

## COMMENTS

### THE DRONES ARE COMING: USE OF UNMANNED AERIAL VEHICLES FOR POLICE SURVEILLANCE AND ITS FOURTH AMENDMENT IMPLICATIONS

PHILIP J. HILTNER†

*Imagine a helicopter capable of hovering just above an enclosed courtyard or patio without generating any noise, wind, or dust at all—and, for good measure, without posing any threat of injury. Suppose the police employed this miraculous tool to discover not only what crops people were growing in their greenhouses, but also what books they were reading and who their dinner guests were. Suppose, finally, that the FAA regulations remained unchanged, so that the police were undeniably ‘where they had a right to be.’ Would . . . the right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures’ . . . not [be] infringed by such surveillance?<sup>1</sup>*

These prophetic words were written almost twenty-five years ago in Justice Brennan’s dissent in *Florida v. Riley*.<sup>2</sup> Probably sooner than Justice Brennan realized, the day where such a “miraculous tool” could exist has come. Unfortunately, the answer to his question would likely still be “yes.” The use of drones by the United States military in the War on Terror has been well-documented,<sup>3</sup> and the American electorate widely approves of

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† Phil Hiltner graduated from Wake Forest School of Law in 2013 and plans to practice law in Michigan. He would like to make a special thanks to his parents.

1. *Florida v. Riley*, 488 U.S. 445, 462–63 (1989) (Brennan, J., concurring).

2. *Id.* at 456 (Brennan, J., concurring).

3. S. Smithson, *Drones Over U.S. Get OK by Congress*, WASH. TIMES, Feb. 7, 2012, <http://www.washingtontimes.com/news/2012/feb/7/coming-to-a-sky-near-you>.

drone usage in such contexts.<sup>4</sup> However, over the past several years, police departments have experimented with the use of unmanned aerial systems (“UASs”) to conduct police surveillance.<sup>5</sup>

The Federal Aviation Administration (“FAA”) projects that as many as 30,000 drones could be patrolling the United States’ airspace by the year 2020.<sup>6</sup> In 2011, the FAA issued 313 certificates authorizing government agencies to use UASs, 295 of which were still active at the end of the year.<sup>7</sup>

Furthermore, Congress recently passed legislation requiring the FAA to create a system that will expedite the process of issuing Certificates of Waiver and Authorization (“COAs”) for both civil and public unmanned aircraft systems.<sup>8</sup> This was in large part a response to pressure placed on the legislature by the burgeoning UAS industry,<sup>9</sup> as the value of the potential UAS market has been estimated in the hundreds of millions of dollars.<sup>10</sup> The combination of the forthcoming streamlined procedures for UAS licensure and the opportunity for big profits

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4. *Voters Are Gung-Ho for Use of Drones But Not Over the United States*, RASMUSSEN REPORTS, Feb. 13, 2012, [http://www.rasmussenreports.com/public\\_content/politics/current\\_events/afghanistan/voters\\_are\\_gung\\_ho\\_for\\_use\\_of\\_drones\\_but\\_not\\_over\\_the\\_united\\_states](http://www.rasmussenreports.com/public_content/politics/current_events/afghanistan/voters_are_gung_ho_for_use_of_drones_but_not_over_the_united_states) (reporting that seventy-six percent of likely U.S. voters approve the use of unmanned aircraft to kill terrorists, while only nine percent oppose it).

5. See Jason Koebler, *Police to Use Drones for Spying on Citizens*, U.S. NEWS & WORLD REPORT, Aug. 23, 2012, <http://www.usnews.com/news/articles/2012/08/23/docs-law-enforcement-agencies-plan-to-use-domestic-drones-for-surveillance>; Matthew L. Wald, *Current Laws May Offer Little Shield Against Drones, Senators Are Told*, N.Y. TIMES, Mar. 20, 2013, <http://www.nytimes.com/2013/03/21/us/politics/senate-panel-weighs-privacy-concerns-over-use-of-drones.html>.

6. Smithson, *supra* note 3.

7. *Id.*

8. FAA Modernization and Reform Act of 2012, 49 U.S.C. § 40102(a)(41) (2012) defines “public aircraft” as an aircraft (i) “used only for the United States Government;” (ii) “owned by the United States Government and operated by any person for purposes related to crew training, equipment development, or demonstration;” or (iii) “owned and operated (except for commercial purposes), or exclusively leased for at least 90 continuous days, by a government (except the United States government), including a State, the District of Columbia, or a territory or possession of the United States, or political subdivision of that government . . . .” Civil aircraft includes all aircraft except public aircraft. 49 U.S.C. § 40102(a)(16) (2012).

9. Joan Lowy, *Pressure Builds for Civilian Drone Flights at Home*, YAHOO! NEWS, Feb. 26, 2012, <http://news.yahoo.com/pressure-builds-civilian-drone-flights-home-150120049.html>.

10. Smithson, *supra* note 3 (“Representatives of the fast-growing unmanned aircraft systems industry say they worked hard to get the provisions into law.”).

almost guarantee that the use of UASs by domestic police forces is here to stay.

Increased police use of UASs is not, in itself, a bad thing. These machines offer the opportunity for police officers to more safely conduct surveillance<sup>11</sup> and apprehend criminals.<sup>12</sup> Drones can also be used for noncriminal functions, such as searching for missing persons and responding to automobile accidents or chemical spills.<sup>13</sup> They are also less expensive to purchase and operate than traditional helicopters. The Montgomery County Police Department outside of Houston, Texas estimates that its UAS costs \$30 per hour to operate as compared to the \$500 per hour minimum for operating a helicopter.<sup>14</sup> Improved public safety at a lower cost is better for everyone.

But this advancement in police capabilities, like most new technologies, is a double edged sword. Privacy and civil liberties groups are concerned that many of the possible uses (or abuses) of police drones could lead to a society that is shockingly Orwellian.<sup>15</sup> This concern seems warranted when considering all of the technological devices that may be attached to UASs. High-powered zoom lenses,<sup>16</sup> facial recognition,<sup>17</sup> infrared,<sup>18</sup> and night

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11. The first known arrest aided by unmanned aerial surveillance was used in the North Dakota prairie. Fearful of an armed standoff with an extremist antigovernment group, a police officer called in the use of a Predator drone. The drone, while circling the area two miles above ground, was able to locate the suspects and confirm when they were unarmed. The suspects were arrested and a violent confrontation was avoided. Brian Bennett, *Police Employ Predator Drone Spy Planes on Home Front*, L.A. TIMES, Dec. 10, 2011, <http://articles.latimes.com/2011/dec/10/nation/la-na-drone-arrest-20111211>.

12. Brian Naylor, *Look, Up in the Sky! It's a Drone, Looking at You*, NAT'L PUB. RADIO, Dec. 5, 2011, <http://www.npr.org/2011/12/05/143144146/drone-technology-finding-its-way-to-american-skies> (telling of a case where the police were able to apprehend a subject that was hiding in a creek bed in just over an hour with the use of a UAS, while a search on foot would have taken much longer).

13. See Smithson, *supra* note 3.

14. Ana Campoy, *The Law's New Eye in the Sky: Police Departments' Use of Drones is Raising Concern Over Privacy and Safety*, WALL ST. J., Dec. 12, 2011, <http://online.wsj.com/article/SB10001424052970204319004577088891361782010.html>.

15. See GEORGE ORWELL, 1984 2 (Centennial Ed., Signet Classics 1977) (1949) ("In the far distance a helicopter skimmed down between the roofs, hovered for an instant like a bluebottle, and darted away again with a curving flight. It was the Police Patrol, snooping into people's windows.")

16. JAY STANLEY & CATHERINE CRUMP, AM. CIVIL LIBERTIES UNION, PROTECTING PRIVACY FROM AERIAL SURVEILLANCE: RECOMMENDATIONS FOR GOVERNMENT USE OF DRONE AIRCRAFT (Dec. 2011), available at <https://www.aclu.org/files/assets/protectingprivacyfromaerialsurveillance.pdf> [hereinafter ACLU RECOMMENDATIONS].

17. Naylor, *supra* note 12.

vision cameras;<sup>19</sup> Wi-Fi sniffers;<sup>20</sup> see-through imaging;<sup>21</sup> and automatic license plate readers<sup>22</sup> are all possibilities, if not already in use. While domestic drones are not armed, law enforcement has expressed interest in incorporating nonlethal munitions in surveillance drones.<sup>23</sup>

The opportunity for technologically enhanced aerial surveillance implicates several Fourth Amendment issues. This Comment explores some of those issues to see if current Fourth Amendment jurisprudence might offer some protection from the most intrusive potential uses of unmanned aerial surveillance by domestic police forces. Part I provides some background on the current capabilities of UASs. Part II explains current FAA regulations of UASs and their direction under the FAA Modernization and Reform Act of 2012. Part III discusses how Fourth Amendment jurisprudence regarding surveillance of the home might affect police drone usage, and looks at police drone usage for general, public surveillance. Finally, Part IV offers some suggestions of steps that could be taken to allow police forces to capitalize on the many advantages unmanned vehicles provide without diminishing the public's privacy expectations.

## I. UNMANNED AERIAL SYSTEM CAPABILITIES

The FAA estimates that “[i]n the United States alone, approximately 50 companies, universities, and government organizations are developing and producing over 155 unmanned aircraft designs.”<sup>24</sup> As one could imagine, unmanned aerial systems come in a variety of shapes and sizes. The largest are fixed-wing aircraft the size of a Boeing jetliner.<sup>25</sup> One such system currently in use can stay aloft for twenty hours at a time and fly at an altitude of forty thousand feet.<sup>26</sup> On the opposite end of the

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18. *Id.*

19. ACLU RECOMMENDATIONS, *supra* note 16.

20. Naylor, *supra* note 12.

21. ACLU RECOMMENDATIONS, *supra* note 16.

22. Petition to the Fed. Aviation Admin. (Feb. 24, 2012), *available at* <http://www.epic.org/privacy/drones/FAA-553e-Petition-v-1.1.pdf>.

23. Lowy, *supra* note 9.

24. Fact Sheet, Fed. Aviation Admin., Unmanned Aircraft Systems (UAS) (July 2011), [http://www.faa.gov/about/initiatives/uas/media/uas\\_fact\\_sheet.pdf](http://www.faa.gov/about/initiatives/uas/media/uas_fact_sheet.pdf).

25. ACLU RECOMMENDATIONS, *supra* note 16.

26. *Id.*

spectrum are hummingbirds, which are designed for stealth and maneuverability, with a wingspan of a half-foot and weighing less than a single AA battery.<sup>27</sup> The systems most commonly used by police forces fall somewhere in between. The systems that fall under the purview of the FAA Modernization and Reform Act are any “unmanned aircraft weighing less than 55 pounds.”<sup>28</sup>

UAS manufacturer Insitu advertises its ScanEagle as ideal for “surveillance and reconnaissance,” “coastal and border protection,” and “law enforcement.”<sup>29</sup> It sports a ten-foot wingspan, weighs about thirty pounds, and can fly up to forty-one meters per second—over ninety miles per hour—at almost twenty thousand feet.<sup>30</sup> The standard package comes with a high-resolution electro-optic or infrared camera mounted on a turret, and can be upgraded with a quieter engine, improved night vision, and longer flight times.<sup>31</sup> AeroVironment offers a smaller “backpack” model<sup>32</sup> which “fits easily in the trunk of a car, and can be assembled and ready for flight in less than five minutes.”<sup>33</sup> It gets its lift from four propellers and is operated by a small, rectangular touch screen.<sup>34</sup> The Qube is three feet in length, is meant to fly at altitudes of one hundred to two hundred feet, and weighs five-and-one-half pounds.<sup>35</sup> Its value comes not only from its portability and mobility, but also from its ability to quietly “hover-and-stare.”<sup>36</sup> The prices of these systems also vary greatly. The Vanguard Defense Industries’ Shadowhawk cost the

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27. *Id.*

28. FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95 § 331(6), 126 Stat. 11, 72.

29. *Insitu Overview, Aero India Air Show 2013*, BOEING, [http://www.boeing.com/AeroIndia2013/pdf/Insitu\\_Pacific.pdf](http://www.boeing.com/AeroIndia2013/pdf/Insitu_Pacific.pdf) (last visited Apr. 2, 2013).

30. *ScanEagle System*, INSITU, <http://www.insitu.com/systems/scaneagle> (last visited Apr. 2, 2013).

31. *Id.*

32. See ACLU RECOMMENDATIONS, *supra* note 16, for the definition of a “backpack craft.”

33. *Qube: Public Safety Small UAS*, AEROVIRONMENT, [http://www.avinc.com/uas/small\\_uas/qube](http://www.avinc.com/uas/small_uas/qube) (last visited Apr. 2, 2013).

34. See *Qube Data Sheet, Unmanned Aircraft Systems*, AEROVIRONMENT, <http://www.avinc.com/downloads/Qubedatashcct.pdf> (last visited Apr. 2, 2013). To view the propellers and the touchscreen in action, see also AeroVironment, *Qube Public Safety UAS*, YOUTUBE (Nov. 3, 2011), <http://www.youtube.com/watch?v=ZzHx7AxHmOA>.

35. *Qube Data Sheet*, *supra* note 34.

36. *Id.*

Montgomery County Sheriff's Office \$300,000,<sup>37</sup> while the Marcus UAV Zephyr is advertised at a mere \$9,500.<sup>38</sup>

With all of these capabilities and the potential for cost savings, it is no wonder that police departments across the country are clamoring for UASs of their own. One can only expect that, like all technology, UASs will only become more sophisticated and will come with lower price tags. However, machines that can follow you home from work undetected or peer through your windows at night are no longer science fiction. Fortunately, not just anyone can get permission to use one of these systems in the National Airspace System ("NAS"), but that is soon to change.

## II. FAA REGULATION OF UNMANNED AERIAL SYSTEMS

Presently, there are only two ways one can legally operate a UAS in the NAS, and permissible use of UASs is, of course, limited to nonrestricted airspace. The only way for civil operators to use UASs is to obtain a Special Airworthiness Certificate in the Experimental Category ("SAC-EC").<sup>39</sup> These certificates allow civil UAS users to perform "operations for research and development, market survey, and crew training."<sup>40</sup> Only ninety-four SAC-ECs have been issued by the FAA since 2005.<sup>41</sup>

The second alternative is through Certificates of Waiver or Authorization ("COAs"), which are available to governmental agencies, including law enforcement.<sup>42</sup> Applications for COAs may be filled out online, and the issuance of these certificates is quickly growing.<sup>43</sup> The number of COAs issued by the FAA more than doubled, up from 146 in 2009 to 298 in 2010.<sup>44</sup> COAs generally define the permitted airspace in which the UAS may be used, require coordination with an air traffic control facility, require operation within eyesight when used in public airspace, and

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37. Campoy, *supra* note 14.

38. 2012 Price List, MARCUS UAV, <http://www.marcusuav.com/pricelist.htm> (last visited Apr. 2, 2013).

39. Fact Sheet, *supra* note 24.

40. *Id.*

41. *Id.*

42. *Id.*

43. *Id.*

44. *Id.*

include special provisions unique to the specific UAS's operation.<sup>45</sup>

When looking at the numbers above, there does not seem to be much cause for alarm. Three hundred UASs across the entire United States does not indicate a significant privacy threat. However, one can expect that number to skyrocket over the next few years.<sup>46</sup> Congress expressed this intention with the enactment of the FAA Modernization and Reform Act on February 14, 2012.<sup>47</sup> This Act calls for the Secretary of Transportation to expedite the process for issuing COAs to both civil organizations<sup>48</sup> and government agencies.<sup>49</sup> H.R. 658 passed the House 248 to 169 and easily cleared the Senate 75 to 20.<sup>50</sup> The message from the legislature was loud and clear: they wanted to open the door wide for the use of UASs in domestic airspace. A rapid influx of UASs should give rise to serious misgivings for those concerned with privacy protection if corresponding privacy regulations are not forthcoming.

With the relevant background on UAS capabilities and regulation, I now turn to specific Fourth Amendment issues implicated by police drone usage.

### III. UNMANNED AERIAL SYSTEMS AND SURVEILLANCE OF THE HOME

The Fourth Amendment protects people “in their persons, houses, papers, and effects, against unreasonable searches and

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45. *Id.*

46. *See Lowy, supra* note 9 (“The aerospace industry forecasts a worldwide deployment of almost 30,000 drones by 2018, with the United States accounting for half of them.”).

47. FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, 126 Stat. 11 (2012).

48. *Id.* at § 332, 126 Stat. 11, 73 (“Not later than 270 days after the date of enactment of this Act, the Secretary of Transportation . . . shall develop a comprehensive plan to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system.”).

49. *See id.* at § 334, 126 Stat. 11, 76 (“Not later than 270 days after the date of enactment of this Act, the Secretary of Transportation shall issue guidance regarding the operation of public unmanned aircraft systems to—(1) expedite the issuance of a certificate of authorization process . . .”).

50. FAA Modernization and Reform Act of 2012, H.R. Res. 658, 112th Cong. (2012) (enacted), <http://www.govtrack.us/congress/bill.xpd?bill=h112-658> (indicating the votes in both the House and Senate).

seizures.”<sup>51</sup> A major shift in Fourth Amendment analysis came with the Supreme Court’s decision in *Katz v. United States*.<sup>52</sup> Before *Katz*, the Fourth Amendment was only seen as protecting physical space, and analysis was largely rooted in trespass doctrine.<sup>53</sup> *Katz*, however, established that the Fourth Amendment “protects people, not places.”<sup>54</sup> The most commonly cited test in Fourth Amendment analysis appears in Justice Harlan’s dissent. There he established a two-part test: that the person have an actual, subjective expectation of privacy, and that the expectation is one that society is willing to recognize as “reasonable.”<sup>55</sup> No longer did the Fourth Amendment require physical trespass. A search’s “reasonableness” is based on expectations of privacy. This test informs any discussion of Fourth Amendment jurisprudence. We begin with a discussion of the most sacred haven of private activity: the home.

#### *A. Aerial Surveillance of the Home and Its Curtilage*

Probably the most obvious branch of Fourth Amendment jurisprudence implicated by police use of UASs is aerial surveillance. Surveillance from the sky relies principally on a trinity of Supreme Court decisions: *California v. Ciraolo*,<sup>56</sup> *Dow Chemical Co. v. United States*,<sup>57</sup> and *Florida v. Riley*.<sup>58</sup>

In *Ciraolo*, the police received an anonymous tip that the defendant was growing marijuana in his backyard.<sup>59</sup> However, a six-foot outer fence and a ten-foot inner fence obstructed the view of the defendant’s yard from the ground.<sup>60</sup> To get a view, the investigating officer flew over the defendant’s backyard at an

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51. U.S. CONST. amend IV.

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

53. See MARC L. MILLER & RONALD F. WRIGHT, CRIMINAL PROCEDURES: BRIEF SEARCHES AND STOPS 44–45 (4th ed. 2011) (stating that *Katz* was an example where the Court moved “away from concepts of protected physical spaces (property) and toward concepts of individual privacy”).

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

55. *Id.* at 361 (Harlan, J., dissenting).

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

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

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

59. *Ciraolo*, 476 U.S. at 209.

60. *Id.*

altitude of one thousand feet.<sup>61</sup> He was able to easily identify several eight- to ten-foot marijuana plants growing in a small garden in the defendant's yard, and he obtained a search warrant based on this observation.<sup>62</sup>

The Court held that this was not a "search" within the meaning of the Fourth Amendment based on the "plain view" doctrine.<sup>63</sup> According to the Court, the analysis in this case turned on the second half of the *Katz* test: whether the defendant's expectation of privacy in his fenced-in garden was reasonable.<sup>64</sup> The Court said that just because the illegal plants were within the curtilage of the defendant's home did not mean all warrantless police observation was forbidden.<sup>65</sup> Law enforcement may still lawfully make observations of the home "from a public vantage point where [they have] a right to be and which renders the activities clearly visible."<sup>66</sup> In this case, the police officers made their observations from navigable airspace available to the public in a "physically nonintrusive manner."<sup>67</sup> Furthermore, the marijuana plants were "readily discernible to the naked eye."<sup>68</sup> Therefore, "[i]n an age where private and commercial flight in the public airways is routine, it is unreasonable for [the defendant] to expect that his marijuana plants were constitutionally protected from being observed with the naked eye from an altitude of 1,000 feet."<sup>69</sup>

In an opinion released the same day, the Court held that using an aerial mapping camera to photograph the curtilage of a large industrial complex was also unprotected by the Fourth Amendment.<sup>70</sup> Dow Chemical Company owned a 2,000 acre facility, which contained numerous covered buildings with manufacturing equipment and piping located between the buildings.<sup>71</sup> Dow protected against ground-level public views of

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61. *Id.*

62. *Id.*

63. *Id.* at 213–14.

64. *Id.* at 212.

65. *Id.* at 213.

66. *Id.*

67. *Id.*

68. *Id.*

69. *Id.* at 215.

70. *Dow Chem. Co. v. United States*, 476 U.S. 227, 239 (1986).

71. *Id.* at 229.

these areas and investigated low-level flights over the facility out of concern for protecting its trade secrets.<sup>72</sup> However, Dow did not protect the area between the buildings from aerial surveillance.<sup>73</sup> The Environmental Protection Agency (“EPA”) conducted an on-site inspection of two power plants with Dow’s consent but was denied a second inspection.<sup>74</sup> After this denial, the EPA hired a commercial aerial photographer to take photographs of the facility from 12,000, 3,000, and 1,200 feet, using a common precision aerial mapping camera.<sup>75</sup> When Dow learned of this, Dow sued to enjoin the EPA from taking aerial photographs of their facility.<sup>76</sup>

*Dow Chemical* addressed two issues not reached in *Ciraolo*: “whether the common-law ‘curtilage’ doctrine encompasses a large industrial complex,” and “whether photography employing an aerial mapping camera is permissible in this context.”<sup>77</sup> As to the first issue, the Court stated, “[t]he intimate activities associated with family privacy and the home and its curtilage simply do not reach the outdoor areas or spaces between structures and buildings of a manufacturing plant.”<sup>78</sup> On the second issue, the Court concluded that the enhancement of human vision—at least to the degree a precise, commercial mapping camera enhances vision—does not implicate the Fourth Amendment.<sup>79</sup> However, the Court indicated that surveillance of private property using “highly sophisticated surveillance equipment not generally available to the public” might have a different result.<sup>80</sup>

The Supreme Court again addressed aerial surveillance of private property three years later in *Florida v. Riley*.<sup>81</sup> In *Riley*, the defendant had a greenhouse located ten to twenty feet behind his mobile home.<sup>82</sup> His mobile home and the greenhouse were all

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72. *Id.*

73. *Id.*

74. *Id.*

75. *Id.*

76. *Id.* at 230.

77. *Id.* at 235.

78. *Id.* at 236.

79. *Id.* at 238.

80. *Id.*

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

82. *Id.* at 448.

surrounded by a wire fence, on which a “DO NOT ENTER” sign was posted.<sup>83</sup> The police received an anonymous tip that marijuana was being grown on the defendant’s property but could not see what was in the greenhouse from the road.<sup>84</sup> An investigating officer circled the defendant’s property in a helicopter at an elevation of four hundred feet.<sup>85</sup> From that vantage point, the officer could see, through two missing roof panels, what he believed to be marijuana growing in the greenhouse and was able to obtain a search warrant based on this information.<sup>86</sup>

In a 4–1–4 opinion, the Court held that *Ciraolo* controlled.<sup>87</sup> Even though “Riley no doubt intended and expected that his greenhouse would not be open to public inspection, and the precautions he took protected against ground-level observation,” he had no reasonable expectation of privacy in the contents of his greenhouse from aerial observation.<sup>88</sup> The Court put particular stock in the fact that the helicopter was not in violation of any law or regulation by flying over the defendant’s property at four hundred feet in elevation, and that the helicopter did not interfere with the defendant’s use of his property.<sup>89</sup> Justice O’Connor’s concurring opinion criticized the plurality’s emphasis on compliance with FAA regulations, because the FAA’s regulations are principally concerned with air safety and have nothing to do with one’s reasonable expectations of privacy.<sup>90</sup> In her interpretation, the observation in *Ciraolo* was not a “search” because public air travel at one thousand feet is common enough to diminish one’s expectation that their curtilage would not be observed from the air at that altitude—not because the airplane was permitted in that airspace.<sup>91</sup> Therefore, *Riley* should turn not on whether the helicopter was in compliance with FAA regulations, but whether the public travels four hundred feet

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83. *Id.*

84. *Id.*

85. *Id.*

86. *Id.*

87. *Id.* at 446, 450.

88. *Id.* at 450.

89. *Id.* at 451–52.

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

91. *Id.* at 452–53 (O’Connor, J., concurring).

above private property with sufficient regularity.<sup>92</sup> The dissent advocated for a similar test but reached the opposite conclusion.<sup>93</sup>

What does this tell us about the use of drones for aerial surveillance of private property? One principle that can be distilled from these three cases is that if the police can see something from airspace where they have a legal right to be, then there is no reasonable privacy expectation in that item. This puts a lot of weight on FAA regulations. If the FAA drafts highly restrictive regulations of where and at what elevations drones may be flown, there are fewer vantage points from which police may lawfully observe private property. The problem with this approach is that highly restrictive airspace regulations of UASs will likely diminish their utility to police forces. Furthermore, how much weight should be given FAA regulations is not entirely certain. As Justice Blackmun pointed out in his *Riley* dissent, five of the justices agreed that the case should not turn on compliance with FAA regulations.<sup>94</sup> Additionally, the Court's indication in *Dow Chemical* that sophisticated technology that is generally unavailable to the public might trigger constitutional protection seems to indicate that this principle should not be taken to its logical extreme. Police use of military satellites for surveillance purposes would likely require a warrant.<sup>95</sup> However, the use of a small, remotely operated helicopter with a high-powered zoom lens seems closer to the facts of the above cases than the satellite hypothetical.

For those desirous of greater protection from aerial surveillance, the approach used by Justice O'Connor and the dissent in *Riley* has some immediate appeal. That test asked not whether the police had a right to be in the place from where they made their observation, but whether the homeowner could reasonably expect someone to observe their property from that location.<sup>96</sup> However, this test is not without its problems. First, it raises line-drawing issues. How frequent does travel in the airspace at that specific altitude have to be in order for the individual to

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92. *Id.* at 454 (O'Connor, J., concurring).

93. *Id.* at 460 (Brennan, J., dissenting).

94. *Id.* at 467 (Blackmun, J., dissenting).

95. *See Dow Chem. Co. v. United States*, 476 U.S. 227, 238 (1986).

96. *See Riley*, 488 U.S. at 453 (O'Connor, J., concurring); *id.* at 460 (Brennan, J., dissenting).

have an expectation of privacy that society is prepared to recognize? Does such air travel have to be frequent, or does it simply have to be plausible? Would people in urban locations or that live near airports be afforded less constitutional protection than those who live in the desert? Another issue that arises with such an approach is that one's expectation of privacy would be diminished as the use of drones becomes more frequent. Ten years ago, no one could reasonably expect a three-foot, remote-controlled police helicopter to be peering over their backyard fence. But ten years from now, if virtually every police department has its own fleet of UASs, that expectation would be considerably more reasonable. Should one's expectations of privacy be diminished as technology advances?

UASs provide the government with an unprecedented ability to observe one's home and its curtilage from a much closer distance than crop dusters and helicopters. The Court has permitted observation from an elevation of four hundred feet, but what about observation from four feet? There is nothing in the Court's previous decisions that would point to a different outcome as long as the observation was being made from authorized airspace. The fact that much more intimate observations may be made with a drone hovering just above a skylight than by a helicopter several hundred feet in the air hardly needs to be noted. The concern with such capabilities may be obvious, but that does not necessarily mean courts will be able to find an exception for such observations in their Fourth Amendment jurisprudence.

Finally, there is the remaining question about what type of sense enhancement may be used to observe the home. In *Dow Chemical*, the court said the use of a commercial aerial mapping camera did not raise constitutional concerns but reserved judgment on what other types of technological enhancements might be problematic.<sup>97</sup> Additionally, caution should be used when expanding *Dow Chemical's* analysis to different contexts. *Dow Chemical* involved surveillance of an industrial facility, which "is not an area immediately adjacent to the private home, where privacy expectations are most heightened."<sup>98</sup>

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97. See *Dow Chem. Co.*, 476 U.S. at 238.

98. *Id.* at 237 n.4.

*B. Sensory Enhanced Surveillance*

It has already been shown that UASs may be equipped with a variety of tools to increase their surveillance capabilities. What information we have about the Fourth Amendment implications of observations that cannot be made by the naked eye comes primarily from the Supreme Court case of *Kyllo v. United States*.<sup>99</sup>

In *Kyllo*, Department of the Interior agents suspected that the defendant was growing marijuana in his home, which requires the use of high-powered halide lamps.<sup>100</sup> In order to detect the amount of heat emanating from the home, two agents used a thermal imager to scan the home from across the street.<sup>101</sup> The thermal imager used by the agents detects infrared radiation coming off of objects, and converts the radiation into an image on a small screen in black-and-white.<sup>102</sup> Cooler objects appear as darker shades of gray, while hotter images are whiter.<sup>103</sup> The agents could see that the defendant's house was emitting an unusual amount of heat compared to his neighbors and were able to acquire a search warrant based on this information.<sup>104</sup>

The Supreme Court held that this was an unlawful intrusion into the home.<sup>105</sup> The Court opened its reasoning saying, "It 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>106</sup> Justice Scalia reasoned that the information the officers obtained through the thermal imager was information that could not otherwise be obtained without intrusion into a constitutionally protected area.<sup>107</sup> It appears that the Court wanted to create a firm, bright-line rule at the threshold of the home. However, this holding came with an important limitation. The Court said that such observations with technologically sophisticated devices would be considered searches "at least where . . . the technology in question is not in

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

100. *Id.* at 29.

101. *Id.* at 29–30.

102. *Id.*

103. *Id.*

104. *Id.* at 30.

105. *Id.* at 40.

106. *Id.* at 33–34.

107. *Id.* at 34.

general public use.”<sup>108</sup> Therefore, the Court left open the possibility that, if a technology became easily accessible by the general population, intrusions into the home through use of that technology might not be constitutionally protected.

Another concern that arises with drone technology is the ability for the police to easily follow individuals undetected for extended periods of time. In these cases, the police are not using technology to do what would be impossible to the naked eye—like detect the amount of heat radiating from a home—but they are using it to do what otherwise might be impractical—namely, constantly track an object’s whereabouts over a several-day period. The Supreme Court’s decisions in *United States v. Knotts*<sup>109</sup> and *United States v. Karo*<sup>110</sup> are particularly helpful in this area.<sup>111</sup>

In *Knotts*, Minnesota police tracked the movements of a suspected drug manufacturer for three days by placing a radio transmitter (or beeper) in a drum of chloroform that was purchased by the defendant.<sup>112</sup> The police were able to use the information they gained from tracking the defendant to secure a search warrant, which led to the discovery of a methamphetamine laboratory.<sup>113</sup> The Court held that the information gained from tracking the defendant on public roads was not protected.<sup>114</sup> The Court reasoned that the same information could have been lawfully obtained by police officers physically following the defendant, and “[n]othing in the Fourth Amendment prohibited the police from augmenting the sensory faculties bestowed upon them at birth with such enhancement as science and technology afforded them in this case.”<sup>115</sup> According to the Court, the simple fact that what would otherwise be lawful

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108. *Id.*

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

110. *United States v. Karo*, 468 U.S. 705 (1984).

111. More recently, in *United States v. Jones*, the Supreme Court held that using a GPS tracking device to track the car of a suspected drug dealer was a constitutional violation. However, the Court’s holding relied not on the fact that the car was being tracked by a technological enhancement, but that the government intruded on the defendant’s privacy when it placed the device on the underbody of his car which the Court considered a “protected area.” *United States v. Jones*, 132 S. Ct. 945 (2012).

112. *Knotts*, 460 U.S. at 278.

113. *Id.* at 279.

114. *See id.* at 281.

115. *Id.* at 282.

police observation was made more effective by technology was not of constitutional concern.<sup>116</sup>

In *Karo*, the police used a radio transmitter to track a can of ether—a chemical used for processing drugs—between a few different residences and a commercial storage facility.<sup>117</sup> There, the Court held that monitoring the beeper while it was in a private residence and not open to visual surveillance was a Fourth Amendment violation.<sup>118</sup> The Court distinguished this case from *Knotts* by pointing to the fact that the police could not have entered a residence without a search warrant to verify that the can of ether was actually there, while the police could visually confirm that the drum in *Knotts* was being moved along the highway.<sup>119</sup>

These cases make two things clear. First, the mere fact that police observations are much more efficient through the use of technology does not make the observations impermissible. In the past, twenty-four-hour tracking for an extended period of time would have required an impractical amount of police resources and personnel. Today, constant tracking can be easily accomplished with a GPS device and a computer. Simply because extended surveillance is now a possibility, when it once was not does not make it unconstitutional. *Knotts* made this much clear. However, it seems that such tracking is limited to what could be accomplished by naked-eye observation. The second lesson from these cases is that the interior of the home is still protected, even if it may be “observed” from an unprotected location. *Karo* and *Kyllo* drew hard lines at the interior of the home. If the information about the interior of the home cannot be discerned from outside the home, then it is constitutionally protected.

However, the latter principle comes with one looming unknown. The Court left open the possibility that one’s expectation of privacy might become diminished when observational technologies become a part of “general public use.”<sup>120</sup> One cannot say for sure what the Court meant by that phrase, but it seems that if thermal heat transmitters are ever sold

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116. *Id.* at 285.

117. *United States v. Karo*, 468 U.S. 705, 709–10 (1984).

118. *Id.* at 714.

119. *Id.* at 715.

120. *See Kyllo v. United States*, 533 U.S. 27, 34 (2001).

at Wal-Mart,<sup>121</sup> one might not be protected from their use on drones. Another unknown is whether observations by UASs through a window would be considered a “search” for Fourth Amendment purposes. That type of observation concerns the not readily observable interior portions of the home, but what can be seen through a window might also be observable to casual passersby on the street.

#### IV. RECOMMENDATIONS AND CONCLUSIONS

The arrival of UASs at domestic police offices has serious Fourth Amendment implications. UASs give police departments the ability to easily survey vast areas as well make intimate observations. The sorts of protections afforded by current Fourth Amendment jurisprudence are not particularly reassuring. The ability to make aerial observations has been so far unbounded. If the FAA does not restrict the elevations at which UASs may fly, the area constituting curtilage, or possibly even observation of the interior of one’s residence, then the public is rendered almost completely unprotected from aerial observation. Furthermore, the ability to use the devices to track individuals outside of their homes is restricted only by a UAS’s flight time limitations. Finally, if UASs ever become a part of general public use, there might not even be protection from their observations inside the home. However, their surveillance abilities could be restricted through four possible means.

First, change could come through judicial decision-making. Courts could decide to create new rules that limit the types of observations that may be made by UASs. The Supreme Court has already created reasonable protection for individuals inside the home. The Court may very well decide that individuals have a reasonable expectation of privacy from observations made only a few feet outside their windows or above their patios. However, if limitations on police UAS use are to come from the courts, change will likely be slow. If exponential growth can continue to be expected in the UAS market, police surveillance by UAS may become commonplace by the time such a case reaches the

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121. See Joseph J. Vacck, *Big Brother Will Soon Be Watching—Or Will He? Constitutional, Regulatory, and Operational Issues Surrounding the Use of Unmanned Aerial Vehicles in Law Enforcement*, 85 N.D. L. REV. 673, 683 (2009).

Supreme Court. As discussed above, there might be even less chance of constitutional protection as technological devices become a part of general public use.

A more democratic and slightly faster means of protection could come from the legislature. Much like wiretapping, privacy protection from UAS observation could become the purview of Congress rather than the courts. Congress could pass legislation that defines the types of and circumstances under which observations are permitted by UASs and what is forbidden. A further benefit of change coming through the legislature is that changes can continue to be made in the future as technology advances, and parts of the law that prove unworkable or impractical can be adjusted. Thereby, the proper balance can be achieved between allowing the police to use a tool that makes them more efficient in their work and protecting the privacy of citizens. However, this same benefit of legislative action can also be its downfall. It does not provide the permanence of constitutional interpretation, and, therefore, the protections it affords can be eroded over time.

A third avenue of protection is through FAA regulation. This is less powerful than the above two options but would not be insignificant. In *Riley*, the Court put particular emphasis on the fact that the police officer was making an observation from unrestricted airspace.<sup>122</sup> If the FAA restricted the ability of UASs to fly below certain elevations, then their ability to track individuals and to look inside homes would be diminished. Still, the FAA is concerned with safety, not privacy. Any regulations they craft regarding the airspace UASs may occupy will be based on safety concerns. Furthermore, considering the fact that Congress recently pushed the FAA to widen the door for UAS usage, it is unlikely that it will regulate permissible airspace too severely. And highly restrictive regulations might not be desired, after all. If UAS use is too restricted, then they will lose their usefulness to police departments.

Finally, police department policies are a simple tool that may be used to protect privacy concerns. Though policies are the least permanent and formal of any of the above options, they can still be meaningful. A sergeant with the Miami-Dade Police

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122. *Florida v. Riley*, 488 U.S. 445, 451–52 (1989).

Department said that its UASs were only going to be used for emergencies, like car crashes, and not surveillance.<sup>123</sup> Even if restrictions on a police department's use of drones do not come from above, local police departments may limit themselves. They are especially likely to do so when they know that the members of their community have serious concerns about UAS use.

Much like the direction of technology, what protections the Fourth Amendment provides to citizens from drone observation is unknown. The best that citizens concerned with their privacy protection can do is make sure that their lawmakers and local police departments are aware of these concerns. If citizens are able to make their concerns about unfettered drone usage well-known, a court would be hard-pressed to find the expectation of privacy at the foundation of those concerns unreasonable.

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123. Campoy, *supra* note 14.

