

# Over Your Head, Under the Radar: An Examination of Changing Legislation, Aging Case Law, and Possible Solutions to the Domestic Police Drone Puzzle

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### I. Introduction

Look up. Domestic unmanned aircraft have arrived and may be coming to a city near you.<sup>1</sup>

The drone revolution promises to increase substantially the ability of law enforcement to serve and protect their jurisdictions. Drones are unique because they often lack the technical limitations and restrictive costs of manned aircraft.<sup>2</sup> Their potential for a positive impact on society is substantial, but

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1. See, e.g., Michael McAuliff, *FBI's Robert Mueller: Drones Are in Use in America*, THE HUFFINGTON POST (June 19, 2013), [http://www.huffingtonpost.com/2013/06/19/robert-mueller-drones\\_n\\_3466400.html?ncid=edlinkusaolp00000003#slide=592888](http://www.huffingtonpost.com/2013/06/19/robert-mueller-drones_n_3466400.html?ncid=edlinkusaolp00000003#slide=592888) (last visited June 21, 2013) (“FBI Director Robert Mueller revealed Wednesday that the bureau uses drones to conduct surveillance on U.S. soil.”) (on file with the Washington and Lee Law Review). Mueller testified to Congress on June 19, 2013 about the FBI’s drone program. *Id.* He added that FBI policies regarding drone use and privacy are still in the initial stages of development. *Id.* Police have made at least one arrest on American soil in which drone surveillance played an acknowledged and important role. See Edward Humes, *Eyes in the Sky*, CALIFORNIA LAWYER, Aug. 2013, at 21 (“Sheriff Kelly Janke said the Predator overflight—which would not have required a warrant if performed by a piloted craft—helped deputies stage a safe, nonviolent arrest.”).

2. See generally discussion *infra* Part II.B.

drones also carry a potential for abuse. The technology can outstrip certain constitutional protections and case law governing naked-eye aerial observation by police. A possible reassurance may be that police have no desire to track and observe average Americans.<sup>3</sup> But the danger of abuse may already be realized.<sup>4</sup> Indeed, the revelations surrounding the National Security Agency's surveillance programs underscore the lengths to which the federal government will go to use technology in the pursuit of fighting crime and terrorism and that such technology is subject to abuse.<sup>5</sup>

Consider the following hypothetical. City police launch three drones from a municipal airport just after dawn. Drone 1 operates at 10,000 feet, carries downward-looking cameras, and can remain aloft for twelve continuous hours to follow targets below. It will stay overhead in the public airways to track and

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3. See Tim Redmond, *Alameda County's Spy Drone*, ELECTRONIC FRONTIER FOUNDATION (EFF) (Dec. 3, 2012), <https://www EFF.org/mention/alameda-countys-spy-drone> (last visited Mar. 7, 2013) ("Sheriff Gregory Ahern has insisted in public statements and in communications to the Board of Supervisors that he wants to use said drone only for search and rescue missions, disaster response, and . . . [observing] wildfires.") (on file with the Washington and Lee Law Review).

4. See Mark Mazzetti, *The Drone Zone*, N.Y. TIMES SUNDAY MAGAZINE, at MM32 (July 8, 2012) (describing the author's experience as a member of the media granted access to the Air Force's primary drone pilot training center at Holloman Air Force Base, New Mexico). Mazzetti details training practices that may include tracking unsuspecting motorists on the roads below:

A white S.U.V. traveling along a highway adjacent to the base came into the cross hairs in the center of the screen and was tracked as it headed south along the desert road. When the S.U.V. drove out of the picture, the drone began following another car.

"Wait, you guys practice tracking enemies by using civilian cars?" a reporter asked. One Air Force officer responded that this was only a training mission, and then the group was quickly hustled out of the room.

5. See, e.g., Barton Gellman, *U.S. Surveillance Architecture Includes Collection of Revealing Internet, Phone Metadata*, THE WASHINGTON POST (June 15, 2013), [http://www.washingtonpost.com/investigations/us-surveillance-architecture-includes-collection-of-revealing-internet-phone-metadata/2013/06/15/e9bf004a-d511-11e2-b05f-3ea3f0e7bb5a\\_story.html](http://www.washingtonpost.com/investigations/us-surveillance-architecture-includes-collection-of-revealing-internet-phone-metadata/2013/06/15/e9bf004a-d511-11e2-b05f-3ea3f0e7bb5a_story.html) (last visited June 21, 2013) (describing the National Security Agency's clandestine surveillance architecture, the full extent of which came to light in May and June, 2013) (on file with the Washington and Lee Law Review).

identify the individuals coming and going from an open courtyard within an estate. Assume that Drone 1 is completely imperceptible to naked-eye observation from the ground.

Drone 2 is small and operates only at low altitudes where larger, manned aircraft cannot fly. It will target the individuals mentioned above by hovering silently at varying distances from the house (some at fifteen feet over a field, some above a public street, etc.). Drone 3 is also small, but travels to the scene of a forest fire on the edge of town. City police have equipped these smaller drones with a variety of cameras and listening devices, none of which amplify sensory inputs above normal human perception. Additionally, the smaller drones are equipped with navigational cameras that capture a continuous feed of video from start to finish. If a policeman were at these unusual drone flight altitudes, he would hear and see exactly as these drones do.

If present law is applied, are the targeted individuals protected from the warrantless observations made by these drones?<sup>6</sup> Now assume that their general capabilities have become commonly known, much like those of a typical police helicopter today. How might the law vary for each drone under these assumptions, if and when police rapidly expand their use of drones? The answers to these questions about Drones 1, 2, and 3 are worth knowing.

In general, the Fourth Amendment<sup>7</sup> protects Americans from unreasonable searches and seizures.<sup>8</sup> The home has long been

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6. Under current law these warrantless observations may not be barred by the Fourth Amendment because they do not penetrate a home's private interior and they were made from aircraft flying at a legal altitude (presuming that the FAA has specifically approved Drones 2 and 3-4 for safe use in alleyways). See Geoffrey Christopher Rapp, *Unmanned Aerial Exposure: Civil Liability Concerns Arising from Domestic Law Enforcement Employment of Unmanned Aerial Systems*, 85 N.D. L. REV. 623, 642 (2009) ("Homeowners have no expectation to privacy with respect to that which can be viewed from above during legal passage by aircraft." (quotations omitted)). "Where a [drone] captures images that could have been obtained from civilian aircraft travelling in a legally authorized manner, privacy claims are limited. Consumers lack a reasonable expectation of privacy with respect to areas already exposed to civilian overflights." *Id.* (quotations omitted); see generally discussion *infra* Part II.C.

7. U.S. CONST. amend. IV.

8. See *id.* ("The right of the people to be secure in their persons, houses,

guarded from unwarranted intrusion.<sup>9</sup> Expectations of privacy are most reasonable under these general standards when intrusion occurs in the home and its surrounding curtilage.<sup>10</sup> Consequently, privacy safeguards are strongest in this setting.<sup>11</sup> Police intrusions into an individual's home are presumptively searches, and without a warrant, they are presumptively invalid.<sup>12</sup> But even in the residential setting, gaps in legal protection exist, especially as new technology emerges. Though the specter of continuous drone surveillance may threaten societal notions of what the Fourth Amendment protects, a destruction of privacy is not inevitable.

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papers, and effects, against unreasonable searches and seizures, shall not be violated . . ."). Available case law tends to focus on two aspects of this constitutional protection: whether a search occurred, and if so, whether that search was reasonable. See *infra* note 91 and accompanying text (discussing present case law regarding aerial observation by police). Some scholars maintain that Fourth Amendment protections, as applied by the courts, amount to little more than enforcement of a property right to exclude others. See Orin S. Kerr, *The Fourth Amendment and New Technologies: Constitutional Myths and the Case for Caution*, 102 MICH. L. REV. 801, 809–13 (2004) (arguing that an expectation of privacy is only held to be reasonable “when it is backed by a right to exclude borrowed from real property law”).

9. See *Silverman v. United States*, 365 U.S. 505, 511 (1961) (stating that the Fourth Amendment holds sacred “the right of a man to retreat into his own home and there be free from unreasonable government intrusion”); Kerr, *supra* note 8, at 810 (“A homeowner has a reasonable expectation of privacy in his home.”).

10. See *Silverman*, 365 U.S. at 511 (stating that the Fourth Amendment holds sacred “the right of a man to retreat into his own home and there be free from unreasonable government intrusion”); Amelia L. Diedrich, *Secure in Their Yards? Curtilage, Technology, and the Aggravation of the Poverty Exception to the Fourth Amendment*, 39 HASTINGS CONST. L.Q. 297, 304 (2011) (stating that the Supreme Court and lower courts have consistently recognized that people have the highest expectations of privacy when in their homes).

11. See Diedrich, *supra* note 10, at 304 (stating that the Supreme Court has made it clear that “physical entry of the home is the ‘chief evil against which the wording of the Fourth Amendment is directed’” (quoting *United States v. U.S. District Court for the E. Dist. of Mich.*, 407 U.S. 297, 313 (1972))). Diedrich links the concept of curtilage—the intimate area immediately surrounding a house—to the Court’s special emphasis of protection from Fourth Amendment violation. See Diedrich, *supra* note 10, at 304 (relating curtilage to previously adjudicated Fourth Amendment matters).

12. See *id.* at 304–05 (discussing the strength of privacy law in the context of the home).

Currently, when police observe from the air, courts will inquire whether the aircraft had a legal right to be flying there and whether a reasonable man should have expected that his activities were exposed to public viewing from the air.<sup>13</sup> Some of these inquiries likely now protect Americans from much drone observation,<sup>14</sup> but issues remain.

Widespread police operation of drones has the potential to upend current Supreme Court precedent.<sup>15</sup> While previous cases have held that “mere visual observation does not constitute a search,”<sup>16</sup> that law is, in part, predicated on assumptions of resource scarcity that will cease to be true in the face of widespread police use of drones.<sup>17</sup>

Concerned members of Congress and civil libertarians tend to focus on the broad societal “implications of increased [drone]

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13. *See* Florida v. Riley, 488 U.S. 445, 449–51 (1989) (plurality opinion) (concluding that police observation made “from a public vantage point where [the aircraft has] a right to be” does not require a search warrant so long as a reasonable man would not have “expected that his [curtilage] was protected from public or official observation”).

14. For example, a police drone that hovers over a property at ten feet, peering through walls into the intimate details of a house and using extrasensory perceptive devices would be a fairly clear-cut Fourth Amendment violation under present case law. *See id.* at 450–51 (concluding that aerial observations, made by officers in a helicopter hovering at a legal and reasonable altitude, of the interior of a greenhouse within residential curtilage was not a protected search by the Fourth Amendment, but that the outcome might be different if the altitude was “contrary to law”); *see also* *Kyllo v. United States*, 533 U.S. 27, 40 (2001) (ruling that the use of sense-enhancing technology not in general public use to view intimate interior contents of a home was a search within the meaning of the Fourth Amendment).

15. *See, e.g.*, *United States v. Jones*, 132 S. Ct. 945, 956 (2012) (Sotomayor, J., concurring) (discussing how GPS tracking technology presents a problem for Fourth Amendment jurisprudence because it is “cheap in comparison to conventional surveillance techniques” and it “proceeds surreptitiously, [so] it evades the ordinary checks that constrain abusive law enforcement practices: limited police resources and community hostility” (quotations omitted)).

16. *Kyllo*, 533 U.S. at 31–32 (discussing aerial observation precedent).

17. *See Jones*, 132 S. Ct. at 956 (discussing how GPS tracking technology presents a problem for Fourth Amendment jurisprudence because it is “cheap in comparison to conventional surveillance techniques” and it “proceeds surreptitiously, [so] it evades the ordinary checks that constrain abusive law enforcement practices: limited police resources and community hostility” (quotations omitted)).

use including potential privacy implications.”<sup>18</sup> In the face of new legislation and confusion in the lower courts, the Supreme Court will likely have new opportunities to revisit its decisions governing aerial observation. Before evaluating legislative or judicial solutions, however, the upcoming changes to drone policy must be outlined so that the precise vulnerabilities of existing jurisprudence can be appreciated.

The novel and widespread use of drones will likely impact many areas of the law.<sup>19</sup> This Note considers a small slice of relevant jurisprudence, mainly how courts should treat law enforcement observations made by drones of American citizens or their property in or near the domestic residence setting.<sup>20</sup> Privacy threats will no doubt originate from sources other than law enforcement entities.<sup>21</sup> In order to preserve a manageable scope of review, this Note will not address the significant privacy threats posed by privately operated drones, drones flying near the border, or those used against foreign nationals in the United States. But the primary threat to the average American’s privacy arguably does not come from some of these sources.<sup>22</sup> The routine use of

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18. U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-12-981, UNMANNED AIRCRAFT SYSTEMS: MEASURING PROGRESS AND ADDRESSING POTENTIAL PRIVACY CONCERNS WOULD FACILITATE INTEGRATION INTO THE NATIONAL AIRSPACE SYSTEM 3 (2012) [hereinafter GAO DRONE REPORT].

19. See generally Rapp, *supra* note 6, at 623 (listing ground damage, air-to-air collisions, communications interference, constitutional rights and privacy, landowner rights, environmental concerns, piracy and governmental immunity as issues that might arise with increased drone usage).

20. This Note considers the situation of residential curtilage because “[o]n the public street, or in any other public place, [an individual] has no right to be alone, and it is no invasion of his privacy to do no more than follow him about.” William L. Prosser, *Privacy*, 48 CALIF. L. REV. 383, 391 (1960) (discussing privacy in the context of tort law). The idea of privacy is inherently dependent on mental conceptions of what information and conduct should reasonably remain out of the public sphere. See *id.* at 392 (“It appears obvious that the interest protected by this branch of the tort is primarily a mental one.”).

21. See John Villasenor, *Observations from Above: Unmanned Aircraft Systems and Privacy*, 36 HARV. J.L. & PUB. POL’Y 457, 498 (2013) [hereinafter Villasenor, *Observations*] (describing non-law enforcement threats to privacy from the use of drones, such as the use of the technology by private individuals).

22. After all, there are thousands of federal, state, and local law enforcement departments that would stand to gain from the use of drone technology.

drones by police would, under present law, constitute a more serious threat to privacy if the evidence gathered therefrom is permitted to be used in court or stored indefinitely.

Rapidly evolving drone technology raises two primary privacy concerns in the law enforcement setting: (1) that the privacy rights of an individual will be violated; and (2) that the presence of numerous lingering drones overhead will threaten privacy in society as a whole by providing police with an Orwellian omniscience.<sup>23</sup> These two distinct privacy threats are correlated, because the remedies for one problem will indirectly alleviate the other.<sup>24</sup> Therefore, both individual and societal impacts must be considered when attempting to craft solutions to the problems that drones pose.

Part II of this Note discusses drone capabilities and provides background on FAA drone regulations prior to the 2012 Reauthorization bill. Part III explores recent legislation that will expand the domestic use of drones. Part IV overviews Supreme Court aerial-observation cases and reveals constitutional gaps that may prompt the Supreme Court to revisit precedent in the new context of drones. Part IV also covers the widening divergence in the application of aerial observation case law. Lastly, Part V discusses solutions, including currently pending legislation, and how the courts should respond to safeguard against improper drone surveillance.

## *II. Background*

To understand what issues and solutions exist, we must survey the contextual landscape. Recent changes to the drone licensing structure, combined with evolving drone capabilities,

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23. This broader privacy is difficult to define, because it is dependent on mental conceptions of what information and conduct should reasonably remain out of the public sphere. *See* Prosser, *supra* note 20, at 392 (“It appears obvious that the interest protected by this branch of the tort is primarily a mental one.”).

24. Legislatures and courts have different roles to play when it comes to protecting Americans from privacy violations. *See* Kerr, *supra* note 8, at 862 (discussing the roles that courts play in the development of the law). But both entities must act affirmatively to best protect Americans from the multi-faceted privacy threat posed by drones. *Id.*



could allow the police to fly circles around Fourth Amendment law. This Part explores the capabilities of drones and the process by which the FAA approves them for use.

### A. *Familiar Concept, Foreign Sight*

Drone technology burst onto the public scene during America's relatively recent military involvements in Afghanistan and Iraq,<sup>25</sup> but remotely controlled aircraft have been around in one form or another for nearly one hundred years.<sup>26</sup> Indeed, drones have long been a part of public imagination through works of literature and science fiction.<sup>27</sup> Yet their presence has often seemed distant. Now, rather than on a far-off planet or above a foreign battlefield, the next stop for drones is directly above American backyards.

Drones go by many names,<sup>28</sup> but they are essentially aircraft remotely controlled by pilots on the ground, by preprogrammed instruction, or by pilots in chase aircraft.<sup>29</sup> Dozens of agencies

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25. See Paul McBride, *Beyond Orwell: The Application of Unmanned Aircraft Systems in Domestic Surveillance Operations*, 74 J. AIR L. & COM. 627, 630 (2009) (describing the recent public consciousness of drone technology in the military theater).

26. See *id.* (“At least as early as World War I, military theorists recognized the value and potential of being able to remotely direct unmanned aircraft in combat settings.” (citation omitted)).

27. See, e.g., STAR WARS: EPISODE V—THE EMPIRE STRIKES BACK (Lucasfilm 1980) (depicting drone scouts on a distant, alien ice planet); GEORGE ORWELL, NINETEEN EIGHTY-FOUR 2 (Plume Printing 2003) (1949) (describing a drone-like action in the following scene: “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 in people’s windows”).

28. For example, the U.S. government has labeled them *unmanned aircraft*, *unmanned aircraft systems*, and *drones* at various times. See Pub. L. No. 112-95, 126 Stat. 72 (enacted Feb. 14, 2012) (codified in scattered sections of 49 U.S.C.) (defining statutory terms); McBride, *supra* note 25, at 628 (“Although widely known as UAVs or Unmanned Aerial Vehicles, the modern preference is to redefine the technology as UAS [Unmanned Aircraft Systems].”). For ease of reference, this Note will use “drones” to describe these aircraft.

29. See GAO DRONE REPORT, *supra* note 18, at 1 (“[Drone] aircraft do not carry a pilot onboard but instead operate on pre-programmed routes and by following commands from pilot-operated ground control stations.”).

have already applied for and use drones to perform agency functions.<sup>30</sup> Drone certificate holders presently include more than one hundred agencies, universities, companies, and organizations.<sup>31</sup> Those groups include the U.S. Air Force, numerous local police and sheriff's departments, the California Department of Forestry and Fire Protection, universities and community colleges, the Department of Agriculture, National Aeronautics and Space Administration (NASA), Raytheon Company, and Blackwater Airships LLC.<sup>32</sup> From that sample of interested parties alone, drone technology's economic and life-saving usefulness appears limited only by the imagination.

Wirelessly controlled airplanes marketed as "spy drones" dotted the shelves during the 2012 holiday shopping season at

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30. In April 2012, for example, the FAA released two lists of drone certificates pursuant to the Electronic Frontier Foundation's Freedom of Information Act (FOIA) request for information covering the agency's present and past certificate authorizations. See Jennifer Lynch, *FAA Releases Lists of Drone Certificates—Many Questions Left Unanswered*, ELECTRONIC FRONTIER FOUNDATION (EFF) (Apr. 19, 2012), <https://www.eff.org/deeplinks/2012/04/faa-releases-its-list-drone-certificates-leaves-many-questions-unanswered> (last visited Jan. 13, 2013) [hereinafter Lynch, *FAA Release*] (detailing the contents of the FAA's document release) (on file with the Washington and Lee Law Review). More recently, the California National Guard has employed drones to scout a massive wildfire near Yosemite National Park in the summer of 2013. See *California National Guard Launches Drone to Scout Yosemite-area Wildfire*, WASHINGTONPOST.COM, Aug. 28, 2013, [http://articles.washingtonpost.com/2013-08-28/national/41508049\\_1\\_u-s-forest-service-angeles-national-forest-drone](http://articles.washingtonpost.com/2013-08-28/national/41508049_1_u-s-forest-service-angeles-national-forest-drone) (last visited Aug. 31, 2013) ("Firefighters battling the giant wildfire burning in the Sierra Nevada added a California National Guard Predator drone to their arsenal Wednesday to give them almost immediate views of any portion of the flames chewing through rugged forests in and around Yosemite National Park.") (on file with the Washington and Lee Law Review).

31. See GAO DRONE REPORT, *supra* note 18, at 16, 43 (detailing the FAA partnerships with various universities and the federal agencies that have been granted authorizations to operate drones).

32. See *FAA List of Certificates of Authorizations*, EFF, <https://www.eff.org/document/faa-list-certificates-authorizations-coas> (last visited Jan. 13, 2013) (listing all approved, expired, and disapproved Certificates of Authorization by the FAA) (on file with the Washington and Lee Law Review). For an interactive map of where domestic drones have been authorized to operate, see Jennifer Lynch, *Newly Released Drone Records Reveal Extensive Military Flights in US*, EFF (Dec. 5, 2012), <https://www.eff.org/deeplinks/2012/12/newly-released-drone-records-reveal-extensive-military-flights-us> (last visited Jan. 13, 2013) [hereinafter Lynch, *Newly Released*] (on file with the Washington and Lee Law Review).

major U.S. retailers.<sup>33</sup> The number of anticipated uses for commercial and private drones seems to be matched in quantity only by the number of news articles fearing their misuse.<sup>34</sup> Pleas for caution and safeguards are understandable, given the types of presently available drones and the knowledge that technology tends to shrink size and expand capabilities over time.

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33. See, e.g., *Parrot AR Drone 2.0*, <http://ardrone.parrot.com/parrot-ar-drone/en/where-to-buy/> (last visited Feb. 11, 2013) (listing the points of sale in the United States for the Parrot AR Drone 2.0) (on file with the Washington and Lee Law Review). These devices are little more than model airplanes with cameras, but their interconnectivity with smart phones enables users to interact with the aircraft in new ways.

34. For information describing the important new uses of drones, see *infra* notes 29–36 and accompanying text. See also Humes, *supra* note 1, at 19 (“[T]he goal is to curtail the possible abuses of drone technology while also trying to aggressively exploit its potential in such areas as farming, firefighting, and search-and-rescue operations.”); Sarah Kellog, *Drones: Coming to the Skies Near You*, WASHINGTON LAWYER July–Aug. 2013, at 22 (“[T]he devolution of [drones] from military/intelligence tools into peaceful domestic products has been proceeding at a rapid pace.”); Sean Gallagher, *Look to the Skies: Is It Time to Stop Worrying and Love the Drone?*, ARSTECHNICA.COM (Apr. 8, 2012), <http://arstechnica.com/tech-policy/2012/04/look-to-the-skies-is-it-time-to-stop-worrying-and-love-the-drone/> (last visited Mar. 7, 2013) [hereinafter Gallagher, *Look to the Skies*] (reporting that drones have such potential to revolutionize flight and that they “could have a potentially huge impact on society and culture—in both a positive and negative sense”) (on file with the Washington and Lee Law Review). For articles describing the dangers drones pose to privacy, see, e.g., Sean Gallagher, *Here Comes Skynet: Army Drones Almost Ready to Share Sky with Airlines*, ARSTECHNICA.COM (July 5, 2012), <http://arstechnica.com/tech-policy/2012/07/here-comes-skynet-army-drones-almost-ready-to-share-sky-with-airlines/> (last visited Mar. 7, 2013) (describing the objection of privacy advocates with the ACLU and other organizations) (on file with the Washington and Lee Law Review); Lynch, *FAA Release*, *supra* note 30 (detailing the contents of the FAA’s document release); Jennifer Lynch, *These Drones Are Made for Watchin’*, EFF (Aug. 16, 2012), <https://www.eff.org/deeplinks/2012/08/these-drones-are-made-watchin> (last visited Mar. 7, 2013) [hereinafter Lynch, *These Drones*] (emphasizing the ease with which drones can spy on the population) (on file with the Washington and Lee Law Review); Greg McNeal, *A Primer on Domestic Drones: Legal, Policy, and Privacy Implications*, FORBES.COM, Apr. 10, 2012, <http://www.forbes.com/sites/Gregorymcneal/2012/04/10/a-primer-on-domestic-drones-and-privacy-implications/> (“[D]rones might raise unique privacy concerns because of their ability to gather information from a particular ‘vantage point’ which is distinguishable from the data we accumulate through our cellular phones or Internet searches.”).

*B. Drones Are a Unique Search Technology*

The military quickly realized that in a rugged country like Afghanistan, drones are particularly useful to perform dangerous, behind-the-lines surveillance missions and hunt suspected terrorists.<sup>35</sup> The technology's military desirability boils down to simple economics and safety—operated from distant facilities in the United States, the drones keep costs down and airmen safe.<sup>36</sup> Military and civilian leaders have praised drones for freeing up resources and performing long missions without stopping to refuel or change pilots, and rightly so.<sup>37</sup> Those benefits now beckon domestically with a renewed energy, but they may not arrive without collateral privacy consequences.

Drones vary widely in size and capabilities; some are tiny versions of blimps or helicopters,<sup>38</sup> while others are larger and have a more traditional fixed-wing aircraft profile.<sup>39</sup> And with variety comes versatility.<sup>40</sup> Many drones can hover or circle for extremely long periods of time,<sup>41</sup> can be outfitted with a variety of

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35. See McBride, *supra* note 25, at 634–35 (discussing drone military capabilities).

36. See Gallagher, *Look to the Skies*, *supra* note 34 (describing the benefits of drones to the military).

37. See McBride, *supra* note 25, at 634–39 (examining the advantages and uses of domestic drone technology).

38. See GAO DRONE REPORT, *supra* note 18, at 5 (“Small [drones] typically weigh less than 55 pounds, fly below 400 feet above ground level, can stay airborne for several hours, and can be used for reconnaissance, inspection, and surveillance.” (quotations omitted)).

39. See *id.* (“Large [drones] generally fly at altitudes up to or greater than 60,000 feet, some can remain airborne for multiple days, and are generally used for the purposes of surveillance, data gathering, and communications relay.”).

40. For a thorough exploration of drone technology and uses, see generally Villaseñor, *supra* note 21.

41. See Troy Roberts, *On the Radar: Government Unmanned Aerial Vehicles and Their Effect on Public Privacy Interests from Fourth Amendment Jurisprudence and Legislative Policy Perspectives*, 49 JURIMETRICS J. 491, 499 (2009) (describing the ability of drones to stay aloft for hours or days at a time); Richard Whittle, *How It Works: Laser Beaming Recharges UAV in Flight*, POPULAR MECHANICS (July 28, 2012), available at <http://www.popularmechanics.com/technology/aviation/news/how-it-works-laser-beaming-recharges-uav-in-flight-11091133> (describing a system to charge drones by means of a ground laser with the capability of keeping them aloft indefinitely).

cameras and sensory equipment,<sup>42</sup> and make little noise or appearance in the sky.<sup>43</sup> Some are larger than general aviation planes and cost millions of dollars,<sup>44</sup> while others can fit in a backpack (or the palm of a hand) and cost less than a squad car.<sup>45</sup>

Drones are ideal for search-and-rescue missions or operations in which there is vast territory to cover. Best of all for law enforcement and emergency personnel, smaller drones can squeeze into spaces too tight or perform tasks too dangerous for a manned aircraft.<sup>46</sup> One can easily imagine a squadron of cheap, light drones combing a vast expanse of forest for lost hikers or the beginnings of a forest fire.

It is perhaps durational flexibility that makes drones most attractive to organizations operating within a narrow budget. A manned helicopter or plane can only stay aloft for a few hours before refueling. Additionally, manned aircraft are typically

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42. See Roberts, *supra* note 41, at 492–97 (describing the ability of both military and civilian drones to be outfitted with a variety of sensory equipment). Roberts highlights the onboard sensors that drones have proven capable of wielding effectively, including thermal and visual camera systems, electro-optical sensors, ocean color sensors, ozone sensors, gas chronograph, passive microwave vertical sounders, and wall-penetrating technology. See *id.* at 498–99 (describing the onboard sensory capabilities of drones, including “highly classified technology that allows observers to *see through walls*”). Roberts envisions that police departments would use many of these capabilities for “criminal surveillance, situational awareness, hot pursuit, accident or crime scene forensics, and hazardous material reconnaissance.” *Id.* at 498.

43. See *id.* at 494–95 (“[Drones] are less noisy, cumbersome, and conspicuous than conventional manned aircraft.”).

44. See *id.* at 494–95 (“[Drones] can come in all sizes, shapes, and capabilities, ranging from the size of a softball to the size of a full size aircraft.” (quotations omitted)).

45. See, e.g., Gary Martin and Viveca Novak, *Push to Step Up Domestic Use of Drones*, SF Gate (Nov. 27, 2012), <http://www.sfgate.com/nation/article/Push-to-step-up-domestic-use-of-drones-4064482.php#page-1> (last visited Dec. 22, 2012) (describing the capabilities of many different types of drones) (on file with the Washington and Lee Law Review); McBride, *supra* note 25, at 634–35 (same); Rapp, *supra* note 6, at 624–26 (same); Roberts, *supra* note 41, at 493–97 (outlining the unique capabilities of advanced drones). It is safe to say that by the time of this Note’s publication, even these examples will likely be surpassed by newer capabilities and technologies.

46. See Roberts, *supra* note 41, at 492 (“[Drones] are well suited for dull, dirty, or dangerous missions that are instrumental in military operations.” (quotations omitted)).

larger, require several people, and can cost hundreds of dollars per hour to operate.<sup>47</sup>

Many drones are much simpler than manned aircraft to fly. As an example, a user can control the tiny, low-altitude Parrot AR Drone 2.0 and view (on an ordinary smart phone) live video it captures.<sup>48</sup> A user with more substantial financial resources can outfit drones with a bevy of advanced sensors—facial recognition technology, night vision, telephoto zoom lenses, heat sensing technology, wall-penetrating radar, and other electromagnetic equipment that enhances observational capabilities well beyond those of the naked eye.<sup>49</sup> Certainly, larger drones will require more skilled pilots and technology on the ground to be adequately controlled, but the advantages over costly manned aircraft are significant. Considering the sensory enhancement, durational benefits, and resource efficiency, it is small wonder that the Federal Aviation Administration (FAA) anticipates that law enforcement will continue to expand its use of domestic drones.<sup>50</sup>

### C. Present Drone Policy

The FAA has issued several sets of guidelines outlining its treatment of domestic drones.<sup>51</sup> Prior to 2012, a rigid,

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47. See Gallagher, *Look to the Skies*, *supra* note 34 (“[T]he Shadowhawk [a type of drone recently purchased by the Montgomery County Sheriff’s Office] costs \$40 an hour to operate, compared to the \$500-per-hour cost of a full-sized helicopter.”).

48. See *Parrot AR Drone 2.0*, *supra* note 33 (describing the control and interface features of the Parrot AR Drone 2.0).

49. See Lynch, *These Drones*, *supra* note 34 (describing the sensory capabilities of a typical police drone).

50. See Fed. Aviation Admin., *Fact Sheet—Unmanned Aircraft Systems (UAS)* (Feb. 19, 2013), [http://www.faa.gov/news/fact\\_sheets/news\\_story.cfm?newsId=14153](http://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=14153) (last visited Feb. 24, 2013) [hereinafter *FAA Fact Sheet*] (“Common uses today include law enforcement, firefighting, border patrol, disaster relief, search and rescue, military training, and other government operational missions.”) (on file with the Washington and Lee Law Review). The FAA has confirmed that, since 1990, “the agency has authorized limited use of [drones] for important missions in the public interest, such as firefighting, disaster relief, search and rescue, law enforcement, border patrol, military training and testing and evaluation.” *Id.*

51. See *id.* (discussing the Agency’s policies and procedures regarding

individualized licensing process stymied the prospect of widespread drone usage in the United States.<sup>52</sup> The FAA approval system now employed requires careful, case-by-case agency evaluation of the operator's request to use drones.<sup>53</sup> The FAA also has different approval standards for drones based on size and capability.<sup>54</sup> Many smaller drones, and drones operated recreationally as model airplanes, are currently permitted by regulation to operate at altitudes much lower than the minimum acceptable altitudes for helicopters and fixed-wing aircrafts.<sup>55</sup>

Government users—including local law enforcement and public universities—may operate drones only after obtaining a Certificate of Waiver or Authorization (COA) from the FAA.<sup>56</sup> The COA restricts the drone operation to a defined airspace and “includes special provisions unique to the proposed operation.”<sup>57</sup> Designation of the drone as an experimental aircraft is another avenue for drone licensing, but public-use drones typically go through the more detailed COA process.<sup>58</sup> The FAA will

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drones); Unmanned Aircraft Operations in the National Airspace System, 72 Fed. Reg. 6689 (Feb. 6, 2007) (to be codified at 14 C.F.R. pt. 91) (same); FED. AVIATION ADMIN., UNMANNED AIRCRAFT SYSTEMS OPERATIONS IN THE U. S. NATIONAL AIRSPACE SYSTEM—INTERIM OPERATIONAL APPROVAL GUIDANCE UNMANNED AIRCRAFT (2005), [http://www.eoss.org/faa/AFS\\_400\\_UAS\\_POLICY\\_05\\_01.pdf](http://www.eoss.org/faa/AFS_400_UAS_POLICY_05_01.pdf) (same).

52. See *FAA Fact Sheet*, *supra* note 50 (detailing the process for approving an operator's request to use drones).

53. See *id.* (detailing the process for approving an operator's request to use drones).

54. For example, recreational use of unmanned aircraft is governed by FAA Advisory Circular 91–57, which “generally limits operations to below 400 feet above ground level and away from airports and air traffic.” *Id.* Furthermore, small drones weighing 4.4 pounds or less now receive special treatment and an accelerated approval process, subject to certain restrictions. See *id.* (detailing the approval process for small unmanned aircraft).

55. See *id.* (discussing applicable rules on model airplanes and FAA Advisory Circular 91–57 (June 9, 1981)). Aircraft operating under these model airplane provisions are only permitted to be used for recreational or personal purposes. *Id.*

56. See *id.* (detailing the process for approving an operator's request to use drones).

57. *Id.*

58. See *id.* (“COAs are available to public entities that want to fly a [drone] in civil airspace.”).

sometimes deny COA requests, but those denials are almost invariably for safety-of-flight reasons, not privacy considerations.<sup>59</sup> A new mandate for the expanded use of drones, however, will scrap the current policies of case-by-case authorization.

Congress has made clear its intention to rapidly expand domestic drone activity. In February 2012, the legislative reauthorization of the FAA carried with it a requirement that the Agency promulgate regulations and develop a comprehensive plan for the integration of drones into the national airspace system.<sup>60</sup> As a result, by some estimates there could be 30,000 or more drones operating in U.S. skies in the next few decades.<sup>61</sup> The increasing law enforcement preference for warrantless spying techniques—for example, the Justice Department’s warrantless surveillance has increased 600% in the past decade<sup>62</sup>—may help explain why a third of the public

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59. For example, the FAA has previously denied the Ogden Police Department a COA for using a nocturnal surveillance blimp drone to monitor high crime areas because its operation would be unsafe for the national aerospace system. See Letter from Dean E. Fulmer, FAA, to Chief Jon Greiner, Ogden Utah Police Department (Sept. 8, 2011), *available at* <https://www.eff.org/document/ogden-2011-coa-status-document> (describing the reasons for denying the police application for COA).

60. See FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, 126 Stat. 11 (codified as amended in scattered sections of 49 U.S.C.) (detailing statutory requirements and deadlines); John Villasenor and Benjamin Wittes, Opinion, *Regulating Domestic Drones on a Deadline*, WASH. POST, Apr. 19, 2012 (describing the requirements of the FAA Modernization and Reform Act of 2012), *available at* <http://www.brookings.edu/research/opinions/2012/04/20-drones-wittes-villasenor>.

61. FED. AVIATION ADMIN., FAA AEROSPACE FORECAST: FISCAL YEARS 2010–2030, at 48 [hereinafter FAA AEROSPACE FORECAST] (2010), [http://www.faa.gov/data\\_research/aviation/aerospace\\_forecasts/2010-2030/media/2010%20Forecast%20Doc.pdf](http://www.faa.gov/data_research/aviation/aerospace_forecasts/2010-2030/media/2010%20Forecast%20Doc.pdf). This number compares with approximately 18,000 commercial aircraft and 230,000 general aviation aircraft that operate in the United States currently. See GAO DRONE REPORT, *supra* note 18, at 4.

Federal agencies are planning to increase their use of UAS’s. State and local governments envision using UAS’s to aid in law enforcement and firefighting. Potential commercial uses are also possible, for example, in real estate photography or pipeline inspection. UAS’s could perform some manned aircraft missions with less noise and fewer emissions.

62. See David Kravets, *Justice Department’s Warrantless Spying Increased 600 Percent in Decade*, WIRED.COM (Sept. 27, 2012), <http://www.wired.com>.



fears that the use of drones by police will threaten their privacy interests.<sup>63</sup>

### *III. The Importance of Recent Legislative Developments*

#### *A. The FAA Modernization and Reform Act of 2012*

In 2012, Congress passed the FAA Modernization and Reform Act of 2012,<sup>64</sup> covering fiscal years 2011 through 2014.<sup>65</sup> As previously discussed, the reauthorization law carried with it a requirement that the Agency promulgate regulations and implement a comprehensive plan to “accelerate” the integration of drones into the national airspace system by the end of September 2015.<sup>66</sup> Pursuant to that mandate, Congress established a series of requirements and deadlines for the FAA to include in its comprehensive drone plan.<sup>67</sup>

The first phase involves the formulation of a “Comprehensive Plan” that requires the Agency to report to Congress on anticipated rulemakings,<sup>68</sup> methods to enhance safety and phase

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wired.com/threatlevel/2012/09/warrantless-surveillance-stats/ (last visited Feb. 17, 2013) (detailing the sharp increase in pen-register and trap-and-trace methods of warrantless eavesdropping) (on file with the Washington and Lee Law Review).

63. See Joan Lowy, *AP-NCC Poll: A Third of the Public Fears Police Use of Drones for Surveillance Will Erode their Privacy*, ASSOCIATED PRESS (Sept. 27, 2012), available at <http://ap-gfkpoll.com/uncategorized/our-latest-poll-findings-13> (detailing a poll examining popular attitude toward police drone use).

64. Pub. L. No. 112-95, 126 Stat. 11 (enacted Feb. 14, 2012) [hereinafter the Reauthorization] (codified in scattered sections of 49 U.S.C.).

65. *Id.*

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

67. See *id.* § 332(a), 126 Stat. at 73–74 (describing the contents of the plan, deadlines, and reporting requirements to Congress). To understand where the FAA is in meeting these deadlines as of September 2012, see GAO DRONE REPORT, *supra* note 18, at 24–25 (detailing selected FAA Modernization and Reform Act of 2012 requirements and the status of agency action in response thereto).

68. These rulemakings would define and establish broad registration, licensing, and safety standards. See Pub. L. No. 112-95, § 332(a)(1), 126 Stat. at

in drones to the national airspace system.<sup>69</sup> Regarding public unmanned aircraft systems,<sup>70</sup> a separate section requires the FAA to expedite the issuance of certificates of authorization, collaborate with agencies to open airspace, and generally simplify the process for permitting agencies to use drones.<sup>71</sup>

Congress also required the Agency to develop an integration roadmap by February 2013 and make further rulemakings for small unmanned systems and an updated program integrating unmanned aircraft into the airspace environment.<sup>72</sup> But safety—

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73–74 (outlining the standards for drone registration).

69. *See id.* § 332(a)(1), 126 Stat. at 73 (describing the phased-in approach to drone integration into the national airspace system).

70. “The term ‘public unmanned aircraft system’ means an unmanned aircraft system that meets the qualifications and conditions required for operation of a public aircraft (as defined in section 40102 of title 49, United States Code).” *Id.* § 331 (a)(1), 126 Stat. at 72. That section of title 49 states, in relevant part:

(41) “public aircraft” means any of the following:

(A) Except with respect to an aircraft described in subparagraph (E), an aircraft used only for the United States Government, except as provided in section 40125(b).

(B) An aircraft owned by the Government and operated by any person for purposes related to crew training, equipment development, or demonstration, except as provided in section 40125(b).

(C) An aircraft owned and operated by the government of a State, the District of Columbia, or a territory or possession of the United States or a political subdivision of one of these governments, except as provided in section 40125(b) . . . .

49 U.S.C. § 40102 (a)(41) (emphasis added).

71. *See id.* § 334(a), 126 Stat. at 76 (describing Congress’s mandate for new guidelines expanding the use of public unmanned aircraft systems). Section 334 does state that the FAA should provide guidance “on a public entity’s responsibility when operating an unmanned aircraft without a civil airworthiness certificate . . . ,” but nothing in the act suggests that the responsibilities are privacy concerns. *Id.* § 334 (a)(4), 126 Stat. at 76. Congress’s goal appears to be that the FAA rapidly and safely introduce drone technology. *See id.* § 332(a)(3), 126 Stat. at 73. “The plan . . . shall provide for the safe integration of civil unmanned aircraft systems into the national airspace system as soon as practicable, but *not later than September 30, 2015.*” *Id.* (emphasis added). The word privacy does not appear in the Act’s mandate to the FAA regarding drones. *Id.*

72. *See id.* § 332(a)(1), 126 Stat. at 74 (“Not later than 18 months after [its first report to Congress] . . . the Secretary shall publish . . . [rules covering] small unmanned aircraft systems[,] . . . [and] update . . . the Administration’s most recent policy statement on unmanned aircraft systems.”). This roadmap

not privacy—was the consistent focus of Congress’s requirements.<sup>73</sup> This focus coincides with the FAA’s conception of its own role in the process.<sup>74</sup> Congress thus charged the FAA with developing a safe and rapid integration of drones to the domestic sphere, *without* any initial framework addressing inevitable Fourth Amendment implications.

### *B. Legislative Incentive to Operate Drones Without Restrictions*

The absence of privacy protections in the Reauthorization is conspicuous, considering the ease with which some measures could have been included.<sup>75</sup> Congress’s intent may simply have been to confront privacy at a later date with separate legislation. But regardless of why privacy protections were not originally included in the Reauthorization, the effect is, in essence, to accelerate a speeding car toward an unfinished bridge. Whether that bridge can best be spanned by further congressional action, state legislative responses, or judicial reinterpretation is the subject of Part V.<sup>76</sup> As it stands, Congress continues to pressure the FAA to meet legislative deadlines—some of which having

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has proven elusive. An FAA website updating the public on UAS initiatives makes no mention of the status of the required roadmap. *See generally Unmanned Aircraft Systems (UAS)*, FED. AVIATION ADMIN., <http://www.faa.gov/about/initiatives/uas/> (last visited Aug. 31, 2013) (on file with the Washington and Lee Law Review).

73. *See id.* § 332(a)(1), 126 Stat. at 73 (“[T]he Secretary of Transportation . . . shall develop a comprehensive plan to *safely* accelerate the integration of civil unmanned aircraft systems.” (emphasis added)). There are no fewer than 6 references to safety, and no references to privacy, in Section 332 of the Act, which outlines the integration process. *See id.* § 332, 126 Stat. at 73–75 (outlining the desired integration process).

74. *See FAA Fact Sheet*, *supra* note 50 (“The FAA’s main concern about [drone] operations in the National Airspace System (NAS) is safety.”).

75. Congress could have easily required that the FAA keep an updated database of drone certificate holders. To date, the primary means for discovering which organizations operate a drone is to make a FOIA request. *See Lynch, FAA Release*, *supra* note 30 (describing the FAA’s most recent release of drone certificate holders).

76. *See infra* Part V (discussing legislative and judicial remedies to better protect citizens’ privacy).

already been missed<sup>77</sup>—and the Agency has been putting portions of its plan into action.<sup>78</sup>

While the main portion of the FAA's response to the Reauthorization is forthcoming, there will likely be an explosion of drone usage by interested parties, including law enforcement agencies.<sup>79</sup> The Reauthorization will likely decrease administrative burdens to own and operate a drone, and therefore increase the market for creating new drones.<sup>80</sup> Irrespective of how Congress responds to the privacy problem it now confronts, increased drone operation by police may have significant legal consequences for courts applying Fourth Amendment principles because expanded drone use may change the calculus for determining when a search by drones has occurred.<sup>81</sup>

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77. See GAO DRONE REPORT, *supra* note 18, at Highlights page (“FAA . . . has begun making progress toward completing [congressional] requirements, but has missed one deadline and could miss others.”).

78. See John Nolan, *FAA Urged to Keep UAV Timetable for Test Sites*, DAYTON DAILY NEWS (Aug. 2, 2012, 3:03 PM), <http://www.daytondailynews.com/news/news/congress-urges-faa-to-stay-on-schedule-for-choosin/nP89J> (last visited Feb. 17, 2013) (reporting on a letter from nine House members to the FAA's interim administrator regarding delays in the FAA's implementation of programs) (on file with the Washington and Lee Law Review). The FAA responded that “[t]he agency is working to complete the proposal process for the six test sites as required by the 2012 FAA Reauthorization Act.” *Id.*; see also GAO DRONE REPORT, *supra* note 18, at 23 (describing how the FAA “has begun making progress toward completing [congressional] requirements, but has missed one deadline and could miss others”).

79. See *FAA Fact Sheet*, *supra* note 50 (describing potential drone interest from domestic parties).

80. See RICHARD M. THOMPSON, CONGRESSIONAL RESEARCH SERVICE, DRONES IN DOMESTIC SURVEILLANCE OPERATIONS: FOURTH AMENDMENT IMPLICATIONS AND LEGISLATIVE RESPONSES 1, 15 (2012) (describing the efficiency effects that increased drone usage would give their operators).

81. See McNeal, *supra* note 34 (“[D]rones might raise unique privacy concerns because of their ability to gather information from a particular ‘vantage point’ which is distinguishable from the data we accumulate through our cellular phones or Internet searches.”).

*IV. Messy Authority: Case Law's Inconsistent Treatment of Aerial Observation*

The Supreme Court's decisions in *Florida v. Riley*,<sup>82</sup> *California v. Ciraolo*,<sup>83</sup> and *Dow Chemical Co. v. United States*,<sup>84</sup> primarily govern the issue of whether aerial surveillance constitutes a search under the Fourth Amendment.<sup>85</sup> Their inquiries are fact-intensive and closely decided. Each of these decisions also has its foundation in the seminal privacy case of

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82. *Florida v. Riley*, 488 U.S. 445, 450–51 (1989) (plurality opinion) (concluding that aerial observations, made by officers in a helicopter 400 feet above ground level, of the interior of a greenhouse located in a residential backyard was not a 'search' protected by the Fourth Amendment). In *Riley*, the Court considered the constitutionality of naked-eye observations made without a warrant by police from an altitude of 400 feet. *Id.* at 447–48. The police were looking for drugs growing in a greenhouse located within the defendant's residential curtilage. *Id.* The Court determined that the defendant's expectation that his property was free from aerial observation was not reasonable because the police aircraft was flying "in the public airways." *Id.* at 450–51. The observation was therefore deemed not to be a search requiring a warrant. *Id.*

83. *California v. Ciraolo*, 476 U.S. 207, 215 (1986) (concluding that aerial observations made by a fixed-wing plane at 1,000 feet was not a search). In *Ciraolo*, the Court considered the constitutionality of naked-eye observations made by officers in a fixed-wing plane at an altitude of 1,000 feet above ground level of a fenced-in back yard within the curtilage of a home. *Id.* at 209. The Court doubted that, in 1967 while ruling on the *Katz* case, Justice Harlan "considered an aircraft within the category of future electronic developments that could stealthily intrude upon an individual's privacy." *Id.* at 215 (quotations omitted). The *Ciraolo* Court therefore decided that the Fourth Amendment "does not require the police traveling in the public airways at [1,000 feet] to obtain a warrant in order to observe what is visible to the naked eye." *Id.*

84. *Dow Chem. Co. v. United States*, 476 U.S. 227, 239 (1986) ("We hold that the taking of aerial photographs of an industrial plant complex from navigable airspace is not a search prohibited by the Fourth Amendment."). In *Dow Chemical*, the Court examined whether naked-eye-enhancing photographs of an industrial complex made from 12,000, 3,000, and 1,200 feet above ground level on behalf of the Environmental Protection Agency were a search under the Fourth Amendment. *Id.* at 230. The Court determined that no industrial curtilage doctrine protected the complex from police observation like that of a private residence, and that the flights were made from the public airways. *Id.* at 234–35. The Court decided that an industrial complex is more akin to an open field and is therefore validly subject to observation by those in the public airways. *Id.* at 239.

85. See McBride, *supra* note 25, at 642–46 (reviewing case law covering aerial observation by police).

*Katz v. United States*.<sup>86</sup> When examined together, these cases reveal a need for reevaluation when it comes to how courts decide whether aerial observation constitutes a search. The Court's habitual return to *Katz* for guidance suggests that it is not ready to abandon that decision's foundational protection of reasonable expectations of privacy.<sup>87</sup> As discussed in Part V below, a careful return to the holding of *Katz* may suggest a solution to the drone conundrum.

A. *Katz v. United States: A Starting Point for Drawing the Privacy Line*

In *Katz*, the police eavesdropped on the defendant while he was calling from a public phone booth with the door closed.<sup>88</sup> The Court ruled that a Fourth Amendment search occurs “when the government violates a subjective expectation of privacy that society recognizes as reasonable.”<sup>89</sup> The Court rejected the government's formulation of the issue, which attempted to center the Court's focus on the degree to which a constitutionally protected area should be free from penetration.<sup>90</sup> Instead, the

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86. *Katz v. United States*, 389 U.S. 347, 352–53 (1967). In *Katz*, the police eavesdropped on the defendant while he was talking on the phone in a public phone booth with the door closed. *Id.* at 348–49. The Court ruled that a Fourth Amendment search occurs “when the government violates a subjective expectation of privacy that society recognizes as reasonable.” *Id.* at 361 (Harlan, J., concurring). The Court rejected the petitioner's formulation of the issue, which attempted to center the Court's focus on the degree to which a constitutionally protected area should be free from penetration. *Id.* at 350. Instead, the majority emphasized that the Fourth Amendment extends across trespass law to protect individuals, not places. *Id.* at 351; *see also Riley*, 488 U.S. at 449 (citing the *Ciraolo* and *Katz* decisions for their influence on Fourth Amendment privacy law); *Dow Chemical*, 476 U.S. at 230, 234 (same); *Ciraolo*, 476 U.S. at 211–15 (citing *Katz* repeatedly for its influence and guidance on Fourth Amendment privacy law).

87. *See supra* note 86 and accompanying text (discussing *Katz* and the use of *Katz* by other courts in aerial observation cases).

88. *See Katz*, 389 U.S. at 351–52 (describing the defendant's actions).

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

90. *See id.* at 350–51 (majority opinion) (“We decline to adopt this formulation of the issues.”). Instead, the court went on to conclude that what a person reasonably “seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.” *Id.* at 351.

majority emphasized that the Fourth Amendment transcends trespass law to protect individuals, not merely places.<sup>91</sup>

Justice Harlan provided a key clarification in his influential concurrence that, to determine how much protection is required, the court should consider the location where the alleged search occurs.<sup>92</sup> The method of police observation is largely irrelevant.<sup>93</sup> Instead, a court should ascertain whether an individual's expectation of privacy, under the circumstances, is reasonable.<sup>94</sup> As a practical matter, courts will likely label an individual's belief as reasonable if it occurs in locations commonly understood to be private.<sup>95</sup> Therefore, the "invasion of a constitutionally protected area by federal authorities is . . . presumptively unreasonable in the absence of a search warrant."<sup>96</sup>

The Court may never define an explicit list of constitutionally protected areas.<sup>97</sup> But the individual's location while under observation aids a court in its assessment of whether the individual's expectation of privacy is reasonable.<sup>98</sup> Under this

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91. *See id.* at 351–53 (stating that the trespass doctrine can no longer control Fourth Amendment jurisprudence). Somewhat famously, the majority opinion authored by Justice Stewart declared that "the Fourth Amendment protects people, not places." *Id.* at 351.

92. *See id.* at 361 (Harlan, J. concurring) (noting that, although the Fourth Amendment protects people and not places, the amount of protection afforded to those people requires reference to a place).

93. *See id.* at 362 ("[R]easonable expectations of privacy may be defeated by electronic as well as physical invasion."); Ric Simmons, *From Katz to Kyllo: A Blueprint for adapting the Fourth Amendment to Twenty-First Century Technologies*, 53 HASTINGS L.J. 1303, 1312 (2002) (describing Justice Harlan's emphasis on the importance of the individual's actions, and not those of the police).

94. *See Katz v. United States*, 389 U.S. 347, 355–56 (1967) (discussing the defendant's reasonable expectation of privacy).

95. *See id.* at 360–61 (Harlan, J. concurring) (noting that, although the Fourth Amendment protects people and not places, the amount of protection afforded to those people requires reference to a place).

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

97. *See id.* at 351 (majority opinion) ("[The] effort to decide whether or not a given area, viewed in the abstract, is constitutionally protected deflects attention from the problem." (quotations omitted)).

98. *See id.* at 360–61 (Harlan, J. concurring) (emphasizing that the location of the individual, along with the actions taken by that individual to secure privacy, is a key factor for a court to consider when evaluating whether an observation was a search).

interpretation of *Katz*, courts look past the sometimes difficult problem of evaluating the intrusiveness of new police technologies.<sup>99</sup> Subsequent courts should therefore focus on what actions the individual took and what degree of privacy he should have reasonably expected. But the Supreme Court failed to confirm this line of reasoning in subsequent aerial observation controversies during the 1980s.

### *B. Missed Opportunities for Consistency*

The Supreme Court considered two cases in 1986 that partially delineate the bounds of reasonable expectations of privacy in aerial observation cases.

In *Ciraolo*, the Court considered the constitutionality of naked-eye observations made by officers in a fixed-wing plane at an altitude of 1,000 feet above ground level of a fenced-in backyard within the curtilage of a home.<sup>100</sup> The Court doubted that, in 1967 while ruling on the *Katz* case, Justice Harlan “considered an aircraft within the category of future electronic developments that could stealthily intrude upon an individual’s privacy.”<sup>101</sup> The *Ciraolo* Court therefore decided that the Fourth Amendment “does not require the police traveling in the public airways at [1,000 feet] to obtain a warrant in order to observe what is visible to the naked eye.”<sup>102</sup> But Justice Harlan wrote that, in general, an individual need only exhibit a reasonable expectation of privacy to be protected from *any* government means of interference.<sup>103</sup> Justice Harlan’s point was that the Constitution entitles the individual to protection regardless of the means

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99. See Simmons, *supra* note 93, at 1312 (describing how Justice Harlan’s emphasis on the importance of the individual actions resolves difficulties courts may face in evaluating reasonable expectations).

100. See *California v. Ciraolo*, 476 U.S. 207, 209 (1986) (describing the facts of the case).

101. *Id.* at 215 (quotations omitted).

102. *Id.*

103. See *Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring) (“The critical fact in this case is that [one who occupies a phone booth] shuts the door behind him, and pays the toll . . . is surely entitled to assume that his conversation is not being intercepted.”).



employed against him.<sup>104</sup> But the *Ciraolo* Court appears to, at least partially, slip past this nuance due to the difference in technology employed to intrude.

In *Dow Chemical*, the Court examined whether photographs of an industrial complex made from altitudes of 12,000, 3,000, and 1,200 feet on behalf of the Environmental Protection Agency were a search under the Fourth Amendment.<sup>105</sup> The Court determined that that no industrial curtilage doctrine protected the complex from police observation like that of a private residence, and that the flights were in public airspace.<sup>106</sup> An industrial complex is more akin to an open field and is therefore validly subject to observation by those in the public airways.<sup>107</sup> The majority acknowledged that “[i]t may well be . . . that surveillance of private property by using highly sophisticated surveillance equipment not generally available to the public . . . might be constitutionally proscribed absent a warrant.”<sup>108</sup> Therefore, *Dow Chemical* impliedly does not provide courts with a sufficient basis to permit drone over-flights of residential properties.

But again, the Court grounded its reading of *Katz* on the position of the aircraft, one that was “lawfully in the public airspace immediately above” the complex.<sup>109</sup> Both decisions (*Dow Chemical* and *Ciraolo*) thereby rested much of their evaluation on when, where, and how the observer conducted its surveillance.<sup>110</sup> Though *Dow Chemical* involved the use of precision cameras, the

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104. See *id.* (deemphasizing the focus of the judicial inquiry on precisely what method the police had been using to observe the defendant).

105. See *Dow Chem. Co. v. United States*, 476 U.S. 227, 230 (1986) (describing the facts of the case).

106. See *id.* at 234–35 (discussing the Court’s reasoning).

107. See *id.* at 239 (discussing the Court’s reasoning).

108. *Id.* at 238.

109. *Id.* at 238–39.

110. See *id.* at 239 (“We hold that the taking of aerial photographs of an industrial plant complex *from navigable airspace* is not a search prohibited by the Fourth Amendment.” (emphasis added)); *California v. Ciraolo*, 476 U.S. 207, 215 (1986) (concluding that aerial observations made by a fixed-wing plane at 1,000 feet was not a search) (emphasis added). The Court could have instead focused its rulings on the activities of the individual under observation.

observations were of an industrial complex, not a residence.<sup>111</sup> *Ciraolo* explicitly involved a naked-eye police observation, and the rationale would strain to support a broader aerial scenario.<sup>112</sup> These cases missed an opportunity to reinforce a clear emphasis on the individual being observed and the setting in which he was observed.

*C. Florida v. Riley: An Increasingly Ineffective Application of Reasonableness*

In *Riley*, the Supreme Court decided to apply the same method-focused rationale, despite the use of a different aerial technology—police helicopters. This similar approach suggests a deliberate retreat from what could have been a firmer defense of privacy—an approach made and evaluated without regard to the surveillance technology employed.

The *Riley* decision was badly split. The four-justice plurality concluded that an aerial police observation made “from a public vantage point where [the aircraft has] a right to be” does not require a search warrant so long as a reasonable man would not have “expected that his [curtilage] was protected from public or official observation.”<sup>113</sup> This rationale leans heavily on whether the aircraft making the observation had a legal right to be where it was in the sky (pursuant to FAA regulations governing airspace).<sup>114</sup>

Interestingly, a majority of the Court did not accept this rationale.<sup>115</sup> Justice O’Connor agreed with the final disposition

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111. See *Dow Chem. Co. v. United States*, 476 U.S. 227, 239 (1986) (“We hold that the taking of aerial photographs of an industrial plant complex from navigable airspace is not a search prohibited by the Fourth Amendment.”).

112. See *Ciraolo*, 476 U.S. at 215 (concluding that aerial observations made by a fixed-wing plane at 1,000 feet was not a search).

113. *Florida v. Riley*, 488 U.S. 445, 449–51 (1989) (plurality opinion).

114. See *id.* at 451 (“We would have a different case if flying at that altitude had been contrary to law or regulation.”).

115. Only Chief Justice Rehnquist and Justices White, Scalia, and Kennedy joined the plurality opinion. See *id.* at 447 (describing the plurality opinion’s supporters).

but differed in her analysis.<sup>116</sup> Along with Justices Brennan, Marshall, Stevens, and Blackmun, Justice O'Connor deemphasized the FAA regulations in any privacy analysis, and did not endorse the plurality's analogy between helicopter observations and ground-level observations.<sup>117</sup> These five Justices instead focused their judgment on the reasonableness of an individual's expectation of privacy.<sup>118</sup> This reasonableness determination is based on the circumstances of the case (such as where the individual was and what precautions the individual took to shield the property from public view).<sup>119</sup> Justice O'Connor argued that the Court should "ask whether the helicopter was in the public airways at an altitude at which *members of the public* travel with sufficient regularity" and that "society is prepared to recognize as reasonable," regardless of technical compliance with FAA safety regulations.<sup>120</sup>

Additionally, Justice Brennan's dissent, as joined by Justices Marshall and Stevens, appears to anticipate a future technology that would be more intrusive than the helicopters of the 1980s.<sup>121</sup> He noted that the plurality appeared to dismiss the intrusiveness of the helicopter merely because it had a legal right to be where it was and due to the lack of "undue noise . . . wind, dust, or threat of injury"<sup>122</sup> created by its presence. Arguing that the proper

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116. See *id.* at 452 (O'Connor, J., concurring) ("I concur in the judgment[but] I write separately . . . to clarify the standard I feel follows from *California v. Ciraolo*." (citation omitted)). Justice O'Connor wrote that the plurality rests the scope of its Fourth Amendment protection "too heavily" on whether the observer was complying with FAA safety regulations. *Id.* She argued instead that it is unreasonable "for persons on the ground to expect that their curtilage will not be observed from the air at 1,000 feet" because air travel at that altitude is a "sufficiently routine part of modern life." *Id.* at 453.

117. See *supra* notes 115–16 and accompanying text (discussing the court's reasoning).

118. See *supra* notes 115–16 and accompanying text (discussing the court's reasoning).

119. See *Florida v. Riley*, 488 U.S. 445, 453–54 (1989) (O'Connor, J., concurring) (describing the factors that a court should consider).

120. *Id.* (emphasis added).

121. See *id.* at 461–62 (Brennan, J. dissenting) (discussing why the legal position of the observing aircraft is unimportant when determining reasonable expectations of privacy).

122. *Id.*

analysis depends on safeguarding the privacy and security of private citizens, Justice Brennan asked the Court to “imagine a helicopter capable of hovering just above [the ground] without generating any noise, wind, or dust at all . . . . Suppose police employed this miraculous tool to discover not only what crops people were growing . . . but also what books they were reading.”<sup>123</sup> This hypothetical is quite similar to the capabilities possessed by certain modern high-tech drones.<sup>124</sup> The dissent thus addresses a model approach for the Supreme Court to take when applying aerial observation law to drones precisely because it imagines the potential abuse of the plurality’s emphasis on the location of the observing aircraft.

Courts may decide to break from present case law because of the differences between helicopter and manned aircraft compared with unmanned drones.<sup>125</sup> These cases may not apply to observations made from aircraft using cameras that enhance sensory abilities—as would be the case with most drones—because such an observation loses any tenable comparison to the proverbial policeman on a public street.<sup>126</sup> At some point, the analogy loses its credence in the face of an overly piercing spy technology, at least if some degree of privacy is to be retained. When technology emerges that fundamentally alters the privacy analysis, change becomes appropriate.<sup>127</sup> Drones may very well be the line in the sand.

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123. *Id.* at 462–63.

124. *See supra* notes 37–42 and accompanying text (discussing the capabilities possessed by certain modern high-tech drones).

125. *See Eyes in the Sky: The Domestic Use of Unmanned Aerial Sys., Hearing Before the Subcomm. on Crime, Terrorism, Homeland Sec. and Investigations of the H. Comm. on the Judiciary*, 113th Cong. (2013) [hereinafter UAS Hearing], available at [http://judiciary.house.gov/hearings/113th/hear\\_05172013.html](http://judiciary.house.gov/hearings/113th/hear_05172013.html) (statement of Tracey Maclin, Boston University School of Law) (discussing the inapplicability of much of current aerial observation precedent to drone operations).

126. *See Florida v. Riley*, 488 U.S. 445, 449–51 (1989) (describing the policeman on the public street analogy).

127. *See id.* at 462–63 (Brennan, J., dissenting) (questioning whether the *Riley* plurality would maintain its position if a hypothetical—and very drone-like—technology existed that could circumvent reasonable expectations of privacy).

Even if the aerial observation cases apply to generalized drone operations, the precedent may be too muddled to permit a clean solution. As a consequence of *Riley*'s sharply divided reasoning, lower courts have applied the law intermittently.<sup>128</sup> Courts' rulings on aerial observation cases in no fewer than nine states have applied one of four different approaches to existing Supreme Court precedent.<sup>129</sup> Colorado and Oregon have used different approaches within their own jurisdictions.<sup>130</sup> The Court of Appeals of Texas upheld a helicopter observation made from an altitude of 100 feet, a height that would likely not even pass *Riley*'s emphasis on aircraft location.<sup>131</sup>

There is either confusion as to what factors should govern, or a desire by courts to select their own methods.<sup>132</sup> Either way, the lower-court confusion may eventually lead to additional challenges at the Supreme Court. The introduction and proliferation of a technology that tests the unstable basis of previous decisions is the perfect opportunity to resolve a lower court split and clarify the line in the sand, should the Court choose to accept such a case.

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128. See *State v. Bryant*, 950 A.2d 467, 476–79 (Vt. 2008) (discussing the four different approaches state and federal courts are using to apply Supreme Court precedent).

129. See *id.* (discussing the four different approaches state and federal courts are using to apply Supreme Court precedent).

130. See *id.* (detailing some of the different approaches state and federal courts are using to apply Supreme Court precedent).

131. Compare *Moss v. State*, 878 S.W.2d 632, 636 (Tex. Ct. App. 1994) (“[T]he helicopter then circled . . . coming down to about 100 feet over three or four residences.”), with *Riley*, 488 U.S. 451 (plurality opinion) (“We would have a different case if flying at that altitude had been contrary to law or regulation.”). Flying an aircraft at 100 feet likely would contravene the FAA’s minimum safe altitude requirements, which mandate at least a 500 foot clearance of people or structures. See 14 C.F.R. part 91.119(c) (“[A]ircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.”). See also *Henderson v. People*, 879 P.2d 383, 391 (Co. 1994) (holding that the provision of a television news helicopter to police for purposes of warrantless observations at 500–700 feet of defendant’s shed was not a search).

132. See *Bryant*, 950 A.2d at 476–79 (discussing different approaches of other state courts).

*D. Kyllo v. United States*<sup>133</sup>: *The Importance of Sensory Enhancement*

The Supreme Court considered the issue of whether police use of a thermal imaging device constituted an improper residential search in *Kyllo*.<sup>134</sup> Its ruling has potential implications in the context of emerging drone technology. The five-to-four majority held that the use of a sense-enhancing technology to view the contents of a home was a search within the meaning of the Fourth Amendment.<sup>135</sup> The case also discussed the appropriate interpretation of *Katz* under more modern circumstances.<sup>136</sup>

The *Kyllo* majority rejected the contention that a passive collection of extra-sensory information emanating from the exterior of a home (without revealing intimate details of the interior) was reasonable.<sup>137</sup> Instead, the Court determined that “obtaining by sense-enhancing technology any information regarding the interior of the home that could not otherwise have been obtained without” physical, in-person inspection of a residence “constitutes a search—at least where (as here) the technology in question is not in general public use.”<sup>138</sup> This statement effectively means that a naked-eye observation from a

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133. See *Kyllo v. United States*, 533 U.S. 27, 34 (2001) (deciding that the use of a sense-enhancing technology not in general public use to view the contents of a home was a search within the meaning of the Fourth Amendment). In *Kyllo*, the Court considered the constitutionality of warrantless observations made by police across the street from a residence using thermal imaging technology. *Id.* at 29. The Court gave great weight to the fact that the observations were of the home. *Id.* at 31. But the Court also included an ill-defined caveat that a search technology must not be in general public use for the subject’s expectation of privacy to remain reasonable, seemingly without regard to the location of the individual. *Id.* at 34–35.

134. See *id.* at 29 (“This case presents the question whether the use of a thermal imaging device aimed at a private home from a public street to detect relative amounts of heat within the home constitutes a ‘search’ within the meaning of the Fourth Amendment.”).

135. See *id.* at 40 (discussing the majority’s holding).

136. See *id.* (discussing the role of *Katz* in the context of thermal imaging technology)

137. See *supra* note 135 and accompanying text (discussing the holding of *Kyllo*).

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

public vantage point is likely not a search, while technology that improves observation beyond what an un-aided person can sense must be questioned further.

The majority's test in *Kyllo* tracks closely with *Katz*. Police are not required to "avert their eyes" from criminal activity.<sup>139</sup> There will always be close cases involving rapidly emerging technologies. But the majority's test may not actually demand eye aversion.<sup>140</sup>

*Kyllo*'s standard applies: (1) when there is an *enhancement* technology, (2) when the interior contents of a house could be ascertained through no other means, and (3) when a technology is not so prevalent as to defeat a reasonable individual's expectation of privacy.<sup>141</sup> An interesting question arises when one considers whether a drone is inherently a sense-enhancing technology (regardless of the onboard cameras or equipment). Arguably, a drone augments the user's ability to collect sensory information by extending the operator's visual and auditory capacities to previously impossible vantage points. But it is unlikely a court would adopt this reasoning because without any additional equipment (such as telescopic camera lenses, thermal imaging devices, etc.), drones provide no independent sensory enhancement. It remains to be seen whether courts will distinguish between images captured by navigational cameras onboard drones and those directed intentionally downward on their surveillance subjects. A court using *Kyllo* to evaluate the facts of a drone case may wish to distinguish between these different cameras. The closest analogue is, understandably, to helicopter and fixed-wing aircraft which are discussed in Part IV.A–C of this Note.<sup>142</sup> Like those aircraft, they are more accurately a platform technology that carries sensory technology

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139. *Id.* at 45 (Stevens, J., dissenting).

140. *See supra* note 135 and accompanying text (discussing the holding of *Kyllo*).

141. *See Kyllo v. United States*, 533 U.S. 27, 34 (2001) (discussing the court's test).

142. *See supra* notes 88–113 and accompanying text (discussing the technology in previous aerial observation cases).

on board.<sup>143</sup> Therefore, the equipment carried by the drone should determine whether *Kyllo* applies.<sup>144</sup>

Interestingly, the *Kyllo* test leaves open the possibility that the permissibility of using a particular technology can change over time. Widespread drone usage may have precisely that effect on the social conceptions of the reasonable expectation of privacy.<sup>145</sup> Drones may someday share the same familiarity that the public apparently had with the small planes in *Ciraolo* and *Dow Chemical*.<sup>146</sup> If so, the existing aerial observation cases would offer little constitutional protection because many drones would have the capability to remain at a legal altitude, yet also make observations far beyond the abilities of a manned helicopter or plane considered by *Riley*.

The Court acknowledged 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.”<sup>147</sup> As an example, the majority pointed to aerial observation cases.<sup>148</sup> The Court wondered openly “what limits there are upon this power of technology to shrink the realm of guaranteed privacy.”<sup>149</sup> This statement acknowledges two important concepts—technological advances will continue to stress constitutional protections from undue searches, and the Court has a role in defining appropriate boundaries for those advances.<sup>150</sup> As drones represent a major advance in technology,

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143. See McBride, *supra* note 25, at 657–59 (discussing the capabilities that drones present as unique compared with other platform technologies such as helicopters).

144. See *Kyllo*, 533 U.S. at 34 (“We think that obtaining *by sense-enhancing technology* any information . . . constitutes a search . . .” (emphasis added)).

145. See Kerr, *supra* note 8, at 865–67 (discussing the interaction of evolving technologies and society).

146. See FAA AEROSPACE FORECAST, *supra* note 61 (describing the FAA’s forecast of a wide variety of potential future commercial, public, and private uses for drones in America).

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

148. See *id.* (citing the *Ciraolo* and *Dow Chemical* decisions).

149. *Id.*

150. See *id.* (describing the tensions and duties of the court in privacy matters such as this).



the Court would therefore be well within precedent to adjust the rules accordingly.

The dissent describes the privacy interest in *Kyllo* as trivial,<sup>151</sup> and the state's methods as unobtrusive, akin to assessing the volume level of sound emanating from the *Katz* phone booth rather than the conversation itself.<sup>152</sup> But rather than regulating the manner of police invasion or the nature of content overheard, the question is whether an individual's reasonable *expectation* of privacy was disturbed.<sup>153</sup> The information gathered by the police in *Kyllo* was not merely data regarding the presence or absence of heat.<sup>154</sup> The police discovered relative heat in particular locations of the house, which led them to make inferences about the contents of the residence's interior.<sup>155</sup> The dissent's analogy comparing heat to the volume in *Katz* would be more apt if the eavesdropping police in *Katz* had somehow tried to use the volume of the phone booth conversation to make an inference as to the defendant's conversation.<sup>156</sup> In fact, that would have presented a different issue for the *Katz* Court (and would resemble the issue actually before the *Kyllo* Court).

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151. By "trivial," the dissent meant to imply that the intrusion was minor because the passive collection of heat radiation did not actually penetrate the home's interior. *See id.* at 45 (Stevens, J., dissenting) ("After all, homes generally are insulated to keep heat in, rather than to prevent the detection of heat going out, and it does not seem to me that society will suffer from [such] a rule.").

152. *See id.* at 41–42, 50 (discussing the treatment of inferences as searches).

153. *See id.* at 32–33 (discussing the *Katz* Court's reasoning regarding reasonable expectations of privacy).

154. *See id.* at 35 (challenging the Government's arguments regarding the detection of heat).

155. *See id.* at 36–37 (discussing the treatment of inferences as searches).

156. *See id.* at 49–50 ("By contrast, the thermal imager here disclosed only the relative amounts of heat radiating from the house; it would be as if, in *Katz*, the listening device disclosed only the relative volume of sound leaving the booth, which presumably was discernible in the public domain.").

*E. United States v. Jones: New Potential for Change*

Supreme Court cases dealing with rapidly advancing surveillance technologies have divided the Court over how to best handle Fourth Amendment implications. In the recent case of *United States v. Jones*,<sup>157</sup> five of the Justices expressed their considerable hesitation in the face of a cheap, newly widespread, and useful police surveillance technology—Global Positioning System (GPS) tracking technology.<sup>158</sup> The Court examined whether a GPS tracking device mounted on the undercarriage of a suspect’s Jeep constituted a search.<sup>159</sup> The four-justice plurality opinion authored by Justice Scalia looked largely to the property law of trespass to conclude there was a search, and a warrant was required.<sup>160</sup> But Justice Scalia acknowledged, with caution, that “[w]e may have to grapple with . . . ‘vexing problems’ in some future case where a classic trespassory search is not involved and resort must be had to *Katz* analysis; but there is no reason for rushing forward to resolve them here.”<sup>161</sup> Drone technology should present precisely this sort of nontrespassory search issue that could compel Justice Scalia and others to revive a more basic, *Katz*-like approach. For instance, in a recent and fiery dissent, Justice Scalia excoriated the Court for its allowance of

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157. See *United States v. Jones*, 132 S. Ct. 945, 949 (2012) (“We hold that the Government’s installation of a GPS device on a target’s vehicle, and its use of that device to monitor the vehicle’s movements, constitutes a search.” (quotations omitted)). In *Jones*, the Court considered the constitutionality of police placement and monitoring of a GPS tracking device affixed to the defendant’s vehicle. *Id.* at 948. The Court looked to the historical origins of the Fourth Amendment protection against unreasonable search and seizure. *Id.* at 953. The narrow majority rejected the concurrence’s application of an “*exclusively Katz*[-based] reasonable-expectation-of-privacy test,” instead concluding that *Katz* should be confined more to “[s]ituations involving merely the transmission of electronic signals.” *Id.*

158. See *id.* at 948 (discussing the facts of the case).

159. See *id.* (“We decide whether the attachment of a Global-Positioning-System (GPS) tracking device to an individual’s vehicle, and subsequent use of that device to monitor the vehicle’s movements on public streets, constitutes a search or seizure within the meaning of the Fourth Amendment.”).

160. See *id.* at 950 (“As explained, for most of our history the Fourth Amendment was understood to embody a particular concern for government trespass upon the areas . . . it enumerates.”).

161. *Id.* at 954.

unwarranted DNA collection for the purpose of cross referencing it against a database of incriminating samples.<sup>162</sup>

In *Jones*, Justice Sotomayor opined that the unique qualities of a new technology should be evaluated to properly apply *Katz* analysis.<sup>163</sup> GPS tracking technology presents a problem for Fourth Amendment jurisprudence because it is “cheap in comparison to conventional surveillance techniques and, by design, proceeds surreptitiously, [so] it evades the ordinary checks that constrain abusive law enforcement practices: ‘limited police resources and community hostility.’”<sup>164</sup>

Justice Sotomayor identified GPS technology as a “tool so amenable to misuse” that its unique attributes should be taken into account when evaluating applying *Katz*.<sup>165</sup> Justice Sotomayor asked, somewhat rhetorically, “whether people reasonably expect that their movements will be recorded and aggregated in a manner that enables the Government to ascertain, more or less at will, their political and religious beliefs, sexual habits, and so on.”<sup>166</sup> She implied they would not.<sup>167</sup>

Justice Alito’s concurrence in *Jones* also noted that “science has brought forth far more effective devices for the invasion of a person’s privacy than the direct and obvious methods of

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162. See *Maryland v. King*, 133 S.Ct. 1958, 1982 (2013) (“The Court hastens to clarify that it does not mean to approve invasive surgery on arrestees or warrantless searches of their homes. That the Court feels the need to disclaim these consequences is as damning a criticism of its suspicionless-search regime as any I can muster.”). With a message that drafters of police drone legislation would do well to remember, Justice Scalia wrote “[t]he Fourth Amendment forbids searching a person for evidence of a crime when there is no basis for believing the person is guilty of the crime or is in possession of incriminating evidence.” *Id.* If left unaddressed, drones are precisely the sort of technology that could make this kind of searching rampant.

163. See *United States v. Jones*, 132 S. Ct. 945, 955 (2012) (Sotomayor, J., concurring) (“[P]hysical intrusion is now unnecessary to many forms of surveillance.”).

164. *Id.* at 956 (Sotomayor, J., concurring) (citations omitted).

165. *Id.*

166. *Id.*

167. See *id.* at 956 (“I would also [question] the appropriateness of entrusting to the Executive, in the absence of any oversight from a coordinate branch, a tool so amenable to misuse, especially in light of the Fourth Amendment’s goal to curb arbitrary exercises of police power.”).

oppression which were detested by our forebears and which inspired the Fourth Amendment.”<sup>168</sup> He determined that the Constitution’s protections should adapt with technology.<sup>169</sup> Justices Sotomayor and Alito thus described the dangers of GPS technology that, almost word-for-word, could be applied to the capabilities of drones and the problems that widespread police surveillance employing drones would entail. If the Supreme Court views the threat of drone surveillance similarly, restrictions on unwarranted drone use could be forthcoming.

### V. Solutions: Closing the Privacy Gap

The goal of any privacy rules should be to effectively and clearly balance the legitimate interests of law enforcement with the need to protect privacy and civil liberties against excessive government intrusion.<sup>170</sup> This balance is not easily struck. What follows, then, is a list of possible remedies and suggestions that may begin to guard against inappropriate drone use by law enforcement. The most effective overall solution will likely emerge from multiple sources, because legislatures, courts, and agencies have varying functions, responsibilities, tools, and expertise.

#### A. Protective Legislation

Legislation will be important in protecting individual privacy in a variety of contexts, including the law enforcement setting.<sup>171</sup>

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168. *Id.* at 959 (Alito, J., concurring).

169. *See id.* (“The Court argues—and I agree—that we must assur[e] preservation of that degree of privacy against government that existed when the Fourth Amendment was adopted. But it is almost impossible to think of late 18th-century situations that are analogous to what took place in this case.” (quotations and citations omitted)).

170. *See* Kerr, *supra* note 8, at 861 (“It is generally agreed that the general pragmatic goal of both constitutional and statutory law governing search and seizure is to create a workable and sensible balance between law enforcement needs and privacy interests.”).

171. *See id.* at 867–68 (discussing the value of legislatures as bodies that “enact generalized rules for the future”).

But Congress may not be able to effectively control law enforcement organizations not under its direct control.<sup>172</sup> Solutions must therefore emanate from many levels of government in order to preserve the effectiveness of drone technology's many advantages and simultaneously guard privacy.

### *1. Federal Legislation: General Recommendations*

To begin with, there are certain general principles that Congress should consider adopting. Legal author Troy Roberts has assembled a list of recommendations for legislative fixes that would plug many privacy holes.<sup>173</sup> His proposed solutions include some of the following:

1. Write plain language statutes requiring warrants for [Unmanned Aerial Vehicle (UAV)] searches.
2. Focus efforts on nonvisual navigation and safety of flight technology.
3. Require any UAVs to power down sensory enhancing technology when transitioning to the target of the warrant or other mission.
4. Require logs of sensory enhancing technology use on all UAVs.
5. Create exceptions for immediate warrantless observation requirements, such as criminal chases, fires, and chemical exposures.
6. Establish an objective regulatory body to enforce the rules on operators.<sup>174</sup>

In particular, Roberts's third, fourth, and fifth recommendations would allay many general societal fears regarding drones because they would reduce police incentives to employ large numbers of drones for observational purposes.<sup>175</sup>

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172. See *infra* note 223 and accompanying text (discussing case law on the topic).

173. See Roberts, *supra* note 41, at 517 (detailing proposed legislative solutions).

174. *Id.*

175. Recall that a major fear of increased drone use prompted by the recent

Brookings Institute fellow John Villasenor has added that federal legislation may be prone to over-reaching by containing so many privacy protections that legitimate police work will be impeded with little victory for privacy.<sup>176</sup> In a recent article addressing drones and privacy, Villasenor describes one scenario where more stringent rules would stifle an otherwise critically important piece of criminal evidence:

Suppose that a brutal assault that takes place on a sidewalk is captured on video by a government-operated [drone] that happens to be monitoring traffic on the adjacent street. Suppose further that the video from the [drone] turns out to be the only available evidence that can identify the perpetrator. It would defy common sense if the police or prosecutors were barred by new [drone] privacy rules from making use of this information.<sup>177</sup>

Villasenor therefore cautions that a blanket warrant requirement would be foolish.<sup>178</sup> He instead argues for a more limited scope of legislated privacy protections targeting the data retention of drone images and mandating that police keep thorough public records of drone operations.<sup>179</sup>

In addition to Roberts's and Villasenor's recommendations, police drones should be employed only on specific missions, not sent to scour a city for undiscovered crimes. At a minimum, this

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legislation has been concern by some that it will create an electronic blanket of police presence overhead. See Somini Sengupta, *Rise of Drones in U.S. Drives Efforts to Limit Police Use*, N.Y. TIMES (Feb. 15, 2013), <http://www.nytimes.com/2013/02/16/technology/rise-of-drones-in-us-spurs-efforts-to-limit-uses.html?pagewanted=all> ("To me, it's Big Brother in the sky." (quoting Dave Norris, a city councilman in Charlottesville, Virginia) (quotation marks omitted)).

176. See Villasenor, *supra* note 21, at 511 ("It is far harder to [draft privacy legislation] without negatively impacting the use of [drone] in applications that raise few or no privacy concerns.").

177. *Id.*

178. See *id.* ("Legislation that would include a blanket prohibition on governmental use of private UAS data in criminal investigations would also be ill advised.").

179. See *id.* at 512 ("The best solutions are those that increase privacy protections without impeding reasonable, non-privacy-violating uses. Laws addressing data retention by government [drone] users . . . [along with those that] require law enforcement agencies to keep thorough records identifying the details of flight operations.").

limitation would minimize the number of ethical quandaries like the one raised by professor Villasenor above. Despite its appeal to logic, Villasenor's hypothetical seems to concede too much ground to the technical capabilities of drones. This same sort of logic would seemingly justify almost any form of invasiveness widely deployed in public spaces so long as the technical capability exists.<sup>180</sup> But the legislature has the flexibility to customize its laws to address a unique technical threat while taking advantage of its unique capabilities.<sup>181</sup> If political will permits passage of a drone privacy bill, the real challenge will be to carve out the right exceptions.

Perhaps the best way to ensure that private citizens are not the subject of regular Fourth Amendment search violations—from any source—is to incentivize police and prosecutors by restricting the availability of drone-collected evidence at trial.<sup>182</sup>

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180. *See id.* at 511 (“If, in the example in the previous paragraph, the images of the assault on the street had been captured by a [drone] operated by a television station instead of by the government, it would make no sense to place them beyond the legal reach of investigators.”). Villasenor’s preferred route for privacy protection is to lean on a mosaic of narrowly-decided opinions. *See id.* at 516 (“In combination, however, these rulings indicate that the Fourth Amendment is likely to provide significantly more protection from government [drone] observations than is commonly assumed.”). But this is a risky proposition, for there is already much lower court confusion in interpreting these doctrines. *See* discussion *supra* note 128 (describing circuit differences in the application of aerial observation cases).

181. *See* Kerr, *supra* note 8, at 871 (“Judicial rulemaking is limited by strong *stare decisis* norms that limit the ability of judicial rules to change quickly; in contrast, legislatures enjoy wide-ranging discretion to enact new rules. The difference favors legislatures when technology is in flux.”).

182. *See id.* at 882–87 (acknowledging the advantages courts have over legislatures in protecting privacy). Kerr describes two advantages that courts have over legislatures for crafting meaningful privacy rules in the face of new technologies: courts can make “cautious judgments on a case-by-case basis,” and courts can be better trusted to “serve the public interest” apart from the influence of special interest groups. *Id.* at 882. More importantly, Kerr notes that courts are the best body to “intervene in the area of criminal procedure because . . . legislatures don’t give a damn about the rights of the accused.” *Id.* at 886 (quotations omitted) (citing Donald A. Dripps, Essay, *Criminal Procedure, Footnote Four, and the Theory of Public Choice; Or, Why Don’t Legislatures Give a Damn About the Rights of the Accused?*, 44 SYRACUSE L. REV. 1079 (1993)). But courts are inherently limited in effectiveness by a judge’s familiarity with the technology at issue. *Id.* at 886.

This is probably best accomplished by legislation,<sup>183</sup> but the courts can play a role in the process.<sup>184</sup>

The Federal Rules of Criminal Procedure should also be modified so that the normal inadvertent discovery standards would only apply when the drone is conducting a specific mission or action.<sup>185</sup> In other words, the legislature should alter the legal evidentiary standards so that a court could not admit evidence gathered from a drone while it patrols the skies without a warrant. As described by Roberts, reasonable exceptions could be made for circumstances involving immediate public safety.<sup>186</sup>

## 2. Federal Legislation: Specific Solutions

The recently proposed Drone Aircraft Privacy and Transparency Act of 2013<sup>187</sup> (DAPTA) would, if enacted, fill many critical privacy holes. The bill would amend the FAA Modernization and Reform Act of 2012 to provide guidance and limitations absent from that legislation regarding the integration of drones into the national airspace system.<sup>188</sup> Acknowledging the “potential for unmanned aircraft system technology to enable

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183. *See id.* at 871 (“Judicial rulemaking is limited by strong stare decisis norms that limit the ability of judicial rules to change quickly; in contrast, legislatures enjoy wide-ranging discretion to enact new rules. The difference favors legislatures when technology is in flux.”).

184. *See id.* at 882 (discussing the two primary advantages of courts: they are institutions that can “regulate interstitially, making cautious judgments on a case-by-case basis” and they can be better trusted to serve the public interest).

185. The inadvertent discovery problem is illustrated by the following example: “if police are permitted to conduct drone surveillance for a search and rescue mission and inadvertently observe a violation of criminal law or regulation, the evidence would not be admissible in a criminal prosecution.” THOMPSON, *supra* note 80, at 19–20. Roberts’s third suggestion would solve the problem. *See Roberts, supra* note 41, at 517 (“Require any [drones] to power down sensory enhancing technology when transiting to the target of the warrant or other mission.”). Thus the problem of requiring police to turn a blind eye to crime intrusively observed in the process of transit evaporates.

186. *See id.* (detailing the author’s recommendations to cover privacy gaps).

187. H.R. 1262, 113th Cong. (2013).

188. *See id.* (“To amend the FAA Modernization and Reform Act of 2012 to provide guidance and limitations regarding the integration of unmanned aircraft systems into United States airspace, and for other purposes.”).



invasive and pervasive surveillance without adequate privacy protections,” the bill presents a detailed series of findings and requirements that would severely restrict the ability of law enforcement to use drones as evidence-gathering machines.<sup>189</sup>

For example, the Secretary of Transportation would first be required to carry out a study, in conjunction with other executive agencies, that will identify “any potential threats to privacy protections posed by the integration of” drones.<sup>190</sup> The bill would constrain the Secretary of Transportation (and thereby, the FAA) from approving drone licenses for organizations, including law enforcement bodies, that do not comply with data collection requirements in the bill.<sup>191</sup> Law enforcement agencies would have

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189. *Id.* § 2(6).

190. *Id.* § 3.

191. *Id.* (“[T]he Secretary of Transportation may not approve, issue, or award any certificate, license, or other grant of authority [unless certain data collection and data minimization statements are made].”). These requirements would force police to operate drones in accordance with well-defined privacy principles. *Id.* Under the bill, police must disclose of the following:

- (1) the individuals or entities that will have the power to use the unmanned aircraft system;
- (2) the specific locations in which the unmanned aircraft system will operate;
- (3) the maximum period for which the unmanned aircraft system will operate in each flight;
- (4) whether the unmanned aircraft system will collect information or data about individuals or groups of individuals, and if so—
  - (A) the circumstances under which such system will be used; and
  - (B) the specific kinds of information or data such system will collect about individuals or groups of individuals and how such information or data, as well as conclusions drawn from such information or data, will be used, disclosed, and otherwise handled, including—
    - (i) how the collection or retention of such information or data that is unrelated to the specified use will be minimized;
    - (ii) whether such information or data might be sold, leased, or otherwise provided to third parties, and if so, under what circumstances it might be so sold or leased;
    - (iii) the period for which such information or data will be retained; and
    - (iv) when and how such information or data, including information or data no longer relevant to the specified use, will be destroyed;
- (5) the possible impact the operation of the unmanned aircraft system may have upon the privacy of individuals;

to supply a data minimization statement before they would be permitted to operate drones for police purposes.<sup>192</sup> The inclusion of these extra requirements for police is potentially significant, beyond the public notice provided by these reporting requirements. The bill explicitly interjects the authority of the Secretary of Transportation into the privacy considerations of drone operation.<sup>193</sup> This potentially subjects law enforcement agencies to an extra layer of review and an extra forum to which people can bring their grievances.

The bill also prohibits generalized surveillance, with exceptions made for exigent circumstances.<sup>194</sup> Even in those exigent circumstances, however, documentation “justifying the exception” shall be submitted to the Secretary of Transportation,

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(6) the specific steps that will be taken to mitigate any possible impact identified under paragraph (5), including steps to protect against unauthorized disclosure of any information or data described in paragraph (4), such as the use of encryption methods and other security features that will be used;

(7) a telephone number or electronic mail address that an individual with complaints about the operation of the unmanned aircraft system may use to report such complaints and to request confirmation that personally identifiable data relating to such individual has been collected;

(8) in the case that personally identifiable data relating to such individual has been collected, a reasonable process for such individual to request to obtain such data in a timely and an intelligible manner;

(9) in the case that a request described in paragraph (8) is denied, a process by which such individual may obtain the reasons for the denial and challenge the denial; and

(10) in the case that personally identifiable data relating to such individual has been collected, a process by which such individual may challenge the accuracy of such data and, if the challenge is successful, have such data erased or amended.

192. *See id.* (detailing the bill’s technical requirements).

193. *See* H.R. 1262, 113th Cong. § 3 (2013) (“[T]he Secretary of Transportation may not approve, issue, or award any certificate, license, or other grant of authority [unless certain data collection and data minimization statements are made].”).

194. *See id.* (“Subsection (a) shall not apply in exigent circumstances.”). “Exigent circumstances” are defined as conditions that arise when “a law enforcement entity reasonably believes there is . . . an imminent danger of death or serious physical injury . . . [or] a high risk of terrorist attack by a specific individual or organization.” *Id.*

and the information acquired during the emergency would be minimized and deleted if unrelated to the exigent circumstances.<sup>195</sup> The bill would disallow the direct or indirect gathering of that evidence without a warrant.<sup>196</sup> This is perhaps the most important aspect of the bill because it imposes resource costs (namely, time and money) on law enforcement agencies that will likely have the effect of reducing the number of drones in the air.<sup>197</sup> Any bill with a realistic hope of controlling the use of such an inexpensive and nimble technology must impose these kinds of procedural impediments, the added benefit of which is to inform the public about how and when the government uses this technology.

Finally, the bill articulates a comprehensive system of enforcement and remedies, including injunctive relief, and, in the case of intentional violations, treble damages.<sup>198</sup> While it is unknown how many of these protections will survive the legislative process, in its present state the bill systematically addresses the most fundamental Fourth Amendment concerns raised by police drone use. This legislation, or another bill like it, would validate the notion that drones are different and deserve special safeguards because of their unique capabilities.<sup>199</sup> In order to stay ahead of the

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195. *Id.*

196. *See id.* (“[N]o evidence derived [from a public use drone operating under the exigent circumstances exception] . . . may be received in evidence in any trial, hearing, or proceeding in or before any court, grand jury, [etc.].”). Furthermore, as a general matter, no law enforcement agency may use a drone “except pursuant to a warrant issued using the procedures described in the Federal Rules of Criminal Procedure.” *Id.*

197. *See supra* note 17 and accompanying discussion (describing resource scarcity as a limitation on privacy abuses).

198. *See id.* § 4 (governing enforcement). Enforcement of the bill would be accomplished through a variety of avenues, including civil actions by states on behalf of their residents, a robust slew of private rights of action, enforcement by the FAA and the Federal Trade Commission, license revocation, and the reservation by Congress to enact new laws governing drone privacy. *See id.* (governing enforcement).

199. For example, drones may pose the same widespread danger as imperceptible GPS tracking devices. *See, e.g.,* United States v. Jones, 132 S. Ct. 945, 956 (2012) (Sotomayor, J., concurring) (discussing how GPS tracking technology presents a problem for Fourth Amendment jurisprudence because it is “cheap in comparison to conventional surveillance techniques” and it “proceeds surreptitiously, [so] it evades the ordinary checks that constrain abusive law enforcement practices: limited police resources and community

technology's problems, substantial safeguards should be in place before drones' widespread use.

Another comprehensive bill introduced at the start of the 113th Congress was the Preserving American Privacy Act<sup>200</sup> (PAPA). The bill contains many of the same provisions as the DAPTA bill.<sup>201</sup> Key differences include PAPA provisions for: (1) written consent by surveilled individuals to incidental warrantless observation;<sup>202</sup> (2) a broader warrantless observation exception for emergency situations that includes conspiratorial activities of organized crime and terrorism;<sup>203</sup> (3) federal, state, and local prosecutorial reporting on the drone operations and warrants sought pursuant thereto;<sup>204</sup> (4) administrative disciplinary procedures for intentional violations by officers and employees of the United States;<sup>205</sup> (5) specific provisions protecting personal or familial activities from unwarranted private drone collection of visual, sound, and physical impression information;<sup>206</sup>

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hostility" (quotations omitted)).

200. H.R. 637, 113th Cong. (2013).

201. For example, both bills prohibit warrantless searches without some kind of court approval or exception applying, and both bills have provisions requiring the release of data minimization and usage statements. *Compare id.* at § 2 (§ 3119b therein) ("[A] governmental entity shall submit to the Attorney General a data collection statement . . ."), *with* H.R. 1262, 113th Cong. § 3 (2013) ("[T]he Secretary of Transportation may not approve, issue, or award any certificate, license, or other grant of authority [unless certain data collection and data minimization statements are made].").

202. *See id.* (excepting information gathered when written consent from the observed party is obtained).

203. *See* H.R. 637, 113th Cong. § 2 (2013) (§ 3119c therein) (excepting "conspiratorial activities characteristic of organized crime").

204. *See id.* (§ 3119e therein) ("In March of each year the Attorney General, an Assistant Attorney General specially designated by the Attorney General, or the principal prosecuting attorney of a State, or the principal prosecuting attorney for any political subdivision of a State, shall report to the Administrative Office of the United States Courts.").

205. *See id.* (§ 3119d therein) (describing administrative discipline procedures for intentional violations of the act).

206. *See id.* (§ 3119f therein) (describing the private use of aircraft systems). The bill would make it unlawful to:

[I]ntentionally operate a private unmanned aircraft system to capture, in a manner that is highly offensive to a reasonable person, any type of visual image, sound recording, or other physical impression of a [sic] individual engaging in a personal or familial

(6) a general prohibition on armed drones.<sup>207</sup>

Less comprehensive bills previously considered would have addressed constitutional privacy issues in a more limited (or vague) fashion; these shorter bills nevertheless indicate a desire by many members of Congress to limit the use of drones for law enforcement. They include the Preserving Freedom from Unwarranted Surveillance Act of 2012,<sup>208</sup> the Preserving American Privacy Act of 2012,<sup>209</sup> and the Farmers Privacy Act of 2012.<sup>210</sup> While almost any addition would beneficially supplement the deficient FAA Reauthorization, the privacy issues are complex and would be best served by a coordinated legislative effort.<sup>211</sup> The most important part of any bill will be the degree of specificity that can be reached with regard to defining the protections it puts in place. Provisions with broader allowances for police drone usage might provide superior protection from abuse than more restrictive but loosely defined provisions. Overall, Congress should use its advantages over courts to take speedy action and make comprehensive and consistent rules.<sup>212</sup>

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activity under circumstances in which the individual had a reasonable expectation of privacy, through the use of a visual or auditory enhancing device, regardless of whether there is a physical trespass, if this image, sound recording, or other physical impression could not have been achieved without a trespass unless the visual or auditory enhancing device was used.

207. See *id.* § 2 (Section 3119h therein) (banning weaponized drones).

208. S. 3287, H.R. 5925, 112th Cong. (2012). The Senate version would have prohibited “a person or entity acting under the authority, or funded in whole or in part by, the Government of the United States” from using a drone to gather evidence pertaining to criminal conduct without a warrant. *Id.* § 3.

209. See H.R. 6199, 112th Cong. (2012) (providing for limitations on the domestic use of drones in investigating regulatory and criminal offenses).

210. H.R. 5961, 112th Cong. (2012). This legislation would have “prohibit[ed] the EPA from conducting aerial surveillance of agricultural lands unless the EPA has consent from the farmer, has provided public notice, or has obtained a certificate of reasonable suspicion from the United States District Court for the District of Columbia.” See Thompson, *supra* note 80, at 19 (discussing H.R. 5961).

211. See THOMPSON, *supra* note 80, at 19–20 (discussing legislative solutions to privacy issues surrounding the use of drones in law enforcement surveillance).

212. See Kerr, *supra* note 8, at 871 (“Judicial rulemaking is limited by strong stare decisis norms that limit the ability of judicial rules to change quickly; in contrast, legislatures enjoy wide-ranging discretion to enact new

Recently, the House Committee on the Judiciary, Subcommittee on Crime, Terrorism, Homeland Security and Investigations held a lengthy series of hearings on the subject of privacy solutions to police drones.<sup>213</sup> Among the panelists were John Villasenor (Brookings Institution), Gregory S. McNeal (Pepperdine University School of Law), Tracey Maclin (Boston University School of Law), and Chris Calabrese (American Civil Liberties Union).<sup>214</sup> Villasenor argues, both in his scholarly writing and testimony, that a judicial solution to the problem will have fewer legal consequences as compared with congressional legislation.<sup>215</sup> This argument is misguided because judicial solutions are prone to inconsistencies.<sup>216</sup> By contrast, panelist Calabrese advocated for legislative action because Congress is in the best position to swiftly effect change.<sup>217</sup>

Congressional questions that seemed to imply that drones are just another tracking technology were met with disagreement by the panelists, who maintained that drones are not the same kind of danger; drones, they stated, may magnify bias and are directly intrusive, targeted surveillance.<sup>218</sup> The principal limitation of Villasenor's court-based drone solution is that it ignores Congress's favorable position to establish a standard that will preclude courts from rendering inconsistent privacy protections. Because the extent to which current Supreme Court aerial observation precedent can apply to police drone surveillance, waiting for a Supreme Court revision will take years (after many violations have occurred). New congressional

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rules. The difference favors legislatures when technology is in flux.”).

213. See UAS Hearing, *supra* note 125 (discussing the hearing).

214. *Id.*

215. See *id.* (statements of John Villasenor, Brookings Institution) (regarding his argument that the Fourth Amendment is capable of adequately protecting Americans' privacy).

216. See discussion *supra* note 128 (discussing how judicial rulings can be prone to inconsistency).

217. See UAS Hearing, *supra* note 125 (describing his position on the best rulemaking vehicle to protect privacy).

218. See *id.* (statements of John Villasenor, Brookings Institution; Gregory S. McNeal, Pepperdine University School of Law; Tracey Maclin, Boston University School of Law; and Chris Calabrese, American Civil Liberties Union) (describing, in different ways, how drones are a unique privacy threat).

legislation that protects privacy could be passed in a matter of months.

Without addressing drones directly, some aspects of existing federal statutes may be applicable to drones in a way that would limit their potential for abuse by law enforcement.<sup>219</sup> For example, some courts have linked video surveillance techniques with hyper-intrusive search methods such as wiretapping and bugging, thereby recruiting an existing statutory regime to provide protection from a new source of abuse.<sup>220</sup> Similarly, elements of federal wiretap statutes could be made to apply to certain drone surveillance.<sup>221</sup>

Despite the attractiveness of a legislative answer to a congressionally exacerbated problem, there may be limits on how much protection Congress can actually mandate. Many law enforcement activities involve strictly state actors enforcing their laws, actions that may not be fully covered by federal privacy legislation.<sup>222</sup> State officials cannot usually be compelled to enforce a federal program.<sup>223</sup> Additionally, while Congress can

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219. See THOMPSON, *supra* note 80, at 19 (“Additionally, Congress could create a similar cause of action for privacy violations caused by drone surveillance as contained in 18 U.S.C. § 2712, which creates a civil remedy for violations of the Wiretap Act, the Stored Communications Act, and certain provisions of the Foreign Intelligence Surveillance Act of 1978.”).

220. See *United States v. Torres*, 751 F.2d 875, 885 (7th Cir. 1984) (“Television surveillance is identical in its indiscriminate character to wiretapping and bugging.”). Since the *Torres* decision, “six other courts have accepted this interpretation of the Fourth Amendment, with the effect [being that] the Title III [requirements] have become constitutionalized [at least for video surveillance].” Roberts, *supra* note 41, at 511.

221. See, e.g., 18 U.S.C. § 2511(1)(a), (1)(b)(ii) (2008) (prohibiting the intentional interception of oral communications through the use of a mechanical device when the device transmits communications by radio).

222. For example, the Preserving Freedom from Unwarranted Surveillance Act of 2012 limits its application to “a person or entity acting under the authority, or funded in whole or in part by, the Government of the United States.” S. 3287, 112th Cong. § 3 (2012).

223. See *Printz v. United States*, 521 U.S. 898, 935 (1997) (striking down a federal law compelling state officials to execute elements of federal gun legislation). The *Printz* Court went on to declare that “[t]he Federal Government may neither issue directives requiring the States to address particular problems, nor command the States' officers . . . to administer or enforce a federal regulatory program. It matters not whether policymaking is involved . . . such commands are fundamentally incompatible with our [constitution].” *Id.*

legislate changes to the federal rules of evidence and procedure, state legislatures must, in many cases, act to incorporate them into state law.

### 3. State Solutions

Because Congress may not be able to legislate privacy protections covering all state nor local drone activities, action by the states may in some cases be necessary to solidify privacy protection. Virginia and Florida state legislatures have already begun to consider and enact legislation that would severely restrict the use of drones within their borders.<sup>224</sup> These state laws would have little effect on the federal government's use of drones.<sup>225</sup> Even so, preventing state and local police agencies from using drones in all but the most exceptional scenarios would constitute a major restriction on potential sources of privacy violations, and may ease fears of a ubiquitous police presence overhead.<sup>226</sup>

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Congress may, however, be able to partially circumvent this prohibition through controlling FAA's licensing procedures (and denying drone licensing to organizations that do not abide by its wishes).

224. See Hunter Stuart, *Drone List Released by FAA Shows Which Police Departments Want to Fly Unmanned Aerial Vehicles*, THE HUFFINGTON POST (Feb. 8, 2013), [http://www.huffingtonpost.com/2013/02/08/drone-list-domestic-police-law-enforcement-surveillance\\_n\\_2647530.html](http://www.huffingtonpost.com/2013/02/08/drone-list-domestic-police-law-enforcement-surveillance_n_2647530.html) (last visited Feb. 24, 2013) ("A bill in Florida aims to ban police use of drones . . . with a few exceptions for cases of terrorism, imminent danger or for search warrants . . . [and] a bill that [would] . . . ban state and local agencies from using drones [recently] passed the Virginia General Assembly.") (on file with the Washington and Lee Law Review).

225. As discussed in Part V.A.1, "bills like Virginia's are little more than symbolic gestures, since ultimately it's FAA that controls the airspace over the United States." *Id.*

226. See Sengupta, *supra* note 175 ("To me, it's Big Brother in the sky" (quoting Dave Norris, a city councilman in Charlottesville, Virginia) (quotations omitted)).



#### 4. *Municipal Solutions*

Similar to state action, municipal action can have local benefits to privacy protection. Charlottesville, Virginia, recently became the first city to restrict the use of drones by its police department in criminal cases.<sup>227</sup> Seattle's mayor also recently ended the efforts of that city's police department to use drones after privacy advocates protested.<sup>228</sup> The Berkeley, California, city council considered declaring its airspace off-limits to drone operations.<sup>229</sup>

Until a more permanent legislative solution emerges, municipal actions will create a patchwork of protection from local law enforcement use of drones for surveillance. But the courts (specifically, the Supreme Court) have the ability to influence law enforcement action to a much broader degree.

#### *B. Judicial Remedies: Return to Katz or Enumerate a Drone-Specific Test*

The Supreme Court may be the body best suited to fill constitutional gaps because it can articulate existing precedent to simultaneously protect legitimate uses of police drones and the Fourth Amendment's protective integrity.<sup>230</sup> After all, the *Katz* decision does not leave individuals inherently vulnerable to unwarranted drone searches; the *Riley* court's application of *Katz*

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227. See *id.* ("Charlottesville, Va . . . became the first city in the country to restrict the use of drones.")

228. See Manuel Valdes, *Seattle Mayor Ends Police Drone Efforts*, ASSOCIATED PRESS (Feb. 7, 2013) (republished online at <http://www.usnews.com/news/us/articles/2013/02/07/seattle-mayor-ends-police-drone-efforts>) (describing the decision by mayor Mike McGinn to end the city's aspirations for police drones).

229. See Doug Oakley, *Berkeley Shoots Down Plan to Ban Surveillance Drones*, OAKLAND TRIB., Dec. 19, 2012, [http://www.mercurynews.com/top-stories/ci\\_22223952/berkeley-shoots-down-plan-ban-surveillance-drones](http://www.mercurynews.com/top-stories/ci_22223952/berkeley-shoots-down-plan-ban-surveillance-drones) (last visited Aug. 31, 2013) (describing the council's vote to ultimately not pass a ban due to drones' potential usefulness to fight crime and assist in disaster operations) (on file with the Washington and Lee Law Review).

230. See generally *supra* Part IV.A–E.

does.<sup>231</sup> Recall that the legal standards articulated in *Ciraolo*, *Dow Chemical*, and *Riley* were not designed with drones in mind, and they leave holes in their privacy protections.<sup>232</sup> Moreover, their holdings are applied unevenly, even without the added complication of novel drone technology.<sup>233</sup> These irregularities will become an issue in the case of drones because of their potential widespread use by law enforcement.

In essence, the *Riley* and *Kyllo* pluralities, when taken together, might theoretically allow a continuous retreat of the line that delineates which private places police cannot invade.<sup>234</sup> As drones become more prevalent, the Supreme Court may be unable—or at least unwilling—to continue the *Riley* practice of giving legal weight to the physical position of an observing aircraft. The more that technology advances to become smaller, cheaper, and more discreet, the less protection citizens will find in a Fourth Amendment interpretation that rests the bulk of its evaluation on the methods used by police.<sup>235</sup> Additionally, it is unclear what percentage of the population need use a technology in order for it to qualify under *Kyllo* as sufficiently common.<sup>236</sup> Evaluating reasonableness based (in part) on changing societal

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231. See generally *supra* Part IV.A–E.

232. See generally *supra* Part IV.A–E.

233. See generally *supra* note 128 and accompanying text.

234. This is a consequence of *how* these courts link reasonability to the methods of observation and public use of the technology. See *Kyllo v. United States*, 533 U.S. 27, 34 (2001) (describing the test to determine when a search has occurred in cases of advanced technology); *Florida v. Riley*, 488 U.S. 445, 449–51 (1989) (describing the position of the police aircraft as an important factor under consideration). But see *Roberts*, *supra* note 41, at 516 (“[T]he manned flight aerial observation cases, culminating in Justice O’Connor’s *Riley* concurrence, suggest that courts will protect the privacy of curtilage and residences from unmanned aerial observation.”).

235. See *Simmons*, *supra* note 93, at 1322 (“The inconsistencies created by considering the method of search only multiply as technologies become more sophisticated and courts struggle to find the correct analogy for any given surveillance method employed.”).

236. See *Kyllo*, 533 U.S. at 47 (Stevens, J., dissenting) (“Despite the Court’s attempt to draw a line . . . the contours of its new rule are uncertain because its protection apparently dissipates . . . [when] technology is in general public use . . . . Yet how much use is general public use is not [defined].” (quotations and citations omitted)).

usage of a technology may be confusing for both the general population and police.

But these vulnerabilities only exist as long as the thin *Riley* Court (or a like-minded) plurality continues to prevail.<sup>237</sup> A return to an interpretation of *Katz* that ignores the method of police search would have many clarifying benefits.<sup>238</sup> As a state court interpreting *Riley* reminds us, “[t]echnology has produced many and varied means of observation and surveillance. But the fact that something can be done does not make the doing of it constitutional.”<sup>239</sup> *Katz* better protects basic and reasonable expectations of privacy largely determined by the actions of the individual seeking constitutional shelter.<sup>240</sup> Though *Katz* may, at times, engage in a somewhat circular logic,<sup>241</sup> the advantage of *Katz* is that it permits the judiciary to directly protect the homeowner’s “right to be let alone,” irrespective of the police technology employed to invade it.<sup>242</sup> To avoid problems of circular logic, the Court must clearly articulate to lower courts how they

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237. Because the *Riley* Court emphasized the legality and commonality of the technology employed by police in their observation, one could conclude that once drones become legal and common, they could be used in the same way as helicopters in *Riley* to conduct warrantless searches of homes from the air. See *supra* notes 115–16 and accompanying text (discussing the application of *Riley* to drone technology). A different, less vulnerable interpretation of *Katz* is possible. See Simmons, *supra* note 93, at 1323–24 (concluding that, under *Katz*, “the only relevant consideration is the result of the surveillance: what information does the government acquire as a result of making the observations?”).

238. See *id.* at 1312–13 (discussing the differing conclusions of lower courts regarding the relevance of the search method when applying *Katz*).

239. State v. Bryant, 950 A.2d 467, 479 (Vt. 2008).

240. See generally *supra* Part IV.A.

241. See *Kyllo v. United States*, 533 U.S. 27, 34 (2001) (“The *Katz* test—whether the individual has an expectation of privacy that society is prepared to recognize as reasonable—has often been criticized as circular, and hence subjective and unpredictable.” (citing in support 1 W. LAFAVE, SEARCH AND SEIZURE § 2.1(d), pp. 393–94 (3d ed. 1996))); *Minnesota v. Carter*, 525 U.S. 83, 97 (1998) (Scalia, J., concurring) (criticizing the *Katz* decision’s elusive standard); (criticizing the *Katz* decision’s elusive standard); Richard A. Posner, *The Uncertain Protection of Privacy by the Supreme Court*, 1979 S.Ct. REV. 173, 188 (same).

242. See Kerr, *supra* note 8, at 813 (discussing acceptable warrantless methods of surveillance that nevertheless violate traditional notions of privacy).

must determine whether the event, location, or information under observation deserves protection.<sup>243</sup>

A return to Justice Harlan's formulation of the *Katz* rule is the most substantial change the Court could make because it would apply irrespective of subsequent technological advancements in drones or any other surveillance platform.<sup>244</sup> While courts are slow to catch up to changing technology,<sup>245</sup> a return to *Katz*'s method-irrelevant reasonability determinations would be an effective placeholder protecting society until they do.

Many, however, have criticized *Katz* as an unworkable test, and a return to the *Katz* formulation may not solve all problems of judicial consistency.<sup>246</sup> In the alternative to reemphasizing *Katz*'s simple formulation, other methods might yet stall the potential onrush of warrantless drone evidence in courts.

As it stands now, a judge or magistrate would likely grant or deny a warrant after a case-by-case evaluation of the facts in order to determine whether a requested search is reasonable.<sup>247</sup> Where no warrant is obtained but drones are used, courts should use a more well-defined sliding scale approach to evaluate whether a search occurred.

A useful judicial test in Fourth Amendment situations must "create a workable and sensible balance between law enforcement needs and privacy interests" and be relatively clear.<sup>248</sup> If an explicit return to Justice Harlan's formulation of *Katz* is too

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243. See Simmons, *supra* note 93, at 1323–24 (concluding that, under *Katz*, "the only relevant consideration is the result of the surveillance: what information does the government acquire as a result of making the observations?").

244. See *supra* note 103 and accompanying text (discussing the implications of the *Katz* ruling).

245. See Kerr, *supra* note 8, at 862 (implying that judicially created rules are best when technologies are stable).

246. See *surpa* note 241 and accompanying text (detailing criticisms of the *Katz* ruling).

247. A court would draw on its experience in weighing public policy against state need in other Fourth Amendment cases. See Kerr, *supra* note 8, at 861 ("The law should allow the government to investigate crime effectively . . . [yet also] limit the power of government, in order to protect privacy and civil liberties.").

248. *Id.*

vague or unworkable for the Court, it must act quickly to establish specific factors as a judicial test to achieve lower court clarity. In order to determine if a police observation made by a drone constitutes a search, courts should ask most of the following questions when evaluating a motion to suppress:

1. Was the observation made by the drone accidental or intentional;<sup>249</sup>
2. Were the police previously denied a warrant for the surveillance operation, but decided to proceed anyway;<sup>250</sup>
3. Were sensory-enhancing technologies used to obtain the observations;<sup>251</sup>
4. Did the aircraft operate at an unsafe altitude while making the observations;<sup>252</sup>
5. Was there a physical breach of a property's curtilage;<sup>253</sup>
6. Was the duration of observation unreasonably long;<sup>254</sup> and

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249. If intentional, this fact would weigh in favor of search.

250. A previous application and denial should weigh heavily against admissibility of evidence from that source because a judge has, in essence, ruled that there is insufficient justification for such an intrusion.

251. The more technologies are used, and to the degree to which those technologies are not in general public use, the better a court can determine if the observations were an invasive search. Courts would likely be confronted with facial recognition technology, night vision, telephoto zoom lenses, heat sensing technology, wall-penetrating radar, and other electromagnetic measuring devices. *See Roberts, supra* note 41, at 498–99 (describing the onboard sensory capabilities of drones, including “highly classified technology that allows observers to *see through walls*”).

252. Illegal or dangerous operation of drones ought to be discouraged, so an answer of “yes” to this factor would weigh in favor of search. Note that this would by no means be the only factor evaluated, as some courts have done. *See, e.g., State v. Ainsworth*, 801 P.2d 749, 750–52 (Or. 1990) (relying on the legality of an aircraft's position in the sky to determine whether a search has occurred).

253. If so, this fact would weigh in favor of the observation as a search. This factor incorporates many of the valuable protections of privacy law that have historically been a part of Fourth Amendment jurisprudence. *See United States v. Jones*, 132 S.Ct. 945, 949 (2012) (“The text of the Fourth Amendment reflects its close connection to property.”).

254. Under this prong, the longer the observation time, the more likely the

7. Did the subject of the surveillance take protective actions that indicated both a desire and a reasonable expectation that his conduct was private?<sup>255</sup>

As factors accumulate in favor of the observation's status as a search or non-search, the burden establishing the opposite result becomes more onerous. Each of the above elements will allow the courts to determine the extent of intrusion, and the needs of the state. The Court should attempt to firmly establish a score-like tabulation of factors that would permit evidence, trigger exclusion, or permit discretion.

This approach would also allow the courts to respect existing precedent, and is modeled after Justice Sotomayor's comments in *Jones*.<sup>256</sup> More serious need for using drone evidence would be allowed to trump a trivial curtilage violation, thus avoiding some of the ethical quandaries posited by Professor Villasenor above.<sup>257</sup>

This approach would still remain vulnerable to some circuit irregularities along with many of the flaws inherent in the current system. Ultimately, a workable judicial test is "more readily attainable . . . when technologies are stable," unlike in the rapidly changing environment of drone aircraft.<sup>258</sup> But at a minimum, this approach could slow the potential abuse of police drones as a practical matter until more comprehensive solutions emerge.

Lastly, the Court could also rule that drones are per se sense-enhancing technologies, regardless of the equipment contained on board, because of drones' ability to put police in previously impossible positions of observation. This would have the effect of triggering *Kyllo's* protections. But for reasons discussed above, that interpretation is not likely.<sup>259</sup>

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event will be held a search.

255. See *supra* note 113 and accompanying text.

256. See *Jones*, 132 S.Ct. at 955–56 (Sotomayor, J., concurring) (“[P]hysical intrusion is now unnecessary to many forms of surveillance.”).

257. See *supra* note 178 and accompanying text (posing a hypothetical intended to expose the problems associated with over-regulating drone use).

258. Kerr, *supra* note 8, at 862.

259. See generally discussion *supra* Part IV.E.

*VI. Conclusions: The Road Ahead*

Drones do not have to be feared. But the expanded law enforcement use of drones creates a complicated Fourth Amendment problem for many courts. People will likely continue to expect a high level of privacy in their homes, because the idea of home is closely intertwined with privacy.<sup>260</sup> The persistent question has become this: will that expectation remain attainable as technology—much of it with fantastic potential to save lives and resources—advances inexorably?

It is important to keep in mind that each time police have attained the technical ability to circumvent this privacy expectation, the law has not unraveled to permit unrestricted police observation of intimate domestic activity.<sup>261</sup> Instead, the legislature and courts have worked together to accommodate the advances, thus preserving some level of privacy in the home. The same cooperation must be accomplished here.

Before courts ever become involved, some solutions will likely originate from a number of federal, state, or local legislative bodies. These legislative measures will become an important fix for Fourth Amendment holes while aerial observation jurisprudence catches up with changing circumstances. Most importantly, Congress should pass a detailed, comprehensive, and enforceable law—the PAPA or DAPTA bills would be a significant start—that would reduce public anxiety about drones, inform the public about how and when the government uses this technology, and concretely protect Fourth Amendment liberties. Any bill with a realistic hope of controlling the use of such an inexpensive and nimble technology must impose procedural impediments that act to limit the appeal of widespread employment. The thought of police drones carries with it a

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260. See *Kyllo v. United States*, 533 U.S. 27, 31 (2001) (“At the very core of the Fourth Amendment stands the right of a man to retreat into his own home and there be free from unreasonable governmental intrusion.” (quotations and citation omitted)).

261. Indeed, some degree of privacy has survived the innovations of wire-tapping, aerial observation, satellite observation, and sense-enhancing technology. “Technology has produced many and varied means of observation and surveillance. But the fact that something can be done does not make the doing of it constitutional.” *State v. Bryant*, 950 A.2d 467, 479 (Vt. 2008).

visceral Orwellian implication of “Big Brother” intruding where it ought not.<sup>262</sup> That fear must not be ignored, lest it be realized. The elimination of drones hovering for extended periods of time without a targeted purpose may substantially abate public fears of a constant surveillance. People may be more inclined to support drones if they are cast in the role of a lifesaving vehicle.<sup>263</sup>

The Supreme Court should also take the earliest opportunity to clarify its precedent on aerial observation issues. The most protective action it could take would be to return the law explicitly to the *full* protective potential of *Katz*. Barring that, the Court should develop a clearly articulable standard for analysis when drones are used by police without a warrant to gather evidence. Judicial clarity and consistency would help ease public fears about how police drones will be used in the future. Without these reassurances, the imaginations (and fears) of private citizens will likely run wild.

The aerial observation cases remain important for their window into what kind of treatment the police’s use of drones would presently enjoy. But *Riley*, *Dow Chemical*, and *Ciraolo* are quite possibly less important strictly as legal precedent because each of the cases is highly fact-specific.<sup>264</sup> The cases are more useful for understanding how the Supreme Court might act someday if confronted with a drone case. The Court will likely ask: (1) what is under observation; (2) who is observing; and (3) how is the observation made.<sup>265</sup> A swing towards privacy is possible, but the Court must change its course by returning to the roots of reasonable expectations.

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262. See McBride, *supra* note 25, at 627–28 (discussing aspects of George Orwell’s depiction of totalitarianism).

263. See GAO DRONE REPORT, *supra* note 18, at 5 (describing the important uses of drones by law enforcement). Indeed, as many as 80% of respondents to one survey support the use of drones for search and rescue purposes. See *id.* at 33 (“[Eighty] percent said they supported the use of UAS for search and rescue missions.” (citing Monmouth University Poll, *U.S. Supports Some Domestic Drone Use, But Public Registers Concern About Own Privacy* (June 12, 2012))). But that same poll indicated that two-thirds of respondents would oppose using drones to issue speeding tickets. *Id.*

264. See generally *supra* Part IV.

265. See generally *supra* Part IV.



Unique threats to privacy may sometimes warrant special protection. The Fourth Amendment makes much of that protection possible, and successfully coordinated efforts from multiple branches of government may even make it likely. But privacy will never be inevitable.