



Brett Raffish is a third year Political Science major concentrating in Pre-Law. He is also minoring in Psychology, Religious Studies, and Global Politics. Brett is currently the ASI Chief of Staff, former ASI Secretary of Community Relations, a former appointed San Luis Obispo City Human Relations Commissioner, and a U.S. Department of Veterans Affairs volunteer. Brett is also a representative on the California State Students Association's statewide Civic Engagement Committee. After graduating in 2019, Brett plans on attending law school and becoming a Judge Advocate General in the U.S. Navy.

*By Brendan Matsuyama*

WARRANTLESS DRONE SURVEILLANCE:  
CONSTITUTIONALLY PERMISSIBLE OR PROHIBITED?

*Brett Raffish*

***Abstract***

Unmanned Aerial Vehicles (UAVs), also known as remotely piloted aerial vehicles (RPAVs) or drones, have been a tool for military reconnaissance and surveillance since the early 1900s. They are one of many emerging technologies that have broken onto the consumer market. In addition to their appeal on the private market, drone technology serves a practical purpose for law enforcement agencies looking to adopt new and innovative methods of conducting aerial surveillance. However, the use of drones for surveillance has raised questions pertaining to compliance and consistency with federal search and seizure law as outlined by precedent and the Fourth Amendment. Surveillance using drones has yet to be challenged in a federal court on Fourth Amendment grounds, which has left many law enforcement agencies and the public uncertain of their constitutionality. This paper will first examine the holistic and overall constitutionality of law enforcement use of drones for surveillance, as well as provide a set of operating rules for law enforcement agencies looking to implement this new technology. Policy recommendations will be based on United States Supreme Court opinions and precedent established within the last 100 years. Due to the relative infancy of drone technology, these guidelines may serve as a foundation for law enforcement organizations looking to carefully implement drone technology. Further, they may aid law enforcement organizations that have already implemented drone technology who are looking to reform their current activation policies in order to comply with U.S. Supreme Court precedent pertaining to warrantless surveillance and avoid a future constitutional challenge.

## Eye in the Sky

Technology is an ever-expanding facet of the 21st century. Every few years, a new form emerges that allows for individuals to see the world from a new and different perspective, sometimes without actually having to be physically present at a particular location. One of the newest technologies marketed to the average consumer is drone technology, also known as remotely piloted aerial vehicles (RPAVs) or unmanned aerial vehicles (UAVs).<sup>1</sup> Drones have been a tool for military reconnaissance and surveillance since the early 1900s. As unmanned aerial technology has become more technologically advanced and practical for both military and civilian use, it has become quicker in digital and mechanical processing speed and smaller in size.<sup>2</sup> For instance, the United States Department of Defense and U.S. intelligence agencies have adopted drones capable of carrying powerful payloads that are controlled by U.S. military personnel across the United States, thereby virtually eliminating ground troop deployment in many cases.<sup>3,4</sup>

Although drone technology had been exclusively utilized as a military surveillance and precision strike tool, within the last 3 years drone technology has become 1) small enough for consumer use; 2) practical for consumer use; and 3) affordable for the everyday, average consumer.<sup>5,6</sup> It has become possible to equip non-military drones with high-quality video cameras

<sup>1</sup> "Protecting Privacy from Aerial Surveillance: Recommendations for Government Use of Drone Aircraft," *American Civil Liberties Union* (December 2011): 16.

<sup>2</sup> McNeal, Gregory S., "Drones and the Future of Aerial Surveillance," *George Washington Law Review*, Vol. 84 (2016).

<sup>3</sup> R. Bunker, "Terrorist and Insurgent Unmanned Aerial Vehicles: Use, Potentials, and Military Implications," *United States Army War College Strategic Studies Institute* (2015).

<sup>4</sup> Frank Strickland, "The Early Evolution of the Predator Drone," *Studies in Intelligence* (March 2013).

<sup>5</sup> Joshi, Divya. "Exploring the Latest Drone Technology for Commercial, Industrial and Military Drone Uses." *Business Insider*, Business Insider, 13 July 2017.

<sup>6</sup> Wendie Kellington and Michael Berger, "Why Land Use Lawyers Care About the Law of Unmanned Systems." *Zoning & Planning Report*, Vol. 37, no. 6 (June 2014): 2–5.

and wi-fi capability, allowing operators to not only to view the world from the sky in real-time, but also to record footage.<sup>7,8</sup>

The versatility of these technologies and the drone's capacity to view the world from above have enticed many law enforcement agencies to adopt the use of drones for reasons similar to that of military agencies – to provide situational awareness of potentially dangerous situations to individuals on the ground, and to conduct surveillance of suspects.<sup>9</sup> The use of drone technologies by law enforcement, however, has generated a great deal of controversy over the impact the use of such devices may have on individuals' Fourth Amendment rights against unlawful search and seizure.<sup>10</sup>

As drone technology has expanded, allowing for real-time surveillance above a person's property and, potentially, the interior of their home through windows or spaces otherwise not easily viewable, concerns have arisen regarding the constitutional boundaries necessary to ensure citizens' rights against unlawful search and seizure are protected.<sup>11</sup> Although the use of drone technologies by law enforcement agencies has yet to be challenged in any United States Federal Court, seven United States Supreme Court decisions (*Hester v. United States*, *Katz v. United States*, *Oliver v. United States*, *Ciraolo v. United States*, *Dow Chemical Co. v. United States*, *Florida v. Riley*, and *Kyllo v. United States*), all decided within the last 100 years, support the constitutional use of drone technologies by law enforcement. These cases may also

<sup>7</sup> Nick Wingfield, "A Field Guide to Civilian Drones," *The New York Times*, November 23, 2015.

<sup>8</sup> Ben Popper, "The Best Drone You Can Buy Right Now," *The Verge*, July 27, 2017.

<sup>9</sup> April Glaser, "Police Departments Are Using Drones to Find and Chase down Suspects." *Recode* (April 6 2017).

<sup>10</sup> Justin Bloomberg, "How U.S. Police Departments Are Using Drones," *Daily Herald*, April 14, 2017.

<sup>11</sup> Matthew Koerner, "Drones And The Fourth Amendment: Redefining Expectations Of Privacy." *Duke Law Journal* (2015): 1130–1172.

provide insight as to the lawful boundaries within which drone technologies may be utilized by law enforcement agencies.

As law enforcement surveillance technologies and techniques have expanded and developed over the last 100 years, an array of Fourth Amendment challenges have been brought against their use. Based on five United States Supreme Court cases which all address the topic of law enforcement surveillance and the Fourth Amendment, it is reasonable to conclude that aerial surveillance technologies utilized by law enforcement are constitutionally protected. However, this assumes proper limitations are imposed to avoid a successful Fourth Amendment challenge. Moreover, drone technologies may also be limited by their practicality, which is likely measured differently within each state. One can better understand why drone technologies are constitutionally permitted by examining how prior cases addressing Fourth Amendment challenges to law enforcement deployment of technologies build upon one another, thereby creating a set of limitations, guidelines, or structure governing the lawful use of drone surveillance technologies. Due to the relative infancy of drone technology, these guidelines may serve as a foundation for law enforcement organizations looking to carefully implement drone technology, as well as law enforcement organizations that have already implemented drone technology who are looking to reform their current activation policies, in order to comply with U.S. Supreme Court precedent pertaining to warrantless surveillance and to avoid a future constitutional challenge.

### The Foundation of Warrantless Surveillance

The first case to pave the way for the constitutional use of drone technologies was *Hester v. United States* (1924). Law enforcement officers conducted a warrantless surveillance of Mr. Hester's property from a field adjacent to Mr. Hester's

house. This observation was made via the officers' naked-eye from the open field on suspicion that Hester had violated prohibition law by selling moonshine whiskey.<sup>12</sup> Once officers observed illicit behavior from their vantage, Hester was arrested. Hester was convicted of violating prohibition law. However, he appealed the conviction on Fourth Amendment grounds by claiming that the officers' vantage point in an open field on his property constituted an illicit search. Once the case had reached the United States Supreme Court,<sup>13</sup> the court held that open fields do not qualify as "persons, houses, papers and effects"<sup>14</sup> as articulated in the Fourth Amendment.<sup>15</sup> From this decision, the Open Field Doctrine was born, thereby providing the first level of guidelines for law enforcement surveillance techniques and, almost 100 years later, for law enforcement utilization of drone technologies. Specifically, the Hester Court determined that the "Fourth Amendment did not protect 'open fields' and that, therefore, police searches in such places as pastures, wooded areas, open water, and vacant lots need not comply with the requirements of warrants and probable cause."<sup>16</sup> Thus, law enforcement surveillance conducted of an open field is a constitutionally protected practice.<sup>17</sup>

*Katz v. United States* (1967), building off *Hester v. United States*, provides the standard for government search or seizure, and has remained so throughout the 20th and 21st centuries. In *Katz*, Charles Katz, a self-proclaimed gambling bookie, used a public payphone to transmit illegal gambling wagers to

<sup>12</sup> *Hester v. United States*, 265 U.S. 57 (1924)

<sup>13</sup> "Hester v. United States," *LII / Legal Information Institute*.

<sup>14</sup> "Hester v. United States, 265 U.S. 57 (1924)," *Justia Law*.

<sup>15</sup> "Bill of Rights," *Bill of Rights Institute*.

<sup>16</sup> "'Open Fields,'" *Justia Law*.

<sup>17</sup> Michael Godley, "Criminal Procedure - Oliver and the Open Fields Doctrine - Oliver v. United States," *Campbell Law Review*, Vol. 7, no. 2 (January 1984).

individuals in Miami, Florida and Boston, Massachusetts.<sup>18</sup> The conversations and transactions between Katz and his clientele, made via payphone, were monitored by federal law enforcement, eventually leading to Katz's arrest. Katz thereafter challenged the 'search' of the payphone conversations.<sup>19, 20</sup> The court then developed a two-part test to determine whether governmental action amounted to a search requiring either a warrant or valid exception to the warrant requirement. First, does the individual exhibit an actual or subjective expectation of privacy and, if so, is that expectation one that society finds reasonable? Answering these questions affirmatively means the conduct amounts to a search as provided by the Fourth Amendment, and any such search performed in the absence of a warrant or exception is invalid and unconstitutional.<sup>21</sup> Katz therefore defines the method by which constitutionality of searches and seizures are evaluated. Although aerial surveillance was not regularly used by law enforcement agencies at the time Katz was decided, the case unquestionably provides clear guidelines for evaluating Fourth Amendment search and seizure challenges.<sup>22</sup>

### Law Enforcement Surveillance Tactics & The War on Drugs

Although the New York City Police Department established the United States' first airborne law enforcement surveillance unit in the mid-1920s, aerial surveillance was not common practice by law enforcement as it was neither the most economical nor practical surveillance technique. However, over the course of

<sup>18</sup> "Katz v. United States," *Oyez*, (December 12, 2017).

<sup>19</sup> "Katz v. United States, 389 U.S. 347 (1967)," *Justia Law*.

<sup>20</sup> *op. cit.*, fn 18

<sup>21</sup> Brandon Nagy, "Why They Can Watch You: Assessing The Constitutionality Of Warrantless Unmanned Aerial Surveillance By Law Enforcement," *Berkeley Technology Law Journal*, (2014): 6–10.

<sup>22</sup> Peter Winn, "Katz and the Origins of the 'Reasonable Expectation of Privacy' Test," *McGeorge Law Review*, Vol. 40 (2009): 1–14.

approximately 20 years, law enforcement agencies began to adopt fixed-wing aircraft as a means of speed detection and surveillance, and in 1947 the helicopter was introduced to law enforcement in New York.<sup>23, 24</sup> Although "Helicopters...can cost more than \$3 million to purchase and thousands of dollars per hour to fuel and maintain, larger urban jurisdictions may have the resources to acquire more expensive aviation assets, but the price may be unrealistic for smaller jurisdictions."<sup>25</sup> As the cultivation of marijuana generally necessitated large open spaces to grow cannabis plants, law enforcement surveillance tactics changed.<sup>26, 27</sup> Notwithstanding the large price tag for aerial surveillance technologies, access to helicopters and fixed-wing aircraft enabled law enforcement to more aggressively pursue the cultivation and production of recreational drugs, the most common being marijuana.<sup>28, 29</sup> This tactical change spurred a series of Fourth Amendment search and seizure challenges (See, *Oliver v. United States*, *California v. Ciraolo*, *Florida v. Riley*). These decisions, weaving in precedent set by both *Hester* and *Katz*, provide greater clarification of the constitutional boundaries of law enforcement aerial surveillance, thereby promoting modern utilization of law enforcement technologies, including drone technology, in a manner that is constitutionally

<sup>23</sup> "Fixed Wing Aircraft in Law Enforcement." *Law Officer*, (January 3 2009).

<sup>24</sup> "... [by 1986] every State in the country uses helicopters in police work. As of 1980, there were 1,500 such aircraft used in police work. E. Brown, *The Helicopter in Civil Operations* 79 (1981)." source: "Florida v. Riley, 488 U.S. 445 (1989)," *Justia Law*.

<sup>25</sup> "In 2007, the first national study of police units operating planes or helicopters found that approximately 20 percent of all agencies with 100 or more sworn officers had aviation units, including 44 state police agencies, 76 sheriffs' offices, 68 municipal police agencies and 13 county police agencies." source: "Aviation Technology," *National Institute of Justice*.

<sup>26</sup> Trevor Hughes, "California's Illegal Marijuana Farms Force Cops to Wield 'Green' Stick." *USA Today*, Gannett Satellite Information Network (August 23 2016).

<sup>27</sup> "Pot Luck Rules When Helicopters Help Root Out Marijuana Growers," *Law Officer*, (July 28 2008).

<sup>28</sup> "Florida v. Riley, 488 U.S. 445 (1989)," *Justia Law*.

<sup>29</sup> Mary Serreze, "State Tracks Pot Plants with Helicopters," *CommonWealth Magazine*, (October 25 2016).

protected. *Oliver v. United States* (1984) reaffirmed Hester's Open Field Doctrine.<sup>30</sup> Ray Oliver, a Kentucky resident, was reported to be growing marijuana in the fields on his property. Kentucky State Police entered and searched Oliver's field without a warrant, discovering marijuana plants approximately one mile from Oliver's home.<sup>31</sup> In a 6-3 decision, the court held that law enforcement may conduct a warrantless search of an open field where individuals lack a reasonable expectation of privacy, utilizing the two-prong Katz test.<sup>32</sup>

Oliver, expanding further on Hester and Katz, explained that an individual has a reasonable expectation of privacy inside or in the area immediately surrounding his or her home (curtilage),<sup>33</sup> but that such an expectation cannot be affirmed for areas beyond those in order to avoid surveillance. Associate Justice Lewis Powell, in his majority opinion, justifies this statement by claiming that "open fields are accessible to the public and the police in ways that a home, office, or commercial structure would not be, and because fences or "No Trespassing" signs do not effectively bar the public from viewing open fields, the asserted expectation of privacy in open fields is not one that society recognizes as reasonable."<sup>34</sup> Although the Open Field Doctrine was established in Hester, Oliver more pointedly explained the Doctrine by determining that because the curtilage, or area immediately surrounding a person's home, "warrants the Fourth Amendment protections that attach to the home, conversely [it] implies that no expectation of privacy legitimately attaches to open fields..."<sup>35</sup> Oliver

<sup>30</sup> "Open Fields," *Justia Law*.

<sup>31</sup> "Oliver v. United States," *Oyez*, (December 12, 2017).

<sup>32</sup> "Oliver v. United States, 466 U.S. 170 (1984)," *Justia Law*.

<sup>33</sup> Thomas Curran, "The Curtilage of *Oliver v. United States* and *United States v. Dunn*: How Far Is Too Far?" *Golden Gate University Law Review*, Vol. 18, no. 2 (January 1988).

<sup>34</sup> *op. cit.*, fn. 31

<sup>35</sup> *Ibid.*

develops the boundaries that separate those areas of a person's property entitled to constitutional protection from areas where individuals are not entitled to such constitutional protection.<sup>36</sup>

Law enforcement surveillance tactics in *Oliver* are similar to, but distinct from, those utilized in *California v. Ciraolo* (1985). Whereas law enforcement engaged in a physical warrantless entry of an open field in *Oliver*, *Ciraolo* introduced the aspect of surveillance and observation from the sky. Dante Ciraolo, a resident of Santa Clara, CA, grew marijuana in his backyard (an open field shielded by two fences). Based on an anonymous tip that Ciraolo was growing marijuana, the Santa Clara Police Department flew officers 1,000 feet above Ciraolo's property in order to take aerial photographs of the field. Based on naked-eye observations made by one of the officers in the airplane, a search warrant was obtained and police seized the marijuana plants and arrested Ciraolo.<sup>37, 38</sup>

In an appeal to the Supreme Court alleging Fourth Amendment violations, the court, in a 5-4 decision held that, held that the Open Field Doctrine applied to the aerial surveillance of Ciraolo's property. Therefore Ciraolo did not possess a reasonable expectation of privacy. In his majority opinion, Chief Justice Warren Burger contended "[T]hat the backyard and its crop were within the "curtilage" of respondent's home did not itself bar all police observation. The mere fact that an individual has taken measures to restrict some views of his activities does not preclude an officer's observation from a public vantage point where he has a right to be and which renders the activities clearly visible."<sup>39</sup> Ciraolo asserted that because his home resided in a suburban area, his entire backyard

<sup>36</sup> *op. cit.*, fn. 33

<sup>37</sup> "California v. Ciraolo," *Oyez* (December 12, 2017).

<sup>38</sup> *Ibid.*

<sup>39</sup> *Ibid.*

was considered curtilage. However, the majority countered that the “observation took place within public navigable airspace, in a physically non-intrusive manner” where any person in aircraft flying above may be able to notice the cannabis crop growing in Ciraolo’s backyard from 1,000 feet in the air.<sup>40, 41</sup>

As a complement to Ciraolo, *Florida v. Riley* (1986) addressed the issue of the height from which observation occurred, type of aircraft, and the parameters required when utilizing aircraft of any type to conduct surveillance. In 1989, Michael Riley, a resident and property owner in Pasco County, Florida, was reported to be growing marijuana inside a greenhouse at a location adjacent to his property which was situated on five acres of rural land.<sup>42</sup> Law enforcement could not see into the interior of the greenhouse to confirm that Riley was growing marijuana. To gain a closer look at the property, officers flew a helicopter from 400 feet above to see onto the property and specifically attempt to identify the contents of the greenhouse. Officers identified what they believed to be marijuana, obtained a search warrant to enter the property, seized the marijuana Riley had been growing, and arrested Riley.<sup>43, 44</sup> Associate Justice Byron White, affirming the holding of *California v. Ciraolo*, added that the precedent set in Ciraolo that aerial surveillance is permitted and that the specific type of aircraft used is of no import – whether it be fixed winged or a helicopter – as long as the particular aircraft is flying under Federal Aviation

<sup>40</sup> Gregory James, “California v. Ciraolo: Are the Protections of the Fourth Amendment Earthbound, 20 J. Marshall L. Rev. 343 (1986),” *John Marshall Law Review*, Vol. 20, no. 2 (1986).

<sup>41</sup> *op. cit.*, fn. 37

<sup>42</sup> “Florida v. Riley,” *Oyez*, (December 14, 2017).

<sup>43</sup> “Florida v. Riley, 488 U.S. 445 (1989),” *Justia Law*.

<sup>44</sup> *op. cit.*, fn. 42

Administration (FAA) guidelines and parameters.<sup>45</sup> *Florida v. Riley* remains the law with respect to law enforcement aerial surveillance, which in turn, means that the application of new and innovative drone technologies as a form of aerial surveillance technology is constitutionally permissible – to an extent.

### Modern Technology & Its Implications

As law enforcement technology continued to advance into the 21st century, new Fourth Amendment challenges emerged. Moreover, the introduction of vision and sensory enhancement technology came with two primary challenges on Fourth Amendment grounds in the United States Supreme Court: *Dow Chemical Co. v. United States* and *Kyllo v. United States*. In *Dow Chemical Co. v. United States* (1985), United States Environmental Protection Agency (EPA) enforcement officials were denied, by a United States District Court, the ability to inspect the Dow Chemical Company industrial worksite to investigate possible violations of federal environmental law and policy. After the EPA was denied access to search the facility in person, the Agency “employed a commercial aerial photographer, using a standard floor-mounted, precision aerial mapping camera, to take photographs of the [Dow Chemical Company] facility from altitudes of 12,000, 3,000, and 1,200 feet.”<sup>46</sup> The Dow Chemical Company brought the suit to the U.S. District Court on grounds that the “EPA had no authority to take aerial photographs and that doing so was a search violating the Fourth Amendment.”<sup>47</sup> Once appealed to the U.S.

<sup>45</sup> “While Federal Aviation Administration (FAA) regulations permit fixed-wing aircraft to be operated at an altitude of 1,000 feet while flying over congested areas and at an altitude of 500 feet above the surface in other than congested areas, helicopters may be operated at less than the minimums for fixed-wing aircraft ‘if the operation is conducted without hazard to persons or property on the surface. In addition, each person operating a helicopter shall comply with routes or altitudes specifically prescribed for helicopters by the [FAA] Administrator.’” source: “Florida v. Riley, 488 U.S. 445 (1989),” *Justia Law*.

<sup>46</sup> *Dow Chemical Co. v. United States*, 106 S. Ct. 1819. (1986)

<sup>47</sup> *Ibid.*

Supreme Court, Chief Justice Warren Burger, writing for the majority, ruled that the Fourth Amendment does not require government inspectors to obtain warrants before conducting aerial searches of outdoor business facilities. Furthermore, Justice Burger concluded that, “Although [the photographs] undoubtedly give EPA more detailed information than naked-eye views, they remain limited to an outline of the facility’s buildings and equipment. The mere fact that human vision is enhanced somewhat, at least to the degree here, does not give rise to constitutional problems.”<sup>48</sup> However, Burger qualifies the extent to which the enhancement of human vision may be utilized in warrantless surveillance by stating that “surveillance of private property by using highly sophisticated surveillance equipment not generally available to the public, such as satellite technology, might be constitutionally proscribed absent a warrant.”<sup>49</sup> Thus, warrantless surveillance conducted with vision or sight enhancing technology is permitted, however, must be a technology available to the general public and must be used in a manner that does not penetrate areas where citizens possess a reasonable expectation of privacy.<sup>50, 51</sup> Although the camera used in Dow enhanced agents’ vision, the enhancement was not to such a degree that would violate the “Naked-Eye” principle established in *Ciraolo* and prior cases.<sup>52, 53</sup>

However, as technology continued to expand, legal disputes concerning the implication of various types of technology in warrantless surveillance developed. The most recent case that set precedent for the use of sense-enhancing technology in government surveillance is *Kyllo v. United States*

<sup>48</sup> *Ibid.*

<sup>49</sup> *Ibid.*

<sup>50</sup> “Dow Chemical Company v. United States,” *Oyez*, (March 27 2018).

<sup>51</sup> *op. cit.*, fn. 46

<sup>52</sup> *op. cit.*, fn. 40

<sup>53</sup> *op. cit.*, fn. 30

(2001). In *Kyllo v. United States*, Danny Kyllo, a resident of Florence, Oregon, was suspected of cultivating marijuana inside his triplex by a Department of Interior federal agent.<sup>54</sup> The Agent used an infrared sensor to detect the level of heat emanating from Kyllo’s home to identify probable cause in order for the agent to obtain a search warrant. The rationale was that if marijuana is grown indoors, the operation requires large artificial sources of light or lamps which emanate heat. Once the Agent detected an abnormal level of heat emanating from the exterior of the home, the Agent obtained a search warrant and discovered that Kyllo had been growing marijuana. Kyllo was arrested and convicted, but appealed the conviction on Fourth Amendment grounds by asserting that the warrantless use of the infrared sensor was an unreasonable and illicit search inside Kyllo’s home.<sup>55</sup>

Once appealed to the U.S. Supreme Court, Associate Justice Antonin Scalia affirmed that the warrantless use of enhanced surveillance technology, such as thermal imaging, which “explore[s] details of the home that would previously have been unknowable without physical intrusion...” is considered a search and is unreasonable without a warrant.<sup>56</sup> The distinguishing feature of thermal imaging is that “Thermal imagers detect infrared radiation, which virtually all objects emit but which is not visible to the naked eye.”<sup>57</sup> Through precedent, this decision may apply to most sensory (non-vision) enhancing surveillance technology as most sensory enhancing technology may allow government to see what is not visible to the naked eye. Precedent set in *Kyllo* qualifies and further defines the precedent set in *Dow*. Although the Supreme Court had ultimately upheld enhanced aerial photography of an industrial complex or area in *Dow*, *Kyllo* occurred in an area

<sup>54</sup> *Kyllo v. United States*, 533 US 27, 121 S.Ct. 2038, 150 L.Ed.2d 94 (2001)

<sup>55</sup> “*Kyllo v. United States*,” *Oyez*, (March 27 2018).

<sup>56</sup> *op. cit.*, fn. 54

<sup>57</sup> *Ibid.*

or location adjacent to a private residence, an area where a person's privacy is afforded the utmost protection, with a type of technology that is not generally available to the public.<sup>58, 59</sup>

By assessing the situations and conditions in which enhanced technology may be utilized in warrantless surveillance, *Dow* and *Kyllo* may be drawn on and utilized when defining a "naked-eye" observation and establishing a limitation and capacity of drone technology in order for the use of drones to remain constitutionally sound when conducting warrantless surveillance.

### Constitutional Limitations on Drone Use

Specific parameters established by *Oliver v. United States*, *California v. Ciraolo*, *Dow Chemical Co. v. United States*, *Florida v. Riley*, and *Kyllo v. United States*, and identified below, must be adhered to in order to legally utilize aerial surveillance:

#### *Vertical Parameters of Surveillance*

The altitude a drone may be flown above an individual's property is only bound to FAA regulation and applicable local laws.<sup>60</sup> In *Florida v. Riley*, Justice White observed that "the FAA permits helicopters to fly below [400 feet], the helicopter here was not violating the law, and any member of the public or the police could legally have observed respondent's greenhouse from that altitude."<sup>61</sup> Per FAA regulation, the maximum permissible height for drone use is 400 feet, and as long as the drone is not flying over a sports stadium, wildfire, airport, designated hazardous airspace, or the entirety of Washington D.C., the use of the drone is federally permitted and does not violate the guidelines set by federal regulation.<sup>62</sup> Justice White's opinion in *Florida v. Riley* suggests the height of observation may be fluid, so long as

<sup>58</sup> *Ibid.*

<sup>59</sup> *op. cit.*, fn. 38

<sup>60</sup> "Getting Started," *Unmanned Aircraft Systems*, Federal Aviation Administration, July 31, 2017.

<sup>61</sup> *op. cit.*, fn. 42

<sup>62</sup> *op. cit.*, fn. 60

it complies with federal regulation.<sup>63</sup> Therefore, the use of drone technology, as long as operated in a permissible area and in a manner consistent with other state and federal regulations, is permitted.<sup>64, 65</sup> Additionally, due to the widespread recreational use of drone technologies, if the average person is federally permitted to fly a drone over a piece of property – unless doing so is against local ordinance or law – and even in the publicly navigable airspace around a piece of property, that act by law enforcement should be constitutionally permitted under *Ciraolo* and *Riley* as no private citizen controls or owns the airspace above their property.<sup>66, 67</sup>

#### *The "Naked Eye" Observation*

*Ciraolo* and *Riley* defended naked eye observations made by law enforcement personnel from both an airplane and helicopter, respectively.<sup>68</sup> In *Ciraolo* and *Riley*, law enforcement personnel did not use anything that would enhance their ability to see, such as high-powered binoculars or infrared sensors. A potential constitutional challenge to drone technology could be based on the notion that drones equipped with cameras are inherently sense enhancing – whether in the detection of heat or the ability to remotely zoom in on points of interest.<sup>69, 70</sup> Along with the ability to enhance a person's vision by use of a zoom feature,

<sup>63</sup> *op. cit.*, fn. 42

<sup>64</sup> Gregory McNeal, "Drones and Aerial Surveillance: Considerations for Legislatures," *Brookings* (August 23, 2016).

<sup>65</sup> Eugene Volokh, "Helicopter (and Drone?) Surveillance and the Fourth Amendment," *The Washington Post* (October 21, 2015).

<sup>66</sup> *op. cit.*, fn. 42

<sup>67</sup> *op. cit.*, fn. 38

<sup>68</sup> Taly Matiteyahu, "Drone Regulations and Fourth Amendment Rights: The Interaction of State Drone Statutes and the Reasonable Expectation of Privacy," *Columbia Journal of Law and Social Problems* (2015).

<sup>69</sup> David E. Steinberg, "Sense-Enhanced Searches and the Irrelevance of the Fourth Amendment," *16 Wm. & Mary Bill Rts. J.* 465 (2007).

<sup>70</sup> Matthew Koerner, "Drones And The Fourth Amendment: Redefining Expectations Of Privacy," *Duke Law Journal* (2015).

drone technology also has the capacity to record video in real-time which may allow law enforcement to visually ‘seize’ evidence and return back to view this footage at a later date.

However, precedent set in both *Dow Chemical Co.* and *Kyllo* qualify and further define the type of technology that may be used in order for drone usage to remain constitutional. The following are a set of sub-conditions which further define the extent technology may play in drone surveillance. As established in *Dow*, the surveillance technology in government use must also be in general public use. Although flight was not technology in general public use in earlier warrantless surveillance cases such as *Hester* or *Katz*, flight was in general public use by *Ciraolo* and *Riley* as private citizens are able to have access to the same airspace as law enforcement personnel and thus, have access to the same view as law enforcement personnel.<sup>71, 72</sup> Thus, the mere use of flight as a method of surveillance is constitutional as commercial and private flight is in general use. In *Dow Chemical Company*, the high-definition camera used to surveil the *Dow Chemical Company’s* property and yard was not an out-of-the-ordinary piece of equipment and was readily purchasable and used by the general public.<sup>73</sup>

Although the camera enhanced the vision of law enforcement personnel, which challenges the “Naked Eye” principle established in *Oliver*, the type of technology was in general public use which serves an analogous purpose in comparison to an observation with a “naked eye.” According to Chief Justice *Berger*, any person could have flown above the piece of property and used a camera of similar capabilities to capture the intricacies of the *Dow* property.<sup>74</sup> The infrared, heat-sensing technology utilized in *Kyllo* was

<sup>71</sup> *op. cit.*, fn. 38

<sup>72</sup> *op. cit.*, fn. 46

<sup>73</sup> *Ibid.*

<sup>74</sup> *Ibid.*

not in general public use and, conversely, the use of such a technology without a warrant was deemed unconstitutional.<sup>75</sup>

Drones equipped with cameras capable of capturing still images or video are in general public use. According to the FAA, 770,000 drone registrations were filed from December 2015 to March 2017. The FAA also speculates there will be up to 3.5 million drones in use by 2021. Needless to say, drone technology is in general public use.<sup>76</sup> Although the image-capturing capability of drones may be a perceived ‘red-flag,’ even the most advanced image-capturing and video technologies attached to drones are in general public use such as the utilization of 20 Megapixel drone cameras and some drone’s ability to capture video in 4K resolution.<sup>77</sup> Therefore, any person with a private or commercial drone license may capture the same images or the same video as that of law enforcement if law enforcement agencies adopted drone technology.

Therefore, drones equipped with cameras are a permissible form of technology when conducting warrantless drone surveillance. Any further technological vision or sense enhancement used in warrantless drone surveillance must pass the threshold of being in general public use. It may be prudent for law enforcement to adopt technology that is in general public use as to remain within the bounds provided by *Kyllo* and *Dow*. This practice would be more consistent with legal precedent upholding naked-eye surveillance and observation.

*“Private Activities Occurring In Private Areas”*

The concept of an individual’s reasonable expectation of privacy is repeated throughout the seven cases which constitutionally support the use of drone technologies. Although all seven

<sup>75</sup> *op. cit.*, fn. 54

<sup>76</sup> *Kaya Yurieff*, “U.S. Drone Registrations Skyrocket to 770,000,” *CNNMoney, Cable News Network*, March 2017.

<sup>77</sup> *Jim Fisher*, “The Best Drones of 2018,” *PCMag*, March 12, 2018.

cases support the use of drone technology for law enforcement surveillance, Supreme Court precedent leaves room for interpretation as to those areas immediately surrounding a person's home or dwelling considered 'curtilage,' the area entitled to a heightened degree of privacy and protection against unreasonable search and seizure.<sup>78</sup> Areas where private activities may occur, such as areas inside or around a home (curtilage) may entitle citizens to a greater degree of protection against a governmental search.<sup>79</sup> In order to avoid a constitutional challenge flowing from law enforcement use of a drone, it is vital to further define the distance or limits within which law enforcement drones may operate on a horizontal plane (horizontal limits of surveillance).

Ciraolo and Oliver may provide guidance on defining the boundaries within which video footage or still images may be captured before doing so constitutes an unreasonable search and seizure. Katz establishes that in order for persons, property, papers or effects to be constitutionally protected, an individual must demonstrate 1) an actual or subjective expectation of privacy, and 2) that expectation must be one that society finds is objectively reasonable.<sup>80, 81</sup> Surveillance conducted in an open field, known as the Open Field Doctrine (established in Hester and reaffirmed in Oliver), is constitutionally protected activity.<sup>82</sup> In Hester, Riley and Oliver, the Court was faced with surveillance of acres of property, thereby permitting it to easily distinguish between areas considered "open fields" and areas considered curtilage. Ciraolo, however, muddles this distinction.

Dante Ciraolo argued that the Open Field Doctrine did not apply to his property as he believed the entirety of his backyard

<sup>78</sup> *op. cit.*, fn. 36.

<sup>79</sup> *op. cit.*, fn. 54

<sup>80</sup> *op. cit.*, fn. 19

<sup>81</sup> John C. Busby, "Expectation of Privacy," *LII / Legal Information Institute* (September 17, 2009).

<sup>82</sup> *op. cit.*, fn. 17

was considered curtilage, as it was much smaller in size than the larger open field illustrated in Hester or Oliver.<sup>83</sup> However, former Chief Justice Burger disagreed, contending that Ciraolo "knowingly exposed" his backyard to law enforcement and anyone else flying over his property.<sup>84</sup> If law enforcement has the ability to look over a fence or through a knothole (see Oliver v. United States & People v. Lovelace)<sup>85, 86</sup>, law enforcement should be constitutionally permitted to look over a fence via aircraft. As Burger further explained, "curtilage is essentially a protection of families and personal privacy in an area intimately linked to the home, both physically and psychologically, where privacy expectations are most heightened."<sup>87</sup>

However, as evidenced by Ciraolo, suburban yards may not necessarily be considered curtilage. Although there may be areas within a suburban yard that may be considered curtilage and therefore over which an individual may possess a reasonable expectation of privacy, the entirety of an open suburban yard will likely not be considered curtilage, even though it is smaller in size compared to a more distinct 'open field.' However, as technologies that allow enhanced surveillance of the insides of structures or private areas become publicly available, law enforcement must still consider present limitations on warrantless surveillance. As explained in *Kyllo*, sense enhancing technology which produces "any information regarding the interior of the home that could not otherwise have been obtained without physical 'intrusion into a constitutionally protected area' is otherwise deemed as unconstitutional and illicit."<sup>88, 89</sup> Even if new sense enhancing technology had developed which allowed law

<sup>83</sup> *op. cit.*, fn. 38

<sup>84</sup> *Ibid.*

<sup>85</sup> "People v. Lovelace (1981)," *Justia Law*.

<sup>86</sup> *op. cit.*, fn. 31

<sup>87</sup> *op. cit.*, fn. 38

<sup>88</sup> *op. cit.*, fn. 54

<sup>89</sup> *op. cit.*, fn. 19

enforcement officers a glimpse inside a person's home or areas where the person possesses a reasonable expectation of privacy which was in general public use, a recommendation is made to avoid such technology that to maintain Fourth Amendment compliance when conducting warrantless surveillance.

Additionally, the home is afforded a greater degree of constitutional protection than commercial property or an open field. Although Dow "involved enhanced aerial photography of an industrial complex," the complex itself "does not share the Fourth Amendment sanctity of the home."<sup>90</sup> A home or the curtilage surrounding a home are areas where any type of sense-enhancing technology, including photography and video, may not be constitutionally permissible if used when conducting warrantless surveillance. Thus law enforcement must strictly adhere to the open field doctrine when conducting warrantless surveillance with enhanced technology.

If law enforcement agencies operate drone technologies over suburban areas, it may be advisable to avoid locations which have structures and other elements which one could argue represents an affirmative effort to create privacy, such as overhangs, tented areas, or areas protected by internal fencing (excluding the exterior wall). A similar consideration would also apply to such structural elements erected in larger, more defined open fields. Clearly demarcated areas that may not be visible from above (areas with an overhang, shed, tent, etc.) should be avoided when operating a drone and considering the horizontal surveillance to which the drone may surveil a property.

### **Unchallenged Technology & Future Implications**

A Fourth Amendment claim of an unreasonable or illicit search due to warrantless drone surveillance has yet to be introduced at any level of the United States federal justice

<sup>90</sup> *op. cit.*, fn. 54

system or individual state justice systems. However, drones remain a hotly contested technology as they continue to be integrated in law enforcement tactics and operations. The only case to-date that has involved a concern over the use of an unmanned aerial vehicle is from 2011. Rodney Brossart, a North Dakota resident, had barricaded and armed himself on his property resulting in a standoff with law enforcement.<sup>91</sup> Law enforcement deployed a Predator drone to locate Brossart on his property in order to approach him in a tactful, strategic, and safe manner. Once Brossart was arrested, he later claimed that the use of the UAV was improper. However, the municipal court did not find any wrongdoing on the part of law enforcement.<sup>92</sup> Although this is the only court case to-date involving a claim of misuse on law enforcement's part, the overall utilization of drones as a surveillance tool remains a hotly contested topic within the United States.

Law enforcement use of drone technology as a surveillance tool does not, in and of itself, trigger a violation of an individual's right against unreasonable search and seizure. However, three primary limitations establish guidelines for law enforcement agencies looking to avoid a constitutional challenge. These limitations include: the vertical height permissible for drone flight, the technological capacity of the drone, and permissible horizontal distance within which a drone may surveil in relation to the curtilage of an individual's property. Although drone technology has yet to be challenged on Fourth Amendment grounds, that is not to say the expansion of this new technology, utilized for the purpose of surveillance, will never see its day in United States federal court. The adoption of new surveillance technology by law enforcement, including but not limited to:

<sup>91</sup> "US Farm Drama: Predator Drone Assists an Arrest," *RT International*, December 12, 2011.

<sup>92</sup> Jason Koebler, "Court Upholds Domestic Drone Use in Arrest of American Citizen," *U.S. News & World Report*, August 2012.

fixed-wing aircraft, helicopters, heat detection, on-body cameras, and automatic license plate readers, have all been challenged in court. As drone technology continues to develop and expand, it is inevitable that its use by law enforcement will eventually generate a Fourth Amendment challenge. However, adherence to the limitations established by the 20-year-old Supreme Court precedent described herein may mitigate against such challenges.

