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## **A DRONE'S EYE VIEW: WHY AND HOW THE FEDERAL AVIATION ADMINISTRATION SHOULD REGULATE HOBBYIST DRONE USE**

*Alexandria Tomanelli\**

### **I. INTRODUCTION**

Our technology-driven society has taken surveillance and invasion of privacy to an entirely new level.<sup>1</sup> Unmanned aircraft systems (“UAS”), otherwise known as “drones,” are invading the lives and property of civilians without consent and diminishing their rights to privacy.<sup>2</sup> There is a national debate about whether these privacy implications should be addressed at a federal or state level. The Federal Aviation Administration (“FAA”) asserts that its goal is to safely integrate this innovative technology into the National Airspace System (“NAS”) and that its mission does not include privacy concerns.<sup>3</sup> The FAA argues that these property and privacy concerns

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<sup>1</sup> See Brad Knickerbocker, *Drones Over America. Are They Spying On You*, CHRISTIAN SCI. MONITOR (June 6, 2012), <https://www.csmonitor.com/USA/2012/0616/Drones-over-America.-Are-they-spying-on-you>.

<sup>2</sup> *Id.*

<sup>3</sup> See *Mission and Responsibilities*, FED. AVIATION ADMIN., [https://www.faa.gov/airports/central/about\\_airports/CE\\_mission/](https://www.faa.gov/airports/central/about_airports/CE_mission/) (last modified Aug. 21, 2014). “The National Airspace System (NAS) is the network of United States airspace, air navigation facilities, services, airports, regulations, procedures, technical information, manpower, and material shared jointly between the Federal Aviation Administration (FAA) and the military.” *National Airspace System*, CFI NOTEBOOK.NET, <http://www.cfynotebook.net/notebook/national-airspace-system/national-airspace-system> (last visited Aug. 11, 2018). “The FAA created the National Airspace System (NAS) to protect persons and property on the ground, and to establish a safe

fall into the realm of state police powers and should be regulated locally. The FAA, however, is the only administrative agency with the power to regulate and monitor drone use.<sup>4</sup> Therefore, the FAA should create uniform privacy-specific regulations for the recreational use of drones.

In consideration of the increasing hobbyist drone use, the FAA should adopt regulations to protect privacy rights which are not covered by its current regulations. The tension between those being surveilled and the drone operator highlights the legal implications of the current regulations, and it is time to address the relationship between drone technology and our right to privacy.

According to the FAA, the purchase of drones has drastically increased over the past few years.<sup>5</sup> The purchase of drones for recreational purposes is expected to grow from \$1.9 million in 2016 to \$4.3 million by 2020.<sup>6</sup> Also, the sale of drones for commercial purposes is estimated to grow from \$600,000 in 2016 to a potential of \$2.7 million by 2020.<sup>7</sup> Combined, these numbers result in a purchase increase of over \$4.4 million.<sup>8</sup> Unsurprisingly, by 2025, the drone industry is expected to be worth \$93 billion.<sup>9</sup> As of January 2018, there were one million drones registered with the FAA.<sup>10</sup>

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and efficient airspace environment for civil, commercial, and military aviation.” *National Airspace System Overview*, FED. AVIATION ADMIN., at A-1, [https://www.faa.gov/air\\_traffic/nas/nynjphl\\_redesign/documentation/feis/media/Appendix\\_A-National\\_Airspace\\_System\\_Overview.pdf](https://www.faa.gov/air_traffic/nas/nynjphl_redesign/documentation/feis/media/Appendix_A-National_Airspace_System_Overview.pdf) (last visited Aug. 11, 2018).

<sup>4</sup> See *Press Release—FAA Statement—Federal vs. Local Drone Authority*, FED. AVIATION ADMIN. (July 20, 2018), [https://www.faa.gov/news/press\\_releases/news\\_story.cfm?newsId=22938](https://www.faa.gov/news/press_releases/news_story.cfm?newsId=22938) (“Congress has provided the FAA with exclusive authority to regulate aviation safety, the efficiency of the navigable airspace, and air traffic control, among other things.”). See also discussion of the FAA Regulations *infra* Part III.

<sup>5</sup> *FAA Releases 2016 to 2036 Aerospace Forecast*, FED. AVIATION ADMIN., <https://www.faa.gov/news/updates/?newsId=85227> (last visited Aug. 4, 2018).

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

<sup>8</sup> See *id.*

<sup>9</sup> *UAV Production Will Total \$93 Billion*, TEAL GROUP CORP. (Aug. 17, 2015), <http://www.tealgroup.com/index.php/pages/press-releases/34-uav-production-will-total-93-billion>. “DJI Innovations is the current leading name in manufacturing civilian drones by capturing an approximately 70% share of the drone market.” Divya Joshi, *Here Are the World’s Largest Drone Companies and Manufacturers to Watch and Invest in*, BUS. INSIDER (July 18, 2017, 3:29 PM), <http://www.businessinsider.com/top-drone-manufacturers-companies-invest-stocks-2017-07>. The drones can cost between \$500-\$1,000. April Glaser, *DJI Is Running Away with the Drone Market*, RECODE (Apr. 14, 2017, 3:34 PM), <https://www.recode.net/2017/4/14/14690576/drone-market-share-growth-charts-dji-forecast>.

<sup>10</sup> Jonathan Vanian, *Drone Registrations Have Soared to a Sky-High Milestone*, FORTUNE (Jan. 11, 2018), <http://fortune.com/2018/01/11/drone-registrations-million-faa/>.

These forecasts alone leave most individuals uneasy.<sup>11</sup> Hobbyist drone use has increased alongside a number of privacy concerns on private property, and the FAA has been unwilling to promulgate regulations pertaining to such privacy concerns.<sup>12</sup> The concerns include the threat to civilians' privacy rights, which have been compromised by the popular civilian recreational use of drones on private property because drones are an inherently intrusive form of modern technology.<sup>13</sup> These privacy concerns derive from the aerial and surveillance capabilities of drones, the ability to capture private moments on private property, and even the capability of surveillance in public places.<sup>14</sup>

A New York Times columnist, Nick Bilton, documented his personal experience with drone surveillance in his neighborhood.<sup>15</sup> As the columnist looked out of his home office window, he saw a drone hovering twenty feet away with the camera aimed directly into his home.<sup>16</sup> The columnist wrote, "I see little difference between a drone hovering near my window, and someone standing across the street with a pair of binoculars. Both can peer into my office."<sup>17</sup> In that moment, the columnist stated that he "felt spied upon" and was unsure of why a drone was peeking into his window.<sup>18</sup> This is just one of the many instances that have been reported by civilians and confirms the pervasiveness of drone technology.<sup>19</sup> Some people may not even

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<sup>11</sup> See Gregory McNeal, *Drones and Aerial Surveillance: Considerations for Legislatures*, BROOKINGS (Nov. 2014), <https://www.brookings.edu/research/drones-and-aerial-surveillance-considerations-for-legislatures/>.

<sup>12</sup> See *Safety: The Foundation of Everything We Do*, FED. AVIATION ADMIN., [https://www.faa.gov/about/safety\\_efficiency/](https://www.faa.gov/about/safety_efficiency/) (last modified July 24, 2017, 11:19 AM). The FAA maintains that its major roles and responsibilities are safety and efficiency in the aerospace realm. *Id.*

<sup>13</sup> See João Antunes, *Addressing Privacy and Safety Concerns About Drones*, COM. UAV NEWS (Feb. 21, 2018), <https://www.expouav.com/news/latest/addressing-privacy-safety-concerns-drones-percepto/>.

<sup>14</sup> Jen Fifield, *How Drones Raised Privacy Concerns Across Cyberspace*, PBS: NEWS HOUR (July 1, 2016, 8:36 AM), <https://www.pbs.org/newshour/nation/how-drones-raised-privacy-concerns-across-cyberspace>.

<sup>15</sup> Nick Bilton, *When Your Neighbor's Drone Pays an Unwelcome Visit*, N.Y. TIMES (Jan. 27, 2016), <https://www.nytimes.com/2016/01/28/style/neighbors-drones-invade-privacy.html>.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*

<sup>19</sup> See April Glaser, *Why People Get Arrested for Flying Drones*, RECODE (Apr. 27, 2017, 4:04 PM), <https://www.recode.net/2017/4/27/15442848/arrested-flying-drones-us>.

realize the exposure of individuals and the privacy threats that go beyond the home because of drone use.

Drone use provides ample benefits such as disaster management and criminal investigation assistance.<sup>20</sup> Nevertheless, recreational drone use in private settings gives rise to many unsettled privacy concerns.<sup>21</sup> Specifically, regulations need to address concerns regarding the line between the invasion of a homeowner's property and legal measures available to homeowners to remedy an invasion. For example, these regulations should address any immediate relief homeowners have when a drone enters their property where they cannot see the operator and the rights, if any, of civilians to contest being filmed by drone technology in public. These regulations must seek to balance the privileges drone users have to film what the drone is capturing and the privacy rights of citizens. If state legislatures implement harsh restrictions of these uses, these regulations may interfere with rights of the operators set forth by the FAA.

Currently, the problem with drone technology is the lack of uniformity among states and the proliferation of hobbyist drone use on private property and in intimate settings. The FAA has not promulgated legislation protecting privacy. Some states have responded to this lack of regulation by enforcing regulations; however, instances of drone use on private property remain persistent. As the FAA continues to remain silent on concerns pertaining to privacy, civilians are left vulnerable to drone invasions because not every state has laws protecting privacy.<sup>22</sup>

The capabilities of this technology undermine the privacy of civilians in private and public settings. The need for specific privacy regulations is critical; drone technology forces us to reconsider the nature of privacy in the modern world of drones. The FAA's failure to address privacy concerns has exposed civilians to unique privacy threats, such as spying, and left them vulnerable to encounter other

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<sup>20</sup> See Kay C. Goss, *Unmanned Aerial Systems & Emergency Management*, DOMESTIC PREPAREDNESS (Oct. 11, 2017), <https://www.domesticpreparedness.com/resilience/unmanned-aerial-systems-emergency-management/>. See also Matt Alderton, *To the Rescue! Why Drones in Police Work Are the Future of Crime Fighting*, REDSHIFT (Apr. 13, 2018), <https://www.autodesk.com/redshift/drones-in-police-work-future-crime-fighting/>.

<sup>21</sup> See Jack Brown, *Drone Uses: The Awesome Benefits of Drone Technology*, DRONE LAB, <http://mydronelab.com/blog/drone-uses.html> (last visited Aug. 5, 2018).

<sup>22</sup> See *Current Unmanned Aircraft State Law Landscape*, NAT'L CONF. ST. LEGISLATURES (Feb. 1, 2018), <http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx>.

problems, such as nuisance, trespass, interference with use and enjoyment, stalking, harassment, and voyeurism. This Note will focus on how drone technology has threatened the right to privacy and how the absence of an FAA regulatory scheme that addresses privacy weakens that right. The problems that will be significant in exploring this privacy issue are twofold. First, this Note will address actual instances of intrusion of drones on private property. Second, this Note will consider the current regulatory scheme and explore the point at which drones on private property gives rise to a privacy action. In examining the growth of hobbyist use and the threats that this use poses, this Note will conclude that these privacy issues should be addressed at the federal level.

The FAA has the ultimate administrative authority to regulate drone activity; therefore, it should create a regulatory privacy scheme and guidelines for states to follow. The states then can impose further restrictions if needed and abide by the FAA's regulatory scheme. Currently, if states continue to pass legislation regarding drone use, preemption will always be a major concern.

This Note will be divided into seven parts. Part II of this Note will examine the nature and history of drones and will separate drones into three categories: government, commercial and recreational use. This section will analyze their different uses and purposes and address the major privacy concerns with recreational drone use. Next, Part III will discuss the FAA's purpose, the FAA Modernization and Reform Act of 2012 ("FMRA" or "the Act") as well as the civilian's response to the Act. This Part will also analyze the current FAA regulations and guidelines. Part IV will examine the three categories of drone use and discuss the requirements for drone users to operate their drones in conformity with FAA regulations. Part V of this Note will consider why the FAA has not addressed privacy concerns and its lack of intent to do so. Part VI of this Note will propose a uniform regulatory scheme created by the FAA that addresses the most imminent dangers of this technology such as trespass, nuisance, stalking, and voyeurism. The suggested regulatory scheme will have a sliding scale of offenses that will punish the drone user and encourage safe drone flight without compromising the essential civilian right to privacy. Finally, Part VII will conclude by providing a summary of drone technology, specifically, how hobbyist drone use has impacted the right to privacy of individuals. The FAA's failure to address these privacy concerns posed by hobbyist drone users has made individuals susceptible to

unique privacy threats. These threats leave individuals with no recourse against the operator. If the FAA promulgates a regulatory privacy scheme that focuses on prohibiting any hobbyist use on private property without consent, and makes it an offense if that type of use occurs, hobbyists are likely to be deterred from engaging in such pervasive use.

## II. AN OVERVIEW OF DRONE TECHNOLOGY: ITS EVOLUTION AND FUNCTIONS

Drone technology is not a 21st-century creation.<sup>23</sup> Drones have existed for hundreds of years, but it was not until 2002 that the U.S. used its first drone in a military attack.<sup>24</sup> Since then, drones have become increasingly popular and have significantly impacted the modern world.<sup>25</sup> This technology has led to various benefits, but in turn, has raised many privacy concerns for the public.<sup>26</sup>

### A. The Drone and Its Origin

A drone, formally known as an unmanned aircraft system (“UAS”) or unmanned aerial vehicle (“UAV”), is defined as a remotely controlled unmanned aircraft.<sup>27</sup> In essence, a drone is a flying robot operated by software controlled flight plans that have embedded

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<sup>23</sup> See Jimmy Stamp, *Unmanned Drones Have Been Around Since World War I*, SMITHSONIAN.COM (Feb. 12, 2013), <https://www.smithsonianmag.com/arts-culture/unmanned-drones-have-been-around-since-world-war-i-16055939/>.

<sup>24</sup> John Sifton, *A Brief History of Drones*, NATION (Feb. 7, 2012), <https://www.thenation.com/article/brief-history-drones/>.

The CIA had been flying unarmed drones over Afghanistan since 2000. It began to fly armed drones after the September 11 attacks. Some were used during the air war against the Taliban in late 2001. But by February 2002 the CIA hadn't yet used a drone for a strike outside military support. The February 2002 attack was a pure CIA kill operation, undertaken separately from any ongoing military operation.

*Id.*

<sup>25</sup> See Divya Joshi, *Exploring the Latest Drone Technology for Commercial, Industrial, and Military Drone Uses*, BUS. INSIDER (July 13, 2017, 4:40 PM), <http://www.businessinsider.com/drone-technology-uses-2017-7>.

<sup>26</sup> See *id.*

<sup>27</sup> Margaret Rouse, *Drone (Unmanned Aerial Vehicle, UAV)*, TECHTARGET: INTERNET THINGS AGENDA, <http://internetofthingsagenda.techtarget.com/definition/drone> (last updated Oct. 2016). Merriam-Webster defines “drone,” as “an unmanned aircraft or ship guided by remote control or onboard computers.” *Drone*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/drone> (last visited Aug. 5, 2018).

systems working with onboard sensors and Global Positioning System (“GPS”).<sup>28</sup> Drones can be equipped with state of the art technology, including cameras that zoom and allow for aerial videos and pictures from the view of the drone while it is in flight.<sup>29</sup>

UAVs were first developed during World War I.<sup>30</sup> The use of drone technology was not recognized until the Vietnam War, when the development and use became instrumental and invaluable.<sup>31</sup> The use of drones during warfare assists the military with surveillance in unknown areas, and is used by arming the technology with missiles to attack enemy soldiers and terrorists.<sup>32</sup> As the use of drones developed within the military, this technology eventually transitioned into modern society.<sup>33</sup> Over time, drones became increasingly popular because of their unique capability of easily taking aerial photos.<sup>34</sup> Although they are still used for important military purposes, they are also used for civilian businesses and enjoyment by hobbyists.<sup>35</sup> The commercial benefits of this technology are undeniable, and the significant impacts it has on certain industries should not be overlooked.

## B. The Drone and Its Capabilities

The growth of drone technology because of its capabilities has become central and beneficial to various entities, such as the police

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<sup>28</sup> Rouse, *supra* note 27.

<sup>29</sup> See Fintan Corrigan, *How Do Drones Work And What Is Drone Technology*, DRONEZON (July 10, 2018), <https://www.dronezon.com/learn-about-drones-quadcopters/what-is-drone-technology-or-how-does-drone-technology-work/>.

<sup>30</sup> Andrew Tarantola, *This Flying Bomb Was America's WWI Cruise Missile*, GIZMODO (Sept. 4, 2013, 12:00 PM), <http://gizmodo.com/this-flying-bomb-failure-was-americas-wwi-cruise-missi-1184824802>.

<sup>31</sup> See Andrew Tarantola, *The Ryan Firebee: Grandfather to the Modern UAV*, GIZMODO (Aug. 27, 2013, 11:30 AM), <http://gizmodo.com/the-ryan-firebee-grandfather-to-the-modern-uav-1155938222>.

<sup>32</sup> Stewart Smith, *Military and Civilian Drone Use (UAV, UAS)*, BALANCE (Apr. 6, 2018), <https://www.thebalance.com/military-and-civilian-drone-use-4121099>.

<sup>33</sup> See Ian G. R. Shaw, *The Rise of the Predator Empire: Tracing the History of U.S. Drones*, UNDERSTANDING EMPIRE, <http://understandingempire.wordpress.com/2-0-a-brief-history-of-u-s-drones/> (last visited Aug. 5, 2018).

<sup>34</sup> See Andrew Thomas, *How to Use Drones to do Stunning Aerial Photography*, DIGITAL PHOTOGRAPHY, <https://digital-photography-school.com/how-to-use-drones-to-do-stunning-aerial-photography/> (last visited Aug. 5, 2018).

<sup>35</sup> See *generally Recreational Users*, KNOW BEFORE YOU FLY, <http://knowbeforeyoufly.org/for-recreational-users/> (last visited Aug. 5, 2018).



force and civilians.<sup>36</sup> These capabilities have become beneficial in natural disaster relief and border patrol.<sup>37</sup> Although drone capabilities are helpful, several incidents of drone misuse have been reported.<sup>38</sup> Misuses such as filming individuals while sunbathing, surveilling a hospital, and repetitively using drones on private property increase the threats to privacy.<sup>39</sup> Thus, it is important to reconsider how to protect individual privacy rights with evolving drone technology.<sup>40</sup> Categorizing the drone's uses and understanding where this technology is least beneficial and most problematic will help lay the foundation and framework for a regulatory privacy scheme that will protect an individual's rights to privacy.<sup>41</sup>

### 1. *Government Use of Drones*

Drone use for military purposes helps the military attack remote targets.<sup>42</sup> This technology enables the military to use certain strategies to battle terrorism from the skies.<sup>43</sup> All of the drones used for these attacks essentially have the same functions—"intelligence, surveillance, and reconnaissance (ISR)."<sup>44</sup> The U.S. Department of Homeland Security ("DHS") uses drones to monitor and protect our

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<sup>36</sup> See Joshi, *supra* note 25.

<sup>37</sup> Matthew Hutson, *Hurricanes Show Why Drones Are the Future of Disaster Relief*, NBC NEWS (Sept. 9, 2017, 2:34 PM), <https://www.nbcnews.com/mach/science/hurricanes-show-why-drones-are-future-disaster-relief-ncna799961>. William Lajeunesse, *Border Patrol Testing Drones to be Its 'Eyes in the Sky'*, FOX NEWS (Jan. 19, 2018), <http://www.foxnews.com/tech/2018/01/19/border-patrol-testing-drones-to-be-its-eyes-in-sky.html>. "The US-Mexican border stretches almost 2,000 miles, but less than 20 percent is defended by a pedestrian fence. Most fencing exists in urban areas, stretching out 10 or 20 miles in each direction. High-tech cameras allow agents to see illegal immigrants approach and intercept them." *Id.*

<sup>38</sup> See Elaine L. Chao, *Reaping the Benefits of Safe Drone Technology*, HILL (Nov. 6, 2017, 6:10 PM), <http://thehill.com/blogs/congress-blog/technology/359027-reaping-the-benefits-of-safe-drone-technology>.

<sup>39</sup> See Arthur Holland Michel & Dan Gettinger, *Drone Incidents: A Survey of Legal Cases*, CTR. FOR STUDY DRONE BARD C. (Apr. 2017), <http://dronecenter.bard.edu/files/2017/04/CSD-Drone-Incidents.pdf>.

<sup>40</sup> See *id.*

<sup>41</sup> See Chao, *supra* note 38.

<sup>42</sup> Shaw, *supra* note 33.

<sup>43</sup> Shaw, *supra* note 33.

<sup>44</sup> Shaw, *supra* note 33.

nation's borders.<sup>45</sup> Over the past few years, the attention that drones have received for military purposes has caught the interest of law enforcement organizations, and drones now serve a domestic purpose.<sup>46</sup>

Drone surveillance allows the monitoring of hostage situations and even the pursuit of fleeing suspects.<sup>47</sup> For example, in 2014, in *State v. Brossart*,<sup>48</sup> the Brossart family failed to report stray cattle that wandered onto their property.<sup>49</sup> The police became aware of this and approached the home to retrieve the cattle.<sup>50</sup> After a dispute and refusal by Rodney Brossart, the owner of the property, the police deployed a drone to monitor the hostage situation.<sup>51</sup> The drone was able to surveil Brossart and locate his children who were armed.<sup>52</sup> After a 16-hour standoff, in which the drone captured the children putting down their weapons, the S.W.A.T. team was able to enter and arrest the children as well as retrieve the cattle.<sup>53</sup> The drone's surveillance avoided a potentially violent situation and helped law enforcement to make its first arrest aided by a predator drone.<sup>54</sup>

On August 31, 2017, the FAA deployed forty-three drones to Texas to conduct damage assessments of "critical infrastructure, homes and businesses to help target, prioritize and expedite recovery activities" caused by Hurricane Harvey.<sup>55</sup> Eight of the forty-three

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<sup>45</sup> Declan McCullagh, *DHS Built Domestic Surveillance Tech into Predator Drones*, CNET (Mar. 2, 2013, 11:30 AM), <https://www.cnet.com/news/dhs-built-domestic-surveillance-tech-into-predator-drones/>.

<sup>46</sup> See Shaw, *supra* note 33.

<sup>47</sup> See Brian Bennett, *Drones Tested as Tools for Police and Firefighters*, L.A. TIMES (Aug. 5, 2012), <http://articles.latimes.com/2012/aug/05/nation/la-na-drones-testing-20120805>.

<sup>48</sup> 858 N.W.2d 275 (N.D. 2015).

<sup>49</sup> *Id.* at 280.

<sup>50</sup> *Id.* at 282.

<sup>51</sup> Ryan Gallagher, *What a Cattle-Theft Case Could Mean for U.S. Law Enforcement Use of Drones*, SLATE (May, 4, 2012, 5:43 PM), [http://www.slate.com/blogs/future\\_tense/2012/05/04/brossart\\_case\\_cattle\\_theft\\_allegations\\_and\\_law\\_enforcement\\_use\\_of\\_domestic\\_drones\\_.html](http://www.slate.com/blogs/future_tense/2012/05/04/brossart_case_cattle_theft_allegations_and_law_enforcement_use_of_domestic_drones_.html).

<sup>52</sup> Jason Koebler, *North Dakota Man Sentenced to Jail In Controversial Drone-Arrest Case*, U.S. NEWS (Jan. 15, 2014, 11:55 AM), <https://www.usnews.com/news/articles/2014/01/15/north-dakota-man-sentenced-to-jail-in-controversial-drone-arrest-case>.

<sup>53</sup> Jason Koebler, *First Man Arrested With Drone Evidence Vows to Fight Case*, U.S. NEWS (Apr. 9, 2012, 5:00 PM), <https://www.usnews.com/news/articles/2012/04/09/first-man-arrested-with-drone-evidence-vows-to-fight-case>.

<sup>54</sup> Gallagher, *supra* note 51.

<sup>55</sup> Frank Schroth, *FAA Supports Drone Assessments for Houston Response and Recovery*, DRONE LIFE (Sept. 1, 2017), <https://dronelife.com/2017/09/01/faa-supports-drone-assessments-houston-response-recovery/>.

drones surveyed the damage of major rail lines running through Houston, and another five surveyed the damage to oil and energy facilities, fuel tanks, and power lines.<sup>56</sup> The ability of drones to be used for tasks including border patrol, disaster relief, law enforcement and military missions is evidence that the government will and should continue to employ drones to help with such critical issues.<sup>57</sup>

## 2. Commercial Use of Drones

Drones have many commercial benefits, but the impact on the agricultural world is particularly significant.<sup>58</sup> Using drones allows farmers to be more efficient while checking their crops, and it is suggested that drone capabilities will eventually lead to a growth in production.<sup>59</sup> For example, a drone enabled a Florida farmer to significantly reduce the time he spent driving a truck through his 13,000-acre farm.<sup>60</sup> Farmers can identify failing plants early, check inventory, map farmland irrigation systems, and monitor livestock.<sup>61</sup> In the end, drone technology saves farmers a lot of time and money.<sup>62</sup>

Farmers are not the only ones benefiting from the use of drones. The architecture and construction industries use drones to take quick aerial shots to visualize concepts, such as 3-D structures of buildings, which allow architects and builders to see how their structures will fit into properties.<sup>63</sup> Also, engineering firms use drones for projects such as oil pipelines, transmission cables, and maintenance inspections.<sup>64</sup> Local news and small-scale media use drones for aerial footage of

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<sup>56</sup> *Id.*

<sup>57</sup> See, e.g., Lajeunesse, *supra* note 37; Hutson, *supra* note 37; Shaw, *supra* note 33.

<sup>58</sup> See Michal Mazur, *Six Ways Drones Are Revolutionizing Agriculture*, MIT TECH. REV. (July 20, 2016), <https://www.technologyreview.com/s/601935/six-ways-drones-are-revolutionizing-agriculture/>. “Among the most promising areas is agriculture, where drones offer the potential for addressing several major challenges.” *Id.*

<sup>59</sup> See Chad Garland, *Drones May Provide Big Lift to Agriculture When FAA Allows Their Use*, L.A. TIMES (Sept. 13, 2014, 5:00 AM), <http://www.latimes.com/business/la-fi-drones-agriculture-20140913-story.html#page=1>.

<sup>60</sup> Jessica Pereda & Jonathan Munoz, *Drone Technology Helps Florida Farmers Cut Costs*, WUFT.ORG (June 6, 2015), <https://www.wuft.org/news/2015/06/06/drone-technology-helps-florida-farmers-cut-costs/>.

<sup>61</sup> Adam C. Uzialko, *10 Cool Commercial Drone Uses Coming to a Sky Near You*, BUS. NEWS DAILY (May 10, 2018, 8:50 AM), <http://www.businessnewsdaily.com/9276-commercial-drones-business-uses.html>.

<sup>62</sup> *Id.*

<sup>63</sup> *Id.*

<sup>64</sup> *Id.*

news coverage.<sup>65</sup> Because of their unique shape and capabilities, drones can maneuver into small areas and fly lower to the ground than a news helicopter, which permits face-to-face interviews to be conducted more easily and dynamically.<sup>66</sup>

Other commercial purposes include the integration of drones in successful businesses. In 2016, Jeff Bezos, founder and chairman of Amazon announced that Amazon would be developing a delivery system which will integrate drones into its deliveries.<sup>67</sup> This delivery system will enable Amazon to deliver packages of a certain weight and size to customers within thirty minutes or less; this rapid parcel delivery will increase the efficiency of the transportation of packages.<sup>68</sup> Similar to Amazon, Google has invested in the drone industry and plans on releasing a drone delivery system.<sup>69</sup>

### 3. *Recreational Use of Drones*

The recreational use of drones is primarily for personal interests and enjoyment.<sup>70</sup> For example, hobbyists use drones to take pictures and videos of their vacations and outdoor activities, such as

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<sup>65</sup> *Id.*

<sup>66</sup> Uziako, *supra* note 61.

<sup>67</sup> See Amazon Prime Air, AMAZON, <https://www.amazon.com/Amazon-Prime-Air/b?node=8037720011> (last visited Aug. 5, 2018).

<sup>68</sup> See *id.* Recently, Amazon received a patent for cushioning packages with “inflatable air bags” and dropping them as high as 25 feet. Ethan Baron, *Amazon Looks at Dropping Packages onto Your Patio as High as 25 Feet*, SEATTLE TIMES (Mar. 14, 2018, 6:43 AM), <https://www.seattletimes.com/business/amazon-looks-at-dropping-packages-onto-your-patio-from-as-high-as-25-feet/> (explaining that the drone is operated by inflating an air bag with a canister while in transit).

<sup>69</sup> Uziako, *supra* note 60. Two years ago, Mark Zuckerberg, CEO of Facebook, announced the plan to bring internet access to the developing world. Aaron Mamiit, *Facebook's Aquila Soars in Test Flight: Solar-Powered Drone Will Provide Internet Access to Everyone*, TECH TIMES (July 22, 2016, 6:51 AM), <http://www.techtimes.com/articles/170974/20160722/facebook-aquila-soars-in-test-flight-solar-powered-drone-will-provide-internet-access-to-everyone.htm>. Facebook asserted that it would be developing the first solar-powered internet access providing drone named the “Aquila.” *Id.* On June 28, 2016, Facebook completed the first successful flight of Aquila, which took place in Yuma, Arizona, lasted for ninety-six minutes and gathered data about the model and aircraft structure. *Id.* Facebook stopped this drone development because two of its key engineers left the company. Mark Harris, *Facebook Cancels Program to Deliver Internet by Aquila Drones*, SPECTRUM (June 26, 2018, 9:20 PM), <https://spectrum.ieee.org/tech-talk/telecom/internet/facebook-pulls-out-of-secret-spaceport-internet-drone-tests>.

<sup>70</sup> *Recreational Users*, KNOW BEFORE YOU FLY, *supra* note 33.

rafting trips.<sup>71</sup> Drones also help enable our “selfie”<sup>72</sup> obsessed generation by allowing drone users to take authentic selfies from the sky.<sup>73</sup> This technology has created a “new wave” for users to try aerial photography.<sup>74</sup> Other hobbyists use drones for special family events, such as family picnics.<sup>75</sup> Several years ago, Congressman Sean Patrick Maloney used a drone to shoot his nuptials from the air.<sup>76</sup>

Others use drones for home improvements; for example, Martha Stewart used a drone over her Bedford, New York property to determine what improvements she could make on her home in the future.<sup>77</sup> The drone technology is equipped to give homeowners the opportunity to use drones to check for missing shingles and clogged gutters.<sup>78</sup> Currently, hobbyists may buy goggles that allow them to see what the drone records from the air.<sup>79</sup>

#### 4. *Dangers of Recreational Drone Use*

Although some drone users might use their drones for recreation and enjoyment, the combination of their use and the advanced capabilities of drones have caused many problems in society, which include drones capturing video footage of private property and interfering with people’s work obligations.<sup>80</sup> In 2014, a woman in Seattle was petrified when she saw a drone outside of her window

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<sup>71</sup> Reed Tucker, *5 Surprising Uses for Your High-Flying Drone*, N.Y. POST (Aug. 19, 2014, 9:18 PM), <http://nypost.com/2014/08/19/5-surprising-uses-for-your-high-flying-drone/>.

<sup>72</sup> *Selfie*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/selfie> (last visited Aug. 5, 2018) (defining “selfie” as “an image of oneself taken by oneself using a digital camera especially for posting on social networks”).

<sup>73</sup> *Facial Recognition Drone Gives Your Selfie Stick Wings*, UAV EXPERT NEWS (Apr. 5, 2016), <http://www.uavexpertnews.com/facial-recognition-drone-gives-your-selfie-stick-wings>. “Anyone can take a selfie. But to really get ‘likes’ on social media, try posting a ‘dronie’—a photo taken from a couple of hundred feet above your head by your UAV.” Tucker, *supra* note 71 (citation omitted).

<sup>74</sup> Christina Zdanowicz, *How to Shoot Amazing Videos from Drones*, CNN (May 22, 2014, 3:33 PM), <https://www.cnn.com/2014/05/22/tech/innovation/drone-uav-photography/index.html>.

<sup>75</sup> Tucker, *supra* note 71.

<sup>76</sup> Tucker, *supra* note 71.

<sup>77</sup> Tucker, *supra* note 71.

<sup>78</sup> Tucker, *supra* note 71.

<sup>79</sup> Tucker, *supra* note 71.

<sup>80</sup> See Bilton, *supra* note 15.

while she was in her apartment on the twenty-sixth floor.<sup>81</sup> The individual responsible for flying this drone claimed that he was using the drone to take aerial pictures of a real estate project.<sup>82</sup>

In April 2015, Brooklyn Media workers spotted a drone from their thirtieth floor office windows.<sup>83</sup> The workers were startled and claimed, "It was hovering, just hovering and pointing its camera into our offices . . . zooming past some open windows of people's residences, which was very freaky[;] it seemed like it was collecting a lot of data."<sup>84</sup>

In July 2015, a father in Kentucky shot a drone that was hovering over his yard while his teen daughter was sunbathing.<sup>85</sup> The father claimed, "We don't know if they're pedophiles looking for kids, we don't know if they're thieves. We don't know if it's ISIS."<sup>86</sup> There are many other similar incidents; for example, in Kansas, a man charged that his neighbor's flying a drone near his teenage stepdaughter's bedroom window invaded his family's privacy.<sup>87</sup> The man was concerned and stated, "The Peeping Toms that we knew 10 to 15 years ago that used to come in the yard, hide in the bushes and look in the first story window are now replaced by guys who can be across the street, down the block or even a mile away."<sup>88</sup> These invasions are not limited to residential areas but have also occurred at park beaches.<sup>89</sup> In Virginia Beach, a woman sunbathing on a private beach stated that the drone was "seriously creepy" and "I am so mad

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<sup>81</sup> Devin Coldewey, *Drone Outside Window Spooks Seattle Woman But Cops Say No Law Broken*, NBCNEWS (June 24, 2014, 2:44 PM), <http://www.nbcnews.com/tech/tech-news/drone-outside-window-spooks-seattle-woman-cops-say-no-law-n139626>.

<sup>82</sup> *See id.*

<sup>83</sup> *Drone Flying in Brooklyn Heights Startles Residents*, NBC N.Y. (Aug. 14, 2015, 11:20 PM), <http://www.nbcnewyork.com/news/local/Brooklyn-Heights-Drone-Startles-Residents-321931492.html>.

<sup>84</sup> *See id.*

<sup>85</sup> Mike Wehner, *Kentucky Man Shoots Down Drone Spying on his 16 Year Old Daughter*, DAILY DOT (July 30, 2015, 12:14 PM), <https://www.dailydot.com/debug/kentucky-drone-shooting/>.

<sup>86</sup> *Drones Could Be Violating Women's Privacy While Sunbathing*, TRACKIMO (May 30, 2016), <https://trackimo.com/drones-violating-womens-privacy-sunbathing/>.

<sup>87</sup> *Leawood Man Says Peeping Tom Flew Drone next to Teen Daughter's Window*, FOX 4 NEWS KAN. CITY (Oct. 9, 2015, 10:37 PM), <http://fox4kc.com/2015/10/09/leawood-man-says-peeping-tom-flew-drone-next-to-teen-daughters-window/>.

<sup>88</sup> *Id.*

<sup>89</sup> See Joel Landau, *SEE IT: Woman Tries to Beat Up Teenagers for Flying Drone over Connecticut Beach*, DAILY NEWS (June 10, 2014, 9:40 AM), <http://www.nydailynews.com/news/national/woman-attacks-teen-flying-drone-beach-article-1.1823620>.

that I was violated in that way — and the potentials for anyone else being violated that way.”<sup>90</sup> A similar incident occurred in Connecticut where a woman assaulted a drone user for taking pictures on a public beach.<sup>91</sup> Unsurprisingly, these operators are bringing suit against civilian’s to recover money for their damaged drone because the civilian’s who object to being surveilled are resorting to self-help.<sup>92</sup> The lack of uniformity from state to state places citizens in vulnerable positions and leaves drone operators confused about whether they violated the law.<sup>93</sup>

### III. FAA REGULATIONS

The FAA is the only authorized agency that makes rules and regulations for the use of navigable airspace.<sup>94</sup> The FAA has established a different set of regulations for government, commercial, and recreational use of drones.<sup>95</sup> The various regulations are separated by the type of use, and each regulation is substantially different from others based on the type of use.<sup>96</sup> Government and commercial use of drones is subject to many enforcement procedures, while recreational use, which poses the greatest number of threats, has fewer drone regulations.<sup>97</sup>

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<sup>90</sup> Julie Balise, *Woman Claims Drone Harassed her at Virginia Beach*, SF GATE (May 16, 2014, 4:23 PM), <https://blog.sfgate.com/techchron/2014/05/16/woman-claims-drone-harassed-her-at-virginia-beach/>.

<sup>91</sup> Landau, *supra* note 89.

<sup>92</sup> See Glaser, *supra* note 19. See also *Boggs v. Merideth*, No. 3:16-cv-6-DJH, 2016 WL 66951 (W.D. Ky. Jan. 4, 2016) (explaining a situation where a man sued his neighbor for shooting down his drone while it was in flight).

<sup>93</sup> See Melissa Brunner, *Ruling the Skies: Do You Know the Regulations for Drone Flights?*, WIBW (Nov. 10, 2017, 10:40 PM), <http://www.wibw.com/content/news/Ruling-the-Skies-Do-you-know-the-regulations-for-drone-flights-456760843.html>.

<sup>94</sup> See *A Brief History of the FAA*, FED. AVIATION ADMIN., [https://www.faa.gov/about/history/brief\\_history/](https://www.faa.gov/about/history/brief_history/) (last modified Jan. 4, 2017, 4:42 PM).

<sup>95</sup> See *Unmanned Aircraft System (UAS) Frequently Asked Questions*, FED. AVIATION ADMIN., <https://www.faa.gov/uas/faqs/> (last modified Aug. 1, 2018, 5:54 PM).

<sup>96</sup> See *id.*

<sup>97</sup> See *id.*

### A. The FAA's Responsibilities

The FAA is the federal agency responsible for the safety of civil aviation in NAS.<sup>98</sup> The FAA regulations govern all aviation activities in the United States including safety regulation, airspace and air traffic management, air navigation facilities, civil aviation abroad, and commercial space transportation, research, engineering and development.<sup>99</sup> Safety regulations include enforcement regulations and minimum standards that cover the manufacture, operation, and maintenance of aircraft.<sup>100</sup> The FAA also regulates the type of certifications needed by operators based on the purpose of the drone activity.<sup>101</sup> One of the primary objectives of the FAA is airspace and air traffic management; its primary goal is to implement regulations that allow the safest and most efficient use of navigable airspace.<sup>102</sup>

The FAA operates airport towers, air route traffic control centers, flight service stations, and air traffic rules.<sup>103</sup> The FAA also assigns the use of airspace and controls air traffic.<sup>104</sup> Its responsibilities are to maintain and operate these facilities and ensure that other systems support the air navigation and traffic control.<sup>105</sup>

The FAA also engages in communications with foreign authorities, exchanging certain aeronautical information, airmen, mechanics and technical aid, and airworthiness.<sup>106</sup> The goal is to promote aviation safety abroad; the FAA also negotiates airworthiness agreements with other countries and participates in international conferences that discuss these issues.<sup>107</sup>

In addition to these regulations, the FAA regulates the commercial space transportation industry, which involves licensing commercial space launch facilities and launching space payloads on expendable launch vehicles.<sup>108</sup> Finally, the FAA spends a majority of

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<sup>98</sup> See *What We Do*, FED. AVIATION ADMIN., <https://www.faa.gov/about/mission/activities/> (last modified June 27, 2016, 12:18 PM).

<sup>99</sup> *Id.*

<sup>100</sup> *Federal Aviation Administration (FAA)*, SKYBRARY, [https://www.skybrary.aero/index.php/Federal\\_Aviation\\_Administration\\_\(FAA\)](https://www.skybrary.aero/index.php/Federal_Aviation_Administration_(FAA)) (last modified July 11, 2016).

<sup>101</sup> *See id.*

<sup>102</sup> *Id.*

<sup>103</sup> *Id.*

<sup>104</sup> *Id.*

<sup>105</sup> *Federal Aviation Administration (FAA)*, *supra* note 100.

<sup>106</sup> *Federal Aviation Administration (FAA)*, *supra* note 100.

<sup>107</sup> *Federal Aviation Administration (FAA)*, *supra* note 100.

<sup>108</sup> *Federal Aviation Administration (FAA)*, *supra* note 100.



its time researching systems and procedures for safe integration of aircraft into national airspace and developing safer aircraft, engines, equipment, tests, evaluations, materials and procedures, and ultimately aeromedical research.<sup>109</sup> Out of the myriad of responsibilities of the FAA, none of the responsibilities relate to or affect privacy concerns.<sup>110</sup>

### B. FAA Modernization and Reform Act of 2012

In 2012, because of the growth of drone technology, Congress enacted the FAA Modernization and Reform Act (“FMRA”), which requires the FAA to promulgate drone regulations.<sup>111</sup> The FAA established requirements, which included the development of a “Comprehensive Plan” to incorporate drones into national airspace.<sup>112</sup> Pursuant to Congress’s wishes the plan was required to include standards for operation and certification and set standards and requirements for the operators of the drones.<sup>113</sup> The FMRA encouraged the FAA to develop this plan to ensure the safe integration of drones into NAS by September 30, 2015.<sup>114</sup> The FAA would create these set of rules based on

a determination . . . [of] which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security . . . .<sup>115</sup>

Prior to the September deadline, in February 2015, President Obama released a public memorandum titled “Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil

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<sup>109</sup> See *Federal Aviation Administration (FAA)*, *supra* note 100.

<sup>110</sup> See generally *Federal Aviation Administration (FAA)*, *supra* note 100.

<sup>111</sup> See FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, 126 Stat. 11 (current version at 49 U.S.C. § 40101 (2016)).

<sup>112</sup> *Id.* § 332(a)(1).

<sup>113</sup> See *id.* § 332(a)(2).

<sup>114</sup> See *id.* § 332(a)(1).

<sup>115</sup> *Id.* § 333(b).

Liberties, in Domestic Use of Unmanned Aircraft Systems.”<sup>116</sup> The memorandum discussed the executive branch’s commitment to ensuring that the FAA, while drafting regulations, took into account privacy, security, and transparency.<sup>117</sup> Section 1(a) of the memorandum stated:

Particularly in light of the diverse potential uses of UAS in the NAS, expected advancements in UAS technologies, and the anticipated increase in UAS use in the future, the Federal Government shall take steps to ensure that privacy protections and policies relative to UAS continue to keep pace with these developments.<sup>118</sup>

Hours after this memorandum was released the FAA proposed regulations for “small” drones, which did not consider privacy concerns.<sup>119</sup> On February 2015, the FAA had officially proposed a framework of regulations that would permit small drones into the aviation system.<sup>120</sup> According to the FAA, the proposed regulations maintained the flexibility to accommodate the rapid growth of the drone industry.<sup>121</sup>

The proposed regulations offered safety rules for drones that conducted non-recreational operations and limited flights to daylight and visual line of sight operations.<sup>122</sup> All drones weighing between 0.55 and 55 pounds were required to be registered with the FAA.<sup>123</sup>

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<sup>116</sup> Barack Obama, *Presidential Memorandum: Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems*, WHITE HOUSE: PRESIDENT BARACK OBAMA (Feb. 15, 2015), <https://obamawhitehouse.archives.gov/the-press-office/2015/02/15/presidential-memorandum-promoting-economic-competitiveness-while-safegua>.

<sup>117</sup> *See id.*

<sup>118</sup> *Id.*

<sup>119</sup> *See generally* Press Release—DOT and FAA Propose New Rules for Small Unmanned Aircraft Systems, FED. AVIATION ADMIN. (Feb. 15, 2015), [https://www.faa.gov/news/press\\_releases/news\\_story.cfm?newsId=18295](https://www.faa.gov/news/press_releases/news_story.cfm?newsId=18295).

<sup>120</sup> *See id.*

<sup>121</sup> *Id.* “Technology is advancing at an unprecedented pace and this milestone allows federal regulations and the use of our national airspace to evolve to safely accommodate innovation.” *Id.* (quoting Transportation Secretary Anthony Foxx).

<sup>122</sup> *Id.*

<sup>123</sup> *FAADroneZone*, FED. AVIATION ADMIN., <https://faadronezone.faa.gov/#/> (last visited Aug. 5, 2018). “The FAA states that failure to register an aircraft may result in regulatory and criminal sanctions. The FAA may assess civil penalties up to \$27,500. Criminal penalties include fines of up to \$250,000 and/or imprisonment for up to three years.” *FAQ*, FED. DRONE REGISTRATION, <http://federaldroneregistration.com/faq/> (last visited Aug. 5, 2018).

This rule suggested, but did not require, an operator to work with a visual observer, who would have constant visual contact with the drone.<sup>124</sup> The proposed rule considered the person who is flying the drone to be the “operator.”<sup>125</sup>

To be an operator, the person flying a drone must be at least 17 years old, pass an aeronautical knowledge test, and obtain an FAA UAS operator certificate.<sup>126</sup> Certification would require the operator to pass the FAA knowledge tests every twenty-four months, and no further certifications would be required by the operator for such use.<sup>127</sup> The proposed rule also offered certain limitations designed to minimize the risks to other people and property. These limitations stated:

- A small UAS operator must always see and avoid manned aircraft. If there is a risk of collision, the UAS operator must be the first to maneuver away.
- The operator must discontinue the flight when continuing would pose a hazard to other aircraft, people or property.
- A small UAS operator must assess weather conditions, airspace restrictions and the location of people to lessen risks if he or she loses control of the UAS.
- A small UAS may not fly over people, except those directly involved with the flight.
- Flights should be limited to 500 feet altitude and no faster than 100 mph.
- Operators must stay out of airport flight paths and restricted airspace areas, and obey any FAA Temporary Flight Restrictions (TFRs).<sup>128</sup>

Congress responded to the pressure of issuing exemptions by requiring that any aircraft operation in NAS for a commercial purpose must have a certificate, registered aircraft, licensed pilot and operational approval.<sup>129</sup> Under Section 333 of the FMRA, the

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<sup>124</sup> *Press Release, supra* note 119.

<sup>125</sup> *Press Release, supra* note 119.

<sup>126</sup> *Press Release, supra* note 119.

<sup>127</sup> *Press Release, supra* note 119.

<sup>128</sup> *Press Release, supra* note 119.

<sup>129</sup> *Section 333, FED. AVIATION ADMIN.,* [https://www.faa.gov/uas/beyond\\_the\\_basics/](https://www.faa.gov/uas/beyond_the_basics/)

Secretary of Transportation has the authority to determine whether an airworthiness certificate is required for drones to operate in the NAS.<sup>130</sup> Section 333 Exemption of the FMRA process “provides operators who wish to pursue safe and legal entry into the NAS a competitive advantage in the marketplace, thus discouraging illegal operations and improving safety.”<sup>131</sup> However, commercial users who applied for Section 333 exemptions still needed to apply for a Certification of Waiver of Authorization (“COA”).<sup>132</sup> A COA is an authorization given by the Air Traffic Organization to a public operator.<sup>133</sup> Once the application is submitted, the FAA engages in a comprehensive operational and technical review.<sup>134</sup> The FAA stated that, in most cases, it would provide a formal response within sixty days of the submission of the completed application.<sup>135</sup>

The governmental aircraft operation regulations are for drones that are owned and operated by government agencies within the United States.<sup>136</sup> In the 2015 proposed regulations, government agencies were required to operate under COAs; there were no further regulations or additions to the regulations for governmental purposes.<sup>137</sup> Overall, pursuant to the 2015 regulations, the COA could be issued for government agencies or private agencies, which permitted use for a particular aircraft, for a particular purpose, or in a particular geographical area.<sup>138</sup> Government operations were expected to

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section\_333/ (last modified May 2, 2018, 10:31 AM).

<sup>130</sup> *Id.* “An airworthiness certificate is an FAA document which grants authorization to operate an aircraft in flight.” *Airworthiness Certificates Overview*, FED. AVIATION ADMIN., [https://www.faa.gov/aircraft/air\\_cert/airworthiness\\_certification/aw\\_overview/](https://www.faa.gov/aircraft/air_cert/airworthiness_certification/aw_overview/) (last visited Oct. 24, 2017, 12:43 PM). “Airworthiness is the ability of an aircraft or other airborne equipment or system to be operated in flight and on the ground without significant hazard to aircrew, ground crew, passengers or to third parties; it is a technical attribute of materiel throughout its lifecycle.” *Airworthiness*, SKYBRARY, <https://www.skybrary.aero/index.php/Airworthiness> (last modified Dec. 10, 2017).

<sup>131</sup> *Section 333*, *supra* note 129.

<sup>132</sup> *Unmanned Aircraft System (UAS) Frequently Asked Questions*, *supra* note 95.

<sup>133</sup> *Certificates of Waiver of Authorization (COA)*, FED. AVIATION ADMIN., [https://www.faa.gov/about/office\\_org/headquarters\\_offices/ato/service\\_units/systemops/aai\\_m/organizations/uas/coa/](https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/aai_m/organizations/uas/coa/) (last modified Mar. 9, 2018, 1:37 PM).

<sup>134</sup> *Id.*

<sup>135</sup> *Id.*

<sup>136</sup> *See* 49 U.S.C. § 40102(a)(41) (2016).

<sup>137</sup> *See FAA Streamlines UAS COAs for Section 333*, FED. AVIATION ADMIN., [http://www.faa.gov/news/updates/?newsId=82245&omniRss=news\\_updatesAoc&cid=101\\_N\\_U](http://www.faa.gov/news/updates/?newsId=82245&omniRss=news_updatesAoc&cid=101_N_U) (last modified Mar. 24, 2015, 12:46 PM).

<sup>138</sup> *See Beyond the Basics*, FED. AVIATION ADMIN., [https://www.faa.gov/uas/beyond\\_the\\_](https://www.faa.gov/uas/beyond_the_)

continue to operate under a separate COA; therefore, the proposed rules did not apply to government aircraft operations.<sup>139</sup>

These regulations primarily focused on the safety of drones entering NAS.<sup>140</sup> The most significant proposals of the February 2015 regulations primarily fell into two categories: the first category included basic requirements for operators, and the second category included proposed operational limitations for specific agencies.<sup>141</sup>

### C. Changes to the FAA Regulations

Over 4,600 public comments were submitted in response to the FMRA.<sup>142</sup> The FAA considered these comments, finalized the rules and issued them in June 2016.<sup>143</sup> Based on the experience it had with the COA and exemptions process, the FAA developed a framework to enable certain small UASs to make an easier integration into airspace.<sup>144</sup> The FAA anticipates that the new rules will accommodate the rapid evolving drone technology.<sup>145</sup>

In 2016, the FAA issued the 107 rule, which superseded the Section 333 exemption.<sup>146</sup> The Part 107 rule, which is in Chapter 14 of the Code of Federal Regulations, governs the operations of “small unmanned aircraft” (“sUAS”) for commercial purposes within the United States.<sup>147</sup> The 107 rule replaced the individual application for waivers and made the licensing process for commercial users easier.<sup>148</sup> Because of the rapid evolution of drone technology, the FAA included a key provision to the rule to allow certain operators to depart from the

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basics/#gov (last modified Nov. 24, 2017, 4:16 PM). See *Unmanned Aircraft System (UAS) Frequently Asked Questions*, *supra* note 95.

<sup>139</sup> See *Press Release*, *supra* note 119.

<sup>140</sup> See *Press Release*, *supra* note 119.

<sup>141</sup> See *Press Release*, *supra* note 119.

<sup>142</sup> Operation and Certification of Small Unmanned Aircraft System, Docket No. FAA-2015-0150, Final Rule (June 21, 2016).

<sup>143</sup> See *id.*

<sup>144</sup> Interpretation of the Special Rule for Model Aircraft, Docket No. FAA-2014-0396, Notice of Interpretation with Request for Comment (June 18, 2014).

<sup>145</sup> *Id.*

<sup>146</sup> See *Press Release—DOT and FAA Finalize Rules for Small Unmanned Aircraft Systems*, FED. AVIATION ADMIN. (June 21, 2016), [https://www.faa.gov/news/press\\_releases/news\\_story.cfm?newsId=20515](https://www.faa.gov/news/press_releases/news_story.cfm?newsId=20515).

<sup>147</sup> 14 C.F.R. § 107.1 (2018).

<sup>148</sup> See Anya Lamb, *FAA Dramatically Reduces Restrictions on Commercial Drones*, DRONEDEPLOY (June 21, 2016), <https://blog.dronedeploy.com/faa-dramatically-reduces-restrictions-on-commercial-drones-4f5f3080bd3>.

operational restrictions.<sup>149</sup> The Part 107 rule applies to most commercial drone operations of aircrafts under 55 pounds.<sup>150</sup> The Part 107 rule defines small UAS and focuses on airspace restrictions, remote pilot certification, visual observer requirements, and operational limits.<sup>151</sup>

The most significant changes are under the Section 333 exemptions.<sup>152</sup> Originally, the operator required a pilot's license and a Section 333 exemption.<sup>153</sup> With the Part 107 rule, however, operators need a remote pilot certificate only.<sup>154</sup> Following the certificate, a knowledge test based on the remote control of drones is the only other requirement.<sup>155</sup> After the implementation of this rule, the FAA issued nearly 23,000 remote pilot certificates for businesses which reflected the backlog of the COA applications under the Section 333 exemptions rule.<sup>156</sup> The change in the approval process has resulted in a significant growth of commercial drones in the air.<sup>157</sup> It is important to keep in mind that the Part 107 rule does not apply to model aircraft drones that are not used for commercial purposes.<sup>158</sup>

Depending on the type of drone use, the FAA rules can be complex and confusing.<sup>159</sup> A review of each type of drone use shows which drone use leads to the most problems, and which areas raise the most concern and need more regulation.<sup>160</sup> In addition, these regulations suggest that the FAA should revise the regulations or

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<sup>149</sup> *Unmanned Aircraft Systems*, FED. AVIATION ADMIN., <https://www.faa.gov/uas/media/faq-uas-part107-flyer.pdf> (last visited Aug. 5, 2018).

<sup>150</sup> *Id.*

<sup>151</sup> *Id.*

<sup>152</sup> See Lamb, *supra* note 148.

<sup>153</sup> Lamb, *supra* note 148.

<sup>154</sup> Lamb, *supra* note 148.

<sup>155</sup> Lamb, *supra* note 148.

<sup>156</sup> April Glaser, *The FAA Has Issued Nearly 23,000 Drone Pilot Licenses in Just Three Months*, RECODE (Dec. 19, 2016, 1:48 PM), <https://www.recode.net/2016/12/19/14006772/faq-drone-pilot-licenses-three-months-numbers-uav>.

<sup>157</sup> See *id.*

<sup>158</sup> See *Fact Sheet—Small Unmanned Aircraft Regulations (Part 107)*, FED. AVIATION ADMIN. (June 21, 2016), [https://www.faa.gov/news/fact\\_sheets/news\\_story.cfm?newsId=20516](https://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=20516).

<sup>159</sup> See *Drone Regulations—FAA Drone Law Regulations Demystified*, IDENTIFIED TECHS., <https://www.identifiedtech.com/blog/faq-drone-law-regulations/drone-regulations-faa-drone-law-regulations-demystified/> (last visited Aug. 5, 2018).

<sup>160</sup> See Stewart Lawson, *Drones and Privacy in the United States in 2017*, DRONEGURU, <http://www.droneguru.net/drones-and-privacy-in-the-united-states-in-2016/> (last updated Mar. 26, 2017).

implement a privacy scheme that addresses the privacy concerns incidental to these regulations.<sup>161</sup>

#### IV. REQUIREMENTS FOR EACH DRONE USE

##### A. Government Use of Drones

Government entities, such as federal and state agencies (law enforcement agencies), and other institutions, such as public colleges and universities, can receive a COA for aircraft operations.<sup>162</sup> These COAs are issued for public aircraft operations only.<sup>163</sup> Although the COAs are primarily used for public agencies, they can also be required for civil operations.<sup>164</sup> The COA is issued for a specific time period (typically two years) and includes certain provisions for each certification, for example, “a defined block of airspace and time of day [that the] UAS can be used.”<sup>165</sup>

##### B. Requirements for Commercial Use of Drones

The Part 107 rule, effective as of August 2016, is for flying drones for commercial use.<sup>166</sup> A commercial use is typically in connection with using the drone for a business purpose.<sup>167</sup> This includes “[s]elling photos or videos taken from a UAS; [u]sing UAS to provide contract services, such as industrial equipment or factory inspections; [u]sing UAS to provide professional services, such as security or telecommunications; [u]sing UAS to monitor the progress of work your company is performing.”<sup>168</sup> Operators must also comply with the Part 107 rule if using a drone for professional real estate or

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<sup>161</sup> *Drones Are Here To Stay, But These Four Key Concerns Still Need To Be Addressed*, FORBES (Oct. 4, 2017, 1:16 PM), <https://www.forbes.com/sites/quora/2017/10/04/drones-are-here-to-stay-but-these-four-key-concerns-still-need-to-be-addressed/#350d0abe177d>.

<sup>162</sup> *Public Entities*, KNOW BEFORE YOU FLY, <http://knowbeforeyoufly.org/for-public-entities/> (last visited Aug. 5, 2018).

<sup>163</sup> *Id.*

<sup>164</sup> *Id.*

<sup>165</sup> *Id.*

<sup>166</sup> *Business Users*, KNOW BEFORE YOU FLY, <http://knowbeforeyoufly.org/for-business-users/> (last visited Apr. 1, 2018).

<sup>167</sup> *See id.*

<sup>168</sup> *Id.*

wedding photography, professional cinema photography for a film or television production, contract surveys and land surveys.<sup>169</sup>

To fly commercially, the operator must be at least sixteen years old, hold a remote pilot airman certificate, and pass the Transportation Security Administration (“TSA”) vetting, and the drone being used must weigh less than fifty-five pounds.<sup>170</sup> If flying for commercial purposes, the operator must fly under 400 feet above ground level, the drone must be in visual line of sight either by the operator or a visual observer, and the operation must be conducted during daylight hours or twilight hours (thirty minutes before sunrise to thirty minutes after sunset).<sup>171</sup> The drone cannot be flown faster than 100 miles-per-hour and should not fly over people.<sup>172</sup> These requirements differ from the hobbyist operator requirements.<sup>173</sup>

### C. Requirements for Recreational Use of Drones

Activities that are considered recreational include using the drone to take photographs for personal use.<sup>174</sup> It is important that operators identify their operations and determine whether the operations are for their own personal use and benefits or a third party's use and benefit; there is a fine line between what may be considered commercial or recreational.<sup>175</sup>

To operate a drone for personal interests and enjoyment, the operator must fly under the Special Rule for Model Aircraft.<sup>176</sup> Under this rule, an operator does not need permission from the FAA to fly the drone, but must fly safely.<sup>177</sup> The safety guidelines for recreational users include flying below 400 feet, being aware of airspace restrictions and requirements, keeping the drone within sight, avoiding flying over people, staying away from airports, and ensuring that the

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<sup>169</sup> *Id.*

<sup>170</sup> *Id.*

<sup>171</sup> *Business Users*, *supra* note 166.

<sup>172</sup> *Business Users*, *supra* note 166.

<sup>173</sup> *Recreational Users*, *supra* note 35.

<sup>174</sup> *Recreational Users*, *supra* note 35. Using these photos or videos for sale to another individual is considered a commercial operation. *Recreational Users*, *supra* note 35.

<sup>175</sup> *Recreational Users*, *supra* note 35.

<sup>176</sup> See *Fly Under the Special Rule for Model Aircraft*, FED. AVIATION ADMIN., [https://www.faa.gov/uas/getting\\_started/fly\\_for\\_fun/](https://www.faa.gov/uas/getting_started/fly_for_fun/) (last modified Feb. 1, 2018, 11:29 AM).

<sup>177</sup> See *Recreational Users*, *supra* note 35.



operator of the drone is not under the influence of alcohol or drugs.<sup>178</sup> As of December 2017, registration by the operator is required for flying under the Special Rule for Model Aircraft.<sup>179</sup>

The current FAA regulations regarding the recreational use of drones impose virtually no limits on the invasion of privacy.<sup>180</sup> According to the FAA, “our mission is to provide the safest, most efficient aerospace system in the world.”<sup>181</sup> The FAA has stated, “drone privacy implications ‘did not raise an immediate safety concern.’”<sup>182</sup> The rules are primarily intended to ensure safe drone operations that keep up with the technological innovation.<sup>183</sup> The FAA did not state in its mission that the rulemaking process would include or address privacy concerns.<sup>184</sup> Although the FAA may not be required to address privacy concerns, the lack of privacy regulations makes homeowners vulnerable to intrusion.<sup>185</sup>

## V. THE FAA LACKS INTENTIONS OF ADDRESSING PRIVACY CONCERNS

In 2012, the Electronic Privacy Information Center (“EPIC”), joined by over 100 organizations, experts and advocates, petitioned the FAA to establish privacy protections for commercial drones.<sup>186</sup> EPIC wanted the FAA to “assess the privacy problems associated with the highly intrusive nature of drone aircraft, and the ability of operators to gain access to private areas and to track individuals over large

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<sup>178</sup> See *Recreational Users*, *supra* note 35.

<sup>179</sup> See *Recreational Users*, *supra* note 35.

<sup>180</sup> See April Glaser, *Federal Privacy Laws Won’t Necessarily Protect You From Spying Drones*, RECODE (Mar. 15, 2017, 9:03 PM), <https://www.recode.net/2017/3/15/14934050/federal-privacy-laws-spying-drones-senate-hearing>.

<sup>181</sup> *Safety: The Foundation of Everything We Do*, *supra* note 12.

<sup>182</sup> *EPIC v. FAA: Challenging the FAA’s Failure to Establish Drone Privacy Rules*, ELECTRONIC PRIVACY INFO. CTR., <https://epic.org/privacy/litigation/apa/faa/drones/> (last visited Aug. 5, 2018).

<sup>183</sup> See *Fact Sheet*, *supra* note 158.

<sup>184</sup> See *Safety: The Foundation of Everything We Do*, *supra* note 12.

<sup>185</sup> See Bilton, *supra* note 15. Whether the FAA has the authority to address privacy concerns is uncertain. See Mina S. Makarios, *FAA Will Continue to Stay Out of the Realm of Regulating UAS Privacy Issues for Now*, ANDERSON KREIGER (July 16, 2018), <http://www.andersonkreiger.com/municipal-law/2018/07/16/faa-will-continue-to-stay-out-of-the-realm-of-regulating-uas-privacy-issues-for-now/>. A recent D.C. Circuit opinion did not address whether the FAA’s rules governing drone use must address privacy concerns. See *id.* See also discussion of the EPIC v. FAA case *infra* notes 186-94 and accompanying text.

<sup>186</sup> *EPIC v. FAA*, *supra* note 182.

distances.”<sup>187</sup> In response to EPIC’s request for privacy protection, the FAA stated, “drone privacy implications ‘did not raise immediate safety concern.’”<sup>188</sup> The FAA’s response made it evident that privacy issues were not on the rulemaking agenda for commercial drones.<sup>189</sup> Following this statement, the FAA issued “proposed” small drone rulemaking.<sup>190</sup> After this announcement, EPIC commenced suit against the FAA “challenging the FAA’s denial of EPIC’s petition and the FAA’s failure to include privacy in the small drone rulemaking.”<sup>191</sup>

EPIC’s suit challenging the FAA’s denial to address privacy concerns raised many concerns of homeowners, which include

“paparazzi drones,” private detectives using drones, Google’s use of street-level drones for Google Street View, and criminals using drones to stalk and harass. EPIC petition states, “[w]ith special capabilities and enhanced equipment, drones are able to conduct far more detailed surveillance, obtaining high resolution picture and video, peering inside high-level windows, and through solid barriers, such as fences, trees, and even walls.”<sup>192</sup>

The D.C. Circuit, however, found that EPIC’s suit was time barred.<sup>193</sup> The court dismissed the suit, stating that only final regulations could be challenged.<sup>194</sup>

#### **A. Privacy Concerns Should be Addressed at the Federal Level**

Drones are becoming a widespread daily use, and travelers are using them to record their vacations; thus, as drone users travel from state to state, they are obligated to know the laws in each state and

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<sup>187</sup> *EPIC v. FAA*, *supra* note 182.

<sup>188</sup> *EPIC v. FAA*, *supra* note 182 (citation omitted). “But in 2015 when the FAA announced a rulemaking on commercial drones, the agency purposefully ignored privacy concerns, stating that privacy ‘issues are beyond the scope of this rulemaking.’” *EPIC v. FAA*, *supra* note 182 (citation omitted).

<sup>189</sup> *See EPIC v. FAA*, *supra* note 182.

<sup>190</sup> *EPIC v. FAA*, *supra* note 182.

<sup>191</sup> *EPIC v. FAA*, *supra* note 182.

<sup>192</sup> *EPIC v. FAA*, *supra* note 182 (alteration in original).

<sup>193</sup> *EPIC v. FAA*, *supra* note 182.

<sup>194</sup> *EPIC v. FAA*, *supra* note 182.

abide by them.<sup>195</sup> In reality, users are not likely to check state laws as they cross state lines, and essentially, drone users may be violating the law depending on the jurisdiction.<sup>196</sup>

The FAA does not have any requirements in place that allow it to monitor recreational drone users because doing so may be difficult.<sup>197</sup> The FAA, however, has the power to create and implement drone privacy regulations.<sup>198</sup> The FAA has the authority to:

develop plans and policy for the use of the navigable airspace and assign by regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace. The [FAA] Administrator may modify or revoke an assignment when required in the public interest.<sup>199</sup>

Thus, the FAA has the authority to create regulations for navigable airspace and aircraft identification.<sup>200</sup>

Up until this point, the FAA has been responsible for rulemaking for drones because it is in the best position to regulate the growing drone technology as well as regulate airspace.<sup>201</sup> Because the FAA regulates all airspace, every state law regarding drone use is susceptible to preemption.<sup>202</sup>

The doctrine of preemption plays a significant role in state legislation.<sup>203</sup> Any laws enacted at the federal level will always be the “supreme law of the land” and supersede state laws that conflict with state legislation.<sup>204</sup> When Congress has legislated in a particular area,

<sup>195</sup> See *Frequently Asked Questions*, STATEDRONELAW, <http://statedronelaw.com/faq/> (last visited Aug. 5, 2018).

<sup>196</sup> See *id.*

<sup>197</sup> *Recreational Users*, *supra* note 35. A recent article suggests “U.S. aviation regulators may soon require recreational drone users to place government-issued drone identification numbers on the exterior of their devices.” Marqco Margaritoff, *New FAA Regulation Requires UAV Owners to Display Drone ID on Exterior*, DRIVE (May 23, 2018), <http://www.thedrive.com/tech/21041/new-faa-regulation-requires-uav-owners-to-display-drone-id-on-exterior>. This will give assurance that “any drone, any unmanned aircraft, operating in controlled airspace is identifiable and trackable.” *Id.* (citation omitted).

<sup>198</sup> See 49 U.S.C. § 40103(b)(1), (2) (2016).

<sup>199</sup> *Id.* § 40103(b)(1).

<sup>200</sup> *Id.* § 40103(b)(2).

<sup>201</sup> See *id.*

<sup>202</sup> See U.S. CONST. art. VI, para. 2.

<sup>203</sup> See *id.*

<sup>204</sup> U.S. CONST. art. VI, para. 2. Federal laws include the Federal Constitution, regulations and treaties.

or when Congress has authorized a federal agency, such as the FAA, to act, state and local law will be preempted.<sup>205</sup>

Thus far, Congress has allowed states to enact their own laws regarding drone use, but it does not protect the states from preemption if the FAA chooses to regulate in the area of privacy.<sup>206</sup> The FAA's lack of involvement will stand as an obstacle for states which will have to determine what types of privacy regulations to have in place and thus may result in a variety of different and confusing privacy regulations in each jurisdiction.<sup>207</sup>

The FAA should promulgate privacy regulations because the threat to property owners, such as by trespass and nuisance, is significant.<sup>208</sup> Property concerns are addressed by state law makers, but regulating airspace and operating drones falls into the realm of the FAA.<sup>209</sup> Additionally, there are too many gaps relating to drone user concerns that the states cannot address.<sup>210</sup> If a drone hovers over a private yard capturing the landowners and their family, it should be an invasion of privacy, but there is little clarity about how homeowners, who possess limited airspace rights, can address this problem.<sup>211</sup> In

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*Singer v. Newton* challenged a local ordinance passed by Newton, Mass. that prohibited drone flights below 400 feet without the property's owner permission. Singer believed that the ordinance left no actual way to operate a drone in the national airspace as FAA regulations prohibit operating a drone more than 400 feet above the ground or the top of a building. The court ruled in favor of Singer, noting that the ordinance was in direct conflict with existing federal regulations. However, the court did not rule that the entire field of aviation was preempted, indicating there is some role for states and localities to potentially regulate drone operations.

2017 *Unmanned Aircraft System (UAS) State Legislation Update*, NAT'L CONF. ST. LEGISLATURES (Jan. 17, 2017), <http://www.ncsl.org/research/transportation/2017-unmanned-aircraft-systems-uas-state-legislation-update.aspx>.

<sup>205</sup> U.S. CONST. art. VI, para. 2.

<sup>206</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>207</sup> See Mark J. Connot & Jason J. Zummo, *Everybody Wants to Rule the World: Federal vs. State Power to Regulate Drones*, FOX ROTHSCHILD LLP, <http://www.foxrothschild.com/content/uploads/2016/09/Air-and-Space-Lawyers-Connot-and-Zummo-Everybody-Wants-To-Rule-the-World-Federal-v.-State-Power-To-Regulate-Drones.pdf> (last visited Aug. 5, 2018).

<sup>208</sup> Michael Berry & Nabiha Syed, *Drones and Laws of General Applicability*, WASH. POST (Sept. 25, 2014), [https://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/09/25/drones-and-laws-of-general-applicability/?utm\\_term=.aa9ed5806e7a](https://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/09/25/drones-and-laws-of-general-applicability/?utm_term=.aa9ed5806e7a).

<sup>209</sup> See *id.*

<sup>210</sup> See Connot & Zummo, *supra* note 207.

<sup>211</sup> See Berry & Syed, *supra* note 208.

this context, property rights are intertwined with the privacy concerns regarding the pervasive use of drone technology.<sup>212</sup>

In *United States v. Causby*,<sup>213</sup> the Supreme Court addressed the issue of whether a homeowner's property was taken as a result of the frequent and regular flights of army and navy aircraft over their yard at a low altitude.<sup>214</sup> The Causbys owned two acres of land near an airport that contained a chicken farm.<sup>215</sup> The end of the runways of the airport was 2,220 feet from their property and flights were continuously passing over their property.<sup>216</sup> The various aircraft that used this airport included bombers, transports and fighters.<sup>217</sup> The flights came close to the owners' land, and the noise startled the Causbys' chickens.<sup>218</sup> As a result, six to ten of their chickens were killed in one day when they flew into a wall because they were frightened.<sup>219</sup> The Causbys lost a total of 150 chickens.<sup>220</sup> Production slowed up, and the homeowners sued because of the decrease in production, claiming their property was taken because of the low flights over their home.<sup>221</sup>

Addressing competing interests of airspace rights and property rights presented a case of first impression for the Court.<sup>222</sup> The government claimed that it had "complete and exclusive national sovereignty in the airspace" and that the Causbys had no rights in the airspace over their property.<sup>223</sup> The Causbys asserted the heaven to

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<sup>212</sup> See Berry & Syed, *supra* note 208.

<sup>213</sup> 328 U.S. 256 (1946).

<sup>214</sup> *Id.* at 258.

<sup>215</sup> *Id.*

<sup>216</sup> *Id.*

<sup>217</sup> *Id.*

<sup>218</sup> Causby, 328 U.S. at 258.

<sup>219</sup> *Id.*

<sup>220</sup> *Id.*

<sup>221</sup> *Id.*

<sup>222</sup> *Id.*

<sup>223</sup> Causby, 328 U.S. at 258.

hell doctrine<sup>224</sup> and claimed they owned the airspace over their home.<sup>225</sup> The Court, however, rejected both arguments.<sup>226</sup>

The Court acknowledged that the homeowners had the right to full enjoyment of their land, and that, to enjoy airspace rights, they must have exclusive control over the immediate reaches of the atmosphere.<sup>227</sup> Nevertheless, the Court did not apply the heaven to hell doctrine and stated that the air is a public highway as already declared by Congress.<sup>228</sup> Although the Court did not provide a specific height of airspace that homeowners have rights to, it recognized that landowners own as much of the space that they can occupy or use.<sup>229</sup>

If homeowners only own as much airspace as they can occupy or use and drones are capable of flying above the altitude in which homeowners can reach, it seems logical that the FAA should impose privacy regulations considering they primarily own and navigate airspace.<sup>230</sup> If the FAA urges the states to regulate privacy concerns, it is essentially addressing drone operations, which is the primary function of the FAA.<sup>231</sup> It seems counterproductive for the FAA to focus on creating regulations for the safe integration into airspace, while the states can enact their own regulations that address their citizens' concerns about the implications of drone technology and privacy.<sup>232</sup> To date, the FAA has not shown any intentions of addressing privacy concerns, and in response, states have enacted legislation regarding drone use aimed at protecting privacy.<sup>233</sup>

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<sup>224</sup> Kurt Kohlstedt, *From Heaven to Hell: Exploring the Odd Vertical Limits of Land Ownership*, 99% INVISIBLE (June 19, 2017), <https://99percentinvisible.org/article/heaven-hell-exploring-odd-vertical-limits-land-ownership/>.

[W]hoever's is the soil, it is theirs all the way to Heaven and all the way to Hell. The idea is intuitive but potent: a property owner is entitled to an infinite vertical column of space defined by the horizontal boundaries of their estate. On this principle, one owns land as well as everything above and below.

*Id.*

<sup>225</sup> *Causby*, 328 U.S. at 260.

<sup>226</sup> *See id.* at 263-68.

<sup>227</sup> *Id.* at 263.

<sup>228</sup> *Id.*

<sup>229</sup> *Id.*

<sup>230</sup> *See* 49 U.S.C. § 40103(b)(1), (2) (2016).

<sup>231</sup> *See id.*

<sup>232</sup> *See id.*

<sup>233</sup> *See Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

## B. States' Response to the Lack of Privacy Regulations

Over the past few years, the growth in recreational drone use has led to an increase in drone specific laws enacted by states.<sup>234</sup> In 2017, at least thirty-eight states considered passing legislation relating to drone use,<sup>235</sup> and eighteen states passed legislation addressing drone use.<sup>236</sup> In 2018 alone, Alaska, North Dakota and Utah have enacted legislation addressing this issue.<sup>237</sup>

For example, Louisiana criminalizes flying a drone over the property of an individual with the intent to conduct surveillance of the property or any individual.<sup>238</sup> Other states have passed similar legislation.<sup>239</sup> In Florida, regulation encourages localities to enact ordinances focusing on “nuisance, voyeurism, harassment, reckless endangerment, property damage or other illegal acts.”<sup>240</sup>

Indiana created a number of criminal offenses, including a “sex offender unmanned aerial vehicle offense” when a sex offender uses drone technology to “follow, contact, or capture images or recordings of someone . . . .”<sup>241</sup> In addition, Indiana criminalized “remote aerial harassment” and “remote aerial voyeurism.”<sup>242</sup> In Indiana, each offense is a class A misdemeanor, but if the person has a prior conviction under the same section, it then becomes a felony.<sup>243</sup> Also, it becomes a felony if the person uses a drone and publishes the images taken on the internet or shares them with another person.<sup>244</sup> South Dakota has enacted similar legislation as Indiana, making it unlawful to use surveillance intentionally to photograph or record people in a private place without their consent.<sup>245</sup>

Each state that has passed drone specific legislation has focused on privacy related concerns of civilians.<sup>246</sup> Many restrictions

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<sup>234</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>235</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>236</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>237</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>238</sup> See LA. STAT. ANN. § 14:63 (2018).

<sup>239</sup> See *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>240</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>241</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>242</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>243</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>244</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>245</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>246</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

include misdemeanors for flying or surveilling private property without the owner's consent.<sup>247</sup> A primary concern of the states will continue to be whether state legislation conflicts with FAA regulations.<sup>248</sup> Another problem is that the states that have yet to enact specific privacy regulations will have civilians turning to self-help methods<sup>249</sup> to protect their right to privacy.<sup>250</sup>

## VI. PROPOSED PRIVACY REGULATORY SCHEME

The FAA should implement drone privacy regulations that adequately protect the concerns of civilians about drone technology.<sup>251</sup> The FAA should promulgate regulations that target the significant concerns of civilians on their private property.<sup>252</sup> While the FAA should address a multitude of issues regarding drone use, it should focus on the concerns that states have tried to deal with, such as trespass, nuisance, and surveillance, which potentially present problems with stalking and voyeurism.<sup>253</sup>

The FAA should promulgate regulations that focus on hobbyist drone use.<sup>254</sup> These regulations should forbid aerial surveillance or flight over private property without consent, which will align with the property right of excluding others from using an owner's property.<sup>255</sup> Because of the unique threat that drones pose, regulations should include flights that extend above the property owner's airspace.<sup>256</sup> Further, the FAA should impose fines or punishments for specific violations, and any repetitive abuses reported by an individual should result in drone users' receiving a fine or possibly losing their right to operate a drone.

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<sup>247</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>248</sup> See U.S. CONST. art. VI, para. 2.

<sup>249</sup> *Self-Help*, FREE DICTIONARY, <https://legal-dictionary.thefreedictionary.com/Self-Help> (last visited Aug. 5, 2018) (stating that "self-help" is "a term in the law that describes corrective or preventive measures taken by a private citizen").

<sup>250</sup> See generally *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>251</sup> See *Drones Are Here To Stay*, *supra* note 161.

<sup>252</sup> See *id.*

<sup>253</sup> See *id.*

<sup>254</sup> See *id.*

<sup>255</sup> Peter Kipkemoi, *Can Drones Fly Over Private Property? [And How to Stop Them]*, DRONEGURU (Oct. 1, 2017), <http://www.droneguru.net/can-drones-fly-over-private-property-and-how-to-stop-them/>.

<sup>256</sup> See *id.*



The fines and violations should be based on a sliding scale of the type of conduct by the drone operator. For example, fines and violations should depend on whether the drone was hovering over the property or outside of a civilian's window. The FAA should also consider limiting the use of drone operations in places such as beaches, children's parks, and other areas where individuals are susceptible to private exposure or nuisance.<sup>257</sup> If the FAA has one regulatory scheme for all fifty states, the uniformity would give comfort to all civilians knowing that their right to privacy is protected, and if such invasion occurs, that it will be dealt with accordingly. A uniform regulatory scheme also gives comfort to those who live in states that have yet to enact legislation.<sup>258</sup>

If the FAA does not want to be responsible for setting the violations or fines for drone users, it can permit the states to adopt these privacy regulations and allow them to further regulate and set these fines.<sup>259</sup> The FAA and the states can work in a cooperative way known as cooperative federalism.<sup>260</sup> The Supreme Court has indicated "this term best describes those instances in which a federal statute provides for state regulation or implementation to achieve federally proscribed policy goals. In such instances, Congress either allows states to regulate in compliance with federal standards or preempts state law with federal regulation."<sup>261</sup> The FAA can implement a regulatory privacy scheme making it a violation to operate a drone on private property and allow the states to punish or fine violators in a manner that they see fit or in accordance with the federal regulations.<sup>262</sup>

## VII. CONCLUSION

Drone popularity will continue to increase alongside its uses and privacy concerns.<sup>263</sup> This technology threatens the right to privacy

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<sup>257</sup> *See id.*

<sup>258</sup> *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>259</sup> Philip J. Weiser, *Towards a Constitutional Architecture for Cooperative Federalism*, 79 N.C. L. REV. 663, 668 (2001).

<sup>260</sup> *See id.*

<sup>261</sup> *Id.*

<sup>262</sup> *See id.*

<sup>263</sup> *See* Arthur Holland Michel & Dan Gettinger, *Drone Year in Review: 2017*, CTR. FOR STUDY DRONE BARD C. (Jan. 3, 2018), <http://dronecenter.bard.edu/drone-year-in-re-view-2017/>. *See also* *Drones Are Here To Stay*, *supra* note 161.

in homes and in public.<sup>264</sup> The current FAA regulations have not kept up with this technology and its capabilities.<sup>265</sup> The states' regulatory efforts are useful; however, preemption continues to stand as an obstacle.<sup>266</sup> Although state legislation has focused on privacy concerns, these laws still leave drone operators confused as to their rights from state to state.<sup>267</sup> For these reasons, privacy concerns should be addressed by the FAA, applying a regulatory scheme that addresses aerial surveillance, trespass and nuisance, which will lead to less misuse by the hobbyist drone operators and better protection of civilians' privacy rights.<sup>268</sup>

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<sup>264</sup> See *Drones Are Here To Stay*, *supra* note 161.

<sup>265</sup> See McNeal, *supra* note 11.

<sup>266</sup> See U.S. CONST. art. VI, para. 2.

<sup>267</sup> See *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.

<sup>268</sup> See *Current Unmanned Aircraft State Law Landscape*, *supra* note 22.