DRONE LEGISLATION: KEEPING AN EYE ON LAW ENFORCEMENT'S LATEST SURVEILLANCE TECHNOLOGY

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I. INTRODUCTION

> *The black-mustachio'd face gazed down from every commanding corner. There was one on the house front immediately opposite. BIG BROTHER IS WATCHING YOU, the caption said. . . . In the far distance a helicopter skimmed down between the roofs, hovered for an instant like a blue-bottle, and darted away again with a curving flight. It was the Police Patrol, snooping into people's windows.*[1]

With the advent of the digital age and the march of technology, "[t]he conditions of modern life have greatly expanded the range and character of those activities which require protection from intrusive action by [g]overnment officials if men and women are to enjoy the full benefit of that privacy which the Fourth Amendment was intended to provide."[2] The Supreme Court has previously recognized that "[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."[3] Therefore, "the Fourth Amendment must keep pace

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1. *Fla. v. Riley*, 488 U.S. 445, 466 (1989) (Brennan, Marshall & Stevens, JJ., dissenting) (quoting George Orwell, *Nineteen Eighty-Four* 4 (1949)).

2. *Goldman v. United States*, 316 U.S. 129, 138 (1942) (Murphy, J., dissenting), *overruled in part on other grounds*, *Katz v. United States*, 389 U.S. 347 (1967).

3. *Kyllo v. United States*, 533 U.S. 27, 33–34 (2001).

with the inexorable march of technological progress, or its guarantees will wither and perish."[4]

More than half a century ago, Justice Murphy recognized that "the search of one's home or office no longer requires physical entry, for science has brought forth far more effective devices for the invasion of a person's privacy than the direct and obvious methods of oppression which were detested by our forebears and which inspired the Fourth Amendment."[5] Similarly, twenty-five years ago Justice Brennan feared that technological advancements would lead to the development of a miraculous tool—"a helicopter capable of hovering just above an enclosed courtyard or patio without generating any noise, wind, or dust at all—and, for good measure, without posing any threat of injury."[6] Justice Brennan feared that this tool would be used "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."[7] The device that seemed hypothetical over twenty-five years ago has come to fruition, through the advancement of technology, in the form of unmanned aerial vehicles.

Unmanned aerial vehicles, or drones, are remote-piloted airborne vehicles capable of surveillance, data collection, rescue missions, location assessment, surveying, and forestry operations, among other functions.[8] Drones are defined as aircraft that do not carry a human operator and are capable of flight under remote control or autonomous programming.[9] Drones received national attention when they were used for "targeted killings" of terrorist

4. *United States v. Warshak*, 631 F.3d 266, 285 (6th Cir. 2010) (citing *Kyllo*, 533 U.S. at 34).

5. *Goldman*, 316 U.S. at 139 (Murphy, J., dissenting).

6. *Riley*, 488 U.S. at 462 (Brennan, Marshall & Stevens, JJ., dissenting).

7. *Id.*

8. Jeewon Kim, Cameron Cloar, Christopher S. Lee & Donna A. Dulo, *Unmanned Aerial Systems: Mobility on the Edge*, 9 No. 4 ABA SciTech Law 54, 55–56, 59 (2013) (available at 9 No. 4 ABASCITL 54).

9. U.S. Dep't of Def., *UAV Unmanned Aerial Vehicles, Introduction of the Unmanned Aerial Vehicles (UAVs)*, http://www.defense.gov/specials/uav2002/ (last updated June 3, 2003).

suspects abroad.[10] More recently, law enforcement agencies have begun utilizing these devices domestically.[11]

The domestic use of drones raises privacy concerns and questions regarding the impact of this new form of technology on our Fourth Amendment rights.[12] To determine whether the use of drones for surveillance offends the Fourth Amendment, courts must first determine whether a "search" occurred.[13] This Article argues that, under current Fourth Amendment jurisprudence, the use of a drone without a valid warrant does not constitute a "search" under either the trespass doctrine or the reasonable expectation of privacy test.

Given the possible constitutionality of law enforcement's use of drone surveillance under the existing Fourth Amendment framework,[14] two options offer the best protection from this intrusive form of surveillance. First, the Supreme Court can step away from the traditional doctrines of trespass and reasonable expectation of privacy and adopt the mosaic theory, which analyzes law enforcement's actions "as a collective 'mosaic' of surveillance" rather than as individual steps taken by police.[15] Second, the legislature can enact the laws that are necessary to respond to the privacy concerns raised by this form of technology. This Article argues that the mosaic theory does not provide sufficient guidelines to law enforcement to prevent the arbitrary invasions of privacy produced by drone surveillance. Similarly,

10. *N.Y. Times Co. v. United States Dep't of Just.*, 915 F. Supp. 2d 508, 529 (S.D.N.Y. 2013).

11. Courtney E. Walsh, *Surveillance Technology and the Loss of Something a Lot like Privacy: An Examination of the "Mosaic Theory" and the Limits of the Fourth Amendment*, 24 St. Thomas L. Rev. 169, 208 (2012).

12. *Id.* at 212–213.

13. *Id.* at 174.

14. *See Riley*, 488 U.S. at 450–451 (plurality) (finding no constitutional violation in law enforcement's overhead helicopter observation).

15. Justin P. Webb, Student Author, *Car-Ving out Notions of Privacy: The Impact of GPS Tracking and Why* Maynard *Is a Move in the Right Direction*, 95 Marq. L. Rev. 751, 794–795 (2012) (arguing that the mosaic theory should be incorporated into the Fourth Amendment analytical framework because its flexibility in application renders it useful in cases dealing with advanced forms of technology); *but see* Orin S. Kerr, *The Mosaic Theory of the Fourth Amendment*, 111 Mich. L. Rev. 311, 313, 315 (2012) (criticizing the mosaic theory for its lack of uniform application in comparison to the traditional sequential approach). Professor Kerr further suggests that due to the rapid pace of technological change, by the time the courts address a uniform application of the mosaic theory for a particular type of technology, society would have already adapted to a new form of technology. *Id.* at 353.

the recent legislative acts put forth by several state legislatures and those proposed by congressional leaders[16] do not readily protect us from such privacy invasions. This Article submits that the legislation necessary to protect one's privacy rights is simple: absent exigent circumstances or a valid warrant, the police should not use a drone, whether equipped with technological advancements or not, to conduct surveillance for a period longer than twenty-four hours.

This Article proceeds in four parts. Part II tracks the evolution of Fourth Amendment jurisprudence from the inception of the trespass doctrine through the development of the reasonable expectation of privacy doctrine and the recent resurgence of the trespass doctrine. This Part also includes an overview of the mosaic theory and its potential application in criminal procedure. Part III begins with a description of current drone usage by law enforcement agencies and applies Fourth Amendment jurisprudence to that practice. Upon demonstrating the constitutionality of drone surveillance under the current framework, Part IV argues that the most effective method to preserve our Fourth Amendment rights is through legislation. After providing an overview (and some criticisms) of the inadequate legislation enacted in several states and proposed in Congress, the Article posits that current legislative efforts are insufficient because they fail to address the two issues left untouched under our existing Fourth Amendment framework—the sophistication of law enforcement's drone technology and the duration of the surveillance. As such, the Article proposes tailoring legislation to the unique threats posed by drone technology that go unchecked under the current analytical framework.

16. Nat'l Conf. of St. Legis., *2013 Unmanned Aircraft Systems (UAS) Legislation*, http://www.ncsl.org/research/civil-and-criminal-justice/unmanned-aerial-vehicles.aspx (accessed Apr. 3, 2014).

II. HISTORY OF FOURTH AMENDMENT JURISPRUDENCE DEFINING A SEARCH

A. Fourth Amendment Roots Anchored in the Trespass Doctrine

The trespass doctrine originated in old English common law[17] and evolved into a staple of criminal procedure.[18] Because the Fourth Amendment's text reflects a "close connection to property," property rights played an important role in early Fourth Amendment analysis; this connection resulted in an association with common law trespass.[19] Under the trespass doctrine, for government action to qualify as a "search" the government must physically enter or usurp one's personal property.[20]

The trespass doctrine was first addressed by the House of Lords, wherein Lord Camden described a trespass, stating, "It is not the breaking of [one's] doors, and the rummaging of [one's] drawers, that constitutes the essence of the offense; but it is the invasion of [one's] indefeasible right of personal security, personal liberty, and private property."[21] In *Entick v. Carrington*,[22] Lord Camden further explained that because society considers property sacred, when one's neighbor sets foot upon one's land without consent, he is considered a trespasser.[23] As applied to police officers' actions, a search took place when an officer stepped onto the owner's property without consent to obtain information for a criminal proceeding.[24]

When the Supreme Court rendered its first trespass decision, the Court adopted Lord Camden's reasoning from the "monument of English freedom" that was the *Entick* decision.[25] In *Boyd v.*

17. *Kyllo*, 533 U.S. at 31–32 (citing *Entick v. Carrington*, 95 Eng. Rep. 807 (K.B. 1765)).

18. *See United States v. Jones*, 132 S. Ct. 945, 950–951 (2012) (positing that the trespass doctrine is not merely a concept of property law but is inextricably intertwined with the Fourth Amendment guarantee against unwarranted searches).

19. *Id.* at 949.

20. *Olmstead v. United States*, 277 U.S. 438, 466 (1928), *abrogated in part*, *Katz*, 389 U.S. at 351 (clarifying that the Fourth Amendment provides greater protection than the trespass doctrine because it "protects people, not places").

21. *Boyd v. United States*, 116 U.S. 616, 630 (1886), *abrogated in part on other grounds*, *Warden v. Hayden*, 387 U.S. 294, 318 (1967).

22. 95 Eng. Rep. 807.

23. *Id.* at 817.

24. *See generally id.* (remarking that a trespass is committed when a neighbor invades one's private property without consent).

25. *Boyd*, 116 U.S. at 626.

United States,[26] the Supreme Court analyzed the constitutionality of several federal statutes that caused the forfeiture of fraudulently imported merchandise.[27] The defendant—a merchant by trade—challenged a trial court's order requiring him to produce merchandise that allegedly was fraudulently imported into the United States on the grounds that the order constituted a search or seizure within the meaning of the Fourth Amendment.[28] Relying on *Entick*, the *Boyd* Court stated that a trespass was considered an unreasonable search and seizure because if one entered the land of another without legal justification or excuse then he or she invaded the owner's private property.[29] However, the Court extended the protection of the Fourth Amendment by holding that the Fourth Amendment also protected against the invasion into a person's privacy.[30] Therefore, the Court held that a search and seizure occurred because although the government had not physically trespassed on the defendant's property, the Court's order compelling the defendants to produce incriminating evidence contained the same substance, essence, and effect of an unreasonable search.[31] By analogizing the compulsory production of documents to a common law trespass, the Court introduced the trespass doctrine into American jurisprudence.[32]

More than forty years after the *Boyd* decision, the Supreme Court again relied upon the trespass doctrine when the Court held that a wiretap did not constitute a "search" within the meaning of the Fourth Amendment because wires could be intercepted without any trespass upon the defendant's property.[33] In *Olmstead v. United States*,[34] the Court reasoned that the evidence was secured by the sense of hearing, without entering the

26. 116 U.S. 616.

27. *Id.* at 617–618.

28. *Id.* at 618. Customs agents confiscated thirty-five cases of plate glass during import, alleging the falsification of documents to avoid paying customs fees or duties. *Id.* During the proceedings, the Judge ordered the defendants to produce documents showing the quantity and value of shipments. *Id.* The defendants objected to the request on the grounds that they could not be compelled to produce self-incriminating evidence. *Id.*

29. *Id.* at 626–627.

30. *Id.* at 630.

31. *Id.* at 634–635 (holding that the defendant's Fifth Amendment right against self-incrimination was also violated when the defendant was ordered to produce incriminating documents in a forfeiture proceeding).

32. *Id.*

33. *Olmstead*, 277 U.S. at 464.

34. 277 U.S. 438.

defendant's home, and therefore was not a search or seizure.[35] The Court further explained that for government action to amount to a Fourth Amendment violation there must have been an "official search and seizure of [one's] person or such a seizure of his papers or his tangible material effects or an *actual physical invasion of his house 'or curtilage' for the purpose of making a seizure*."[36]

However, Justice Brandeis' dissent posited that the trespass doctrine was too limited to adequately preserve one's Fourth Amendment rights.[37] Justice Brandeis noted that the police surveillance and transcriptions of the defendant's telephone conversations in *Olmstead* extended over a period of five months and filled 775 pages.[38] Justice Brandeis pronounced:

> When the Fourth and Fifth Amendments were adopted, "the form that evil had theretofore taken" had been necessarily simple. Force and violence were then the only means known to man by which a government could directly effect self-incrimination. It could compel the individual to testify—a compulsion effected, if need be, by torture. It could secure possession of his papers and other articles incident to his private life—a seizure effected, if need be, by breaking and entry. . . . But "time works changes, brings into existence new conditions and purposes." Subtler and more far-reaching means of invading privacy have become available to the government. Discovery and invention have made it possible for the government, by means far more effective than stretching upon the rack, to obtain disclosure in court of what is whispered in the closet.[39]

While the concept of drone surveillance was inconceivable in 1928—the year *Olmstead* was decided—Justice Brandeis

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35. *Id.*

36. *Id.* at 466 (emphasis added); *but see Silverman v. United States*, 365 U.S. 505, 506, 509 (1961) (concluding that a Fourth Amendment search had occurred when conversations were monitored as a result of an "unauthorized physical penetration into the [defendant's] premises" through the use of a "spike mike," a contact microphone designed to allow police officers to listen through walls).

37. *See Olmstead*, 277 U.S. at 473–474, 478–479 (Brandeis, J., dissenting) (positing that "[t]he protection guaranteed by the [Fourth and Fifth] Amendments is . . . broad[ ] in scope" and that "[t]o protect[ ] that right, every unjustifiable intrusion by the government upon the privacy of the individual, whatever the means employed, must be deemed a violation").

38. *Id.* at 471.

39. *Id.* at 473 (internal citation omitted) (quoting *Weems v. United States*, 217 U.S. 349, 373 (1910)).

prophetically warned against the advancement of technological surveillance and its potential for widespread privacy infringement:

> In the application of a Constitution, our contemplation cannot be only of what has been, but of what may be. The progress of science in furnishing the government with means of espionage is not likely to stop with wire tapping. Ways may some day be developed by which the government, without removing papers from secret drawers, can reproduce them in court, and by which it will be enabled to expose to a jury the most intimate occurrences of the home.[40]

Justice Brandeis recognized that our Fourth Amendment framework had to be forward-looking and sufficiently flexible to adjust to such technological advancements.[41] As he warned, "[t]he greatest dangers to liberty lurk in insidious encroachment by men of zeal, well-meaning but without understanding."[42] Justice Brandeis predicted that at some point in the future law enforcement would have the ability to observe or retrieve the most intimate details from within one's home without ever needing to enter it.[43] Justice Brandeis's concerns are now very real with the advancement of drone technology, and the trespass doctrine is ill-equipped to handle the threat posed by this technology.[44]

B. Evolution to Reasonable Expectation of Privacy

Given the limited application of the property-based approach, in 1967 the Court departed from the trespass doctrine and began to define the scope of a search under the "reasonable expectation of privacy" test.[45] Under this test, the touchstone of the Fourth Amendment analysis is (1) whether a person exhibits a subjective

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40. *Id.* at 474 (quoting *Weems*, 217 U.S. at 373).

41. *See id.* at 472–474 (opining that science may bring forth technological advancements not formerly anticipated by the Constitution's framers, advancements that must be carefully scrutinized under the Fourth Amendment's framework to adequately protect privacy interests).

42. *Id.* at 479.

43. *Id.* at 474.

44. *Id.*

45. *Katz*, 389 U.S. at 360 (Harlan, J., concurring). The reasonable expectation of privacy standard was first announced by Justice Harlan in his concurring opinion. *Id.*

expectation of privacy and (2) whether the expectation is one that "society is prepared to recognize as 'reasonable.'"[46]

In *Katz v. United States*,[47] law enforcement placed an electronic device on the door of a telephone booth.[48] The device allowed Federal Bureau of Investigation (FBI) agents to overhear the defendant gambling by telephone across multiple cities nationwide in contravention of a federal statute.[49] *Katz* presumptively overruled *Olmstead*, stating that the Fourth Amendment's reach could not "turn upon the presence or absence of a physical intrusion into any given enclosure."[50] The majority recognized that Fourth Amendment protections extend to persons and not places; thus, the reasonable expectation of privacy analysis provided additional protections not contemplated by the trespass doctrine.[51] The Court reasoned that what a person "[sought] to preserve as private, even in an area accessible to the public, may be constitutionally protected."[52] Following that line of reasoning, the majority concluded that upon entering the phone booth the defendant sought to exclude "the uninvited ear" from his telephone conversation.[53] Further, law enforcement's failure to obtain a warrant before conducting surveillance violated the Fourth Amendment.[54]

However, the notable test from *Katz*, which has been subsequently used by the Court time and time again, was not from the majority but rather from Justice Harlan's concurring opinion.[55] In his concurrence, Justice Harlan pronounced that the Fourth Amendment required a two-prong analysis: "first that a person has exhibited an actual (subjective) expectation of privacy and, second, that the expectation is one that society is prepared to recognize as 'reasonable.'"[56]

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46. *Id.* at 360–361.
47. 389 U.S. 347.
48. *Id.* at 348.
49. *Id.*
50. *Id.* at 353; *see also United States v. Knotts*, 460 U.S. 276, 280 (1983) (explaining that the trespass doctrine had been abrogated by the reasonable expectation of privacy doctrine set forth in *Katz*).
51. *Katz*, 389 U.S. at 351.
52. *Id.*
53. *Id.* at 352.
54. *Id.* at 359.
55. *Id.* at 360–361 (Harlan, J., concurring).
56. *Id.* at 361.

Although the *Katz* reasonable expectation of privacy test had been the analytical standard in Fourth Amendment cases for the past fifty years, the Supreme Court recently reverted to the trespass doctrine to deal with two forms of new technology—a global positioning system (GPS) to conduct surveillance[57] and a forensic narcotics dog.[58] A careful reading of Justice Harlan's concurrence brings to light a principle more readily applicable to the new technology cases. As Justice Harlan noted, *Katz* stood for the proposition "that electronic as well as physical intrusion into a place that is in this sense private may constitute a violation of the Fourth Amendment."[59] This overarching principle, that a Fourth Amendment violation may be caused by any form of intrusion, whether physical or electronic, eliminates the difficulties found when applying the trespass doctrine. In addition, this principle is sufficiently flexible to deal with the specific threats posed by new technology, namely drone technology.[60] However, because the Court has typically applied the reasonable expectation of privacy test in a variety of contexts including other forms of technology such as beeper-tracking[61] and aerial surveillance,[62] which are also relevant to the issue of drone surveillance, those previous applications of the *Katz* test to technology must be addressed before turning to the Court's recent reversion to the trespass doctrine.

1. Applying the Reasonable Expectation of Privacy Doctrine to Technology

One of the first instances in which the Court addressed tracking technology dealt with tracking a beeper signal for law

57. *See Jones*, 132 S. Ct. at 950–952 (addressing the constitutionality of placing a GPS device on a vehicle to track its movement).

58. *See Fla. v. Jardines*, 133 S. Ct. 1409, 1413–1415 (2013) (concluding that the use of a forensic narcotics dog to obtain information about the presence of marijuana inside a home constitutes a violation of one's Fourth Amendment rights).

59. *Katz*, 389 U.S. at 360 (Harlan, J., concurring).

60. *See infra* pt. III (arguing that for courts to preserve the Fourth Amendment against the unique threats presented by drone technology, they must have a flexible analytical framework to aid them in determining when one's privacy rights have been infringed).

61. *Knotts*, 460 U.S. at 278, 281–282.

62. *See infra* pt. II(B) (providing an overview of the Fourth Amendment jurisprudence dealing with aerial observations).

enforcement surveillance purposes.[63] In *United States v. Knotts*,[64] law enforcement placed a beeper within a container, which was transporting illegal substances, and used the beeper's radio signal to track the movements of the container on the road and ultimately to the defendant's driveway.[65] The Court held that law enforcement's use of the tracking technology was not a search because "[a] person traveling in an automobile on public thoroughfares [had] no reasonable expectation of privacy in his [or her] movements from one place to another."[66] The Court explicitly remarked, "Nothing in the Fourth Amendment prohibited the police from augmenting the sensory faculties bestowed upon them at birth with such enhancement as science and technology afforded them in this case."[67] Since law enforcement had used the beeper to track the location of the contraband on public roadways, not to locate the contraband within the home, the Court ruled that a search had not occurred.[68] Additionally, the Court reasoned that because the physical trespass was not dispositive in *Katz* the trespass should not be dispositive in the case at issue.[69] Therefore, the Court's inquiry squarely focused on the reasonable expectation of privacy test.[70]

Under this reasonable expectation of privacy test, the Court further recognized that the monitoring of beeper signals did not impinge on any "legitimate expectation of privacy" of the defendant.[71] While the defendant attempted to argue that an adverse ruling could result in continuous government surveillance, the Court dismissed the argument by stating that "if such drag-net-type law enforcement practices . . . should eventually occur, there will be time enough then to determine whether different constitutional principles may be applicable."[72]

63. *Knotts*, 460 U.S. at 278.
64. 460 U.S. 276.
65. *Id.* at 278.
66. *Id.* at 281.
67. *Id.* at 282.
68. *Id.*
69. *Id.* at 284.
70. *See id.* (departing from the trespass doctrine and applying the test now known as the reasonable expectation of privacy test).
71. *Id.* at 285.
72. *Id.* at 283–284 (citing *Zurcher v. Stanford Daily*, 436 U.S. 547, 566 (1978)).

Therefore, the Court reserved the issue of prolonged surveillance by limiting its holding to the precise facts of the case.[73]

The following year, the Court decided *United States v. Karo*,[74] holding that monitoring a beeper placed inside a container and taken into a home violated "the Fourth Amendment rights of those who have a justifiable interest in the privacy of the residence."[75] In *Karo*, police officers electronically monitored the beeper's location and determined that it was inside the home, despite the officers' inability to visually observe the beeper once it entered the home.[76] In holding that a search had occurred, the Court distinguished its ruling in *Knotts* because, in *Karo*, law enforcement surreptitiously used a beeper to obtain information inside a home that the officers could not have obtained from outside the home.[77] Therefore, in cases dealing with using technology to track or conduct surveillance, the Court distinguished observations that police officers could make while outside the home from those made by using technology to invade the privacy of the home.[78] As a result, the Court drew the line of permissible police surveillance at the entrance of the home.

2. Aerial Surveillance

Following the beeper surveillance cases, the Court dealt with law enforcement's use of aerial surveillance and found the technique to be within the bounds of reasonableness imposed by the Fourth Amendment.[79] The Court first addressed the issue of aerial surveillance in *California v. Ciraolo*,[80] wherein it held that surveillance of curtilage by law enforcement from an altitude of one thousand feet was not a search within the meaning of the Fourth Amendment.[81] The Court recognized that the defendant's expectation of privacy in his backyard was unreasonable because

73. *See id.* (refusing to address the issue of prolonged surveillance as the case before the Court dealt with short-term surveillance).

74. 468 U.S. 705 (1984).

75. *Id.* at 714–717.

76. *Id.*

77. *Id.* at 716–717.

78. *See id.* (observing that a different standard of privacy is triggered once a search invades the entrance of the home).

79. *Cal. v. Ciraolo*, 476 U.S. 207, 215 (1986).

80. 476 U.S. 207.

81. *Id.* at 215.

it would be foolish to expect law enforcement officers to shield their eyes from observations made while traveling on an airplane through public airways from an altitude of one thousand feet.[82] Nonetheless, the Court conceded that one has a reasonable expectation of privacy from ground-level inspection or surveillance into one's home.[83]

On the same day that the Court decided *Ciraolo*, the Court also decided *Dow Chemical Co. v. United States*,[84] which held that aerial photography of Dow Chemical's private industrial complex did not constitute a search by the Environmental Protection Agency because the photographs were taken from an aircraft that was always within lawfully navigable airspace.[85] As a result, cases of aerial observation have typically overlapped with Federal Aviation Administration (FAA) regulations describing navigable airspace.[86]

Three years after the *Dow Chemical* decision, a plurality of the Court, relying on *Ciraolo*, held that surveillance by helicopter was not a search within the meaning of the Fourth Amendment.[87] In *Florida v. Riley*,[88] law enforcement circled the defendant's property twice in a helicopter at the height of four hundred feet and viewed a greenhouse containing several marijuana plants.[89] On the basis of these observations, law enforcement applied for a warrant and seized several marijuana plants that were ultimately used as evidence in the defendant's trial for marijuana possession.[90] The plurality held that these observations were not searches within the meaning of the Fourth Amendment because the police had a right to see things from "a public vantage point where [they had] a right to be;"[91] thus, a backyard viewed from public airspace at four hundred feet above the property was not

82. *Id.* at 213–215.
83. *Id.* at 217 (Powell, Brennan, Marshall & Blackmun, JJ., dissenting).
84. 476 U.S. 227 (1986).
85. *Id.* at 239.
86. *See id.* at 229 (referencing FAA regulations to categorize the aircraft's flight path as within lawfully navigable airspace); *see also Ciraolo*, 476 U.S. at 213 (relying on FAA regulations to determine whether the aircraft's flight path was within lawfully navigable airspace).
87. *Riley*, 488 U.S. at 449–451 (plurality).
88. 488 U.S. 445.
89. *Id.* at 448.
90. *Id.* at 449.
91. *Id.* (citing *Ciraolo*, 476 U.S. at 213).

searched.[92] Once again, the Court remained adamant in establishing that one does not have a reasonable expectation of privacy from observations made within publicly navigable airspace.[93]

Justice Brennan's dissent argued that the Fourth Amendment did not tolerate law enforcement intruding upon on one's rights by conducting surveillance from airspace to inspect within the property's fence.[94] Justice Brennan further contended that the Fourth Amendment analysis should not rise and fall on the basis of federal regulations dictating what constitutes navigable airspace.[95] After noting that essentially no minimum altitude requirement for helicopters existed under federal regulations, Justice Brennan cautioned that the Fourth Amendment simply did not "'permit[ ] people to be driven back into the recesses of their lives by the risk of surveillance.'"[96] He warned that forty years before the decision George Orwell's famous novel *Nineteen Eighty-Four* foreshadowed the conduct sanctioned by the plurality and that the holding did little to protect citizens from arbitrary invasions of privacy by law enforcement.[97]

The plurality noted that the outcome of the case might have been different if intimate details of the home or curtilage were observed,[98] and a decade later the Court addressed that scenario in *Kyllo v. United States*.[99] The Supreme Court held that using a thermal-imaging device to look inside a house was considered a "search" within the meaning of the Fourth Amendment because a person had an expectation of privacy in his or her home, and therefore the government could not conduct unreasonable searches, even with technology that did not enter the home.[100] *Kyllo* set forth a firm and bright-line rule that when law enforcement "use[d] a device that [was] not in general public use, to explore details of the home" that officers would not have

92. *Id.* at 450 (citing *Ciraolo*, 476 U.S. at 215).
93. *See id.* at 450–451 (reiterating the Court's holding from the *Ciraolo* decision).
94. *Id.* at 456 (Brennan, Marshall & Stevens, JJ., dissenting).
95. *Id.* at 458–459.
96. *Id.* at 458, 466 (quoting Anthony G. Amsterdam, *Perspectives on the Fourth Amendment*, 58 Minn. L. Rev. 349, 402 (1974)).
97. *Id.* at 461–463, 466–467.
98. *Id.* at 452 (plurality).
99. 533 U.S. at 37–39.
100. *Id.* at 34, 40.

otherwise discovered without entering the premises, such action violated the Fourth Amendment.[101]

3. Open Fields Doctrine

Apart from discussing aerial observation, the Court has occasionally discussed law enforcement's observation of open fields, most notably in the seminal decision of *Hester v. United States*.[102] Under the open fields doctrine, law enforcement does not violate the Fourth Amendment when conducting a warrantless search of the area outside of one's curtilage.[103] As Justice Holmes eloquently explained, "the special protection accorded by the Fourth Amendment to the people in their 'persons, houses, papers and effects,' [was] not extended to the open fields. The distinction between the latter and the house [was] as old as the common law."[104] The Court revisited the open fields doctrine after *Katz*; in *Oliver v. United States*,[105] the Court explained that although one may have possessed a subjective expectation of privacy in an enclosure that was placed in open fields, his or her expectation of privacy was not one that society recognized as reasonable because open fields were accessible to the public in a way that a home was not.[106] Therefore, under this doctrine any drone surveillance conducted over open fields would not constitute a Fourth Amendment violation and would not require a warrant.

4. Exigent Circumstances

The Court also defined exceptions to the warrant requirement,[107] including the exigent circumstances exception.[108]

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101. *Id.* at 40.
102. 265 U.S. 57, 59 (1924).
103. *Id.* at 58–59.
104. *Id.* at 59 (internal citations omitted).
105. 466 U.S. 170 (1984).
106. *Id.* at 178–179.
107. *See S.D. v. Opperman*, 428 U.S. 364, 369–370 (1976) (allowing law enforcement to conduct routine inventory searches of impounded vehicles without obtaining a search warrant); *Coolidge v. N.H.*, 403 U.S. 443, 465 (1971) (plurality) (recognizing the plain-view exception, allowing officers to seize incriminating evidence found in plain sight during a lawful search); *Chimel v. Cal.*, 395 U.S. 752, 755–769 (1969) (establishing the search-incident-to-arrest exception, which allows law enforcement officers to search the arrestee and the area within the arrestee's immediate control without a warrant); *Davis v. United States*, 328 U.S. 582, 593–594 (1946) (providing that police officers need not procure a search warrant if they obtain consent to search from the property owner).

Exigent circumstances have been described as "situations where "'real immediate and serious consequences" will "certainly occur" if a police officer postpones action to obtain a warrant.'"[109] Among the situations that the Court described as constituting an exigent circumstance was the instance of "hot pursuit," which occurs when police officers pursue a fleeing felon.[110] Additionally, the Court held that rendering emergency assistance constituted an exigent circumstance.[111] Additionally, in *Wayne v. United States*,[112] the United States Court of Appeals for the District of Columbia Circuit held that exigent circumstances existed when law enforcement entered "a burning home to rescue occupants or extinguish a fire, to prevent a shooting or to bring emergency aid to an injured person."[113]

C. Reversion to Trespass Doctrine

Following *Katz*, the Court regularly discussed its departure from the trespass doctrine and applied the reasonable expectation of privacy analysis for decades.[114] In 2012, for the first time in almost half a century, the Court revisited the trespass doctrine in *United States v. Jones*.[115]

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108. *See Brigham City v. Stuart*, 547 U.S. 398, 406 (2006) (finding that police officers reasonably entered a home without a valid warrant because there was sufficient exigency to require the police officers to enter the home after responding to complaints regarding a loud party, overhearing an altercation taking place in the home's backyard, and seeing one juvenile punch an adult).

109. *United States v. Williams*, 354 F.3d 497, 503 (6th Cir. 2003) (citing *Ewolski v. City of Brunswick*, 287 F.3d 492, 501 (6th Cir. 2002)).

110. *Hayden*, 387 U.S. at 298–299, 310.

111. *Stuart*, 547 U.S. at 406 (holding that exigent circumstances exist when officers have an objectively reasonable basis to believe that an occupant of a premises is injured and requires assistance); *but see Mincey v. Ariz.*, 437 U.S. 385, 392–393 (1978) (distinguishing a murder scene as not qualifying under the exigent circumstances exception when all the persons had been located before officer's search began and the search took place for four days).

112. 318 F.2d 205 (D.C. Cir. 1963).

113. *Id.* at 212.

114. *Horton v. Cal.*, 496 U.S. 128, 133 (1990) (describing a "search" as "compromis[ing] the individual interest in privacy"); *Hayden*, 387 U.S. at 305–306 (recognizing that Fourth Amendment jurisprudence has moved away from an exclusive property-based approach to a privacy-based approach); *Silverman*, 365 U.S. at 511 (stating that an exclusive property-based approach is no longer a valid principle); *Jones v. United States*, 362 U.S. 257, 266–267 (1960) (finding it ill-advised to apply property-based distinctions to criminal law), *overruled on other grounds*, *United States v. Salvucci*, 448 U.S. 83 (1980).

115. 132 S. Ct. at 949–951.

In *Jones*, the Court stated that a defendant's rights "[did] not rise or fall with the *Katz* formulation."[116] Additionally, the Court mentioned that "the *Katz* [reasonable expectation of privacy] test [had] been added to, not substituted for, the [common law] trespassory test."[117] After defending the use of the trespass doctrine, Justice Scalia held that the placement of a GPS tracking device on the defendant's automobile constituted a search because the government physically intruded on the defendant's property to obtain information.[118]

Justices Sotomayor and Alito submitted concurring opinions in *Jones*. Justice Sotomayor's concurrence touched briefly on the mosaic theory, explaining that the aggregate of accumulated information should be taken into account in the reasonable expectation of privacy analysis.[119] Nonetheless, Justice Sotomayor stated that the narrow question presented was appropriately decided under the trespass doctrine.[120] Justice Alito, on the other hand, exclusively applied the reasonable expectation of privacy test in his concurrence and avidly criticized the use of the trespass-based rule as being disharmonious with post-*Katz* jurisprudence.[121] Justice Alito found that "short-term monitoring of a person's movements on public streets" was compatible with *Katz*; however, long-term monitoring impinged on society's expectation of privacy.[122]

While the Court's use of the trespass doctrine in *Jones* was highly criticized,[123] Justice Scalia again relied upon this doctrine in *Florida v. Jardines*.[124] A plurality of the Court held that law enforcement's use of a drug-sniffing dog on the front porch of the defendant's home to investigate an unverified tip about a marijuana grow-house constituted a trespassory invasion of the curtilage of the defendant's home—a "search" for Fourth Amendment

116. *Id.* at 950.
117. *Id.* at 952 (typeface altered).
118. *Id.* at 949.
119. *Id.* at 955–957 (Sotomayor, J., concurring).
120. *Id.* at 957.
121. *Id.* at 957–959, 960–961 (Alito, Ginsburg, Breyer & Kagan, JJ., concurring).
122. *Id.* at 964.
123. Erwin Chemerinsky, *ABA Journal Law News Now*, *Chemerinsky: Does the Fourth Amendment Still Fit the 21st Century?* http://www.abajournal.com/news/article/chemerinsky_does_the_fourth_amendment_still_fit_the_21st_century/?utm_source=maestro&utm_medium=email&utm_campaign=weekly_email (Feb. 25, 2013).
124. 133 S. Ct. at 1417–1418 (plurality).

purposes.[125] Justice Kagan simply stated in her concurrence that she would have reached the same result as Justice Scalia under the privacy approach because she determined that police officers "invade[d] [privacy] expectations when they use[d] trained canine assistants to reveal" what was located within the home.[126] The dissenting Justices would have upheld the use of the trained canines under both the trespass doctrine and reasonable expectation of privacy test and concluded that a search had not occurred.[127]

D. Looking Forward, Is Mosaic Theory the Future of Fourth Amendment Jurisprudence?

In 1967, the Court departed from the trespass doctrine, which dealt with the physical penetration of one's property,[128] because of the limited scope of the doctrine—namely, that a Fourth Amendment violation turned on "the presence or absence of a physical intrusion into any given enclosure."[129] In adopting the reasonable expectation of privacy standard, the Court "did away with the old approach," which was inflexible and property dependent,[130] and transitioned to a new area of caselaw focused on privacy rights.[131] However, as recently evidenced by the Supreme Court when dealing with advanced forms of technology, these traditional doctrines do not provide clear answers for issues arising from surveillance conducted with new forms of technology.[132] Because the traditional doctrines do not provide uniform answers to the questions posed by these new forms of surveillance, some courts and commentators suggest departing from

125. *Id.*

126. *Id.* at 1418–1419 (Kagan, Ginsburg & Sotomayor, JJ., concurring).

127. *Id.* at 1420–1421 (Alito, J., Roberts, C.J., Kennedy & Breyer, JJ., dissenting).

128. *Jones*, 132 S. Ct. at 959 (Alito, Ginsburg, Breyer & Kagan, JJ., concurring) (citing *Katz*, 389 U.S. at 353).

129. *Katz*, 389 U.S. at 353.

130. *Jones*, 132 S. Ct. at 959 (Alito, Ginsburg, Breyer & Kagan, JJ., concurring).

131. *Rakas v. Ill.*, 439 U.S. 128, 143 (1978).

132. *Compare Jardines*, 133 S. Ct. at 1417–1418 (plurality) (finding that the use of a drug-sniffing dog constituted a search under the trespass doctrine) *with id.* at 1419 (Kagan, Ginsburg & Sotomayor, JJ., concurring) (explaining that the use of a drug-sniffing dog constituted a search under the reasonable expectation of privacy doctrine as discussed in *Kyllo*) *and id.* at 1421–1426 (Alito, J., Roberts, C.J., Kennedy & Breyer, JJ., dissenting) (arguing that the use of a drug-sniffing dog is not a search under either the trespass doctrine or reasonable expectation of privacy doctrine).

these seminal doctrines and adopting the novel mosaic theory.[133] The mosaic theory was first promulgated by the Fourth Circuit[134] and most recently relied upon by the United States Court of Appeals for the District of Columbia Circuit in *United States v. Maynard*.[135] However, other scholars argue that the mosaic theory is difficult to implement due to the fast-paced technological changes presently facing courts.[136]

Under the mosaic theory, courts do not focus on an individual act to determine whether a search has occurred, but rather courts consider a series of acts together to determine whether these acts collectively amount to a search.[137] As Judge Ginsburg held in *Maynard*, the totality "of a person's movements over the course of a month [was] not actually exposed to the public"[138] because "that whole reveal[ed] far more than the individual movements it comprise[d]."[139] As the United States Court of Appeals for the District of Columbia Circuit remarked, while "no single journey reveal[ed] the habits and patterns that mark the distinction between a day in the life and a way of life," it may be that "prolonged surveillance of a person's movements may reveal an intimate picture of his life."[140] As a result, the court concluded that one had a reasonable expectation that his or her individual movements throughout the day remained disconnected and anonymous.[141]

In its analysis, the court elaborated on the distinction between the "aggregate" of information and individual pieces of information.[142] The court noted that one's privacy interest in the whole was in fact greater than one's privacy interest in individual parts because the prolonged surveillance "reveal[ed] more about a person than [did] any individual trip viewed in isolation."[143] However, the court declined to address the issue of whether

133. Erin Smith Dennis, Student Author, *A Mosaic Shield:* Maynard, *the Fourth Amendment, and Privacy Rights in the Digital Age*, 33 Cardozo L. Rev. 737, 759–764 (2011).
134. *Id.* at 745.
135. 615 F.3d 544, 562–563 (D.C. Cir. 2010), *aff'd sub nom. Jones*, 132 S. Ct. at 954.
136. Kerr, *supra* n. 15, at 346–347.
137. *Id.* at 320.
138. 615 F.3d at 560.
139. *Id.* at 562.
140. *Id.*
141. *Id.* at 563–564.
142. *Id.* at 561.
143. *Id.*

"prolonged visual surveillance would be a search subject to the warrant requirement of the Fourth Amendment," as those facts were not presented before the court.[144]

III. APPLICATION OF FOURTH AMENDMENT JURISPRUDENCE TO DRONE SURVEILLANCE

A. Drone Usage

While federal agencies, such as the FBI and United States Customs and Border Protection (CBP), have been most associated with drone surveillance, the Los Angeles County Sheriff's Department, the Miami-Dade Police Department, the Houston Police Department, and the Sacramento Police Department have recently acquired and implemented testing programs for drone surveillance.[145] Further, corporations, such as online retailer Amazon.com, have discussed plans to incorporate drones into their business models.[146]

Currently numerous government entities maintain authorization from the FAA to operate and fly drones.[147] Initially, operator authorizations were specifically granted to the Defense

144. *Id.* at 566.

145. Walsh, *supra* n. 11, at 208.

146. Brian Fung, *The Washington Post, Everything You Need to Know about Amazon's New Delivery Drones*, http://www.washingtonpost.com/blogs/the-switch/wp/2013/12/02/everything-you-need-to-know-about-amazons-new-delivery-drones/ (Dec. 2, 2013). Amazon .com plans to incorporate a drone-delivery system into its business model in the next five years. *Id.* The company plans to use drones to deliver packages weighing five pounds or less to customers' doorsteps approximately thirty minutes or less after receipt of an order. *Id.* This service will be offered at a premium price but would allow Amazon.com to compete with traditional retailers. Robert Hof, *Forbes, Here's That Amazon Delivery Drone That You Won't Actually See for a Long Time*, http://www.forbes.com/sites/roberthof/2013/12/01/heres-that-amazon-delivery-drone-that-you-wont-actuall-see-for-a-long-time/ (Dec. 1, 2013); David Talbot, *MIT Technology Review, Separating Hype from Reality on Amazon's Drones*, http://www.technologyreview.com/news/522121/separating-hype-from-reality-on-amazons-drones/ (Dec. 2, 2013).

147. Greg Otto, *U.S. News & World Report, FAA Releases List of Registered Domestic Drone Operators*, http://www.usnews.com/news/articles/2012/04/24/faa-releases-list-of-registered-domestic-drone-operators (Apr. 24, 2012); *see also* Richard M. Thompson II, *Drones in Domestic Surveillance Operations: Fourth Amendment Implications and Legislative Responses* 3 (Cong. Research Serv. Apr. 3, 2013) (available at http://www.fas.org/sgp/crs/natsec/R42701.pdf) (listing federal and state agencies and local government entities that have FAA authorization to use drones); Elec. Frontier Found., *FAA List of Certificates of Authorizations (COAs)*, https://www.eff.org/document/faa-list-certificates-authorizations-coas (accessed Apr. 3, 2014) (providing a list of the of all of the approved, expired, and disproved FAA-issued Certificates of Authorizations).

Advanced Research Projects Agency, the military, the CBP, the National Aeronautics and Space Administration, and the FBI,[148] but as of 2006 the FAA has issued more than seven hundred drone-operating licenses.[149] However, most Americans are opposed to warrantless drone use.[150] One town even went as far as hosting special elections to determine whether drone-hunting licenses should be issued.[151]

The Coast Guard published the success of its drone operations program and shared that its device was unlike a remote-controlled model airplane; rather, it was similar to a "regular airplane, but packed with computer gear instead of passengers."[152] The Coast Guard also indicated that it would be assisting CBP "in carrying out its law enforcement mission along the nation's borders."[153] Other agencies have been using drone technology to assist with public services, such as mosquito eradication.[154] Even though the Supreme Court previously held that law enforcement must refrain from using technology that was not in general public use, the drones currently being used by CBP violate this standard because they are equipped with, among other things, the Vehicle and Dismount Exploitation

148. Elec. Frontier Found., *supra* n. 147; Otto, *supra* n. 147.

149. *Id.*

150. Monmouth U. Poll, *National: U.S. Supports Unarmed Domestic Drones but Public Prefers Requiring Court Orders First*, https://www.monmouth.edu/assets/0/32212254770/32212254991/32212254992/32212254994/32212254995/30064771087/409aecfb-3897-4360-8a05-03838ba69e46.pdf (Aug. 15, 2013). In comparison, other countries welcome the use of drones. For example, Japanese farmers use drones in agriculture. Gosia Wozniacka, *Drones Could Revolutionize Agriculture, Farmers Say*, http://www.huffingtonpost.com/2013/12/14/drones-agriculture_n_4446498.html (updated Jan. 25, 2014, 4:01 p.m. EST). In the Chinese province of Guangdong, a delivery services has already commenced testing the use of drones to distribute small packages. Nick Statt, *Drones in China Deliver Packages, Even a Birthday Cake*, http://news.cnet.com/8301-11386_3-57601531-76/drones-in-china-deliver-packages-even-a-birthday-cake/ (posted Sept. 5, 2013, 11:20 a.m. PDT)

151. Amanda Kost & Alan Gathright, *Deer Trail Town Board Has Tie Vote on Drone-Hunting Proposal, Sending Issue to Town to Vote in Nov.*, http://www.thedenverchannel.com/news/local-news/town-board-in-tiny-deer-trail-colo-votes-tonight-on-proposed-drone-hunting-licences-bounties (posted Aug. 6, 2013) (discussing town voting on enacting an ordinance that would allow licensees to shoot down drones with shotguns).

152. U.S. Coast Guard, *Coast Guardsman Pioneers Unmanned Aerial Surveillance*, http://www.gocoastguard.com/serving-in-the-u.s.-coast-guard/coast-guardsmen-archives/coast-guardsman-pioneers-unmanned-aerial-surveillance (accessed Apr. 3, 2014).

153. *Id.*

154. Zachary Fagenson, *Miami Herald, Florida Keys Considering Drones to Help Eradicate Mosquitoes*, http://www.miamiherald.com/2013/08/17/3569069/florida-keys-considering-drones.html (Aug. 17, 2013).

Radar (VADER) surveillance system, which was developed for use by the United States Army and is not publicly available.[155] According to a public records request, the agency disclosed that its drones are capable of intercepting electronic communications and have the capacity to recognize and identify a person on the ground.[156] Additionally, the drones used in the Florida Keys to combat mosquitoes are equipped with thermal cameras that enable the drones to determine the location of puddles of water with a particular depth.[157]

Indeed, the CBP drones have been used to assist in the arrest of a United States citizen. In 2011, Randy Brossart, a North Dakota citizen, was arrested after North Dakota police, with the assistance of the Department of Homeland Security, used a Predator drone to locate Brossart on his three-thousand-acre property.[158] The criminal proceedings revealed that the arrest stemmed from allegations that Brossart had converted his neighbor's cows.[159] The police contracted with the Department of Homeland Security to use a Predator drone to locate Brossart on the premises.[160] Upon obtaining Brossart's coordinates from the

155. *See* Andrew Becker, *The Center for Investigative Reporting, New Drone Radar Reveals Border Patrol "Gotaways" in High Numbers*, http://cironline.org/reports/new-drone-radar-reveals-border-patrol-gotaways-high-numbers-4344 (Apr. 4, 2013) (describing the United States Border Patrol's use of the VADER surveillance system, which was on loan from the Army); John Keller, *Military & Aerospace Electronics, Northrop to Operate Man-Hunting Airborne Radar System for Operations in Afghanistan*, http://www.militaryaerospace.com/articles/2013/12/northrop-vader-radar.html (Dec. 16, 2013) (explaining that the VADER system was developed by Northrop Grumman for use in warzones by the Army).

156. Craig Whitlock & Craig Timberg, *The Washington Post, National Security, Border-Patrol Drones Being Borrowed by Other Agencies More Often Than Previously Known*, http://www.washingtonpost.com/world/national-security/border-patrol-drones-being-borrowed-by-other-agencies-more-often-than-previously-known/2014/01/14/5f987af0-7d49-11e3-9556-4a4bf7bcbd84_story.html (Jan. 14, 2014).

157. Fagenson, *supra* n. 154.

158. Jason Koebler, *U.S. News & World Report, First Man Arrested with Drone Evidence Vows to Fight Case: Court Must Decide if Police Are Allowed to Use Drones to Help Make Arrests*, http://www.usnews.com/news/articles/2012/04/09/first-man-arrested-with-drone-evidence-vows-to-fight-case (Apr. 9, 2012).

159. *Id.* After some cows allegedly trespassed onto Brossart's property, the police approached the Brossart residence to recover the cows. Ryan Gallagher, *Future Tense, What a Cattle-Theft Case Could Mean for U.S. Law Enforcement Use of Drones*, http://www.slate.com/blogs/future_tense/2012/05/04/brossart_case_cattle_theft_allegations_and_law_enforcement_use_of_domestic_drones_html (May 4, 2012). Following a heated dispute with the Brossart family, the police arrested Brossart. *Id.*

160. Koebler, *supra* n. 158.

drone, the police SWAT team moved in and arrested the entire family.[161]

In the criminal proceedings against the individual family members, the defendants moved to suppress any evidence obtained by the drone and through other means that amounted to constitutional violations.[162] The District Court of Nelson County in North Dakota denied the motion outright.[163] Although *State v. Brossart*[164] is the only reported case to date challenging the constitutionality of drone usage by a domestic law enforcement agency, the opinion dedicated only two sentences to the topic of drone surveillance.[165] The court held that the drone use was not "improper."[166] In November 2013, Brossart was convicted of two counts of terrorizing his arresting officers but was found not guilty of the cow-theft charges.[167]

In addition to the Brossart matter, the FBI acknowledged it has used drones in domestic criminal cases at least eight times.[168] As both federal and state law enforcement agencies use drones or are considering incorporating drones into their surveillance programs,[169] the courts will likely soon be called upon to address the constitutionality of these practices.

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161. *Id.*

162. *State v. Brossart*, No. 32-2011-CR-00049, 00071, slip op. at 8 (N.D. Dist. Nelson Co. July 31, 2012) (available at http://www.nacdl.org/uploadedFiles/files/news_and_the_champion/DDIC/Brossart%20Order.pdf); Gallagher, *supra* n. 159;

163. *Brossart*, slip op. at 12.

164. Slip op. at 1.

165. *Id.*

166. *Id.*

167. Stephen J. Lee, *Lakota Farmer Convicted of Terrorizing*, http://www.wdaz.com/event/article/id/20719/publisher_ID/30/ (posted Nov. 7, 2013, 9:12 p.m.). "Brossart was sentenced . . . to three years in prison, with all but six months suspended during two years of supervised probation." Steven J. Lee, *Lakota, N.D., Farmer Sentenced to 3 Years in Cattle Theft, Terrorizing Case*, http://www.wdaz.com/event/article/id/21859/publisher_ID/30/#sthash.Sz1Y9SVK.dpuf (posted Jan. 14, 2014, 12:46 p.m.). Brossart's sons eventually pled guilty in January 2014 to terrorizing law enforcement officers. Stephen J. Lee, *Brossart Brothers to Plead Guilty in 2011 Terrorizing Case*, http://www.wdaz.com/event/article/id/21738/publisher_ID/30/#sthash.Ajbsm5SE.dpuf (posted Jan. 8, 2014, 08:35 p.m.). Assault charges against Brossart's daughter were dismissed. *Id.*

168. Carl Franzen, *The FBI Has Used Drones for Warrantless Surveillance in the U.S. in 10 Different Cases*, http://www.theverge.com/2013/7/26/4559870/fbi-drone-surveillance-in-the-us-10-cases-rand-paul (posted July 26, 2013, 1:09 p.m.). The FBI has reported that in the past seven years, it has used drones eight times in criminal cases and twice in national security matters. *Id.*

169. *Id.*; Ashley Balcerzak and Taylor Hiegel, *Police Forces Struggle to Incorporate Drones*, http://droneproject.nationalsecurityzone.org/headline-police-forces-struggle-to-incorporate-drones-ashley-balcerzak-and-taylor-hiegel/ (Mar. 18, 2013).

B. Drone Surveillance Does Not Constitute a Search under the Trespass Doctrine or Reasonable Expectation of Privacy Doctrine

It is axiomatic that warrantless visual surveillance of a home is not a search within the meaning of the Fourth Amendment under the trespass and reasonable expectation of privacy doctrines.[170] The trespass doctrine requires a physical intrusion in order for government action to qualify as a search and implicate Fourth Amendment protections.[171] Under the doctrine, law enforcement would have to land a drone on a defendant's property to commit trespass.[172] However, with the drone technology currently available to law enforcement agencies, drones can conduct surveillance by flying or hovering over the target.[173] Therefore, law enforcement has the ability to conduct long-term and short-term surveillance without committing a trespass. Thus, through the use of drone technology, law enforcement may intrude on the privacy of a home without violating the Fourth Amendment because the surveillance of a home without a physical occupation of it is not a trespass under Fourth Amendment jurisprudence.[174]

Additionally, warrantless aerial observation of a fenced-in backyard within the curtilage of a home is not a search under the Fourth Amendment.[175] When a drone conducts a flyover observation of one's property, it does not infringe upon a reasonable expectation of privacy[176] because an expectation of privacy from all observations of one's backyard is unreasonable.[177] Nonetheless, if the government uses sense-enhancing technology, which is not readily available to the public, to look beyond the home's curtilage into or through its walls, the government's actions may

170. *Ciraolo*, 476 U.S. at 213; *Dow Chem. Co.*, 476 U.S. at 234–235.

171. *See supra* pt. II(A) (explaining what constitutes a search under the trespass doctrine).

172. *Supra* pt. II(A).

173. Chenda Ngak, *Drone Technology Myths, Facts and Future Feats*, http://www.cbsnews.com/8301-205_162-57584910/drone-technology-myths-facts-and-future-feats/ (posted May 17, 2013, 10:46 a.m.).

174. *Jones*, 132 S. Ct. at 950.

175. *See supra* pt. II(B)(2) (describing the Court's rulings in *Riley* and *Ciraolo*).

176. *Ciraolo*, 476 U.S. at 213–214.

177. *Id.* at 214–215.

constitute a search because the Supreme Court opposed the use of nonpublic technology to observe the intimacies of the home.[178]

With the drone technology currently available, law enforcement can easily purchase or retrofit a drone with cameras[179] and other technology not readily available to the public.[180] Further, present drone technology ranges greatly in size and capabilities.[181] The Department of Defense is currently working with AeroVironment to bring to fruition its latest prototype—the Nano Hummingbird—that looks and acts like a hummingbird but can also transmit live video feed to its operator.[182] This type of technology will soon be available to law enforcement agencies.[183]

Under the present Fourth Amendment jurisprudence, enhanced aerial photography of an industrial complex is not a search and does not require law enforcement to apply for a warrant.[184] Law enforcement would be entitled to equip drones with high-power cameras if the drones were being used to conduct surveillance over industrial complexes. However, in *Dow Chemical*, the Court recognized that it may potentially distinguish the enhanced aerial photography of a home from the photography of an industrial complex, noting that "it [is] important

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

179. *See generally* Peter Svensson, *The Seattle Times*, *Phantom Quadcopter Heralds Era of Consumer Drones*, http://seattletimes.com/html/businesstechnology/2021629841_reviewdronexml.html (page modified Aug. 17, 2013, 3:03 p.m.) (noting that a seven hundred dollar drone may be retrofitted with recording devices for approximately $200).

180. Andrew Conte, *Business Insider*, *Drones with Facial Recognition Technology Will End Anonymity, Everywhere*, http://www.businessinsider.com/facial-recognition-technology-and-drones-2013-5 (May 27, 2013).

181. Ngak, *supra* n. 173 (explaining that drone technology ranges from small hobbyist-flown devices to large military machines used to drop bombs in war zones).

182. Videodoc, CBSNews Video, *Covert Hummingbird Spy Camera* at 0:05–0:18 (CBS posted Feb. 18, 2011, 12:35 a.m.) (available at http://www.cbsnews.com/videos/covert-hummingbird-spy-camera/).

183. *See infra* nn. 187–193 and accompanying text (explaining that as long as the public has an option to purchase a new form of technology, such technology would be permitted for law enforcement's use).

184. *Dow Chem. Co.*, 476 U.S. at 238–239 (holding that the aerial surveillance of an industrial complex was not a search prohibited by the Fourth Amendment). In reaching this holding, the Court compared the industrial complex to an open field, establishing that the field was "open to the view and observation of persons in aircraft lawfully in the public airspace." *Id.* at 239. The Court cautioned that its holding might have been different had the photography been of a home or of an area that Dow Chemical had made an effort to protect against aerial surveillance. *Id.* at 237 n. 4.

that this is *not* an area immediately adjacent to a private home, where privacy expectations are most heightened."[185]

Three years after deciding *Dow Chemical*, the Court addressed the aerial observation of a private home in *Florida v. Riley*. In dealing with the observation of a home and its curtilage from overhead, the *Riley* Court did not address the issue of enhanced aerial photography, as the case involved naked-eye observations.[186] Therefore, drones equipped with ordinary megapixel cameras would pass constitutional muster, but those equipped with sensory enhancements and biotechnology likely would not.

Consistent with the Court's Fourth Amendment jurisprudence, the government may use unmanned aerial devices to conduct aerial surveillance of one's property so long as the technology used is readily available to the public.[187] Following the "readily available-to-the-public standard," law enforcement should be permitted to use any form of technology so long as the public has some option to purchase the item through the Internet or a local hobby store.[188] Further, if the technology does not assist law enforcement by revealing what is inside the home, the technology is permissible under the current Fourth Amendment analysis.[189] Recently, some companies have begun selling drones to the public for about the same price as an iPad.[190] Hobbyists throughout the United States use drones and hold gatherings to share the

185. *Id.* (emphasis in original).

186. *Riley*, 488 U.S. at 448 (plurality).

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

188. *See United States v. Vela*, 486 F. Supp. 2d 587, 590 (W.D. Tex 2005) (holding that law enforcement's use of night-vision goggles did not constitute a search in violation of the Fourth Amendment because the goggles involved in the case were widely available to the public).

189. *Id.* (holding that night-vision goggles are distinguishable from the technology used in *Kyllo* because they do not allow officers to detect something within walls that "would otherwise be invisible" but rather "amplify ambient light to see something that is already exposed to public view.").

190. *See* Michael S. Rosenwald, *A Drone of Your Very Own: These Aren't Your Average Remote-Controlled Aircraft*, http://www.washingtonpost.com/local/personal-drones-delivering-wedding-rings-instead-of-missiles/2013/08/17/75ed2092-ff7e-11e2-9711-3708310f6f4d_story.html (posted Aug. 17, 2013) (stating that fully autonomous drones are available to consumers for upwards of $600); Svensson, *supra* n. 179 (stating that the cost of the Phantom Quadcopter drone was $700); Apple Store, *Shop iPad, Select an iPad Air, Choose a Model*, http://store.apple.com/us/buy-ipad/ipad-air/64gb-space-gray-wifi (accessed Apr. 3, 2014) (listing the 64GB iPad Air at $699).

potential commercial use of these new toys.[191] Due to the relative affordability of drone technology, this form of technology could be considered readily available to the masses.[192] Given the low cost of some forms of drone technology and its widespread availability, law enforcement may use a plethora of new technology merely because some low-grade version of the technology exists for purchase.[193] Because technology is evolving at a rapid pace and the technology available for law enforcement's use poses grave privacy concerns, the dangers associated with *Kyllo*'s readily available-to-the-public standard are self-evident.

C. Under the Mosaic Theory, Drone Surveillance May Be Considered a Search

Under the mosaic theory, some forms of drone surveillance may be considered searches. For example,[194] if *Brossart* were analyzed under this theory, the use of a Predator drone to quickly fly over a property to determine its owner's location would not be considered a search. However, law enforcement's continued use of a drone for an extended period to monitor Brossart and his family may amount to a search. A court would consider the type of information gathered, the length of the surveillance, and whether the surveillance was merely limited to Brossart's property or whether the drone was used to further track Brossart's family's movements throughout the town.[195] If the information collected revealed patterns of behavior or patterns of activities for Brossart and his family, then under the mosaic theory the collection method would be considered a search.[196] However, a court must take into account numerous factors, and the analysis is highly

191. Rosenwald, *supra* n. 190.

192. *See Vela*, 486 F. Supp. 2d at 590 (explaining that night-vision goggles are publicly available through Internet purchases and, more affordably, at sporting goods stores).

193. Rosenwald, *supra* n. 190 (explaining that the drones frequently used by law enforcement cost approximately $20,000, whereas publicly available drones sell for as little as $300).

194. *Brossart*, slip op. at 6.

195. *See Maynard*, 615 F.3d at 562–563 (holding that there is a reasonable expectation of privacy regarding one's movements throughout the day, which would cause a court to critically review the surveillance conducted by law enforcement).

196. *See id.* (finding that patterns of behaviors exposed by police surveillance are not public and are considered to be a search).

subjective.[197] Without the benefit of hindsight, law enforcement will be unable to know exactly when the totality of its actions amounts to a search. Therefore, the application of the mosaic theory does not provide a workable bright-line rule that enables law enforcement to determine the reasonableness of its surveillance.

Nonetheless, because of the Supreme Court precedent interpreting visual surveillance, mosaic theory best deals with the threat to privacy posed by drone surveillance. While the Supreme Court on several occasions has considered single fly-over observations from altitudes ranging between four hundred and one thousand feet,[198] the Court has never been asked to determine whether visual surveillance from these altitudes for an extended period constitutes a search within the meaning of the Fourth Amendment.

As analyzed by other commentators, the mosaic theory presents numerous challenges in application.[199] The most striking difference from the present Fourth Amendment analysis is that mosaic theory replaces the current sequential approach[200] with a comprehensive review of events to determine reasonability.[201] Additionally, at least one legal scholar argues that bright-line rules are necessary to better aid law enforcement in carrying out its duties.[202] These criticisms are merited.[203]

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197. *See generally* Walsh, *supra* n. 11, at 230–237 (articulating the criticisms of mosaic theory).

198. *Riley*, 488 U.S. at 448 (plurality); *Dow Chem. Co.*, 476 U.S. at 235.

199. Kerr, *supra* n. 15, at 346–348; Walsh, *supra* n. 11, at 230–237.

200. Kerr, *supra* n. 15, at 315–318 (arguing that under both the reasonable expectation of privacy test and the trespass test the courts follow a sequential approach, or a step-by-step analysis, in order to determine whether the government action constitutes a search). Professor Kerr states that "analyzing whether a search has occurred requires a frame-by-frame dissection of the scene," starting with the initial government invasion and "then separately analyzing the 'subsequent' steps." *Id.* at 316.

201. *Id.* at 346–348.

202. Andrew McLetchie, Student Author, *The Case for Bright-Line Rules in Fourth Amendment Jurisprudence: Adopting the Tenth Circuit's Bright-Line Test for Determining the Voluntariness of Consent*, 30 Hofstra L. Rev. 225, 228 (2001).

203. Because the mosaic theory uses a hindsight approach to determine whether a search has taken place, it will be difficult for police departments to create effective protocols and procedures to define when a search has taken place. Additionally, since the mosaic theory requires the analysis of all of the government's actions to determine if collectively it has impinged upon an expectation of privacy, police officers will have a limited ability to determine which actions cross the threshold from the permissible to the impermissible. Providing law enforcement with bright-line rules as to what actions

Because the Supreme Court's current doctrinal applications do not readily address the privacy concerns posed by new drone technology, and the alternative theory—the mosaic theory—presents too much difficulty in application, this Article suggests that the legislature is more capable of dealing with the threats posed by drone surveillance. As Professor Orin S. Kerr remarked, the Fourth Amendment alone does not provide "adequate protections against invasions of privacy made possible by law enforcement use of new technologies."[204] However, our privacy rights can be protected by the enactment of legislation that will limit law enforcement's use of drones.[205]

Part IV discusses the current and proposed legislation dealing with law enforcement's use of drones. It criticizes the current measures for their ineffectiveness in protecting our rights and proposes new legislation aimed at curbing law enforcement's use of drone technology.

IV. CURRENT STATE OF THE LAW

A. Legislation against Drone Usage

As Justice Alito observed, "[i]n circumstances involving dramatic technological change, the best solution to privacy concerns may be legislative. A legislative body is well situated to gauge [the] changing public attitudes, to draw detailed lines, and to balance privacy and public safety in a comprehensive way."[206] Recent studies suggest that Americans are skeptical of law enforcement's use of drone technology and the potential effect of this technology on individual privacy rights.[207] When wiretapping first presented privacy concerns, the legislature, not the Supreme Court, addressed those concerns implicated by this new form of

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constitute a search would better serve to ensure that Fourth Amendment rights will not be violated.

204. Orin S. Kerr, *The Fourth Amendment and New Technologies: Constitutional Myths and the Case for Caution*, 102 Mich. L. Rev. 801, 838 (2004) [hereinafter Kerr, *Constitutional Myths*].

205. *Id.*

206. *Jones*, 132 S. Ct. at 964 (Alito, Ginsburg, Breyer & Kagan, JJ., concurring) (internal citations omitted).

207. Monmouth U. Poll, *supra* n. 150.

surveillance.[208] "A broader look at the legal standards that govern criminal investigations involving new technologies suggests that Congress [often takes] the lead, and that judicial decisions interpreting the Fourth Amendment generally [play] a secondary role."[209] In fact, since the 1960s, Congress, not the courts, has shown the greatest interest "in protecting privacy from new technologies."[210] Therefore, Congress and state legislatures are best suited to protect our privacy interests from the threats posed by drone technology.

Currently, more than forty state legislatures have proposed legislation aimed at curbing the use of drones within the states' borders.[211] In April 2013, Virginia, Idaho, and Florida first enacted statutory reforms aimed at limiting law enforcement's ability to use drones within state borders.[212] Among the variety of statutory measures, some impose a moratorium on law enforcement's ability to use drones for surveillance purposes for a specified period, while others enumerate lawful uses for drones.[213] Similarly, several congressional leaders have proposed federal legislation aimed at achieving the same goals on a national scale.[214] All of the current legislative efforts leave gaps in the current Fourth Amendment jurisprudence and are inadequate means of ensuring the protection of citizens' Fourth Amendment rights. Therefore, this Article proposes that Congress should enact legislation particularly aimed at the privacy considerations left open by the current Fourth Amendment jurisprudence—length of surveillance and the type of technology used.[215]

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208. Kerr, *Constitutional Myths*, *supra* n. 204, at 855–856 (noting that while the Supreme Court may have been willing to allow law enforcement to conduct wiretapping or permit law enforcement to use pen-registers, Congress has taken the lead at protecting citizens from these forms of government intrusion). In other words, while some practices may be constitutional under the Fourth Amendment, Congress extended the protection of privacy rights through legislation.

209. *Id.* at 855.

210. *Id.* at 857.

211. Lisa Cornwell, *Drone Regulations: Spying Concerns Prompt States to Consider Legislation*, http://www.huffingtonpost.com/2013/08/04/drone-regulations_n_3704307.html (posted Aug. 4, 2013, 10:16 a.m. EDT).

212. Nat'l Conf. of St. Legis., *supra* n. 16.

213. *Id.*

214. *Id.*

215. *See infra* pt. IV(E) (proposing legislation targeting the precise threats posed by drone technology).

On April 3, 2013, Virginia first enacted state legislation prohibiting the use of drone technology by law enforcement agencies.[216] The legislation imposed a moratorium on law enforcement's use of drones until July 1, 2015.[217] During this time, state agencies will be required to develop protocols for proper drone use by law enforcement.[218] The statute enumerates several exceptions to the general prohibition, permitting the use of drones for "Amber Alerts, Blue Alerts, use by the National Guard, by higher education institutions and search and rescue operations."[219]

Approximately three weeks after Virginia enacted its drone legislation, Florida's governor, Rick Scott, signed the Freedom from Unwarranted Surveillance Act[220] into law.[221] The Act prohibits law enforcement agencies from using drones to collect evidence.[222] The law, however, permits the use of a drone to "counter a high risk of a terrorist attack by a specific individual or organization if the United States Secretary of Homeland Security determines that credible intelligence indicates that there is such a risk."[223]

Massachusetts also made legislative efforts to address law enforcement's use of drone surveillance by enacting the Massachusetts Drone Privacy Act (MDPA).[224] The MDPA prohibits the use of weaponized drones in the State and further explains that drone usage is only permitted when executing a warrant, for purposes unrelated to criminal investigation, or if an emergency threatens the safety of an individual.[225] The MDPA also limits the type of technology placed on the drone by prohibiting the installation of facial recognition software or other biometric matching technology.[226] Additionally, Missouri's legislature also proposed

216. Nat'l Conf. of St. Legis., *supra* n. 16.
217. *Id.*
218. *Id.*
219. *Id.*
220. Fla. Stat. § 934.50 (2013).
221. Joe Sutton & Catherine E. Shoichet, *Florida Gov. Rick Scott Signs Law Restricting Drones*, http://www.cnn.com/2013/04/25/us/florida-drone-law/ (updated Apr. 28, 2013, 1:42 p.m. EDT).
222. Fla. Stat. § 934.50.
223. *Id.*
224. Mass. Sen. 1664, 188th Jt. Legis. (Jan. 18, 2013).
225. *Id.* at §§ 99C(b)–(c).
226. *Id.* at § 99C(d)(2).

legislation that prohibits the use of manned and unmanned surveillance without a valid warrant.[227]

Our national congressional leaders proposed numerous bills aimed at achieving the same ends as their state counterparts. Among this proposed legislation within the House of Representatives is the Preserving Freedom from Unwarranted Surveillance Act of 2013,[228] which was proposed by Representative Austin Scott and requires federal agencies and law enforcement to obtain a warrant founded upon probable cause before using a drone for surveillance purposes.[229] Under this Bill, failing to obtain a warrant before conducting surveillance leads to the exclusion of any evidence obtained through that surveillance in a criminal prosecution.[230] The Bill provides for several notable exceptions to the warrant requirement, including: (1) border patrol; (2) imminent danger to public safety; or (3) a terrorist threat.[231]

Representative Ted Poe also proposed legislation aptly titled the Preserving American Privacy Act of 2013.[232] This legislation would create a general prohibition against drone usage to obtain covered information[233] without a valid warrant or surveillance order.[234] Similar to the legislation proposed by Representative Scott, Poe's Bill also provides exceptions for Border Patrol, consent, and emergencies.[235] However, Poe's Bill imposes an additional requirement on law enforcement agencies—filing a data collection statement with the Attorney General of the United

227. Miss. H. 46, 97th Gen. Assembly, 1st Reg. Sess. (Apr. 24, 2013); *see also* Allie Bohm, *Drone Legislation: What's Being Proposed in the States?* http://www.aclu.org/blog/technology-and-liberty-national-security/drone-legislation-whats-being-proposed-states (posted Mar. 6, 2013, 3:15 p.m.) (identifying Missouri's proposed legislation as a bill that "provide[s] special protections from aerial surveillance for farmers or ranchers").

228. H.R. 972, 113th Cong. (Mar. 5, 2013).

229. *Id.* at § 2; *see also* Thompson, *supra* n. 147, at 18 (providing an overview of the proposed legislation).

230. H.R. 972, 113th Cong. at § 2.

231. *Id.* at § 3.

232. H.R. 637, 113th Cong. § 1 (Feb. 13, 2013).

233. Covered information is described in the bill as "information that is reasonably likely to enable identification of an individual" or "information about an individual's property that is not in plain view." *Id.* at § 2.

234. *Id.*

235. *Id.* The bill further describes an emergency as a situation that involves "danger of death or serious physical injury; conspiratorial activities threatening the national security interest; or conspiratorial activities characteristic of organized crime." *Id.*

States.[236] On the other hand, the Drone Aircraft Privacy and Transparency Act of 2013,[237] introduced by Representative Ed Markey, focuses on amending the FAA Modernization and Reform Act of 2012[238] by giving the FAA the authority to revoke or refuse the license of a particular entity for drone usage unless the entity files a "data collection statement."[239]

Most recently, Senator Rand Paul, who has taken issue with the FBI's use of drones to conduct surveillance,[240] proposed a bill in the Senate titled the Preserving Freedom from Unwarranted Surveillance Act of 2013 (PFUSA).[241] PFUSA generally provides that federal law enforcement agencies may not use a drone to obtain evidence or conduct surveillance absent a valid warrant.[242] Paul's Bill creates exceptions for border safety, situations impli-

236. *Id.*

237. H.R. 1262, 113th Cong. § 1 (Mar. 19, 2013).

238. Pub. L. No. 112-95, § 1(a), 126 Stat. 11, 11 (2012).

239. H.R. 1262, 113th Cong. § 3; *see also* Thompson, *supra* n. 147, at 20 (providing an overview of the proposed legislation).

240. Cheryl K. Chumley, *The Washington Times, FBI Tells Sen. Rand Paul: We've Used Drones on U.S. Soil 10 Times*, http://www.washingtontimes.com/news/2013/jul/26/fbi-tells-sen-rand-paul-weve-used-drones-us-soil-1/ (posted July 26, 2013). On June 20, 2013, Senator Paul sent correspondence to FBI Director Robert Mueller inquiring about the agency's policies on using drones domestically. *Paul Rand United States Senator, FBI Issues Response to Sen. Paul's Correspondence on Drones*, http://www.paul.senate.gov/?p=press_release&id=905 (July 29, 2013). After not receiving a response from the FBI, Senator Paul sent another letter to the Director to follow up on the initial correspondence. *Id.* Finally, on July 19, 2013, the congressional affairs department of the FBI responded to Senator Paul's correspondence and explained that the FBI has in fact used drones to conduct surveillance on ten separate occasions but emphasized that "the FBI will not use [drones] to acquire information in which individuals have a reasonable expectation of privacy under the Fourth Amendment." Ltr. from Stephen D. Kelley, Asst. Dir., Off. Cong. Affairs, to Rand Paul, Sen., Ky., *Response to Inquiry Concerning FBI's Use of Unmanned Aerial Vehicles (UAVs) for Surveillance Purposes* 1–2 (July 19, 2013) (available at http://www.paul.senate.gov/files/documents/071913FBIresponse.pdf). Senator Paul was dissatisfied with the agency's response and sent additional correspondence to the FBI inquiring about the FBI's definition of reasonable expectation of privacy. Ltr. from Rand Paul, Sen., Ky., to Robert Mueller, Dir., FBI, *Inquiring about the FBI's Definition of When an Individual Has a Reasonable Expectation of Privacy* (July 25, 2013) (available at http://www.paul.senate.gov/files/documents/072513Paulresponse.pdf). In turn, the FBI responded that in accordance with *Ciraolo*, *Dow Chemical Co.*, and *Riley*, "aerial surveillance was not a search under the Fourth Amendment" as there is no reasonable expectation of privacy in the areas observed, and no physical trespass is involved in the use of drones. Ltr. from Stephen D. Kelley, Asst. Dir., Off. Cong. Affairs, to Rand Paul, Sen., Ky., *Response to Follow-Up Letter Requesting Additional Information Regarding the FBI's Definition of a Reasonable Expectation of Privacy* 1–2 (July 29, 2013) (available at http://www.paul.senate.gov/files/documents/072913FBIResponse.pdf) [hereinafter Kelly, *Response to Inquiry*].

241. Sen. 1016, 113th Cong. § 1 (May 22, 2013).

242. *Id.* at § 3.

cating an imminent danger to life, and situations where there is "a high risk of a terrorist attack."[243]

B. Criticisms of Drone Legislation

While legislative efforts aimed at protecting our privacy rights are commendable, in many circumstances the proposed and enacted legislation does little, if anything, to protect those rights. For example, many of the proposed bills require that law enforcement agencies file "data collection statements" with the Attorney General,[244] but what will these statements do to protect citizens' privacy interest? First, these statements must be submitted to the Attorney General after conducting surveillance.[245] Second, these statements merely fulfill a reporting function for the law enforcement agencies.[246] Other than providing data to the Attorney General's office on law enforcement's drone usage, these data collection statements do not protect citizens' privacy rights.[247]

Additionally, the enacted or proposed pieces of legislation do not use language that has been defined and addressed by Fourth Amendment jurisprudence. For example, several statutes use "emergency situations"[248] rather than the exigent circumstances

243. *Id.* at § 4.

244. *See e.g.* H.R. 1262, 113th Cong. § 3. (requiring that, before a drone is given authorization for operation by the FAA for civil use, the operator must file its data collection statement with the FAA). Upon receipt of the application for operation and the data collection statement, the FAA Administrator will determine whether the certificate for authorization should be approved. *Id.* Thus, the legislation provides the FAA administrator with similar authority to that of a judge issuing a warrant approving the use of a drone to conduct surveillance.

245. Thompson, *supra* n. 147, at 19.

246. *Id.* at 19–20.

247. A counterargument may be that the Attorney General would provide any necessary oversight. However, some of the legislation requiring data collection statements would further require that the statements be provided to the Attorney General before the drones are actually used. *E.g.* H.R. 637, 113th Cong. § 2. In the event that the operator does not use the drone as described in the statement, the Attorney General would have little or no means of verifying that the drone was operated in compliance with the data collection statement. Additionally, the proposed legislation requiring data collection statements does not also require that the operator provide that information under oath. *Id.* Applications for search warrants, however, are made under the penalty of perjury. Fed. R. Crim. P. 41.

248. *See* H.R. 637, 113th Cong. at § 2 (providing exceptions for emergency situations); *see also* Mass. Sen. 1664, 188th Jt. Legis. Sess. at § 99C(c)(3) (providing exceptions "in case of emergency when there is reasonable cause to believe that a threat to the life or safety of a person is imminent").

exception that has been addressed by the courts.[249] Had the legislators used terminology that had been addressed by the courts, law enforcement would be aided by precedent in establishing its own procedures, and the courts would not be forced to interpret this language as an issue of first impression.

Further, only one enacted piece of legislation addresses law enforcement's ability to equip drones with advanced forms of technology.[250] As previously discussed, the MDPA prohibits law enforcement from placing or installing facial recognition software, or other biometric matching technology, on its drones.[251] It also prohibits the use of weaponized drones.[252] While this piece of legislation attempts to curb the type of technology that law enforcement agencies can install on a drone, it does not effectively address the issue left open by *Kyllo*—namely, whether law enforcement's use of drone surveillance is constitutional under the Fourth Amendment when the technology is in general public use.[253] By articulating a bright-line rule that facial recognition software and biometric matching technology are prohibited, Massachusetts has essentially given its law enforcement agencies free reign to install any variety of technology that is not expressly prohibited.

C. Unique Threats Posed by Drone Technology

Drones pose a unique threat to our constitutional rights because this technology jeopardizes that which the Fourth Amendment protects most fiercely—the right of an individual to "retreat into [his or her] own home" and be free from unreasonable and arbitrary government intrusion.[254] When the government can watch a person's movements to and from his or her home at all hours of the day and night without the chance of detection, such government action strikes at the heart of what the Fourth Amendment aims to protect.

A danger and risk associated with this new form of government surveillance is the relative affordability of the technol-

249. *See supra* pt. II(B)(4) (describing the exigent circumstances doctrine).
250. Mass. Sen. 1664, 188th Jt. Legis. Sess. at § 99C(d).
251. *Id.* at § 99C(d)(2).
252. *Id.* at § 99C(b).
253. *See supra* pt. II(B)(2) (analyzing the Supreme Court's decision in *Kyllo*).
254. *Silverman*, 365 U.S. at 511.

ogy.[255] Typically, visual surveillance requires several police officers to conduct the surveillance onsite. In contrast, one drone can hover over a space for an extended period collecting surveillance.[256] Similarly, drones can occupy numerous vantage points within a single flight.[257] Whether hovering over a particular plat of property or perched on a nearby tree to achieve a more accurate photograph, law enforcement agencies can use a single device to obtain evidence and conduct surveillance over an extended period rather than using numerous police officers. Therefore, by using drone technology—rather than uniformed police officers—to conduct surveillance, law enforcement agencies save the hourly expense of paying officers.

D. How Congress Can Better Address the Unique Threats Posed by Drone Technology

Because of the relative low cost of drone surveillance in comparison to other forms of surveillance, there is a danger that drone surveillance will be rampant.[258] As a result, legislation must be directed at limiting law enforcement's ability to use drones to conduct surveillance without a warrant. However, as evidenced by the FBI's position on drone surveillance, because law enforcement agencies argue that aerial surveillance does not constitute a search, these agencies also believe that there is no need for a warrant.[259] Therefore, codifying a warrant requirement will ensure that law enforcement cannot conduct drone surveillance without first obtaining a warrant from a neutral and detached magistrate.[260]

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255. Margot E. Kaminski, *Drone Federalism: Civilian Drones and the Things They Carry*, 4 Cal. L. Rev. 57, 72 (2013); *contra* Travis Dunlap, *We've Got Our Eyes on You: When Surveillance by Unmanned Aircraft Systems Constitutes a Fourth Amendment Search*, 51 S. Tex. L. Rev. 173, 182 (2009) (pointing out that "the cost of even the smallest of these aircraft is very high").

256. Kaminski, *supra* n. 255, at 72.

257. Nancy Owano, *Falcon-Inspired Drone Has Legs, Will Perch and Land*, http://phys.org/news/2014-01-falcon-inspired-drone-legs-perch.html (Jan. 29, 2014).

258. *Id.*

259. *See* Kelly, *Response to Inquiry*, *supra* n. 240 (The FBI has explained that based on the current Fourth Amendment jurisprudence the Bureau is not required to obtain a warrant to conduct drone surveillance because such surveillance is the equivalent of aerial surveillance, which is not subject to the warrant requirement.)

260. *Opperman*,428 U.S. at 383; *see also infra* pt. IV(E) (arguing the importance of imposing a warrant requirement on law enforcement agencies).

Similarly, the danger posed by the inexpensive nature of drone surveillance can be addressed by limiting the duration of that surveillance. There are inherent dangers associated with long-term monitoring.[261] Most significantly, long-term surveillance reveals patterns, habits, and preferences of an individual's life in a way that other forms of surveillance do not.[262] Long-term surveillance allows the government to learn not only with whom one associates and when one goes to work and comes home, but also which is one's favorite pizza delivery company.[263] While a police stakeout can also similarly garner this type of information, a drone gathers this type of information at a fraction of the cost, which gives law enforcement unbridled access to one's life.[264] Drones also permit surveillance of large numbers of people because drones are less directly constrained by things like staffing limits in the law enforcement agencies.[265] While it is true that some of this information can also be obtained via other forms of low-cost surveillance such as wiretapping,[266] wiretapping is heavily regulated at both the state and federal level.[267] Therefore, some of the measures and regulations associated with wiretapping laws should be implemented in drone legislation.[268]

E. Proposal for Future Legislation

To address the legitimate concerns raised by drone surveillance, Congress should enact legislation that prescribes a time limit on the duration of surveillance. The appropriateness of the time limitation could be determined through a comparison to

261. *Jones*, 132 S. Ct. at 964 (Alito, Ginsburg, Breyer & Kagan, JJ., concurring).

262. *Id.* at 956 (Sotomayor, J., concurring).

263. *See* Jonathan Olivito, Student Author, *Beyond the Fourth Amendment: Limiting Drone Surveillance through the Constitutional Right to Informational Privacy*, 74 Ohio St. L.J. 669, 679 (2013) (describing the range of information discoverable through the use of drone surveillance) (citing Kerr, *supra* n. 15, at 325).

264. Thompson, *supra* n. 147, at 16.

265. *Id.*

266. *Id.* at 4, 18.

267. *See* Jonathan Turley, *The Not-So-Noble Lie: The Nonincorporation of State Consensual Surveillance Standards in Federal Court*, 79 J. Crim. L. & Criminology 66, 68–70 (1988) (addressing the complexities of wiretap legislation).

268. It is important to note that mosaic theory does not bar long-term surveillance; rather, the doctrine merely suppresses the fruits of long-term surveillance, whereas legislation would prohibit such surveillance outright. *Supra* pt. III(C).

another form of surveillance that has been highly regulated by Congress—wiretapping.

After the Supreme Court determined the constitutionality of wiretapping in *Olmstead*,[269] the Court then required law enforcement to obtain a valid warrant before conducting wiretap surveillance.[270] A year after *Olmstead*, Congress enacted legislation codifying the warrant requirement.[271] Along with the codification of the warrant requirement, Congress developed a comprehensive framework for regulating wiretap surveillance.[272]

For example, wiretap legislation provides that a warrant must prescribe the duration of allowable surveillance.[273] However, the legislation also states that the surveillance may not extend for more than thirty days.[274] Continuing with the presumption that law enforcement will not seek to obtain a warrant before conducting drone surveillance, imposing a requirement similar to the wiretap requirement will prohibit law enforcement from conducting its surveillance for extended periods. A statutory, bright-line rule requiring a warrant for long-term drone surveillance—defining an acceptable period for such surveillance—removes law enforcement's discretion from the equation and ensures that law enforcement receives the proper guidance to determine situations requiring a warrant. Further, such rules limit law enforcement's ability to use drones to conduct long-term surveillance at the expense of an individual's privacy rights. Congress is best suited to determine what distinguishes long-term surveillance from short-term surveillance, as Fourth Amendment jurisprudence lacks a description of long-term surveillance.

Moreover, the thirty-day period prescribed by the wiretap legislation[275] permits law enforcement to gain too much information about an individual's daily routine and lifestyle. As cautioned

269. 277 U.S. at 464.

270. *Katz*, 389 U.S. at 359.

271. Pub. L. No. 90-351, tit. III §§ 801–804, 82 Stat. 197, 211–225 (codified as amended at 18 U.S.C. §§ 2510–2520 (1982 & Supp. IV 1986) and 47 U.S.C. § 605 (1982 & Supp. III 1985)).

272. *Id.*

273. 18 U.S.C. § 2518(1)(d) (2012).

274. *Id.* at § 2518(5). The legislation provides that an order authorizing a wiretap may not be granted "for any period longer than is necessary to achieve the objective of the authorization, nor in any event longer than thirty days." *Id.*

275. *Id.*

by the mosaic theory, visual surveillance over an extended period reveals far more about the individual than an isolated observation.[276] While law enforcement can admittedly learn vast amounts of information by tapping one's telephone,[277] the amount and nature of information available from drone surveillance is distinguishable. For example, if a police officer were to conduct wiretap surveillance of John Doe's home to intercept information regarding a drug purchase, the officer would also be privy to Doe's conversations, including a call in which Doe's conversation with his partner turns extremely intimate. On the other hand, if the police officer were conducting surveillance with a drone, he may actually be able to view Doe engaging in intercourse with his partner. Drone use would allow the officer to view such intimate moments countless times during the course of the surveillance.

For these reasons, wiretapping's thirty-day limitation period inadequately protects citizens from drone surveillance because of the nature and amount of information available through drone surveillance—a more serious infringement on privacy rights than intercepting telephone communications. Thus, the time limitation for drone surveillance should certainly be less than thirty days. Moreover, considering that previous jurisprudence concerning aerial surveillance discussed fly-over observations that were relatively short in duration,[278] using an hourly component to prescribe the time limitation would be beneficial. An hourly limit provides law enforcement with a bright-line rule regarding the permissible scope of surveillance and also limits the impermissible discovery of the patterns, habits, and preferences of an individual's life. To provide some flexibility to law enforcement, the time permitted should not be so limited as to prevent brief aerial observations such as those used in *Ciraolo* and *Riley*, but rather the time limitation should be directed at striking a balance between law enforcement's needs and society's expectations of privacy. Thus, the legislation should define long-term surveillance as a surveillance lasting longer than twenty-four hours.

276. *See supra* pt. III(C) (analyzing the mosaic theory).

277. *See* 18 U.S.C. § 2518(5) (allowing the interception of all communications throughout the specified period of surveillance until the communication sought to be intercepted is intercepted).

278. *See supra* pt. II(B)(2) (discussing the Court's review of aerial observations that concern fly-over observations, which have a short duration).

Similar to language in currently proposed legislation,[279] exclusionary provisions should be incorporated into the enacted legislation. However, this Article suggests that the exclusionary provisions should be directly tied to Fourth Amendment exceptions that have been addressed by the Supreme Court. For example, instead of providing an exception for "emergency situations"[280] it would be best to use the "exigent circumstances" phraseology that has been previously defined by the Court.[281] This will provide an easy transition for law enforcement agencies that prepare their training and manuals according to existing jurisprudence. If police officers are already trained on what constitutes an "exigent circumstance," that knowledge can be applied to drone surveillance, rather than tasking law enforcement agencies with interpreting anew what constitutes "emergency situations."

Finally, limiting law enforcement's ability to equip drones with technology that is not in general public use will also protect citizens' privacy rights. While some of the proposed legislation aims to curb law enforcement's ability to use advanced technology on drones,[282] determining the particular types of technology that are impermissible will be an exhausting task. While the *Kyllo* Court explained that law enforcement is prohibited from using technology that is "not in general public use,"[283] this subjective standard has wreaked havoc on the courts.[284] One commentator who has analyzed the subsequent use of "general public use" has found that courts have readily departed from the standard because of its impracticability.[285] Another commentator has

279. *See supra* pt. IV(A) (providing an overview of the pending and enacted legislation dealing with drone surveillance).

280. H.R. 637, 113th Cong. at § 2.

281. *See supra* pt. II(B)(4) (discussing the exigent circumstances exception).

282. *See* Mass. Sen. 1664, 188th Jt. Legis. Sess. at §§ 99C(b), 99C(d)(2) (prohibiting the use of weaponized drones and prohibiting the installation of biometric matching technology on drones).

283. 533 U.S. at 34.

284. *See Vela*, 486 F. Supp. 2d at 590 (explaining that night-vision goggles are distinguishable from *Kyllo* technology because they merely amplify light and are available to the public for purchase via the Internet); *compare Jardines*, 133 S. Ct. at 1417–1418 (majority) (defining a forensic narcotics dog as technology not in general public use) *with id.* at 1425–1426 (Alito, J., Roberts, C.J., Kennedy & Breyer, JJ., dissenting) (arguing that dogs are ubiquitous and not a form of technology that is not in general public use).

285. Derek T. Conom, Student Author, *Sense-Enhancing Technology and the Search in the Wake of* Kyllo v. United States*: Will Prevalence Kill Privacy?* 41 Willamette L. Rev.

recommended that the courts adopt an objective standard that focuses on the particular characteristics of the form of technology.[286] In other words, the legislature should define the precise technology that is forbidden because an objective standard would be more easily applied to new technology cases and would guide law enforcement agencies to permissible uses.[287] Therefore, because of the impracticality of the "not in general public use" language, Congress should incorporate an objective standard into the legislation to determine what technological add-ons will be permissible.

V. CONCLUSION AND RECOMMENDATIONS

With the ubiquity of drone licenses among American law enforcement agencies,[288] the drag-net surveillance that was once a laughable concept[289] is now a reality.[290] While state statutes and proposed federal legislation attempt to limit law enforcement's ability to use drones in surveillance efforts, those proposals and statutes do not adequately address the duration of the surveillance or the sophistication of the technology used by law enforcement to enhance drone capabilities. Therefore, by requiring a warrant and restricting law enforcement from conducting drone surveillance for a period lasting longer than twenty-four hours, the proposed legislation will best address the issues left open by Fourth Amendment jurisprudence.

749, 764–765 (2005) (explaining the practical difficulties with the general-public-use standard). Specifically, the standard gives

> no guidance to a future Supreme Court, or, more importantly, lower federal and state courts, on the application of [the general-public-use] standard. Additionally, . . . the burden would be on the government to prove general public use. This could only be done at an evidentiary hearing held after the warrantless search has been conducted. Will prosecutors be willing to allow their cases to be guinea pigs, or might the risk of suppression simply weigh too heavily for police and prosecutors to disregard attaining a warrant?

Id.

286. David A. Sullivan, *A Bright Line in the Sky? Toward a New Fourth Amendment Search Standard for Advancing Surveillance Technology*, 44 Ariz. L. Rev. 967, 989–991 (2002).

287. *Id.*

288. Otto, *supra* n. 147; *see also* Kim et al., *supra* n. 8, at 55 (stating that "several local police departments, universities, cities, and towns have . . . obtained FAA Certificates of Authorization . . . to operate [drones] domestically").

289. *Knotts*, 460 U.S. at 284.

290. Fagenson, *supra* n. 154.

Further, including the exigent circumstances language into the legislation will allow law enforcement agencies to better understand the circumstances that would permit the use of a drone. Because the courts have addressed exigent circumstances on numerous occasions,[291] law enforcement agencies may already have protocols and officer training dealing with exigent circumstances. Rather than drafting legislation that attempts to describe a circumstance meriting the use of a drone,[292] using the exigent circumstances language will allow law enforcement agencies to comply with Fourth Amendment jurisprudence already defined by the Court.

Similarly, legislation imposing a time restriction on the duration of the surveillance will provide law enforcement agencies with a bright-line rule that facilitates application across the board. Since the current Fourth Amendment jurisprudence provides that one does not have a reasonable expectation of privacy from all observations of one's property,[293] this statutory language will provide a reasonable expectation of privacy from *prolonged* observations of one's property. This proposal would comply with current Fourth Amendment jurisprudence regarding fly-over aerial observations and would also be consistent with the mosaic theory.[294]

Further, this proposal limits law enforcement's ability to use any form of drone technology. Given that the technological advancements in this field will likely continue to progress at a rapid pace, any proposed legislation should incorporate an objective standard defining the permissible level of technology or an outright prohibition on the use of all drone surveillance. In this way, we can align the use of this form of technology with Fourth Amendment protections. Rather than providing vague standards, such as technology that is not in general public use, the general restriction provides a bright-line rule to law enforcement agencies.

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291. *See supra* pt. II(B)(4) (analyzing the exigent circumstances exception).

292. *See e.g.* Nat'l Conf. of St. Legis., *supra* n. 16.

293. *See supra* pt. II(B)(2) (discussing the Fourth Amendment jurisprudence addressing aerial observations).

294. *See supra* pt. II(B)(2) (describing the Court's analysis of fly-over aerial observations); *see also supra* pt. II(D) (by permitting short-term aerial observations the proposal comports with precedent and also allows the application of the aggregate of information standard used by the District of Columbia Circuit in *United States v. Maynard*).

Therefore, this proposal would allow law enforcement to be exempt from the warrant requirement for exigent circumstances, while also allowing them to obtain a warrant from a neutral and detached magistrate when law enforcement intends to conduct long-term surveillance, thereby ensuring that law enforcement agencies comply with the warrant requirement of the Fourth Amendment and respect citizens' privacy rights.

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