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The Sky Is the Limit: UAVs by Private Actors and the Implications to Common-Law Privacy

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The Sky Is the Limit: UAVs by Private Actors and the Implications to Common-Law Privacy

Iva Todorova *

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INTRODUCTION

A future where unmanned aircraft zip through the skies is no longer an unimaginable narrative, but rather, a reality. As the popular debate over drones¹ in combat reaches a tipping point in the United States, the use of the

* Florida International University College of Law, J.D. May 2015. I would like to thank Professor Christyno L. Hayes and Professor Noah Weisbord for all of the guidance and advice. I would also like to thank my family for all of their encouragement, unconditional love and support.

¹ A “drone”—more accurately, unmanned aircraft is an aircraft that can fly without a human operator on board. It is also referred to as an unmanned aerial vehicle (UAV), and the entire system is

unmanned flying bots on domestic ground takes center stage.² Approval of commercial unmanned aircraft use is the first step in unleashing a multibillion-dollar industry³ that has been largely limited to the military and law enforcement.

Soon, the United States will open its commercial airspace to drones, allowing them to fly along planes and helicopters.⁴ Pursuant to the Federal Aviation Administration Modernization and Reform Act (FMRA),⁵ passed by Congress on February 14, 2012, the Federal Aviation Administration (FAA) released its initial plan for integrating unmanned aircraft into the U.S. airspace.⁶ The plan provides that the unmanned aircraft will be integrated into the National Airspace System (NAS)⁷ by September 30, 2015.⁸

Drones can be employed in a variety of civilian applications.⁹ While some of the purposes for which the commercial industry could use

referred to as an unmanned aircraft system (UAS), which includes the unmanned aircraft, as well as the associated communication and control components used in its operation. Brendan Gogarty & Isabel Robinson, *Unmanned Vehicles: A (Rebooted) History, Background and Current State of the Art*, 21 J.L. INF. & SCI. 1, 1-2 (2011).

² Zach Garcia, *What Flies When it Comes to Drone Laws Across the Globe*, THE MISSOURI DRONE JOURNALISM PROGRAM (Nov. 20, 2013, 9:04 PM), <http://www.missouridronejournalism.com/2013/04/what-flies-when-it-comes-to-drone-laws-across-the-globe/>.

³ Matt Haldane, *U.S. Slowly Opening up Commercial Drone Industry*, REUTERS (Aug. 8, 2013, 5:45 PM), <http://www.reuters.com/article/2013/08/08/us-usa-drones-commercial-idUSBRE97715U20130808>.

⁴ Dana Liebelson, *Map: Is Your State a No-Drone Zone?*, MOTHER JONES (Oct. 27, 2013, 10:03 AM), <http://www.motherjones.com/politics/2013/09/map-are-drones-illegal-your-state>.

⁵ Federal Aviation Administration Modernization and Reform Act of 2012 (FMRA), Pub. L. No. 112-95, 126 Stat. 11.

⁶ U.S. DEP'T OF TRANSP. FED. AVIATION ADMIN., *Integration of Civil Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) Roadmap* (Nov. 20, 2013), http://www.faa.gov/about/initiatives/uas/media/uas_roadmap_2013.pdf [hereinafter *FAA Roadmap*]; see also Andrea Shalal-Esa, *FAA unveils plan for integrating drones into U.S. airspace*, REUTERS (Nov. 20, 2013, 7:44 PM), <http://www.reuters.com/article/2013/11/07/us-faa-drones-idUSBRE9A61H220131107> (explaining that the “release of the FAA road map . . . would help frame the policies needed to ensure greater use of such aircraft in coming years—and help the United States maintain its edge in the unmanned vehicle market”).

⁷ *Fed. Aviation Admin., Pilot/Controller Glossary*, in AERONAUTICAL INFO. MANUAL: OFFICIAL GUIDE TO BASIC FLIGHT INFO. & ATC PROCEDURES (2006), available at <http://www.faa.gov/ATpubs/PCG/PCG.pdf>. National Airspace System is “[t]he common network of U.S. airspace; air navigation facilities, equipment services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and material. Included are system components shared jointly with the military.” See also Mark Edward Peterson, *The UAV and the Current and Future Regulatory Construct for Integration into the National Airspace System*, 71 J. AIR L. & COM. 521, 528 (2006).

⁸ *FAA Roadmap*, *supra* note 6, at 68.

⁹ John Villasenor, *Observations from Above: Unmanned Aircraft Systems and Privacy*, 36 HARV. J.L. & PUB. POL'Y 457, 459 (2013) (identifying examples in which UAS can be used for commercial purposes: surveying, crop spraying, and traffic congestion monitoring).

unmanned aircraft are beneficial,¹⁰ drones can and will inevitably be misused. Perhaps the most pervasive concern regarding the commercial use of drones in the United States relates to their impact on privacy. Due to their technological capabilities,¹¹ the quantity (and quality) of information drones can obtain is immense. They can capture private information about people's lives, and with information comes power. A company will soon be able to purchase and register a drone license.¹² For some companies, the hovering aircraft will mean that they will be able to turn the aircraft into a cash register by collecting and selling individuals' information.¹³

For those involved in the manufacturing industry, commercialization of drones will be revolutionary and overwhelmingly beneficial.¹⁴ For others, however, opening of the skies to the unmanned aircraft raises new worries about how much detail they will capture of the lives down below and more importantly—what will be done with that information.¹⁵

“Drone” is a loaded word that has been used by politicians and the media to describe the unmanned military aircraft used to strike foreign targets.¹⁶ However, this Article considers the commercial use of drones. It particularly foreshadows the ubiquitous domestic civilian use of drones and the implications this technology will have when private, non-governmental actors use drones in a way that could infringe on fundamental privacy rights. Unfortunately, the current regulatory framework (which focuses on safety rather than protecting privacy)¹⁷ and current tort law (which does not account for the unique intrusiveness of this technology) are inadequate to

¹⁰ *Id.*

¹¹ RICHARD THOMPSON II, CONG. RESEARCH SERV., R42701, DRONES IN DOMESTIC SURVEILLANCE OPERATIONS: FOURTH AMENDMENT IMPLICATIONS AND LEGISLATIVE RESPONSES 3-4 (2013) (noting that drones can be equipped with “high-powered cameras, thermal imaging devices, license plate readers and laser radar (LADAR)”).

¹² See Press Release, Rep. Ed Markey, Markey Releases Discussion Draft of Drone Privacy and Transparency Legislation (Aug. 1, 2012), available at <http://rescommunis.olemiss.edu/2012/08/01/drone-privacy-and-transparency-discussion-draft-bill-released/>.

¹³ See Sean Gallagher, *Congressman presses for limits on domestic drone data collection*, ARS TECHNICA (Aug. 1 2012, 6:55 PM), <http://arstechnica.com/tech-policy/2012/08/congressman-presses-for-limits-on-domestic-drone-data-collection/>.

¹⁴ See Interview by The Metropolitan Corporate Counsel with Brendan M. Schulman, Special Counsel, Kramer Levin Naftalis & Frankel LLP, in THE METROPOLITAN CORPORATE COUNSEL (Nov. 19, 2013), available at <http://www.kramerlevin.com/files/Publication/e3747025-fc00-4076-9e16-0283b16f11ef/Presentation/PublicationAttachment/041236d3-3a1c-413d-a6cd087effa5a948/MetCCDec2013.pdf>.

¹⁵ See Saurabh Anand, *Hovering on the Horizon: Civilian Unmanned Aircraft*, 26 NO.1 AIR & SPACE LAW, June 2013, at 9.

¹⁶ See Jake Tapper, *Privately-owned drones rise in popularity, as FAA navigates potential risks*, CNN, (Oct. 27, 2013, 10:15 AM), <http://thelead.blogs.cnn.com/2013/10/18/privately-owned-drones-rise-in-popularity-as-faa-navigates-potential-risks/>.

¹⁷ Jonathan Olivito, *Beyond the Fourth Amendment: Limiting Drone Surveillance Through the Constitutional Right to Informational Privacy*, 74 OHIO ST. L.J. 669, 671 (2013).

protect against drone-privacy intrusions.

Part I of this Article provides background on drones. It defines what a drone is, which is more difficult than one might expect. It also explores their technological capabilities and what makes this technology uniquely invasive. This Article further examines the drone industry and its current and potential commercial uses of these systems.

Part II encompasses a brief history of how the FAA came into existence and why they are the agency responsible for regulating drones. It further outlines the FAA's current regulatory framework under which there are three distinct types of operators (public, recreational, and commercial) that are governed by a different set of rules. Additionally, this Article will explore the impact of drone test sites in developing future FAA regulations. Because this is a pressing issue, many federal and state legislatures have taken matters into their own hands and have enacted legislation as it relates to drone-based privacy intrusions. This Article reviews and analyses a brief survey of several enacted and proposed bills.

Part III considers the common law framework that informs privacy rights in regard to the commercial uses of drones. It begins by exploring the development of privacy law. It further addresses the operation of UAS by private, non-governmental actors, who are unconstrained by the privacy protections embedded in the Fourth Amendment. Most importantly, it gives a comprehensive examination of the privacy tort intrusion upon seclusion, which, this Article argues, would be the most applicable to drone privacy intrusions. Finally, this Article applies the current common law to drones and concludes that the legal framework is inadequate to provide protections against this unique technology.

The variety of commercial uses of drones, limited only by the human imagination, will pose a significant threat to the privacy of American citizens. Privacy as we know it is coming to an end, and it will not be the government or the military that is responsible, but transnational business networks.

I. BACKGROUND

Drones are perhaps most commonly recognized from their missions abroad.¹⁸ The mention of the word "drone" tends to convey a mental image of a flying killer bot among most Americans.¹⁹ Even proponents of the use

¹⁸ See Gogarty & Robinson, *supra* note 1, at 3.

¹⁹ Rob Port, *The Proponents of Drones Want You To Stop Calling Them Drones*, SAYANYTHINGBLOG.COM (June 1, 2013), <http://sayanythingblog.com/entry/the-proponents-of-drones-want-you-to-stop-calling-them-drones/>. "People see [. . .] and associate all unmanned aircraft with those that can kill," stated Professor Benjamin Trapnell (who developed and implemented the first undergraduate degree worldwide in Unmanned Aircraft Systems Operations at the University of North

of unmanned aircraft in American skies “tend to shudder at the word drone.”²⁰ The word is “seen as stained by [the] military” uses in foreign missile strikes.²¹ Based on the way people talk about them and the media portrays them, there is a common misconception that drones are actual autonomous robots.²² That is not the case. To better understand why commercial drone uses pose a threat to privacy, the following sections seek to define drones, explore their technological capabilities, and provide their current and potential uses.

A. What Is a Drone?

Drones—more accurately unmanned aircraft—are set to proliferate in the U.S. airspace, dominating the future of aviation.²³ The word “drone” connotes a military device in the minds of most Americans.²⁴ Yet, defining what a drone is is more complex than one might expect.

The most basic definition of an unmanned aircraft (UA) is “[a] device used or intended to be used for flight in the air and has no onboard pilot.”²⁵ UA is an aircraft as defined by 14 C.F.R. § 1.1.²⁶ The FAA commonly refers to the technology by an UA,²⁷ whereas most militaries and many European countries refer to it as an unmanned aerial vehicle (UAV).²⁸ The

Dakota). *Id.*

²⁰ Dave Cawley, *Many Concerned about Invasion of Privacy with Personal Drones*, KLS.COM (UTAH) (Sept. 26, 2013, 3:20 PM), <http://www.ksl.com/?nid=148&sid=27013640#HmVxduOXRWyx0Xa.99>.

²¹ *Id.*; see also Ben Wolfgang, *Drone Industry Gives Journalists Not-So-Subtle Hint—Don’t Use the Word ‘Drones’*, THE WASH. TIMES (Aug. 14, 2013), <http://www.washingtontimes.com/news/2013/aug/14/drone-industry-journalists-dont-use-word-drones/>. Michael Toscano, leader of the Association for Unmanned Vehicle Systems International (AUVSI), stated “the word [drone] instantly conjures up mental images of large Predators firing missiles at hostile targets around the world.” *Id.*

²² See Gogarty & Robinson, *supra* note 1, at 2 (“Modern UVs are all ‘controlled’ to one degree or another.”).

²³ Villasenor, *supra* note 9, at 458.

²⁴ Ashley Halligan, *Drones: A Controversial Eye in the Sky for Property Managers*, SOFTWARE ADVICE (Mar. 25, 2013), <http://blog.softwareadvice.com/articles/property-management/drones-an-eye-in-the-sky-for-property-managers-1091212/>; see also Sara Sorcher, *Drone Lobbyist: ‘I Don’t Use the Word Drone’*, NAT’L J. (Mar. 27, 2013), <http://www.nationaljournal.com/daily/drone-lobbyist-i-don-t-use-the-word-drone-20130327>. Interview with Michael Toscano, chief of Washington’s drone lobby, the Association for Unmanned Vehicle Systems International, in which he stated “I don’t use the word drone. There’s a Hollywood expectation of what a drone is. Most of it is military; most of it is very fearful, hostile. These things are not that.”

²⁵ *FAA Roadmap*, *supra* note 6, at 8.

²⁶ Memorandum from the Fed. Aviation Admin. on Unmanned Aircraft Systems Operations in the U.S. National Air Space System—Interim Operational Guidance, AFS-400 UAS Policy 05-01 (Sept. 16, 2005), available at http://www.uavm.com/images/AFS-400_05-01_faa_uas_policy.pdf [hereinafter AFS-400 UAS Policy].

²⁷ See *id.*

²⁸ Peterson, *supra* note 7, at 528. UAV is a more traditional term.

use of the word “aircraft” rather than the use of the word “vehicle” could prove to be troublesome.²⁹

The concern in the use of the term ‘aircraft’ is that it may exclude particular UAVs³⁰, and therefore, such excluded UAVs would be beyond the scope of any regulatory regime established by the FAA designed to facilitate full integration.³¹ Nonetheless, while some argue that the use of the term UAV is not accurate, the term is overwhelmingly used and the most widely accepted term.³² Thus, for the purposes of this Article, UA and UAV will be used interchangeably.

Another potentially problematic distinction is that an UAV must not be confused with model aircraft.³³ A model aircraft must remain within sight of the operator, whereas some UAVs could fly as high as a regular aircraft.³⁴ The distinction is important because model aircraft and UAVs are regulated by a different set of rules.

An unmanned aircraft system (UAS) is the entire system, including the unmanned aircraft and all of the associated support equipment, control station, digital network, and personnel on the ground, necessary to operate the unmanned aircraft.³⁵ The UA is the flying portion of the system, flown by a pilot via a ground control system, or autonomously through use of an on-board computer, communication links and any additional equipment that is necessary for the UA to operate safely.³⁶ The International Civil Aviation Organization (ICAO)³⁷ also uses the acronym UAS.³⁸ For purposes of this

²⁹ *Id.* at 529.

³⁰ Excluded vehicles would potentially include small or micro UAVs, which are explained later in this Article.

³¹ Peterson, *supra* note 7, at 529.

³² *Id.*

³³ REG AUSTIN, UNMANNED AIRCRAFT SYSTEMS: UAV DESIGN, DEVELOPMENT, AND DEPLOYMENT 3 (2010).

³⁴ *Id.*

³⁵ THOMPSON II, *supra* note 11, at 2; see also *Fact Sheet: Unmanned Aircraft (UAS)*, FED. AVIATION ADMIN., http://www.faa.gov/about/initiatives/uas/uas_faq/#Qn1 (last visited Mar. 12, 2013, 3:54 PM).

³⁶ *Fact Sheet: Unmanned Aircraft (UAS)*, FED. AVIATION ADMIN., http://www.faa.gov/about/initiatives/uas/uas_faq/#Qn1 (last visited Mar. 12, 2013, 3:54 PM) [hereinafter *FAA Fact Sheet*].

³⁷ A United Nations specialized agency, ICAO’s priorities are to improve the operational safety, security, efficiency and regularity of national and international civil aviation and to contribute to the global and uniform implementation of ICAO’s Standards and Recommended Practices (SARPs). Technical Co-operation Bureau, INT’L CIVIL AVIATION ORG., <http://www2.icao.int/en/tcb/Pages/Whoare.aspx> (last visited Mar. 12, 2013, 4:05 PM).

³⁸ ICAO provides “[p]rocedures and guidance material for civil unmanned aircraft systems (UAS), to support a safe, secure and efficient integration of UAS into non-segregated airspace and aerodromes.” PowerPoint Presentation by Leslie Cary, Secretary UAS Study Group—ICAO, *Unmanned Aircraft Systems International Standards Progress*, http://www.eurocontrol.int/sites/default/files/field_tabs/content/documents/events/block_1_-_regulatory_-_icao.pdf.

Article, UAS will be used to refer to the entire system's technology.

B. The Technology: What Can UAs Really Do?

Businesses could use UAs for a multitude of purposes because they can serve a broad range of functions due to their diversity in size and design. UAVs are capable of gathering information because they are difficult to detect and can carry sophisticated surveillance equipment.

While virtually all UAVs are aircraft either controlled by pilots from the ground or autonomously following a pre-programmed flight path, they can come in a variety of shapes and sizes.³⁹ They can range from the size of a traditional aircraft to the size of an insect (called "nano drones" or "micro UAVs").⁴⁰ The largest UAS are aircraft the size of a Boeing jetliner.⁴¹ Among the smallest are "Nano Hummingbirds," which are designed for maneuverability and stealth with a wingspan of six inches and weighing less than a single AA battery.⁴² UAVs are designed to undertake constant, uninterrupted flight. Companies are now engineering UAVs that could fly for long periods of time, without having to land for recharging, refueling, or maintenance.⁴³

More pertinent to privacy concerns is that UAVs can be outfitted with high-powered cameras.⁴⁴ The U.S. Army has a 1.8 gigapixel camera⁴⁵ that

³⁹ THOMPSON II, *supra* note 11, at 2.

⁴⁰ *Id.*

⁴¹ Report by Jay Stanley & Catherine Crump, *Protecting Privacy from Aerial Surveillance: Recommendations for Government Use of Drone Aircraft*, AM. CIVIL LIBERTIES UNION (Dec. 2011), <https://www.aclu.org/files/assets/protectingprivacyfromaerialsurveillance.pdf>.

⁴² Philip J. Hiltner, *The Drones Are Coming: Use of Unmanned Aerial Vehicles for Police Surveillance and Its Fourth Amendment Implications*, 3 WAKE FOREST J.L. & POL'Y 397, 400-01 (2013) (citing Fact Sheet, Fed. Aviation Admin., Unmanned Aircraft Systems (UAS) (July 2011), http://www.faa.gov/about/initiatives/uas/media/uas_fact_sheet.pdf). See also John Van Geffen, *Unmanned And Unafraid—Unmanned Aerial Vehicles in The National Airspace System* (Nov. 11, 2013), <http://blog.upcounsel.com/unmanned-and-unafraid-unmanned-aerial-vehicles-in-the-national-airspace-system/> (“[UAS] range in size from wingspans of six inches to 246 feet and can weigh from approximately four ounces to over 25,600 pounds.”).

⁴³ Nidhi Goyal, *New Solar Powered Drones Will Remain Airborne For Years* (Sept. 6, 2013), <http://www.industrytap.com/new-solar-powered-drones-will-remain-airborne-for-years/12492> (The Titan Aerospace's Solara 50, a UAV, “is designed to stay aloft at an altitude of 65000 feet (more than 12 miles) and remain there for long durations. The Solara 50 has a 50 meter (164 feet) wingspan with thousands of high efficiency solar cells placed on the upper wing surface and its tail. It would harvest enough solar energy during the day to charge its lithium ion batteries to power flight at night. The company claims that Solara 50 could stay in the air for as long as five years. The first commercially manufactured Solara 50 is expected to fly early next year. First 3 Solara 50 delivery positions are already assigned and the estimated delivery date of the 4th Solara 50 is June 2014.”).

⁴⁴ THOMPSON II, *supra* note 11, at 2.

⁴⁵ *Domestic Unmanned Aerial Vehicles (UAVs) and Drones*, ELECT. PRIVACY INFO. CTR., <http://epic.org/privacy/drones/> (last visited Mar. 12, 2014, 4:50 PM) (“Gigapixel cameras used to outfit drones are among the highest definition cameras available, and can ‘provide real-time video streams at a rate of

can track objects on the ground 65 miles away from an altitude of 20,000 feet.⁴⁶ Soon enough this high-powered camera will be outfitted on a UAV that a company can readily purchase. Boeing's Phantom Eye UAS is capable of hauling increasingly powerful camera packages and can stay aloft at 65,000 feet for up to four days.⁴⁷ This type of sophisticated imaging technology is able to provide detailed pictures and video of people, geographical areas, homes, and even small objects.⁴⁸ UAVs also have the capability to be equipped with infrared cameras, also known as thermal imaging cameras.⁴⁹ With this technology, a UA would be able to see objects through walls based on relative levels of heat produced by objects.⁵⁰

Additionally, UAVs can be equipped with license plate readers and laser radar,⁵¹ allowing the UAV sensor to recognize a license plate and follow a vehicle with that license plate.⁵² Other technological gadgets that UAVs could carry include heat sensors, GPS, sensors that detect movement, and facial recognition technology.⁵³ UAVs engaged in perch-and-stare surveillance⁵⁴ might also utilize acoustical eavesdropping devices, such as

10 frames a second.”).

⁴⁶ *US Army Unveils 1.8 Gigapixel Camera Helicopter Drone*, BBC NEWS (Dec. 29, 2011, 6:11 PM), <http://www.bbc.com/news/technology-16358851>.

⁴⁷ Randy Jackson & Chris Haddox, *Phantom Eye High Altitude Long Endurance Aircraft Unveiled* (June 12, 2010), http://www.boeing.com/Features/2010/07/bds_feat_phantom_eye_07_12_10.html. Darryl Davis, President of Boeing Phantom Works stated “[t]he capabilities inherent in Phantom Eye’s design will offer game-changing opportunities for our military, civil and *commercial customers*.” *Id.* (emphasis added).

⁴⁸ *Domestic Unmanned Aerial Vehicles (UAVs) and Drones*, *supra* note 45.

⁴⁹ THOMPSON II, *supra* note 11, at 2.

⁵⁰ See *Draganflyer X6, Thermal Infrared Camera*, DRAGONFLY INNOVATIONS INC., <http://www.draganflyer.com/uav-helicopter/> (last visited Mar. 12, 2014, 5:04 PM).

⁵¹ THOMPSON II, *supra* note 11, at 2. Current technology permits drones to be outfitted at a relatively low cost with high-powered cameras, thermal imaging devices, license plate readers, and laser radar. But the list of potential technologies that can be employed via UAVs is far more extensive and, due to astonishingly rapid technological advances, the list will continue to expand. FISHMAN AND MCKENNA, WIRETAPPING AND EAVESDROPPING: SURVEILLANCE WITH OTHER ELECTRONIC DEVICES; RADIO AND TELECOMMUNICATIONS § 30:33 (2013).

⁵² *Unmanned Aerial Vehicles Support Border Security*, CUSTOMS AND BORDER PROTECTION TODAY (July 2004), http://www.cbp.gov/xp/CustomsToday/2004/Aug/other/aerial_vehicles.xml.

⁵³ *Domestic Unmanned Aerial Vehicles (UAVs) and Drones*, *supra* note 45. See also *FAA Says It's Behind Schedule on Guidelines for Drones in US*, ALJAZEERA AMERICA (Nov. 7, 2013, 1:58 PM), <http://america.aljazeera.com/articles/2013/11/7/faa-setsroadmapformassdroneuseintheworldwithfewprivacyguidelines.html>. Jeramie Scott, a national security fellow at the Electronic Privacy Information Center, stating that unmanned aircraft “can fly with lots of advanced surveillance equipment, including HD cameras, potential facial recognition, license plate recognition and infrared cameras.” *Id.*

⁵⁴ Timothy T. Takahashi, *Drones and Privacy*, 14 COLUM. SCI. & TECH. L. REV. 72, 86 (2012). The concept behind “perch-and-stare” surveillance is to “avoid energy-intensive moving or hovering flight by securing itself to a vantage point and turning off its propulsion mechanism.” *Id.* “‘Perch-and-stare’ capability in a small surveillance [UAS] offers great tactical advantage By powering down the propulsion system, the persistence of surveillance can be extended greatly.” *Id.* Olivito, *supra* note 17, at 702 n.52.

conventional microphones or laser optical microphones.⁵⁵

By virtue of how high they can fly, their design and size, UAVs can operate undetected in urban and rural environments.⁵⁶ UAVs are able to provide detail imaging of “high-resolution picture and video, peering inside high-level windows, and through solid barriers, such as fences, trees, and even walls.”⁵⁷ The high-resolution images and video acquired by an UA can be transmitted in real-time to an observer.⁵⁸ The one thing that all UAVs have in common is that their numbers, popularity, and potential uses are growing exponentially and thus, making the privacy concern even more pervasive.⁵⁹

C. The UA Market

While manufacturers of UAS have seen the market soar as the military and the CIA have increasingly relied on UAVs in Afghanistan, Pakistan, and Yemen,⁶⁰ manufacturers have been awaiting a new, lucrative opportunity at home. They are gearing up sales to domestic customers in preparation for opening of the airspace in 2015.⁶¹ The Association for Unmanned Vehicle Systems International (AUVSI)⁶² Study conservatively declared that when the FAA unleashes drones into the American airspace, the industry has the potential to create 103,776 jobs, and revenues will be in the billions.⁶³ According to another study by the Association for Unmanned Vehicles, an Arlington, Virginia-based trade group, for every year that

⁵⁵ Olivito, *supra* note 17, at 677.

⁵⁶ *Domestic Unmanned Aerial Vehicles (UAVs) and Drones*, *supra* note 45.

⁵⁷ *Id.*

⁵⁸ Villasenor, *supra* note 9, at 464.

⁵⁹ See, e.g., Clay Dillow, *Get Ready for ‘Drone Nation’*, FORTUNE (Oct. 8, 2014 3:58 PM), <http://fortune.com/2014/10/08/drone-nation-air-droid/>.

⁶⁰ Geoff Dyer, *US Drone Market Comes under Fire as It Tries to Take Off*, FINANCIAL TIMES (Oct. 8, 2013, 7:15 PM), <http://www.ft.com/cms/s/0/8a2ea13e-3034-11e3-80a4-00144feab7de.html#ixzz2IUJSFBGT>.

⁶¹ *Id.*; see, e.g., *Commercial Unmanned Aircraft Market May Be Worth \$10 Billion*, UNITED PRESS INT’L (Nov. 5, 2013, 7:13 PM), http://www.upi.com/Business_News/Security-Industry/2013/11/05/Commercial-unmanned-aircraft-market-may-be-worth-10-billion/UPI-76511383696791/#ixzz2IUkhaZ12 (“Unmanned aircraft systems company Modern Technology Solutions is expanding its business into the commercial drone marketplace, seen likely to grow to \$10 billion within three years. The company said it was confident about entering the commercial market.”).

⁶² The largest international association for unmanned systems. Villasenor, *supra* note 9, at 466.

⁶³ The civilian drone market alone is possibly worth more than \$400 billion according to a U.K. research project backed by the government and top aerospace companies. Chris Wickham, *Military Drones Zero In on \$400 Billion Civilian Market*, REUTERS (Nov. 14, 2013, 2:29 PM), <http://www.reuters.com/article/2012/11/14/us-science-drones-civilian-idUSBRE8AD1HR20121114>; see also *Hot Topics*, THE AEROSPACE STATES ASSN., <http://aerostates.org/events/hot-topics> (last visited Mar. 12, 2014); Matt Sledge, *Domestic Drone Lobby Pushes Back On Restrictions, Seeks Tax Breaks*, HUFFINGTON POST (Oct. 27, 2013, 10:20 AM), http://www.huffingtonpost.com/2013/03/13/domestic-drones_n_2868450.html.

integration of drones is delayed, the U.S. economy will lose more than \$10 billion in potential economic impact or \$27.6 million a day.⁶⁴ According to AUVSI, there are now 400 active manufacturers of UAS globally, including 150 in the United States.⁶⁵ The FAA estimates that “companies, universities, and government organizations are developing and producing over 155 unmanned aircraft designs.”⁶⁶

As illustrated above, the UAS market will prove to be one of the most lucrative. The UA market is evolving drastically, domestically and internationally.⁶⁷ UA technology will continue to grow, and the industry is eager to receive guidance from the FAA. In taking advantage of UAS capabilities, the challenge is to provide privacy protections to individuals while allowing UAVs to someday become ubiquitous. The FAA is ill equipped to draw lines regarding privacy. In fact, their main concern is the safety operations of UAS.⁶⁸ In the FAA Roadmap, released on November 7, 2013, the FAA made a mere half-a-page mention in regard to privacy as to note that the agency needs to conduct further research in order to determine how UAS and its capabilities could impact privacy concerns.⁶⁹

D. Current and Potential UA Uses

While UAVs have been used for decades by the military to spy, communicate, and attack places abroad, their current and potential uses are increasing among federal, state, and local agencies, as well as private actors.⁷⁰

Agencies argue that UAVs are a cost effective tool for police to carry out their investigative efforts.⁷¹ The technology is appealing to law

⁶⁴ Muhammed El-Hasan, *Businesses See Opportunity in Civilian Drones, but Regulations Stand In the Way*, THE DENVER POST (Oct 27, 2013, 10:15 AM), http://www.denverpost.com/ci_23522851/businesses-see-opportunity-civilian-drones-but-regulations-stand.

⁶⁵ *Id.*

⁶⁶ *FAA Fact Sheet*, *supra* note 36.

⁶⁷ Other countries with significant UAS development include Australia, Brazil, Canada, China, France, Germany, India, Iran, Israel, Japan, Pakistan, Turkey, Russia, and the United Kingdom. Villaseñor, *supra* note 9, at 466.

⁶⁸ *FAA Roadmap*, *supra* note 6, at 14. In order to integrate UASs into the airspace, “the FAA requires an equivalent level of safety, comparable to ‘see and avoid’ requirements for manned aircraft” as defined in 14 C.F.R. § 91.113 (2012). Florent Martel, Richard R. Schultz & Zimming Wang, *Unmanned Aircraft Systems Sense and Avoid Flight Testing Utilizing ADS-B Transceiver*, AIAA Infotech@Aerospace Conference, AIAA, Atlanta, GA, 2010, available at <http://www.enu.kz/repository/2010/AIAA-2010-3441.pdf> [hereinafter *Sense and Avoid Flight Testing*].

⁶⁹ *Id.* at 12.

⁷⁰ El-Hasan, *supra* note 64.

⁷¹ For examples of agencies using UAV see Kaveh Waddell, *Few Privacy Limitations Exist on How Police Use Drones*, NAT’L J. (Feb. 5, 2015), <http://www.nationaljournal.com/tech/few-privacy-limitations-exist-on-how-police-use-drones-20150205>.

enforcement because it is a less expensive, much more efficient way to conduct tasks that would otherwise require a helicopter and personnel to operate, fuel, and maintain the aircraft. For example, U.S. Customs and Border Protection operate ten UAVs.⁷² The agency has, among other things, “deployed [UAVs] to investigate fishing violations, search for missing persons, and inspect levees along the Mississippi River.”⁷³ The Department of Homeland Security (DHS) has used UAVs to police the nation’s borders in order to deter unlawful border crossings and to detect the smuggling of weapons, drugs, and contraband.⁷⁴ Partnering with local law enforcement, DHS has also tested UAV capabilities in detecting radiation, monitoring hostage situations, and tracking a gun thrown by a fleeing suspect.⁷⁵

Several local law enforcement agencies around the country have also used UAVs in conducting police investigations.⁷⁶ UAVs are being used in locating bombs, finding lost or missing children, monitoring weather and wildlife, and assisting rescues in natural disasters.⁷⁷ A local law enforcement agency in North Dakota conducted the nation’s first UAV-assisted arrest.⁷⁸ UAVs are also popular in search and rescue efforts, especially in gathering information during wildfires.⁷⁹

Similarly, private actors want to benefit from the relatively cheap technology in carrying out different tasks. “Unmanned aircraft come in all shapes and sizes, have thousands of uses and can be purchased by your average person,” said Raymond L. Mariani of Murray, Morin & Herman, at the American Bar Association Conference on Aviation and Space law.⁸⁰

⁷² Somini Sengupta, *U.S. Border Agency Allows Others to Use Its Drones*, N.Y. TIMES (July 3, 2013), http://www.nytimes.com/2013/07/04/business/us-border-agency-is-a-frequent-lender-of-its-drones.html?_r=0.

⁷³ *Id.*

⁷⁴ THOMPSON II, *supra* note 11, at 2. See also Hon. Brian Stern & Matthias Rubekeil, *Coming Home to Roost—Domestic Use of Unmanned Aerial Vehicles*, 62-DEC R.I. B.J. 5 (2013).

⁷⁵ Brian Bennett, *Drones Tested as Tools for Police and Firefighters*, LOS ANGELES TIMES (August 5, 2012, 5:00 AM), <http://www.latimes.com/news/nationworld/nation/la-na-drones-testing-20120805,0,6483617>.

⁷⁶ Sengupta, *supra* note 72.

⁷⁷ *Id.*; see also 2013 *Unmanned Aircraft Systems (UAS) Legislation*, NATIONAL CONFERENCE OF STATE LEGISLATURES (Oct. 27, 2013, 11:00 AM), <http://www.ncsl.org/research/civil-and-criminal-justice/unmanned-aerial-vehicles.aspx>.

⁷⁸ In 2011, the North Dakota Sheriff’s Department requested the assistance of nearby Air Force base to deploy its UAS in order to locate three men believed to be rustling cattle. The Air Force deployed its UA and within hours the UA was able to detect the three men who were subsequently arrested. Hon. Brian Stern & Matthias Rubekeil, *Coming Home to Roost—Domestic Use of Unmanned Aerial Vehicles*, 62-DEC R.I. B.J. 5, 6 (2013) (citing Defendants’ Notice of Motion and Motion to Dismiss, *State of North Dakota v. Rodney Brossart*, N.E. Cen. D. (N.D. 2012) (Nos. 32-2011-CR-00049, 00071)).

⁷⁹ *UAV Search and Rescue Systems Are Life Savers* (Sept. 22, 2013), <http://www.fireflightuas.com/2013/09/22/uav-search-and-rescue-systems-are-life-savers/>.

⁸⁰ *The Rise of the Drones: Experts Discuss Legal Implications of UAVs in Civilian Airspace*, AM.

“[UAS] is the biggest area that is exploding in aviation now. They are everywhere. They are becoming cheaper and cheaper.”⁸¹ Everyone wants to get their hands on this technology.

In addition to federal agencies and local police and fire departments, a recent disclosure by the FAA revealed that state and private colleges have also used UAVs⁸² and have received grants in developing new technologies. For example, a team at the Harvard-MIT Division of Health and Sciences and Technology recently received a grant from the Bill and Melinda Gates Foundation to develop UAVs that would deliver vaccines and medicines to remote locations and disaster zones.⁸³ People for the Ethical Treatment of Animals also plan on using UAVs to watch for illegal activities among hunters that are deploying UA to find their targets.⁸⁴

When it comes to the commercial use of UAVs, the possibilities are endless. Farmers could use them to check and dust their crops.⁸⁵ They can also be used to survey and document wildlife.⁸⁶ Companies, like Amazon, are testing the possibility of delivering packages via a UAV.⁸⁷ If UAV delivery takes off, soon enough they will replace our local pizza delivery workers.⁸⁸ Facebook is also looking into acquiring an UAV that will be able

BAR ASSOC. (Oct. 22, 2013), available at http://www.americanbar.org/news/abanews/aba-news-archives/2013/10/the_rise_of_the_dron.html.

⁸¹ *Id.* (listing several examples of how drones are being used for commercial and civilian purposes).

⁸² THOMPSON II, *supra* note 11, at 2.

⁸³ *The Rise of the Drones: Experts Discuss Legal Implications of UAVs in Civilian Airspace*, *supra* note 80.

⁸⁴ *Id.*

⁸⁵ Dylan Love, *A Look At Our Inevitable Drone-Filled Future*, BUSINESS INSIDER (Dec. 16, 2013, 10:24 AM), <http://www.businessinsider.com/how-drones-will-be-used-in-the-future-2013-12>.

⁸⁶ Joseph Dussault, *7 Commercial Uses for Drones*, BOSTON.COM (Mar. 14, 2014), <http://www.boston.com/business/2014/03/14/commercial-uses-for-drones/dscS47PsQdPneIB2UQeY0M/story.html>.

⁸⁷ “Amazon Prime Air” will be able to deliver an item to your house within 30 minutes of ordering it via a UAV. Love, *supra* note 85. On March 19, 2015, the FAA granted Amazon an experimental airworthiness certificate, discussed *infra*, to test their Amazon Prime Air delivery drone. The restrictions on the certificate, however, require all flights be during the day in clear weather and be at altitudes of no more than 400 feet. Amazon must also provide monthly reports to the FAA, including number of flights, any software/hardware malfunctions, unintended behavior and loss of communications. Even with the restrictions, the FAA’s approval of the experimental certificate provides some hope for Amazon’s drone delivery service to still prove itself after the FAA proposed regulations in February that placed heavy restrictions on drone flights. Christopher Pangolos, *FAA Gives Approval For Amazon to test Drones*, SPACECOASTDAILY.COM (Apr. 2, 2015), <http://spacecoastdaily.com/2015/04/faa-gives-approval-for-amazon-to-test-drones-with-restrictions/>.

⁸⁸ Dussault, *supra* note 86. See Julianne Pepitone, *Domino’s Tests Drone Pizza Delivery*, CNN MONEY (June 4, 2013, 6:29 PM), <http://money.cnn.com/2013/06/04/technology/innovation/dominos-pizza-drone/> (in the U.K., a Domino’s franchise has developed a UAV, named the “DomiCopter,” that can deliver pizzas.).

to provide Internet access to remote areas of the world.⁸⁹ The real estate industry loves the idea of UAV virtual tours when selling properties.⁹⁰

The sky is the limit, literally, when it comes to commercial uses of UASs. Under the pressure from governmental agencies (that have already seen the benefits of UAS), the private actors that stand to benefit from using the technology, and the industry manufacturers that will make billions of dollars in producing and selling UASs, the rush to incorporate UAVs could pose a grave danger to privacy.

II. DEVELOPMENT OF AVIATION AND UAV REGULATION

A. Brief History of the FAA

In 1958, Congress passed the Federal Aviation Act (Act), which created the Federal Aviation Agency (Agency).⁹¹ The Act gave the Administrator of the Agency full responsibility and authority for civil aviation safety and tasked the Agency with providing safe and efficient use of the airspace by both civil and military aircraft.⁹² Concerned about the lack of a coordinated transportation system, President Johnson believed in one uniform department that would carry out comprehensive transportation policies across all modes of transportation.⁹³ In 1966, Congress authorized the creation of a cabinet department that would combine federal transportation responsibilities.⁹⁴ In 1967, the Federal Aviation Agency became the Federal Aviation Administration (FAA), a component of the Department of Transportation and the agency responsible for nearly all aircraft operation in the United States, including licensing UAVs for domestic use.⁹⁵

The FAA continues to set uniform rules for the operation of aircraft in the national airspace today.⁹⁶ In 2003, the FAA employed a Federal Advisory Committee⁹⁷ to develop standards that would support a regulatory framework governing commercial UASs' access to the NAS.⁹⁸ On February

⁸⁹ Love, *supra* note 85.

⁹⁰ Dussault, *supra* note 86.

⁹¹ Federal Aviation Act of 1958, Pub.L. No. 85-726, 72 Stat. 731.

⁹² *Brief History*, FED. AVIATION ADMIN. (Feb. 2, 2010), http://www.faa.gov/about/history/brief_history/#origins.

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ *Id.*; *Domestic Unmanned Aerial Vehicles (UAVs) and Drones*, *supra* note 45.

⁹⁶ ALISSA M. DOLAN & RICHARD M. THOMPSON II, CONG. RESEARCH SERV., R42940, INTEGRATION OF DRONES INTO DOMESTIC AIRSPACE: SELECTED LEGAL ISSUES 2 (2013).

⁹⁷ Martel, et al., *supra* note 68.

⁹⁸ The NAS provides airspace access to a diverse set of users including commercial airlines, general aviation and military aircraft.

14, 2012, Congress passed the FAA Modernization and Reform Act (FMRA), instructing the FAA to “develop a comprehensive plan to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system.”⁹⁹ The regulations must provide for the integration of UAVs domestically “as soon as practicable, but no later than September 30, 2015.”¹⁰⁰

B. Current FAA Regulation of UAVs

The FAA is responsible for defining the minimum safe operating altitudes for all aircraft.¹⁰¹ However, the FAA does not regulate safe minimum operating altitudes for UAVs as it does with other types of aircraft.¹⁰² Until recently, “no person [could] operate a UAS in the National Airspace without specific authority.”¹⁰³ All UAV operators were required to apply directly to the FAA for permission to operate the aircraft.¹⁰⁴ The FAA has divided operators of UAVs into three categories: public operators, recreational users, and civil operators.¹⁰⁵ Accordingly, the three categories of operators are treated differently within the regulatory framework.

1. Public Operators

Before deploying a UAV, local, state, and federal law enforcement agencies must obtain a Certificate of Authorization (COA) from the FAA.¹⁰⁶ When applications for a certificate of authorization are received, the FAA conducts a technical review of the UAS to ensure that it is in the

⁹⁹ Modernization and Reform Act of 2012, Pub. L. No. 112-95, § 332(a)(1) 126 Stat 11.

¹⁰⁰ *Id.* at § 332(a)(3).

¹⁰¹ DOLAN AND THOMPSON II, *supra* note 96, at 2.

¹⁰² *Id.* at 3.

¹⁰³ Unmanned Aircraft Operations in the National Air System, 72 Fed. Reg. 6689 (Feb. 13, 2007); DOLAN AND THOMPSON II, *supra* note 96, at 3.

¹⁰⁴ DOLAN AND THOMPSON II, *supra* note 96, at 3.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.* FAA Fact Sheet, *supra* note 36. Applicants interested in obtaining a COA make their request through an online application. Thereafter, the FAA makes a determination on whether the proposed operation can be conducted safely. The COA is issued for a specified period of time and designates a block of airspace and includes special provisions specific to the proposed operation of the UAS. For example, a COA may require flying during daylight hours and only in the sight of the operator. Furthermore, most COAs require coordination with an appropriate air traffic control facility.

COAs Issued:

2009 146

2010 298

2011 313

2012 257

2013 373 (as of October 31)

***There were 545 COAs active as of December 4, 2013.

public interest to operate the UAV, it is safe, and it does not significantly impact other air traffic.¹⁰⁷ The public aircraft¹⁰⁸ must prove to be airworthy for the FAA to grant the certificate of authorization or waiver.¹⁰⁹ The FAA has made it easier to apply for a waiver on their website, in order to comply with a directive that the process be expeditious.¹¹⁰ Additionally, the FAA employs expedited procedures for temporary waivers if needed for time-sensitive missions.¹¹¹ The number of active COAs grew from 327¹¹² to 545 from February 15, 2013 to December 4, 2013.¹¹³ The growing number of COAs issued over the past several years reveals the keen interest in domestic UAV use.

2. Recreational Users

The FAA Advisory Circular 91-57 covers the recreational use of airspace.¹¹⁴ Published in 1981, the Advisory Circular was an effort to regulate the recreational community.¹¹⁵ It outlines and encourages voluntary compliance by hobbyists—those that operate a UAS for recreational

¹⁰⁷ See, e.g., PowerPoint Presentation by Susan Goplen, Jeff Sloan & Mark A. Bauer, *Certificate of Authorization (COA) Process*, USGS National UAS Project Office, http://rmgsc.cr.usgs.gov/UAS/pdf/USGS_COA_process.pdf.

¹⁰⁸ FAA Modernization and Reform Act of 2012, defines “public aircraft” as an aircraft:

(1) “used only for the United States Government;”

(2) “owned by the United States Government and operated by any person for purposes related to crew training, equipment development, or demonstration;” or

(3) “owned and operated (except for commercial purposes), or exclusively leased for at least 90 continuous days, by a government (except the United States government), including a State, the District of Columbia, or a territory or possession of the United States, or political subdivision of that government False.”

Philip J. Hiltner, *The Drones Are Coming: Use of Unmanned Aerial Vehicles for Police Surveillance and Its Fourth Amendment Implications*, 3 WAKE FOREST J.L. & POL’Y 397, 415 (2013).

¹⁰⁹ DOLAN AND THOMPSON II, *supra* note 96, at 3.

¹¹⁰ *Id.* (citing Modernization and Reform Act of 2012, Pub. L. No. 112-95, § 332(a)(1) 126 Stat 11).

¹¹¹ DOLAN AND THOMPSON II, *supra* note 96, at 3.

¹¹² THOMPSON II, *supra* note 11, at 2 n.18 (“There are over 300 total, including those issued to the following entities: City of Herrington, KS; Cornell University; Department of Energy Idaho National Laboratory; Eastern Gateway College Community College—Steubenville, OH; Miami-Dade Police Department; Mississippi Department of Marine Resources; North Little Rock Police Department, AR; Ogden Police Department, UT; Ohio University; Seattle Police Department; Texas A&M—Texas Engineering Experiment Station; Texas Department of Public Safety; Texas State University; University of Connecticut; University of Florida; U.S. Department of Agriculture Agricultural Research Service; Utah State University; Virginia Tech.”); see also *Unmanned Aircraft Systems*, FED. AVIATION ADMIN., <http://www.faa.gov/about/initiatives/uas/>.

¹¹³ *FAA Fact Sheet*, *supra* note 36.

¹¹⁴ *Id.*

¹¹⁵ See, e.g., Advisory Circular 91-57, *Model Aircraft Operating Standards* (June 1981), available at http://www.faa.gov/documentLibrary/media/Advisory_Circular/91-57.pdf [hereinafter Advisory Circular 91-57].

enjoyment and not for compensation.¹¹⁶ The Advisory Circular (Circular) generally limits operations to below 400 feet above ground level, within the line of sight, and away from airports and air traffic.¹¹⁷ Although hobbyists are *not required* to comply with the Circular, they are held to a good judgment standard in operating a UAS.¹¹⁸

While the Circular is specifically directed toward recreational users and model aircraft, commercial UAS operators, at times, have used it to make a claim that they can fly their small UAS under 400 feet without first applying to the FAA.¹¹⁹ However, in 2007, the FAA clarified that Advisory Circular 91-57 only applies to hobbyists and model aircraft,¹²⁰ to the exclusion of individuals or companies flying a UAS for commercial or otherwise business purposes.¹²¹

3. Commercial Users

Applying for an experimental airworthiness certificate¹²² for a particular UAS system is the only way that private users could access the NAS, or so everyone thought.¹²³ Under the experimental designation, commercial users are precluded from operating the UAS for compensation, but are allowed to operate for research and development, flight and sales demonstrations, and crew training.¹²⁴ These certificates were being issued

¹¹⁶ *Id.*

¹¹⁷ *FAA Fact Sheet*, *supra* note 36; Advisory Circular 91-57, *supra* note 115; Modernization and Reform Act of 2012, Pub. L. No. 112-95, § 336 126 Stat 11.

¹¹⁸ Advisory Circular 91-57, *supra* note 115 (emphasis added).

¹¹⁹ RICHARD K. BARNHART, STEPHEN B. HOTTMAN, DOUGLAS M. MARSHALL, J.D., & ERIC SHAPPEE, INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS 38 (2011).

¹²⁰ Model aircraft means an unmanned aircraft that is—(1) capable of sustained flight in the atmosphere; (2) flown within visual line of sight of the person operating the aircraft; and (3) flown for hobby or recreational purposes. Modernization and Reform Act of 2012, Pub. L. No. 112-95, §336(c) 126 Stat 11; *see also* “Unmanned Aircraft Operations in the National Airspace System,” Docket No. FAA200625714, 72 Fed. Reg. 29 at 6689 (Feb. 13, 2007).

¹²¹ *FAA Fact Sheet*, *supra* note 36; *see also The Rise of the Drones: Experts Discuss Legal Implications of UAVs in Civilian Airspace*, *supra* note 80. “The FAA makes a determination between model aircraft and unmanned aircraft based on the use or the intent. False. If you have a smile on your face and you’re flying, you are probably a hobbyist. Therefore, the FAA rules do not apply to you. If you do not have a smile on your face and you are using it as a tool to do something, to gather some sort of data, chances are you are an unmanned aircraft system.” *Id.*

¹²² An airworthiness certificate is an FAA document, which grants authorization to operate an aircraft in flight. Special airworthiness certificates may be issued in the experimental category for the purpose of Research and development: to conduct aircraft operations as a matter of research or to determine if an idea warrants further development. Private sector entities can *only* obtain an experimental aircraft certification. Certifications and Authorizations, FED. AVIATION ADMIN. (Mar. 19, 2013), http://www.faa.gov/aircraft/air_cert/airworthiness_certification/sp_awcert/experiment/ (emphasis added).

¹²³ *FAA Fact Sheet*, *supra* note 36.

¹²⁴ *Id.*

on a very limited basis.¹²⁵ The FAA has been working closely with civilian operators in order to collect operational data that will help refine the UAS airworthiness certification process.¹²⁶

In March 2014, however, a federal administrative judge held that the “FAA has no legal authority to meddle in the market and dismissed a fine levied against an operator who defied regulators by getting paid to use a[n] [UAV] to film the University of Virginia campus.”¹²⁷ The opinion concluded that the FAA’s commercial drone prohibition is not actually federal law.¹²⁸ The judge’s decision does away with the experimental airworthiness certificate requirement that commercial UAS users needed to file before operation. The decision is “a blow to the [FAA’s] ability to regulate private UAV use in the United States.”¹²⁹

In *Huerta v. Pirker*,¹³⁰ Raphael Pirker (known as “Trappy” in the UAS community) was hired to fly a drone over the University of Virginia campus to obtain aerial photos and videos for a company called Lewis Communications.¹³¹ Pirker did not acquire an experimental airworthiness certificate before flying a 4.5-pound Ritewing Zephyr-powered glider.¹³² As a result, the FAA fined him \$10,000 for flying without a pilot’s certificate, for what they said was “careless and reckless behavior.”¹³³ Nevertheless, Pirker and his attorney Brendan Schulman appealed the fine to the National Transportation Safety Board, and the federal judge handed down a decision siding with Pirker.¹³⁴

Pirker’s principal argument was that the UA he used qualified as a “model aircraft” rather than simply “aircraft.”¹³⁵ As previously mentioned, the distinction is important because while the FAA has the authority to

¹²⁵ DOLAN AND THOMPSON II, *supra* note 96, at 3.

¹²⁶ *FAA Fact Sheet*, *supra* note 36.

¹²⁷ *Drones Cleared for Takeoff*, WALL ST. J. (Mar. 16, 2014, 6:36 PM), <http://online.wsj.com/news/articles/SB10001424052702304914904579441052310129582>.

¹²⁸ Clay Dillow, *Judge: It’s Always Been Legal to Fly Commercial drones in the U.S.*, CNN FORTUNE & MONEY (Mar. 10, 2014, 5:00 AM), <http://tech.fortune.cnn.com/2014/03/10/commercial-drones-faa/>.

¹²⁹ Ryan Calo, *Drones: 1, FAA: 0*, FORBES (Mar. 7, 2014 5:55 A.M.), <http://www.forbes.com/sites/ryancalo/2014/03/07/drones-1-faa-0/>.

¹³⁰ *Huerta v. Pirker*, Docket No. CP-217, Decisional Order (FAA Mar. 6, 2014), <http://www.kramerlevin.com/files/upload/PirkerDecision.pdf>.

¹³¹ Clay Dillow, *supra* note 128.

¹³² A lightweight, remotely-piloted styrofoam aircraft.

¹³³ Pirker flew the UAV at extremely low altitudes as he maneuvered the craft through tunnels with moving cars below. He also flew the UAV near railroad tracks and civilians—one of who had to dodge out of the way to avoid being struck. *Id.*; see also Clay Dillow, *supra* note 128.

¹³⁴ *Huerta v. Pirker*, Docket No. CP-217, Decisional Order (FAA Mar. 6, 2014), <http://www.kramerlevin.com/files/upload/PirkerDecision.pdf>.

¹³⁵ *Id.*

regulate “aircraft,” “model aircraft” are excluded and are instead subject to voluntary compliance with the Advisory Circular 91-57.¹³⁶ The administrative judge agreed with Pirker and cancelled the \$10,000 fine the FAA imposed on him.¹³⁷

The FAA appealed the ruling and on November 18, 2014, in a unanimous decision, the National Transportation Safety Board (NTSB) concluded that UAS are aircraft within the FAA’s statutory and regulatory definition and the FAA’s prohibition against operating a UAS in a careless and reckless manner applied in this case.¹³⁸ “The decision represents a significant win for the FAA in its attempts to prohibit unlawful UAS operations, and a setback for commercial interests that were hoping to turn the *Pirker* decision into a broader war against the FAA’s ban on commercial use of UAS.”¹³⁹

However, in February 2015, the FAA took a huge step toward allowing UAS flights.¹⁴⁰

The FAA proposed new regulations¹⁴¹ that will allow routine use of small (under 55 pounds) UAS in American skies.¹⁴² Under the proposed rule, the person flying the small UAS would be an “operator.”¹⁴³ The rule proposes certain operating limitations designed for the safety of the public and other aircraft.¹⁴⁴ Some of the requirements are summarized below:

- A small UAS operator must always see and avoid manned

¹³⁶ See Advisory Circular 91-57, *supra* note 115.

¹³⁷ Calo, *supra* note 129.

¹³⁸ *Huerta v. Pirker—NTSB Says No More “Gray Area” for Drone Operations*, Morrison & Foerster (Nov. 20, 2014), available at <http://www.mofo.com/~media/Files/ClientAlert/2014/11/141120HuertavPirker.pdf>.

¹³⁹ NTSB’s decision affirms the FAA’s ability to regulate UAS operations and seek penalties from those that operate UAS in violation of FAA regulations. *Huerta v. Pirker: NTSB Rules that UAS Are “Aircraft” and Subject to FAA Prohibition on Careless and Reckless Operations*, Pillsbury Law (Nov. 19, 2014), available at <http://www.pillsburylaw.com/siteFiles/Publications/AlertNovember2014AviationHuertavPirker.pdf>.

¹⁴⁰ *FAA Takes A Huge Step Toward Allowing Drone Flights In America*, FORBES (Feb. 15, 2015 10:54 AM), <http://www.forbes.com/sites/gregorymcneal/2015/02/15/a-brief-summary-of-the-faas-new-drone-regulations/>.

¹⁴¹ The rule will become finalized after it goes through a comment period during which the public will have an opportunity to weigh in on the rules.

¹⁴² *Id.*

¹⁴³ “An operator would have to be at least 17 years old, pass an aeronautical knowledge test and obtain an FAA UAS operator certificate. To maintain certification, the operator would have to pass the FAA knowledge tests every 24 months. A small UAS operator would not need any further private pilot certifications (i.e., a private pilot license or medical rating). A small UAS operator would not need any further private pilot certifications (i.e., a private pilot license or medical rating).” *Press Release—DOT and FAA Propose New Rules for Small Unmanned Aircraft Systems*, FAA (Feb. 15, 2015), https://www.faa.gov/news/press_releases/news_story.cfm?newsId=18295.

¹⁴⁴ *Id.*

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).¹⁴⁵

Moreover, the rule maintained the existing prohibition, at issue in the *Pirker* decision, against operating in a careless or reckless manner.¹⁴⁶ Although operators would be responsible for ensuring that the UAV is safe before flying, the FAA is not requiring that small UAS comply with current agency airworthiness standards.¹⁴⁷ Transportation Secretary Anthony Foxx stated, “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.”¹⁴⁸ Until the new rule becomes final, however, the current UAS rules remain in place.

C. Future FAA Regulatory Framework for Commercial Users

Congress has ordered the FAA to integrate commercial UAVs into the national airspace by 2015, as well as implement new regulation for public users.¹⁴⁹ The FAA Modernization and Reform Act’s provisions require the FAA to create and implement a comprehensive plan addressing different type of UAVs.¹⁵⁰ The Act includes a host of requirements, projections, and

¹⁴⁵ *Id.*

¹⁴⁶ *See id.*

¹⁴⁷ *Id.* The proposed rule also includes extensive discussion of the possibility of an additional, more flexible framework for “micro” UAS under 4.4 pounds.

¹⁴⁸ *Id.*

¹⁴⁹ Modernization and Reform Act of 2012 § 332(a)(1); DOLAN AND THOMPSON II, *supra* note 96, at 5.

¹⁵⁰ Modernization and Reform Act of 2012 § 332(a)(1) (The statute orders the FAA to come up with a “comprehensive plan to safely accelerate the integration of civil unmanned aircraft systems into the national airspace.”). *See also* Nick Wingfield & Somini Sengupta, *Drones Set Sights on U.S. Skies*, N.Y. TIMES (Oct. 27, 2013, 11:00 AM), <http://www.nytimes.com/2012/02/18/technology/drones-with-an-eye-on-the-public-cleared-to-fly.html?pagewanted=all>.

recommendations that the FAA shall provide.¹⁵¹ Among them are the following: defining acceptable standards for operation and certification of UAS; ensuring that civil UAS includes a “sense and avoid capability”; establishing standard for operators and pilots of civil UAS (including registration and licensing procedures); providing the best technologies to achieve a safe and routine operation of civil UAS in the NAS; incorporating a comprehensive plan and five year roadmap for a gradual integration of UAVs; crafting a timeline for UAS integration that is safe and in manner that cooperated with manned aircraft operations; and ensuring the safe operation of civil UAS and public UAS simultaneously.¹⁵²

1. UAV Test Sites

The FAA Modernization and Reform Act further requires that the rulemaking agency create six UAV test sites in order to develop certification, flight standards, and air traffic requirements of civil UASs.¹⁵³ In February 2013, the FAA published a notice to the Federal Register announcing the process by which test ranges will be selected.¹⁵⁴ The purpose of the test sites is to “develop a body of data and operational experiences to inform integration and the safe operation of these aircraft [sic] in the National Airspace System.”¹⁵⁵ Out of twenty-five applicants, six winners were announced in December 2013. The winners are the University of Alaska, State of Nevada, New York’s Griffiss International Airport, North Dakota Department of Commerce, Texas A&M University – Corpus Christi, and Virginia Polytechnic Institute and State University (Virginia Tech).¹⁵⁶ The FAA provided that the selections were made with an eye toward diversity, including operations in areas of heavy air traffic, like the Northeast, and Nevada’s border with California.¹⁵⁷ Michael P. Huerta, the Administrator of the FAA, stated that the sites provided diverse geography, climate, and air traffic density.¹⁵⁸

¹⁵¹ Modernization and Reform Act of 2012 § 332(a)(1).

¹⁵² *Id.* at § 332(a)(2)(A)-(G).

¹⁵³ *Id.* at § 332(a)(2)(H).

¹⁵⁴ Unmanned Aircraft System Test Site Program, 78 Fed. Reg. 12,259 (Feb. 22, 2013); DOLAN AND THOMPSON II, *supra* note 96, at 6.

¹⁵⁵ Unmanned Aircraft System Test Site Program, 78 Fed. Reg. 12,259 (Feb. 22, 2013). The factors for selecting site are provided in the Modernization and Reform Act. They include geographic and climatic diversity, as well as, an infrastructure that could support the sites. DOLAN AND THOMPSON II, *supra* note 96, at 6.

¹⁵⁶ Bart Jansen, *FAA Names 6 Sites for Testing Drones*, USA TODAY (Dec. 30, 2013), <http://www.usatoday.com/story/news/nation/2013/12/30/drone-test-sites/4248771/>.

¹⁵⁷ Matthew L. Wald, *F.A.A. Picks Diverse Sites to Carry Out Drone Tests*, N.Y. TIMES (Dec. 30, 2013), http://www.nytimes.com/2013/12/31/us/politics/us-names-domestic-test-sites-for-drone-aircraft.html?_r=0.

¹⁵⁸ *Id.*

An unstated function of the test sites, however, is to gauge the public's concern over privacy issues.¹⁵⁹ Sites such as New York's Griffiss International Airport, for example, are located in a busier airspace than other test sites.¹⁶⁰ It is highly likely that privacy issues will arise even during the testing process.¹⁶¹ "Organizations like the Electronic Frontier Foundation have criticized the test site approach, saying that the FAA's attempt to test the limits of the public's tolerance for [UAVs] could itself result in privacy and civil liberties violations."¹⁶² How can the FAA address privacy issues when UAVs have not been tested? This is precisely the dilemma the FAA faces.

The agency admits that it is ill equipped to address such concerns, and rightfully so.¹⁶³ Nevertheless, the Electronic Frontier Foundation is also states a valid concern - that the FAA should not push the boundaries by flying UAVs that could potentially infringe on citizens' privacy rights.¹⁶⁴ While the FAA required each test site to develop privacy protections unique to the site itself,¹⁶⁵ the policies have been less than vigilant. Northeast UAS Airspace Integration Research Alliance, Inc. (NUAIR), responsible for developing the privacy policy for New York's Griffiss test site, made clear that new laws are not necessary to protect privacy.¹⁶⁶ NUAIR states, "[w]e believe that existing law fully protects the public interest and that introduction of UAS into the National Airspace System does not weaken or eviscerate that legal protection."¹⁶⁷ Lawrence Brinker, Executive Director and General Counsel for NUAIR, analogizes UASs to helicopters or planes and declines that additional privacy protections are needed.¹⁶⁸ In fact, he explains that the only difference between an UAV and a plane or helicopter is that the pilot has been removed.¹⁶⁹ Thus, laws that apply to manned aircraft are sufficient to provide the framework for UASs.¹⁷⁰ Noticeably absent from the discussion is the technology with which UAVs could be

¹⁵⁹ Frank Matt, *Drones over Upstate New York: A Look at an FAA Test Site*, AL JAZEERA AMERICA (Jan. 21, 2014, 7:00 PM), <http://america.aljazeera.com/watch/shows/the-stream/multimedia/2014/1/drones-over-upstatenewyorkalookatanfaatestsite.html>.

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

¹⁶² *Id.*

¹⁶³ *See id.*

¹⁶⁴ *Id.*

¹⁶⁵ *See id.*

¹⁶⁶ Matt, *supra* note 159; *see* Letter from Lawrence H. Brinker, General Counsel for Griffiss International Airport, to FAA (Apr. 23, 2013), *available at* <http://www.scribd.com/doc/201292879/NUAIR-privacy-letter>.

¹⁶⁷ Matt, *supra* note 159.

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

outfitted and how that will change the privacy protection dialogue. One of the few mentions of privacy by the FAA was made in the agency's Roadmap, discussed in the next section.

2. Integration of Civil UAS in the National Airspace System Roadmap

On November 7, 2013, the FAA published a seventy-four page report titled, *Integration of Civil Unmanned Aircraft Systems (UAS) in the National Airspace System Roadmap*.¹⁷¹ The document describes in detail not only how UAVs will be used domestically, but also, how the FAA will continue to change protocol in order to safely integrate the aircraft.¹⁷²

While the UAS industry welcomed the report because it gave them some guidance as to upcoming regulation, privacy advocates were not so thrilled.¹⁷³ The FAA Roadmap only briefly mentions potential privacy implications.¹⁷⁴ The FAA indicates that it will take steps to ensure that any regulation governing the use of UAVs "addresses privacy concerns."¹⁷⁵ "But at some point [the FAA] [is] going to have to move from process to substance," stated Chris Calabrese, legislative council for the American Civil Liberties Union (ACLU).¹⁷⁶ Calabrese urges the FAA to establish substantive policies and limitations on the use, collection, and retention of information gathered by UAVs.¹⁷⁷

One thing is certain; once the new regulations are in place (wherever they may come from), UAVs are bound to proliferate. The FAA estimates that 7,500 commercial UAVs will be flying in the U.S. NAS in the next five years.¹⁷⁸ By 2020, the FAA anticipates as many as 30,000 UAVs,¹⁷⁹ and by 2025, there will be tens of thousands of the unmanned aircraft.¹⁸⁰ While the debate continues as to what role the FAA should play in regards to privacy concerns, federal elected officials and many state legislatures are not waiting but are taking matters into their own hands.

¹⁷¹ *FAA Roadmap*, *supra* note 6.

¹⁷² *Id.*

¹⁷³ Andy Pasztor and Jack Nicas, *Drone Plan Draws Privacy Concerns*, WALL ST. J. (Nov. 7, 2013), <http://online.wsj.com/news/articles/SB10001424052702303309504579183711382731676>.

¹⁷⁴ *FAA Roadmap*, *supra* note 6.

¹⁷⁵ *Id.*

¹⁷⁶ *FAA Says It's Behind Schedule on Guidelines for Drones in US*, *supra* note 53.

¹⁷⁷ *Id.*

¹⁷⁸ Tom Risen, *Commercial Drones Won't Fly by 2015, Officials Say*, U.S. NEWS (Feb. 5, 2014), <http://www.usnews.com/news/articles/2014/02/05/commercial-drones-wont-fly-by-2015>.

¹⁷⁹ Liebelson, *supra* note 4.

¹⁸⁰ Adam Clark Estes, *The FAA's Roadmap For Domestic Drones Somehow Sidesteps Privacy*, GIZMODO (Nov. 8, 2013, 1:34 PM), <http://gizmodo.com/the-faas-roadmap-for-domestic-drones-somehow-sidesteps-1460886594>.

D. Congressional Response

Recognizing the challenges in protecting Americans from the prying eyes of neighbors, companies, and other individuals, several bills were introduced in the 112th Congress to regulate the private use of UAVs, though none were enacted.¹⁸¹

1. Drone Aircraft Privacy and Transparency Act of 2013

In December 2012, Senator Edward Markley, a Massachusetts Democrat, introduced the Drone Aircraft Privacy and Transparency Act.¹⁸² Senator Markley states that the Act “requires transparency on the domestic use of [UAVs] and adds privacy protections that ensure this technology cannot and will not be used to spy on Americans.”¹⁸³ The bill would amend the FMRA to provide a way to regulate the use of UAVs by nongovernmental actors and develop “data collection requirements and enforcement mechanisms.”¹⁸⁴

First, the bill directs the Secretary of Transportation to establish certain procedures that would allow for the civil operation of small UASs in the NAS while in compliance with privacy principles.¹⁸⁵ Second, it prohibits the Secretary from approving or issuing any licenses to operate a UAS unless the application for such authorization includes a “data collection statement,”¹⁸⁶ which indicates that the operator of the UAV will comply with existing privacy principles.¹⁸⁷ Furthermore, the bill makes it unlawful to operate a UAS in a manner that is not in accordance with the terms of a

¹⁸¹ See Villasenor, *supra* note 9, at 509.

¹⁸² Drone Aircraft Privacy and Transparency Act of 2012, H.R. 6676, 112th Cong. (2012), available at <https://www.govtrack.us/congress/bills/112/hr6676> (The bill was re-introduced as H.R. 1262 on March 19, 2013).

¹⁸³ Miriam Raftery, *Bill to Regulate Drones, Protect Privacy Introduced*, E. CNTY. MAGAZINE (NOV. 7, 2013), <http://www.eastcountymagazine.org/node/14322>.

¹⁸⁴ DOLAN & THOMPSON II, *supra* note 96, at 19.

¹⁸⁵ Drone Aircraft Privacy and Transparency Act of 2013, H.R. 1262, 113th Cong. (2013), available at <https://www.govtrack.us/congress/bills/113/hr1262>.

¹⁸⁶ This statement would require a list of individuals with the authority to operate the UAS; the location the UAS will be used; the maximum period it will be used; and whether the UAS would be collecting information about individuals. If it is, the statement must provide how the information will be used; the kinds of information collected and the conclusions drawn from it; the type of data minimization procedures to be employed; whether the information will be sold, and if so, under what circumstances; how long the information would be stored; and procedures for destroying irrelevant data. The statement must also include information about the possible impact on privacy protections posed by the operation under that license and steps to be taken to mitigate this impact. Additionally, the statement must include the contact information of the drone operator; a process for determining what information has been collected about an individual; and a process for challenging the accuracy of such data. DOLAN & THOMPSON II, *supra* note 96, at 19.

¹⁸⁷ Drone Aircraft Privacy and Transparency Act of 2013, H.R. 1262, 113th Cong. (2013), available at <https://www.govtrack.us/congress/bills/113/hr1262>.

data collection statement and it also grants enforcement authority to the Federal Trade Commission.¹⁸⁸ Most importantly, it creates a private right of action in state or U.S. district court for persons injured by a prohibited act.¹⁸⁹

Although these provisions of the bill seem to be addressing the underlying issues, the bill has not seen movement since March 2013 when it was referred to the Subcommittee on Commerce, Manufacturing, and Trade.¹⁹⁰ It seems that even Congress is treading lightly in enacting a law that would apply to the commercial use of UAVs. Part of the problem in any UAS bill will be balancing the privacy concerns against the backdrop of the limitless uses of this technology. Congress is aware that if it enacts a blanket prohibition on the use of UASs, it will negatively impact growth, efficiency, and potential benefits.

2. Preserving American Privacy Act of 2013

Preserving American Privacy Act of 2013¹⁹¹ is a bipartisan bill introduced by Representative Ted Poe of Texas and Representative Zoe Lofgren of California.¹⁹² The bill focuses on public entities utilizing UAS much more than Senator Markley's bill.¹⁹³ Nevertheless, it also prohibits nongovernmental actors from capturing data "in a manner highly offensive to a reasonable person where the person is engaging in a personal or familial activity under the circumstances in which the individual has a reasonable expectation of privacy, regardless of whether there is a physical trespass."¹⁹⁴ Although these restrictions try to address the privacy issue, any bill that regulates private data collection could conflict with the First Amendment right to receive and record news.¹⁹⁵

Additionally, the bill makes it a misdemeanor to use a UAV to photograph a person or their property without permission.¹⁹⁶ It also restricts the maximum altitude for public space use of a UAV to six feet.¹⁹⁷ While confronting privacy head-on is the approach Congress should take, it should not do so at the expense of safety. Six feet is head-chopping height and it is

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

¹⁹⁰ *H.R.1262—Drone Aircraft Privacy and Transparency Act of 2013*, CONGRESS.GOV, <http://beta.congress.gov/bill/113th-congress/house-bill/1262/all-actions/> (last visited Mar. 28, 2014).

¹⁹¹ Preserving American Privacy Act of 2013, H.R. 637, 113th Cong. (2013).

¹⁹² *Id.*

¹⁹³ *See id.*

¹⁹⁴ DOLAN & THOMPSON II, *supra* note 96, at 20.

¹⁹⁵ *Id.* at 18.

¹⁹⁶ Preserving American Privacy Act of 2013, H.R. 637, 113th Cong. (2013).

¹⁹⁷ *Id.*

unreasonable. Similarly to the Drone Aircraft Privacy and Transparency Act, this Act has not seen any movement since February 2013.

These early considerations of UASs' impact on privacy interests exemplify the difficulty that is at the heart of the issue: should privacy be proactively addressed before UASs have become commonplace, or would doing so be premature and serve as a hindrance? The answer depends on whom you ask. Some believe that there is no need to create new laws and that the current framework is more than adequate to address potential UAS privacy issues.¹⁹⁸ After all, the Internet and location tracking technologies have presented similar challenges. Others, however, believe that the domestic use of UASs "could be just the visceral jolt society needs to drag privacy law into the twenty-first century."¹⁹⁹

It is true that existing privacy protections, embedded in the Fourth Amendment and surrounding jurisprudence, against *governmental* intrusions may be better situated to encompass UAS privacy concerns. However, existing privacy tort law, which would apply to *private-actor* intrusions, is not. States have the power to minimize privacy intrusions by private actors and enact or amend current laws.

E. States' Response

While a majority of states are being proactive and are enacting laws that would regulate UAV uses, many of those efforts have been focused on the use of UAVs by government entities, rather than private actors. This is in part due to the uncertainty in UAS integration, the lack of guiding legal precedent, and the absence of a clear regulatory framework.

In 2013, forty-three states introduced 118 bills and resolutions concerning UAS issues.²⁰⁰ To date, sixteen bills have been enacted in thirteen states and fourteen resolutions have been adopted in ten states.²⁰¹ Lawmakers and civil liberties groups are concerned about the privacy implications and potential safety issues, which is why at least nine states have passed laws restricting drone use by law enforcement, private citizens, or both.²⁰²

¹⁹⁸ See e.g., Jim Harper, *Old Laws Can Cover New Technologies*, N.Y. TIMES (Feb. 22, 2012, 11:46 AM), <http://www.nytimes.com/roomfordebate/2012/02/20/civilian-drones-in-the-united-states/old-laws-can-cover-new-technologies>.

¹⁹⁹ M. Ryan Calo, *The Drone as Privacy Catalyst*, 64 STAN. L. REV. ONLINE 29, 29 (2011), <http://www.stanfordlawreview.org/online/drone-privacy-catalyst>.

²⁰⁰ *Unmanned Aircraft Systems (UAS) Legislation*, NATIONAL CONFERENCE OF STATE LEGISLATURES, (Oct. 27, 2013, 11:00 AM), <http://www.ncsl.org/research/civil-and-criminal-justice/unmanned-aerial-vehicles.aspx>.

²⁰¹ *Id.*

²⁰² Liebelson, *supra* note 4.

In regard to governmental use of UAS, the vast majority of enacted bills impose a probable cause requirement on law enforcement when using an UAV in a criminal investigation.²⁰³ This signals that legislators and their constituents value privacy and are concerned about the potential UAS intrusions. The state bills featuring the probable cause requirement were enacted in Florida, Idaho, Illinois, Montana, Oregon, and Tennessee.²⁰⁴

In regards to the private use of UASs, only a few states addressed privacy implications. Idaho's bill prohibits any person or entity to photograph an individual for the purpose of publishing or otherwise publically disseminating the photograph.²⁰⁵ Arguably, this bill could run afoul the First Amendment.²⁰⁶ Courts have not yet determined whether speech or privacy would prevail or how these interests interact.²⁰⁷ Texas' bill has a host of prohibitions on the private-actor use of UAVs and very few prohibitions on law enforcement's use.²⁰⁸

Legislatures will continue to weigh the benefits of UAS technology and their potential economic impact against privacy concerns and safety issues.

III. COMMON LAW PRIVACY

Our sense of privacy has been challenged for decades but more recently with location tracking technologies, thermal imaging devices, and even license plate readers. The introduction of commercial UAVs will erode our sense of privacy even further. This entirely new wave of technological advances calls into question whether privacy still exists or can exist. One of the most problematic aspects of modern surveillance is its "passivity,"²⁰⁹ which means that people who are being spied on do not know of it and thus cannot seek relief.²¹⁰ Undoubtedly, governmental use of UAVs to surveil American citizens implicates the Fourth Amendment and surrounding jurisprudence.²¹¹ However, the common law has had little

²⁰³ *Domestic Unmanned Aerial Vehicles (UAVs) and Drones*, *supra* note 45.

²⁰⁴ Allie Böhm, *The Year of the Drone: An Analysis of State Legislation Passed This Year*, ACLU (Nov. 7, 2013, 8:50 AM), <https://www.aclu.org/blog/technology-and-liberty/year-drone-roundup-legislation-passed-year>.

²⁰⁵ IDAHO CODE §21-213, 62nd Leg., 2013 First Reg. Sess. (effective July 1, 2013).

²⁰⁶ *Id.*

²⁰⁷ Margot E. Kaminski, *Drone Federalism: Civilian Drones and the Things They Carry*, 4 CAL. L. REV. CIRCUIT 57, 61 (2013).

²⁰⁸ Texas Privacy Act, H.B. 912, 83d Leg. (2013).

²⁰⁹ Adam J. Tutaj, Comment, *Intrusion Upon Seclusion: Bringing an "Otherwise" Valid Cause of Action into the 21st Century*, 82 MARQ. L. REV. 665, 666 (1999).

²¹⁰ *Id.*

²¹¹ "The vast majority of cases dealing with the privacy implications of modern surveillance technologies have arisen in the context of fourth amendment [sic] search and seizure law." *Id.*

opportunity to address such issues.²¹²

The common law is not prepared to deal with modern technologies, such as a UAS. The use of UAVs by private, non-governmental actors that intrude on privacy would be largely left to various privacy torts.²¹³ Individuals may rely on the torts of trespass,²¹⁴ nuisance,²¹⁵ or intrusion upon seclusion. This section will summarize general background of privacy law and survey intrusion upon seclusion—the privacy tort most applicable to UAV surveillance by private actors.

A. Development of Common Law Privacy

While fundamental legal rights like the right to property have been around for centuries, awareness of privacy protection emerged in 1890, with one law review article—*The Right to Privacy*²¹⁶ by attorney Samuel D. Warren and, then private attorney, Louis D. Brandeis.²¹⁷ Warren and Brandeis' article set forth to protect privacy through the common law.²¹⁸ They observed that the common law lacked a civil remedy for privacy invasions and urged courts to create such a remedy.²¹⁹ Their principal concern was with the right to protect yourself from having your private affairs known to others and to keep intimate details about yourself from the

²¹² *Id.*

²¹³ *See id.*

²¹⁴ The tort of trespass is any physical intrusion upon the property owned by another. DOLAN AND THOMPSON II, *supra* note 96, at 11. In order to bring a cause of action for trespass to airspace, a property owner must allege and prove that the interference (low level flight) occurred within the immediate reaches of the airspace that he possesses and that its presence interferes with the actual use of his property. Pueblo of Sandia *ex rel.* Chaves v. Smith, 497 F.2d 1043, 1045 (10th Cir. 1974); RESTATEMENT (SECOND) OF TORTS § 159 (1965). To bring a successful cause of action, a UAV would have to fly so low as to actually interfere with the property owner's use of his land. While that is certainly possible with micro UAVs, the cause of action does not encompass UAVs that would surveil from thousands of feet above the ground.

²¹⁵ Nuisance is a nontrespassory invasion of another's right in the private use and enjoyment of land. RESTATEMENT (SECOND) OF TORTS § 821D (1979). While a landowner does not have to prove that the interference actually occupied his airspace (as in trespass), the flight must constitute a substantial and unreasonable interference with the landowner's use and enjoyment of the land. DOLAN AND THOMPSON II, *supra* note 96, at 11. This would be difficult to prove. In *United States v. Causby*, the Supreme Court held that flights over private lands have to be "so low and frequent as to be a direct and immediate interference with the enjoyment of the land." 328 U.S. 256, 266 (1946). Although *Causby* arose out of a Fifth Amendment takings claim, its articulation of airspace ownership standards is used to determine tort claims. DOLAN AND THOMPSON II, *supra* note 96, at 10. Under this framework, it is unlikely that a UAV will be considered a nuisance. UAVs are generally quiet and undetected. Further, in cases where courts have found a nuisance by an aircraft, the land in question was positioned in a close proximity to an airport. *See, e.g.,* Barrier v. Troutman, 55 S.E.2d 923 (1949).

²¹⁶ Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193 (1890).

²¹⁷ Tigran Palyan, Comment, *Common Law Privacy in a Not So Common World: Prospects for the Tort of Intrusion Upon Seclusion in Virtual Worlds*, 38 SW. L. REV. 167, 169-70 (2008).

²¹⁸ *Id.*

²¹⁹ *Id.*

prying eyes or ears of others.²²⁰

The first jurisdiction to recognize the common right to privacy was Georgia in *Pavesich v. New England Life Ins. Co.*²²¹ The Georgia Supreme Court determined that the right to privacy had its foundations in the instincts of nature.²²² The court stated that “[e]ach individual as instinctively resents any encroachment by the public upon his rights which are of a private nature as he does the withdrawal of those of his rights which are of a public nature.”²²³ The court further noted, “[T]he day will come that the American bar will marvel that a contrary view was ever entertained by judges of eminence and ability.”²²⁴ But it wasn’t until 1960, when another law review article, by Professor William L. Prosser was published, that the tort of intrusion upon seclusion was introduced.²²⁵

B. Evolution of Intrusion Upon Seclusion

Prosser introduced four different privacy torts that encompassed the right to privacy: “(1) intrusion upon a plaintiff’s seclusion or solitude, (2) appropriation of the plaintiff’s name or likeness, (3) public disclosure or embarrassing of a plaintiff’s private facts, and (4) publicity placing plaintiff in false light in the public eye.”²²⁶ Thereafter, the American Law Institute adopted those four privacy interests and codified them in the Restatement (Second) of Torts.²²⁷ They are collectively known as “the right to be let alone.”²²⁸ Prosser examined a number of cases in which there was some type of wrongful search or surveillance and distilled three requirements for bringing an intrusion action.²²⁹

Section 652B of the Restatement (Second) of Torts echoes the requirements to establish a cause of action for intrusion upon seclusion, which best encapsulates invasion of privacy and the right to be let alone.²³⁰ The tort provides that “[o]ne who intentionally intrudes, physically or otherwise, upon the solitude or seclusion of another or his private affairs or concerns, is subject to liability to the other for invasion of his privacy, if the

220 *Nader v. Gen. Motors Corp.*, 25 N.Y.2d 560, 566 (1970).

221 *Pavesich v. New England Life Ins.*, 50 S.E. 68 (Ga. 1905).

222 *Id.*

223 *Id.*

224 *Id.*

225 William L. Prosser, *Privacy*, 48 CAL. L. REV. 383, 389 (1960).

226 Palyan, *supra* note 211, at 389.

227 *Id.*

228 *Id.* at 171.

229 Tutaj, *supra* note 202, at 669.

230 RESTATEMENT (SECOND) OF TORTS § 652B (1977).

intrusion would be highly offensive to a reasonable person.”²³¹ It has been adopted either by common law or statute by most jurisdictions.²³² Importantly, the tort focuses on the method employed to gather information about an individual, rather than the dissemination of that information.²³³

An intrusion can be physical for a viable claim.²³⁴ A physical intrusion would be one that involves a trespass.²³⁵ On the other hand, other intrusions include intrusions involving sensory invasions²³⁶ or those involving harassment.²³⁷ Recently, “there have been numerous attempts to include information gathering and dissemination as a form of intrusion upon seclusion.”²³⁸ But it wasn’t until 1997 that a plaintiff was able to recover by alleging intrusion through information gathering.²³⁹

In *Pearson v. Dodd*, the court approved instances of intrusion, whether by physical trespass or not.²⁴⁰ The court noted that

[j]ust as the Fourth Amendment has expanded to protect citizens from government intrusions where intrusion is not reasonably expected, so should tort law [to] protect citizens from other citizens. The protection should not turn exclusively on the question of whether the intrusion involves a technical trespass under the law of property. The common law, like the Fourth Amendment, should protect people, not places.²⁴¹

Thus, the use of one’s senses, with or without mechanical aids, to oversee or overhear someone’s private affairs constitutes an intrusion under the tort.²⁴² The court explicitly provided that the interests protected are a

²³¹ *Id.*

²³² North Dakota and Wyoming are the only states that have not recognized intrusion upon seclusion. ROBERT M.O’NEIL, *THE FIRST AMENDMENT AND CIVIL LIABILITY* 77 (2001); *see e.g.*, *Hougum v. Valley Mem’l Homes*, 574 N.W.2d 812, 816 (N.D. 1998) (“This Court has not decided whether a tort action exists in North Dakota for invasion of privacy.”); *Jewell v. N. Big Horn Hosp. Dist.*, 953 P.2d 135, 139 (Wyo. 1998) (“[Plaintiff] . . . cannot pursue claims for . . . invasion of privacy.”); *see also* Palyan, *supra* note 211, at 180 n.106. Florida has adopted the claim intrusion upon seclusion from the Restatement (Second) of Torts § 652B.

²³³ RESTATEMENT (SECOND) OF TORTS § 652B cmt. a (1977).

²³⁴ *Id.* at cmt. b (An invasion by physical intrusion, into a place in which a plaintiff has secluded himself, could be when a defendant forces his way into the plaintiff’s room in a hotel or insists over the plaintiff’s objection in entering his home.).

²³⁵ RESTATEMENT (SECOND) OF TORTS § 652B cmt. b (1977).

²³⁶ *Id.*

²³⁷ *Id.* at illus. 5.

²³⁸ Tutaj, *supra* note 202, at 671.

²³⁹ *See Alexander v. Fed. Bureau of Investigation*, 971 F. Supp. 603 (D.D.C. 1997) (holding that claimant made a prima facie case for intrusion against the First Lady, Hillary Clinton, and others based on the gathering of personal information about the claimant from FBI files); *see also* Tutaj, *supra* note 202, at 688 n.45.

²⁴⁰ *Pearson v. Dodd*, 410 F.2d 701, 704 (D.C. Cir. 1969).

²⁴¹ *Id.*

²⁴² RESTATEMENT (SECOND) OF TORTS § 652B cmt. b (1977) (examples of non-physical

person's right to keep knowledge about themselves from being exposed to others and the right to prevent "the obtaining of the information by improperly intrusive means."²⁴³

Furthermore, the application of Section 652 requires an objective, reasonable person standard.²⁴⁴ The test is whether a person of ordinary sensibilities would be offended by the privacy invasion.²⁴⁵ In *Shorter v. Retail Credit Company*,²⁴⁶ the court provided that a hypersensitive person would not be able to recover for actions that are rude or inconsiderate.²⁴⁷ Rather, the alleged invasion must "outrage one of [the] ordinary sensibilities."²⁴⁸

The alleged intrusion must also be *highly* offensive.²⁴⁹ For an intrusion to qualify as highly offensive, it must be a substantial one "repeated with such persistence and frequency as to amount to a course of hounding."²⁵⁰ Thus, a single instance will generally not suffice.²⁵¹ To support a claim for intrusion in Florida, for example, the underlying conduct must be "so outrageous in character," and "so extreme in danger," as to "go beyond all possible bounds of decency."²⁵² Additionally, recovery under this tort requires that the invasion of privacy is intentional, that the defendant wanted the intrusion to occur or knew with substantial certainty that the intrusion would result from his actions.²⁵³ Thus, an accidental intrusion is not actionable.²⁵⁴

intrusion are looking into someone's upstairs windows with binoculars; tapping an individual's telephone wires; opening private and personal mail; or it may be by some other form of investigation or examination into one's private concerns).

²⁴³ *Pearson*, 410 F.2d at 704. In other jurisdictions, the cases that have recognized a remedy for invasion of privacy founded upon intrusive conduct have generally involved the gathering of private facts or information through improper means. *Nader*, 25 N.Y.2d at 567.

²⁴⁴ *DOLAN AND THOMPSON II*, *supra* note 96, at 14; *see also Shorter v. Retail Credit Co.*, 251 F. Supp. 329, 332 (D.S.C. 1966).

²⁴⁵ *Shorter*, 251 F. Supp. at 332.

²⁴⁶ *Id.*

²⁴⁷ *Id.*

²⁴⁸ *Id.*

²⁴⁹ RESTATEMENT (SECOND) OF TORTS § 652B (1977) (emphasis added).

²⁵⁰ "There is no liability for knocking at the plaintiff's door, or calling him to the telephone on one occasion or even two or three, to demand payment of a debt. It is only when the telephone calls are repeated with such persistence and frequency as to amount to a course of hounding the plaintiff, that becomes a substantial burden to his existence, that his privacy is invaded." RESTATEMENT (SECOND) OF TORTS § 652B cmt. d. (1977).

²⁵¹ *See id.*

²⁵² "[A]n evaluation of the claimed misconduct must be undertaken to determine, as objectively as is possible, whether it is 'atrocious, and utterly intolerable in a civilized community.'" *Stoddard v. Wohlfahrt*, 573 So. 2d 1060, 1062-63 (Fla. Dist. Ct. App. 1991) (applying the standard for intentional infliction of emotional distress to evaluate the offensiveness of conduct in an intrusion claim).

²⁵³ *DOLAN AND THOMPSON II*, *supra* note 96, at 14.

²⁵⁴ *Id.* at 15.

The location of the target of surveillance is relevant to a “determination of the sufficiency of the evidence of intrusiveness, [but] it is not determinative of whether an intrusion into one’s solitude and seclusion has occurred.”²⁵⁵ Surveilling an individual who is in the confines of his home will generally constitute an intrusion.²⁵⁶ In *Souder v. Pendleton Detectives, Inc.*,²⁵⁷ two detectives observed, watched, shadowed, eavesdropped, and peeked through the plaintiff’s windows to take photographs and otherwise harass the plaintiff.²⁵⁸ The court held that this constituted an invasion of the plaintiff’s right to privacy.²⁵⁹

However, the likelihood of a successful claim is diminished if the surveillance occurs while the target of surveillance is in a public place.²⁶⁰ In *Schifano v. Greene County Greyhound Park, Inc.*, patrons of a racing park sued the park for invasion of privacy when the park took and printed a photograph of the patrons sitting in the “Winner’s Circle,” a section of the park that can be reserved by interested groups.²⁶¹ The Alabama Supreme Court held that the patrons were sitting in public seating at the park and that negated any claim of solitude or seclusion.²⁶² Similarly in *Fogel v. Forbes, Inc.*, two individuals who were standing at an airline counter in the Miami International Airport were photographed without their consent by a researcher for Forbes Magazine.²⁶³ The plaintiffs claimed an invasion of privacy on the basis of Section 652B Intrusion Upon Seclusion.²⁶⁴ The court determined that because the photograph was taken at the Miami Airport, a place open to the general public, a cause of action under Section 652B was not applicable.²⁶⁵

Even plaintiffs who were videotaped or photographed while on their own property have generally been unsuccessful in their privacy claims if they could be observed from a public vantage point.²⁶⁶ In *McLain v. Boise Cascade Corporation*, the Oregon Supreme Court found that although the plaintiff was filmed while he was on his property, his neighbors or passerbys on the road in front of his property could have observed his

255 *Evans v. Detlefsen*, 857 F.2d 330, 338 (6th Cir. 1988) (internal quotations omitted).

256 DOLAN AND THOMPSON II, *supra* note 96, at 14.

257 *Souder v. Pendleton Detectives, Inc.*, 88 So. 2d 716, 717-18 (La. Ct. App. 1956).

258 *Id.*

259 *Id.* at 719.

260 DOLAN AND THOMPSON II, *supra* note 96, at 15.

261 *Schifano v. Greene Cnty. Greyhound Park, Inc.*, 624 So. 2d 178, 179 (Ala. 1993).

262 *Id.* at 180.

263 *Fogel v. Forbes, Inc.*, 500 F. Supp. 1081, 1084 (E.D. Pa. 1980).

264 *Id.* at 1087.

265 *Id.*

266 DOLAN AND THOMPSON II, *supra* note 96, at 15.

activities.²⁶⁷ In another case, landowners brought an invasion of privacy claim against the owner of a cellular telephone tower.²⁶⁸ The landowners alleged that maintenance workers, working at the adjoining property on a 126-foot cell tower, would peek into their yard.²⁶⁹ The court held that “[t]he mere fact that maintenance workers come to an adjoining property as part of their work and look over into the adjoining yard” was not sufficient to establish an invasion of privacy claim.²⁷⁰

Nevertheless, comment c in Section 652B of the Restatement (Second) of Torts provides that “[e]ven in a public place, [. . .] there may be some matters about the plaintiff, such as his underwear or lack of it, that are not exhibited to the public gaze; there may still be invasion of privacy when there is intrusion upon these matters.”²⁷¹ In *Daily Times Democrat v. Graham*, a woman brought an action against a newspaper for invasion of her right of privacy through publication, without her consent, of a picture showing her with her dress blown up at a county fair.²⁷² The court held that the photograph was embarrassing to normal sensibilities and could be classified as obscene.²⁷³ The court relied on a comment in the Restatement of the Law of Torts, which states that “[t]hese limits (justifiable invasion of privacy) are exceeded where intimate details of the life of one who has never manifested a desire to have publicity are exposed to the public, or where photographs of a person in an embarrassing pose are surreptitiously taken and published.”²⁷⁴ The court further acknowledged that “[t]o hold that one who is involuntarily and instantaneously enmeshed in an embarrassing pose forfeits her right of privacy merely because she happened at the moment to be part of a public scene would be illogical, wrong, and unjust.”²⁷⁵

In another case, a prisoner sued a television broadcasting company, alleging that by filming him without his consent, the company was liable on

²⁶⁷ *McLain v. Boise Cascade Corp.*, 533 P.2d 343, 346 (Or. 1975).

²⁶⁸ *GTE Mobilnet of S.Texas Ltd. P’ship v. Pascouet*, 61 S.W.3d 599 (Tex. App. 2001).

²⁶⁹ *Id.* at 618.

²⁷⁰ *Id.*; see also *Mojica Escobar v. Roca*, 926 F. Supp. 30, 35 (D.P.R. 1996) (holding that a photograph of an individual’s home, and not persons in the photograph taken from a public road, is not sufficient to establish a claim for intrusion upon seclusion); *Aisenson v. American Broad. Co.*, 220 Cal. App. 3d 146, 162-63 (1990) (holding that broadcast of plaintiff while in his driveway and car was not an intrusion upon seclusion); *Wehling v. Columbia Broad. Sys.*, 721 F.2d 506, 509 (5th Cir. 1983) (holding that broadcast of the outside of plaintiff’s home taken from public street was not an invasion of privacy).

²⁷¹ Generally there is no liability when a person is photographed or observed in public because his/her appearance is public and opened to the public eye. RESTATEMENT (SECOND) OF TORTS § 652B cmt. (1977).

²⁷² *Daily Times Democrat v. Graham*, 162 So. 2d 474, 476 (Ala. 1964).

²⁷³ *Id.*

²⁷⁴ *Id.* at 477 (internal quotations and emphasis omitted).

²⁷⁵ *Id.* at 478.

a common-law invasion of privacy claim.²⁷⁶ The prisoner argued that he was engaged in private activities (i.e., exercising in the prison yard) and that those activities were done in the most private environment available to him, where he reasonably expected he would only be seen by a limited group of people.²⁷⁷ On the other hand, the television company argued that the prisoner was in a publically visibly area and could not allege a claim for invasion of seclusion.²⁷⁸ The court noted that while the prisoner could be observed by prison personnel and inmates, the mere fact that a person can be seen by others does not mean that that person cannot be legally secluded.²⁷⁹ The court reasoned that visibility of the prisoner's activities to some people does not strip him from the right to remain secluded from others.²⁸⁰

It follows that the invasion of privacy has to do with the type of interest that has been intruded upon, rather than the location in which the surveillance took place.²⁸¹

C. Application to UAV Surveillance by Private Actors

Safeguarding privacy from UAV surveillance by non-governmental actors is an important societal interest. When confronted with UAV surveillance perpetrated by nongovernmental actors, individuals, and private businesses, individuals may rely on tort law claims.²⁸² However, traditional tort law falls short in addressing individuals' privacy. The limitation of privacy torts is that they "have proven quite difficult for plaintiffs to win, and the torts have not kept pace with contemporary privacy problems."²⁸³

In determining whether a plaintiff will be successful in a cause of action for intrusion upon seclusion by a UAV, a court will look to three elements: (1) whether there was a physical or other intrusion into the private affairs of an individual; (2) whether the surveillance occurred in the home or in public; and (3) whether the intrusion would be highly offensive to a reasonable person under like circumstances.²⁸⁴

²⁷⁶ *Huskey v. Nat'l Broad. Co.*, 632 F. Supp. 1282 (N.D. Ill. 1986).

²⁷⁷ *Id.* at 1286.

²⁷⁸ *Id.*

²⁷⁹ *Id.* at 1287-88.

²⁸⁰ *Id.*

²⁸¹ *Evans*, 857 F.2d at 338 (citing *Galella v. Onassis*, 487 F.2d 986, 994-95 (2d Cir. 1972), in which the defendant was found guilty of invasion of privacy although many of the intrusive acts took place in public places and on public streets).

²⁸² See Olivito, *supra* note 17, at 679-80.

²⁸³ Neil M. Richards & Daniel J. Solove, *Prosser's Privacy Law: A Mixed Legacy*, 98 CAL. L. REV. 1887, 1918 (2010).

²⁸⁴ See RESTATEMENT (SECOND) OF TORTS § 652B cmt. d. (1977).

First, an intrusion by a UAV will likely be defined based on the type of UAV employed in the surveillance. UAVs that could fly at low altitudes would probably be committing a technical physical intrusion, whereas, high-flying UAVs would most likely not. Thus, UAV surveillance is capable of eliminating the need to trespass.²⁸⁵ Establishing this element by a complaining subject of UAV surveillance would perhaps be easier to satisfy.

Second, the location of surveillance via a UAV will weigh heavily when determining the success of a claim.²⁸⁶ In *Pearson v. Dodd*, the court provided that the common law, like the Fourth Amendment, should “protect people, not places.”²⁸⁷ The question therefore becomes whether a UAV intruded into the protected sphere of an individual who exhibited a reasonable expectation of privacy.²⁸⁸ Applying this standard generally limits violations to surveillance of the home.²⁸⁹ Using a UAV to look into a target’s home through a window, as well as, using extra sensory technology²⁹⁰ that would expose intimate details about the home would constitute an intrusion upon seclusion.²⁹¹ The caveat to that, of course, would be that the subject of surveillance is aware that (s)he is being watched.²⁹²

However, in instances of UAV surveillance in public spaces or in private spaces that could be observed from a public vantage point, tort liability is significantly diminished.²⁹³ While it is well established that people do not have a privacy interest while in public, it is unclear how this technology would impact that rule. The scope of information that could be obtained by an UAV following an individual is limitless. The practical limitations of an individual following another individual are simply not present with this technology. It seems that there would be a significant difference between a single or a few observations of a person on public roads and continuous, indiscriminate surveillance by a UAV over a long period of time. Protections against such surveillance by private actors are noticeably absent unless the public spying is particularly egregious.

²⁸⁵ See Tutaj, *supra* note 202, at 679-80.

²⁸⁶ See DOLAN AND THOMPSON II, *supra* note 96, at 20.

²⁸⁷ *Pearson*, 410 F.2d at 704 (quoting *Katz v. United States*, 389 U.S. 347, 351 (1967)).

²⁸⁸ See *id.*

²⁸⁹ While technology has increasingly shrunk other spheres of privacy in the digital age, the home is still accorded significant legal protection. DOLAN AND THOMPSON II, *supra* note 96, at 20.

²⁹⁰ Technologies such as high-powered cameras, infrared cameras, heat sensors, facial recognition technology, etc.; see THOMPSON II, *supra* note 11, at 2; see also FAA says *It’s Behind Schedule on Guidelines for Drones in US*, *supra* note 53.

²⁹¹ DOLAN AND THOMPSON II, *supra* note 96, at 20.

²⁹² See Tutaj, *supra* note 202.

²⁹³ See *Schifano*, 624 So. 2d at 178; see also *Fogel*, 500 F. Supp. at 1081.

This leads to the offensiveness of the invasion. “An actionable claim for intrusion upon seclusion requires that the observation in question be highly offensive to a reasonable person.”²⁹⁴

Proving the “highly offensive” requirement is a great burden on targets of surveillance. It severely limits the types of UAV surveillance that would fall within the scope of the tort.²⁹⁵ In determining offensiveness, one court observed that “common law courts consider, among other things: the degree of intrusion, the context, conduct and circumstances surrounding the intrusion as well as the intruder’s motives and objectives, the setting into which he intrudes, and the expectations of those whose privacy is invaded.”²⁹⁶ What would qualify as a highly offensive surveillance in the context of UAVs remains to be seen.

Perhaps following too close to an individual would meet that burden? As previously noted, however, the technological capabilities of UAVs, particularly high-powered cameras, would be unaffected by such rule.²⁹⁷ A UAS could be surveilling someone hundreds or thousands of feet above the ground without any awareness on behalf of the surveillance target.

Thus, knowledge on behalf of the individual being observed is also a factor in the analysis.²⁹⁸ In *Escobar v. Roca*, the court relied on the fact that the target of surveillance was unaware that her house was being photographed to hold that she did not have a viable privacy claim.²⁹⁹ If UAV surveillance falls within this reasoning, then for some commercial users the rule would not apply. There is no telling how many of them would fly high enough to remain unseen yet collect information that would compromise a person’s privacy. This option fails to provide satisfactory privacy protections, especially in the context of information gathered by UAVs in public places.³⁰⁰

CONCLUSION

The only certain aspect of UASs and how they implicate privacy is that the debate continues on. The FAA, the agency tasked with the safe integration of UASs, has not addressed privacy issues, nor does it want to. The agency is ill suited in providing blanket regulations against potential

²⁹⁴ Jane Yakowitz Bambauer, *The New Intrusion*, 88 NOTRE DAME L. REV. 205, 244 (2012).

²⁹⁵ *Id.*

²⁹⁶ DOLAN AND THOMPSON II, *supra* note 96, at 21.

²⁹⁷ See Randy Jackson and Chris Haddox, *Phantom Eye High Altitude Long Endurance aircraft unveiled* (June 12, 2010), http://www.boeing.com/Features/2010/07/bds_feat_phantom_eye_07_12_10.html.

²⁹⁸ DOLAN AND THOMPSON II, *supra* note 96, at 21.

²⁹⁹ *Id.* at 20 (quoting *Escobar v. Roca*, 926 F. Supp. 30, 35 (D.P.R. 1996)).

³⁰⁰ Olivito, *supra* note 17, at 680-81.

privacy intrusions by private actors who unleash their flying bots. Some may argue that integrating this technology is no different than other technologies that have previously presented similar privacy challenges (i.e. location-tracking). However, UAS technology may be just what privacy law needs to push the legal framework forward. Government UAS privacy intrusions are afforded more protections under the Fourth Amendment and surrounding jurisprudence, than the common law provides for private-actor UAS intrusions. So while this technology may not be any different when it comes to privacy and the Fourth Amendment, undoubtedly, nongovernmental use of UAVs unleash an entirely new set of problems, unshielded by existing common law privacy torts. The limitations of privacy torts are that they are hard to prove by a complaining plaintiff and they have not kept pace with contemporary privacy problems.

Federal and state legislatures have tried to address the problem on their own, but their efforts have come up short. Few of the legislative proposals have actually crystallized and many only addressed the Government's use of UAS. Private actors will be able to surveil individuals and construct complete profiles of their lives. A future where UAVs will be able to distinguish our individual likes and dislikes, styles and secrets is not far away. A future where UAVs are following us around continuously and indiscriminately is upon us. The possibility that data collection will be abused is imminent. Thus, the private sector side needs a more deliberate path for protecting privacy—one that recognizes the serious privacy dangers, limits sharing information with the Government, explores existing legal protections, designs new privacy laws, and actively monitors rules promulgated by the FAA.

In thinking about the private uses of UAS, the sky literally is the limit. Without adequate guidance, privacy as we know it could be coming to an end.