at 6.

367. See *Florida v. Riley*, 488 U.S. 445, 450 (1989); *California v. Ciraolo*, 476 U.S. 207, 213–14 (1986).

368. Jansen, *supra* note 80.

369. Baer, *supra* note 220, at 402.

370. *Kyllo v. United States*, 533 U.S. 27, 37 (2001).

371. *United States v. Jones*, 132 S. Ct. 945, 956 (2012) (Sotomayor, J., concurring).

372. Hudson, *supra* note 300.

373. Villaseñor, *supra* note 243, at 512; McNeal, *supra* note 327, at 17–19.

