

April 2020

Enhanced Civil Rights in Home Rule Jurisdictions: Newly Emerging UAS/Drone Use Ordinances

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Jennifer A. Brobst, *Enhanced Civil Rights in Home Rule Jurisdictions: Newly Emerging UAS/Drone Use Ordinances*, 122 W. Va. L. Rev. (2020).

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ENHANCED CIVIL RIGHTS IN HOME RULE JURISDICTIONS: NEWLY EMERGING UAS/DRONE USE ORDINANCES

*Jennifer A. Brobst**

“If the mind of man can invent and operate a flying machine, it ought to be able to devise a rule of law which is adequate to deal with the problems flowing from such inventiveness.” - Supreme Court of Oregon (1960)¹

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* Jennifer A. Brobst is an Associate Professor at Southern Illinois University School of Law. Many thanks to the Law Review students at the West Virginia University College of Law for their editorial assistance and for the opportunity to present at the law school’s State and Local Law Symposium addressing Home Rule in February 2020. Special thanks to John T. Bennett, SIU/PSO UAV Administrator and Chief Engineering Draftsman at Southern Illinois University-Carbondale, and to Professor Mark Brittingham for their insights and local expertise.

¹ Atkinson v. Bernard, Inc., 355 P.2d 229, 232 (Or. 1960).

I. INTRODUCTION

As new, disruptive technologies emerge, the federal government tends to proceed cautiously and often should.² State and local units of government, particularly in home rule jurisdictions, may have more potential to respond quickly to innovative technology and its potential threat to civil rights. Unmanned Aerial Vehicles, commonly known as drones, or Unmanned Aerial Systems (“UAS”), which include the drone’s operator equipment and software, demonstrate this legal challenge regarding intrusions on persons and property. But they also generate excitement over the technology’s potential public and private benefits to society.

Jurisdiction is key. Whether UAS innovations invite legal approaches at the federal, state, or local level invokes consideration of a panoply of core American principles to protect life, liberty, and property.³ For example, UAS have already become tools of government warfare, criminal trespass, and invasions of privacy by both private and government entities. The complexity of the impact of this technology reverberates across jurisdictional lines. As one scholar noted, “[g]iven the myriad surveillance technologies potentially contained within a single drone, they are simply not like any other singular technology.”⁴ In short, UAS bring about new possibilities for an extension of human capability to effectuate interests both good and bad.⁵ The observation and recording technology makes accessible to the human experience heights, sights, and sounds it could not have previously experienced. And now, after a long history of initial military and scientific government development of imaging

² See Arthur Holland Michel, *Commercial Drones Must Be Thoroughly Regulated*, in CURRENT CONTROVERSIES: DRONES 178 (Tamara Thompson ed., 2016) (“Calls for caution [in developing drone regulation] are not alarmism; they are legitimate.”).

³ THE DECLARATION OF INDEPENDENCE para. 2 (U.S. 1776) (including, as “unalienable rights,” “Life, Liberty and the pursuit of Happiness” and promoting “the Right of the People” to institute government that implements principles that best effect Safety and Happiness); U.S. CONST. amend. V (due process clause in the Bill of Rights stating that no person shall be “deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation”); U.S. CONST. amend. XIV, § 1 (“No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.”).

⁴ Rebecca L. Scharf, *Game of Drones: Rolling the Dice with Unmanned Aerial Vehicles and Privacy*, 2018 UTAH L. REV. 457, 502 (2018).

⁵ For an overview of the early promise and potential risks of UAS on local communities, see Troy A. Rule, *Airspace in an Age of Drones*, 95 B.U. L. REV. 155, 160–63 (2015).

satellites, UAS and other satellite-based technologies are now accessible to the public at large.⁶

The necessity for developing workable, parallel jurisdictional approaches requires some foresight, and congressional caution has allowed for this. Congress and the Federal Aviation Administration (“FAA”) have not engaged in substantial efforts at preemption in the realm of UAS, with the exception of higher altitude navigable airspace.⁷

For lower altitudes, state and federal law currently recognize each other’s scope of authority to regulate drone use, while local municipalities in most states also retain authority to regulate UAS under police power authority.⁸ For example, typical state and local definitions of unmanned vehicles and systems often follow the federal definitions, as seen in the Indiana statute below:

“Unmanned aerial vehicle” means an aircraft that does not carry a human operator and that is capable of flight under remote control or autonomous programming. The term includes the following:

- (1) An unmanned aircraft and an unmanned aircraft system (both as defined in the Federal Aviation Administration Modernization and Reform Act of 2012).⁹
- (2) A small unmanned aircraft and a small unmanned aircraft system (both as defined in 14 CFR 107.3).¹⁰

But there is significant variation in statutory terminology. For example, in defining drone, Oregon state law is much more expansive than Indiana, including: “(a) An unmanned flying machine; (b) An unmanned water-based vehicle; or (c) Any other vehicle that is able to operate in the air, in or under the water or on land, either remotely or autonomously, and without a human

⁶ See generally ROBERT L. PERRY, A HISTORY OF SATELLITE RECONNAISSANCE: THE ROBERT L. PERRY HISTORIES (James D. Outzen, Ctr. for the Study of Nat’l Reconnaissance ed., 2012) (explaining the impact of early national reconnaissance technology on the future development of government and civilian space technology, global position systems (“GPS”) technology, satellite television viewing, and global communications).

⁷ See generally Gregory S. McNeal, *Drones and the Future of Aerial Surveillance*, 84 GEO. WASH. L. REV. 354 (2016) (discussing the initial federal and state regulation of government UAS use, including restrictions in navigable airspace).

⁸ Charlottesville, Virginia, is reportedly the first municipality to adopt a restrictive drone ordinance in 2013. Charles F. Krause & Kent C. Krause, *Local Ordinances*, 3 AVIATION TORT & REGULATORY LAW § 29:24 (2017).

⁹ For definition, see Federal Aviation Administration Modernization and Reform Act of 2012, 49 U.S.C.A. § 40101 (West 2020).

¹⁰ IND. CODE ANN. § 35-31.5-2-342.3 (West 2020) (citation omitted) (adopted in 2014 and amended by Pub. L. No. 107-2017, § 2 (2017)). FAA Air Traffic and General Operating Rules, 14 C.F.R. § 107.3 (2020), defines a small unmanned aircraft as “an unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft” and a small UAS, in part, as “a small unmanned aircraft and its associated elements.”

occupant.”¹¹ Military applications of unmanned vehicles include unmanned surface vehicles, underwater vehicles, and aerial vehicles.¹² While Idaho state law defines UAS, it also defines what a remote-controlled UAS is not: “model flying airplanes or rockets.”¹³

In 2012, Congress directed the FAA to adopt its first regulatory scheme addressing small UAS use by civilians.¹⁴ The FAA responded by adopting 14 C.F.R. § 107, which strictly limited civilian use, particularly in the commercial arena.¹⁵ The FAA grants commercial operators a remote pilot certificate and requires strict approvals and waivers for use of FAA airspace.¹⁶ University UAS coordinators and research department faculty may be commercial operators, subject to 14 C.F.R. § 107;¹⁷ however, the FAA regulations provide that academic research departments, under certain circumstances, could be governed as recreational operators with a streamlined approval process.¹⁸

In the meantime, some argue that drone start-ups are struggling substantially to navigate how to make the technology commercially viable.¹⁹ Hobbyist use emerged as UAS became more affordable but remains relatively static. While Congress has granted the FAA with exclusive authority over navigable airspace and the operation of aircraft, this does not include airfield concerns which involve land control and zoning.²⁰ With respect to UAS use, the FAA has expressly stated: “Laws traditionally related to state and local police

¹¹ OR. REV. STAT. ANN § 498.128(4) (West 2020).

¹² Lieutenant Commander Patrick O. Jackson, *Drone Interdiction: Use of Force as a Countermeasure Against Unmanned Vehicles at Sea*, 226 MIL. L. REV. 223, 234 (2018).

¹³ IDAHO CODE ANN. § 21-213 (West 2020).

¹⁴ Federal Aviation Administration Modernization and Reform Act of 2012, 49 U.S.C.A § 40101 (West 2020) (Pub. L. No. 112-95). For a more comprehensive history of UAS regulation by the FAA, see Thaddeus R. Lightfoot, *Bring on the Drones: Legal and Regulatory Issues in Using Unmanned Aircraft Systems*, 32 NAT. RESOURCES & ENV'T 41 (2018).

¹⁵ 14 C.F.R. §§ 107 *et seq.* (2020) (Small Unmanned Aircraft Systems).

¹⁶ 14 C.F.R. §§ 107.12 (requirement for a remote pilot certificate with a small UAS rating), 107.200 (waiver policy and requirements), 107.205 (list of regulations subject to waiver).

¹⁷ Interview with John T. Bennett, SIU/PSO UAV Adm'r, S. Ill. Univ.-Carbondale (Dec. 4, 2019).

¹⁸ Federal Aviation Administration Reauthorization Act of 2018, Pub. L. No. 115-254, § 350 (codified at 49 U.S.C.A. § 44809 (West 2018)) (Use of Unmanned Aircraft Systems at Institutions of Higher Education).

¹⁹ See Timothy M. Ravich, *Grounding Innovation: How Ex-Ante Prohibitions and Ex-Post Allowances Impede Commercial Drone Use*, 2018 COLUM. BUS. L. REV. 495 (2018); Jack Pitcher, *Drone Bubble Bursts, Wiping Out Startups and Hammering VC Firms*, BLOOMBERG (Aug. 30, 2019, 5:00 AM EDT), <https://www.bloomberg.com/news/articles/2019-08-30/drone-bubble-bursts-wiping-out-startups-and-hammering-vc-firms>.

²⁰ Press Release, Fed. Aviation Admin., FAA Statement—Federal vs. Local Drone Authority (July 20, 2018), https://www.faa.gov/news/press_releases/news_story.cfm?newsId=22938.

power—including land use, zoning, privacy, and law enforcement operations—generally are not subject to federal regulation.”²¹

Indeed, although Congress considered full preemption,²² it has declared instead that jurisdictional cooperation is not only desirable but essential in effective and safe regulation of UAS. It has directed the FAA to develop guidance on “how to identify and take advantage of opportunities to use unmanned aircraft systems to enhance the effectiveness of local law enforcement agencies and first responders.”²³ Since 2017, joint local, state, tribal, and federal Department of Transportation pilot programs on UAS use have been exploring what constitutes the best partnerships to support their respective interests in safe low-altitude flying.²⁴ These interests include addressing security and privacy risks.²⁵ Part of the toolkits being developed include No Drone Zone signage for local communities “to educate unmanned aircraft operators that flying in certain areas is prohibited.”²⁶

Beyond these limited initial pilot programs, state and local governments are beginning to step up on behalf of individual rights, public safety, and the impact of UAS technology. This is unsurprising, as state legislatures and voters across the country continue to adopt new constitutional rights of interest to their constituencies and communities. State constitutions have granted a right to education, right to farm, right to health, duty to protect the environment, and many other protections not promised by the United States Constitution.²⁷ Constitutional commitments to state interests reflect the benefits of collective reasoning, focused attention, and allocation of resources, such as a right to healthcare, which has been associated with a reduction in infant mortality in

²¹ *Id.*

²² Mark J. Connot & Jason J. Zummo, *Everybody Wants to Rule the World: Federal vs. State Power to Regulate Drones*, 29 AIR & SPACE L. 1 (2016) (explaining the history of the 2016 FAA Reauthorization Act of 2016).

²³ See, e.g., FAA Reauthorization Act of 2018, 49 U.S.C.A. § 44801 (West 2018), amended by Pub. L. No. 115-24 (2018) (Strategy for Responding to Public Safety Threats and Enforcement Utility of Unmanned Aircraft Systems).

²⁴ See *UAS Integration Pilot Program*, FED. AVIATION ADMIN., https://www.faa.gov/uas/programs_partnerships/integration_pilot_program/ (last visited Feb. 16, 2020). According to the FAA website, the Department of Transportation UAS Integration Pilot Programs (“IPP”) are placed in Fairbanks, Alaska; Reno, Nevada; Bismarck, North Dakota; San Diego, California; Topeka, Kansas; Choctaw Nation of Oklahoma; Memphis, Tennessee; Herndon, Virginia; and Raleigh, North Carolina. *Id.*

²⁵ *Id.*

²⁶ *No Drone Zone*, FED. AVIATION ADMIN., https://www.faa.gov/uas/resources/community_engagement/no_drone_zone/ (last visited Feb. 16, 2020).

²⁷ Hiroaki Matsuura, *State Constitutional Commitment to Health and Health Care and Population Health Outcomes: Evidence from Historical US Data*, 105 (Supp. 3) AM. J. PUB HEALTH e48 (2015).

minority communities.²⁸ Local police powers have the potential to reinforce and expand these added protections even more. In specifically considering UAS use regulation, the FAA has recognized the vital role of police power to address trespass, nuisance, and privacy.²⁹

An emerging number of local units of government are adopting UAS use laws and ordinances. Home rule jurisdictions, in particular, may have the most autonomy and authority to adopt UAS ordinances that benefit their communities in the absence of more protective state action. As expected, debates over jurisdictional conflict regarding UAS regulation have already begun. Examples include the Congressional bill to enact the Drone Integration and Zoning Act of 2019 to support state and local authority;³⁰ or, conversely, state acts to preempt local home rule enforcement of UAS ordinances, such as the Illinois Aeronautics Act of 2018.³¹ The supportive federal bill states that it is the sense of Congress that

the States possess sovereign police powers, which include the power to regulate land use, protect property rights, and exercise zoning authority; and the Federal Government lacks the authority to intrude upon a State's sovereign right to exercise reasonable time, manner, and place of operations of unmanned aircraft systems operating within the immediate reaches of airspace.³²

In considering how to approach these jurisdictional questions, this Article will address, in Part II, the scope of local jurisdictional authority, with a special focus on the exercise of police power in home rule jurisdictions regarding use of airspace and the role of limited federal oversight. Parts III through V will separately explore the civil and criminal remedies in state and local law protecting the interests of life, liberty, and property from misuse of UAS technology, with a weighty emphasis on privacy rights. Finally, Part VI presents the argument that state and federal preemption would impede the prudent regulation of UAS technology at the local level and, in particular, inhibit home rule innovation in addressing local community needs and the opportunity to expand individual liberties.

²⁸ *Id.*

²⁹ See Timothy M. Ravich, *Airports, Droneports, and the New Urban Airspace*, 44 *FORDHAM URB. L.J.* 587, 602 (2017).

³⁰ Drone Integration and Zoning Act of 2019, S. 2607, 116th Cong. (2019) (introduced by Sen. Mike Lee (R-Utah) on October 16, 2019, and currently referred to the Senate Committee on Commerce, Science, and Transportation).

³¹ Illinois Aeronautics Act of 2018, 620 *ILL. COMP. STAT. ANN.* 5/42.1(b) (West 2018).

³² Drone Integration and Zoning Act of 2019, S. 2607, 116th Cong. § 4(a)(2)(B)–(C) (2019) (introduced by Sen. Mike Lee (R-Utah) on October 16, 2019, and currently referred to the Senate Committee on Commerce, Science, and Transportation).

II. LOCAL AUTHORITY GOVERNING NEW TECHNOLOGY

One might assume that local jurisdictions are ill equipped to address evolving, new technology. However, the political process of a municipality can be quick and nimble, with strong community engagement, given the jurisdiction's smaller size and the direct impact of ordinances and resolutions on the local community.³³ In the media, “not in my backyard” stories abound, where drones are reported hovering unwanted over homes, or new technologies create the risk of disparate treatment of racial or ethnic minorities by law enforcement to surveil some more than others.³⁴ These stories resonate as matters of direct, local concern. Local residents may want them to be dealt with by local government, but they are, of course, also matters of state and federal concern.

For example, a municipality could be a dry town, restricting or prohibiting the sale of alcohol.³⁵ A town or village could also seek to be a no car town,³⁶ or a no drone town. Suburban homeowner's associations (“HOAs”), many larger than small municipalities, could, by contractual agreement with its residents, seek to prohibit UAS use, just as HOAs control the color of paint on garage doors.³⁷ Attorneys in home rule states, such as Florida, are actively

³³ See, e.g., W. VA. CODE ANN. § 8-1-5A(a)(1) (West 2019) (“The Initial Home Rule Pilot Program brought innovative results, including novel municipal ideas that became municipal ordinances which later resulted in new statewide statutes.”); *Home Rule Charter*, PITTSBURGH, PA., <https://pittsburghpa.gov/clerk/home-rule-charter> (2019) (promoting the city's home rule charter as one that “provides for a flexible, easy-to-change structure, and for improved access and response for citizens”); see generally Craig Anthony (Tony) Arnold, *Resilient Cities and Adaptive Law*, 50 IDAHO L. REV. 245 (2014) (arguing that more resilient cities have “adaptive governance systems” and providing a literature review identifying factors that best promote local interests and stability); Michael N. Widener, *Local Regulating of Drone Activity in Lower Airspace*, 22 B.U. J. SCI. & TECH. 239 (2016).

³⁴ See, e.g., Cyrus Farivar, *Judge Rules in Favor of “Drone Slayer,” Dismisses Lawsuit Filed by Pilot*, ARSTECHNICA (Mar. 24, 2017, 5:00 AM), <https://arstechnica.com/tech-policy/2017/03/judge-rules-in-favor-of-drone-slayer-dismisses-lawsuit-filed-by-pilot/>; *infra* note 157 and accompanying text (addressing the potentially racist impacts of use of surveillance technology).

³⁵ A.V., *The Economist Explains Why America Still Has “Dry” Counties*, ECONOMIST (June 5, 2018), <https://www.economist.com/the-economist-explains/2018/06/05/why-america-still-has-dry-counties>.

³⁶ MACKINAC ISLAND, MICH., CODE OF ORDINANCES art. II, § 66-33 (2019) (prohibiting motor vehicles in the city limits of Mackinac Island, Michigan). Note that the island's local government also prohibits UAS use. *Id.* § 38-241 (reasoning that they pose an unreasonable safety threat, including the “startling of horses”).

³⁷ See Hillary B. Farber & Marvin J. Nodiff, *Protecting Homeowners' Privacy Rights in the Age of Drones: The Role of Community Associations*, 44 FORDHAM URB. L.J. 623 (2017); *Drones at Your HOA: What You Need to Know*, HOALEADER.COM (May 2015), <https://www.hoaleader.com/public/Drones-at-Your-HOA-What-You-Need-Know.cfm>.

advocating that HOAs adopt carefully crafted UAS-specific rules and policies, including assigning liability for the risks associated with drone use.³⁸

With respect to municipalities, whether a particular local unit is authorized to act is not always clear. As one legal scholar noted, “even in home rule states, where local governments have authority over matters of local concern, it’s the controversial issues that wind up in court, with judges deciding whether they are matters of local as opposed to state-wide concern.”³⁹

Focusing on the scope of municipal authority, states may recognize home rule, Dillon’s rule, neither, or both. For example, in a state like Illinois,⁴⁰ or Colorado,⁴¹ if a municipality is too small to be granted home rule authority, it would instead be subject to Dillon’s Rule, reliant on the powers granted to them by the law and power of the state. Some states have a limited form of home rule, such as Hawai’i.⁴² North Carolina has adopted neither home rule nor Dillon’s Rule; thus, local jurisdictions may exercise general police power “limited in scope, [and] constrained by State and federal laws, as well as by inherent fundamental rights.”⁴³ Although West Virginia abolished Dillon’s Rule by statutory mandate years ago,⁴⁴ it has undergone a recent home rule pilot program over the last decade, resulting in a permanent home rule option for local governments.⁴⁵

³⁸ Roberto C. Blanch, *Rules on Drones All Community Associations Should Consider*, FLA. HOA LAW BLOG (Mar. 21, 2019), <https://www.floridahoalawyerblog.com/rules-on-drones-all-community-associations-should-consider/>.

³⁹ Frayda Bluestein, *Postcards from Home Rule States*, COATES’ CANONS: N.C. LOC. GOV’T L. (Oct. 14, 2009), <https://canons.sog.unc.edu/postcards-from-home-rule-states/>.

⁴⁰ ILL. CONST. art. VII, § 7 (Counties and Municipalities Other Than Home Rule Units).

⁴¹ COLO. CONST. art. XX, § 6 (limiting home rule powers to populations of 2,000 or more).

⁴² HAW. CONST. art. VIII, § 2 (providing limited home rule powers); *City & Cty. of Honolulu v. Ariyoshi*, 689 P.2d 757, 763 (Haw. 1984) (“The local governments were given only limited freedom from legislative control.”).

⁴³ *King v. Town of Chapel Hill*, 758 S.E.2d 364, 367 (N.C. 2014); *see also City of Asheville v. State*, 794 S.E.2d 759 (N.C. 2016) (asserting that North Carolina “is not a home rule jurisdiction,” where the state legislature has “exceedingly broad authority” over local units of government, but subject to the limitations of the state constitution); *BellSouth Telecomms., Inc. v. City of Laurinburg*, 606 S.E.2d 721, 726 (N.C. 2005) (holding that an earlier adoption of Dillon’s Rule was replaced by statutory mandate “extending powers to a municipality”).

⁴⁴ *See* Robert M. Bastress, Jr., *Constitutional Considerations for Local Government Reform in West Virginia*, 108 W. VA. L. REV. 125 (2005); Willard D. Lorensen, *Rethinking the West Virginia Municipal Code of 1969*, 97 W. VA. L. REV. 653 (1995) (discussing how Dillon’s Rule was effectively abolished in Article 1, Section 7 of the Municipal Code of 1969).

⁴⁵ *See* W. VA. CODE ANN. § 8-1-5A (West 2019); W. VA. MUN. HOME RULE BD., WEST VIRGINIA MUNICIPAL HOME RULE PILOT PROGRAM SUMMARY REPORT (2018), <https://revenue.wv.gov/HomeRule/Documents/AnnualSummaryReports/HomeRule.AnnualSummaryReport.2018.pdf>; *The West Virginia Municipal Home Rule Program*, W. VA. DEP’T REVENUE (last visited Mar. 25, 2020), <https://revenue.wv.gov/homerule/Pages/About.aspx>. For example,

In a traditional home rule state, such as Illinois, the constitution strictly limits the state government's ability to infringe on local authority, providing that the state legislature must expressly state that a law applies to home rule jurisdictions; otherwise home rule units are exempt.⁴⁶ The Illinois Constitution, adopted in 1970, allows any home rule community to "exercise any power and perform any function pertaining to its government and affairs including, but not limited to, the power to regulate for the protection of the public health, safety, morals and welfare; to license; to tax; and to incur debt."⁴⁷ In short, home rule provides municipalities, villages, and counties with general authority to enact law because the local government is inherently authorized to have that power unless otherwise restricted by the state legislature.⁴⁸ Home rule jurisdictions, now in approximately 30 states in some form,⁴⁹ were developed in strength by the mid-20th century.⁵⁰ The first state to adopt home rule by constitution was Missouri in 1875.⁵¹

In contrast, Dillon's Rule arose in the mid-19th century over debates on jurisdictional autonomy, when the nation's identity was one of conflict and growth, including the rise of small towns, racial conflict among local government leaders during Reconstruction, and the emergence of new disruptive

Bluefield, West Virginia, a chartered city, adopted home rule authority in 2014, under authority granted by W. Va. Code Section 8-1-5a. BLUEFIELD, W. VA., CODE OF ORDINANCES § 3-1 (2019).

⁴⁶ See *Palm v. 2800 Lake Shore Drive Condo Ass'n*, 2013 IL 110505 (Ill. 2013) (upholding a Chicago municipal ordinance under home rule despite substantial differences between the ordinance and related state statute); *People v. Jaudon*, 718 N.E.2d 647, 661-62 (Ill. App. Ct. 1999) ("[W]hen the exercise of a power by the State and home rule units is concurrent, the courts must enforce ordinances promulgated by the latter, even where the ordinances are more stringent than State law.").

⁴⁷ ILL. CONST. art. VII, § 6.

⁴⁸ The Cooley Doctrine, or home rule, was recognized in 1871 when Justice Cooley stated, "local government is [a] matter of absolute right; and the state cannot take it away." *People v. Hurlbut*, 24 Mich. 44, 95 (1871).

⁴⁹ HON. JON D. RUSSELL & AARON BOSTROM, *FEDERALISM, DILLON RULE AND HOME RULE 8* (2016), <https://www.alec.org/app/uploads/2016/01/2016-ACCE-White-Paper-Dillon-House-Rule-Final.pdf>. According to the interpretation of Russell and Bostrom, the following states are home rule jurisdictions: Alaska, Arkansas, Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawai'i, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Washington, West Virginia, Wisconsin, and Wyoming. *Id.* at 6.

⁵⁰ See Terrance Sandalow, *The Limits of Municipal Power Under Home Rule: A Role for the Courts*, 48 MINN. L. REV. 643 (1964); Hugh Spitzer, "Home Rule" vs. "Dillon's Rule" for *Washington Cities*, 38 SEATTLE U. L. REV. 809 (2015).

⁵¹ Henry J. Schmandt, *Municipal Home Rule in Missouri*, 1953 WASH. U. L.Q. 385, 385 (1953).

transportation technology promoting growth westward.⁵² In his influential treatise, Judge Dillon of Iowa argued for restricted local municipal power, now embodied in Dillon's Rule:

It is a general and undisputed proposition of law that a municipal corporation possesses, and can exercise, the following powers, and no others: First, those granted in *express words*; second, those *necessarily or fairly implied* in or *incident* to the powers expressly granted; third, those *essential* to the declared objects and purposes of the corporation – not simply convenient, but indispensable. Any fair, reasonable doubt concerning the existence of power is resolved by the courts against the corporation, and the power is denied.⁵³

The United States Supreme Court recognized both forms of local authority, home rule and Dillon's Rule, soon after.⁵⁴

Today, drone ordinances would be more quickly and easily adopted in a home rule jurisdiction with greater freedom to respond to local interests and needs. However, not all local communities want home rule.⁵⁵ Out of 1,297 municipalities in Illinois, only 211 currently operate under home rule.⁵⁶ For many home rule units, the source of attraction and aversion is the same: funding, or rather the ability to tax and issue bonds.⁵⁷ In Illinois, there is a current movement to expand automatic home rule to even smaller communities as a means of

⁵² See David W. Owens, *Local Government Authority to Implement Smart Growth Programs: Dillon's Rule, Legislative Reform, and the Current State of Affairs in North Carolina*, 35 WAKE FOREST L. REV. 671, 682–83 (2000).

⁵³ 1 JOHN F. DILLON, *THE LAW OF MUNICIPAL CORPORATIONS* § 55 (1872). See, e.g., *Smith v. City of Newbern*, 70 N.C. 14, 18 (1874) (adopting Dillon's Rule in North Carolina); see also *City of Clinton v. Cedar Rapids*, 24 Iowa 455 (1868).

⁵⁴ See *City of Trenton v. New Jersey*, 262 U.S. 182, 187 (1923) (“In the absence of state constitutional provisions safeguarding it to them, municipalities have no inherent right of self-government which is beyond the legislative control of the state.”); *Hunter v. City of Pittsburgh*, 207 U.S. 161, 178 (1907) (“Municipal corporations are political subdivisions of the state, created as convenient agencies for exercising such of the governmental powers of the state as may be intrusted to them.”); *Barnes v. District of Columbia*, 91 U.S. 540, 546 (1875) (following Dillon's Rule when holding that “[t]he whole municipal authority emanates from the legislature”).

⁵⁵ See, e.g., *Home Rule Information*, VILLAGE LEMONT, <http://www.lemont.il.us/738/Home-Rule-Information> (last visited Feb. 23, 2020); *Sales Tax 2019 Referendum*, VILLAGE LEMONT, <https://www.lemont.il.us/745/Sales-Tax> (last visited Feb. 23, 2020) (explaining the failure of a home rule referendum in 2018 in the village of Lemont, Illinois as a concern with “home rule's broad authority . . . , including its use by future boards and administrations”).

⁵⁶ Andrea Guthmann & Meredith Francis, *New Report Finds Illinois Municipalities Pushing for 'Home Rule'*, WTTW (PBS) NEWS (Apr. 11, 2016, 4:31 PM), <https://news.wttw.com/2016/04/11/new-report-finds-illinois-municipalities-pushing-home-rule>.

⁵⁷ CITIZEN ADVOCACY CTR., HOME RULE AND YOU 6 (2004), <https://www.citizenadvocacycenter.org/uploads/8/8/4/0/8840743/homerulebrochure.pdf> (Elmhurst, Illinois).

generating more tax revenue for “day-to-day operations” because of the economic downturn and aftermath of the Illinois state budget crisis.⁵⁸ But community residents and businesses worry about “runaway local government” if given too much tax-and-spend control, which is one of the more persuasive arguments for Dillon’s Rule.⁵⁹

In a home rule jurisdiction, a local resident may pay city, county, and state taxes for the same gas or property.⁶⁰ In a home rule jurisdiction, such as Illinois, elected officials do not even have to ask for voter approval to raise taxes or issue debt; thus property taxes are often significantly higher.⁶¹ Residents voting on a home rule referendum must rely on assurances by their officials that home rule authority will be used wisely.⁶²

Unlike Illinois, in Florida, a home rule state since 1973, most municipalities have home rule charters. The Florida League of Cities continues to tout this fact:

The most precious powers a city in Florida has are its Home Rule powers. The ability to establish its form of government through its charter, and to then enact ordinances, codes, plans and resolutions without prior state approval is a tremendous authority. To further be able to enforce them “at home” and to make necessary changes as a city grows is a great reflection of the trust that citizens have in their respective city leaders.⁶³

Home rule units, such as DeFuniak Springs, Florida, have promptly asserted their authority to regulate drones and UAS within city limits “in harmony with” the FAA regulations: “The city council hereby recognizes that unmanned aerial vehicles (UAV), also known as drones, can pose unique safety, nuisance, and privacy invasion risks; thus regulating the operation of unmanned aerial

⁵⁸ Guthmann & Francis, *supra* note 566.

⁵⁹ See RUSSEL & BOSTROM, *supra* note 499.

⁶⁰ Jim Webb, *Does This Home Rule the Courts? Carbondale’s Tort Reform Ordinance*, 530 S. ILL. U. L.J. 123, 123, 125 (2005) (noting that the Illinois Constitution only restricts home rule authority to tax income).

⁶¹ See *What You Should Know About Home Rule*, REAL PROP. ALLIANCE, <https://realpropertyalliance.org/home-rule/>. But see *Illinois Cities Could Lose Broad Home-Rule Taxing Powers as State Population Declines*, WQAD (May 24, 2018, 8:13 AM), <https://wqad.com/2018/05/24/illinois-cities-could-lose-broad-home-rule-taxing-powers-as-state-population-declines/>.

⁶² One obvious solution adopted by some local communities is to impose a tax cap on home rule so that local officials must act responsibly in making local tax decisions. See CITIZEN ADVOCACY CTR., *supra* note 577.

⁶³ FLA. LEAGUE OF CITIES, UNDERSTANDING FLORIDA’S HOME RULE POWER 1 (May 10, 2011, 10:13 AM), <http://www.floridaleagueofcities.com/docs/default-source/Civic-Education/historyofhomerule.pdf?sfvrsn=2>.

vehicles within the city is needed to promote the public safety and welfare of the city and its residents.”⁶⁴

State and local authorities, nevertheless, also recognize that UAS present a potential source of revenue where commercial UAS operations may eventually prove very lucrative. In the 2015–2016 session, the Hawai’i State Legislature failed to pass any one of the many proposed UAS privacy-related bills.⁶⁵ Nevertheless, one bill supporting commercial and government use did pass, providing that “integration of drone technology into the national airspace was estimated to be worth more than \$82 billion between 2015 and 2025, creating approximately 103,776 new jobs by 2025.”⁶⁶

In general, it is clear that substantial potential remains for home rule authority to adapt to and regulate new technologies on behalf of the local community’s interests. Nevertheless, as shown above, home rule states vary substantially in terms of legislative willingness and patience to allow for such innovation to occur, in addition to variation among local communities in their trust in their local leadership. The following discussion will focus more closely on examples of local jurisdictions that have taken advantage of the opportunity to regulate UAS use. Specifically, the UAS ordinances are categorized in the discussion as those addressing the interests of life, liberty, and/or property, to evaluate how the state and federal constitutions may or may not be able to protect these interests adequately.

III. PROTECTING LIFE: PUBLIC SAFETY AND WEAPONIZED UAS

The interest in protecting life served as the initial focus of many UAS ordinances. The United States Supreme Court has affirmatively stated that while Congress has “exclusive sovereignty of airspace in the United States,” this does not preclude states or municipalities from regulating aviation.⁶⁷ Thus, while federal law governs navigable airspace, municipal authority and local government units have longstanding authority over airport development and zoning as a matter of public safety.⁶⁸

UAS technology has created novel questions related to the regulation of non-navigable airspace at lower altitudes. In answering these questions, both Federal Aviation Authority (“FAA”) regulations and local ordinances addressing drone flights have opted to focus first on physical safety for persons and structures. As the existing scope of state and local authority to address public

⁶⁴ DEFUNIAK SPRINGS, FLA., MUN. CODE § 22-50 (July 12, 2019).

⁶⁵ Adam N. Miller, Comment, *Up in the Air: The Status and Future of Drone Regulation in Hawai’i*, 40 U. HAW. L. REV. 307, 308 (2017).

⁶⁶ *Id.* at 308.

⁶⁷ *Singer v. City of Newton*, 284 F. Supp. 3d 125, 129 (D. Mass. 2017) (citing 49 U.S.C.A. § 40103(a)(1) (West 2020); *Braniff Airways v. Neb. State Bd. of Equalization & Assessment*, 347 U.S. 590, 595 (1954)).

⁶⁸ *See Ravich*, *supra* note 29, at 595.

safety is relatively well established, this section of the discussion will be briefer than those addressing liberty and property interests.

As a prime example of the protection of life, FAA UAS commercial operator regulations state:

No person may (a) Operate a small unmanned aircraft system in a careless or reckless manner so as to endanger the life or property of another; or (b) Allow an object to be dropped from a small unmanned aircraft in a manner that creates an undue hazard to persons or property.⁶⁹

Moreover, UAS commercial operators are prohibited from flying a drone over a human being,⁷⁰ out of the line of sight through clouds,⁷¹ or in the vicinity of airports.⁷² Understandably, national and regional airports were some of the first concerned with UAS safety matters, where collisions with drones can significantly damage airplane and helicopter engines and batteries.⁷³

Universities and urban settings with tall buildings have also weighed in early on UAS activity through adoption and adaptation of local policies and ordinances.⁷⁴ These include total bans on recreational use over campus property, but permitted use by campus employees who are FAA-certified commercial operators and are assigned to remediate building safety matters or officially record campus events.⁷⁵ Stanford University has carved out pre-approved flight

⁶⁹ FAA Air Traffic and General Operating Rules, 14 C.F.R. § 107.23 (2020) (hazardous operation).

⁷⁰ *Id.* § 107.39 (operation over human beings).

⁷¹ *Id.* § 107.51(d) (operating limitations for small unmanned aircraft).

⁷² *Id.* § 107.43 (operation in the vicinity of airports).

⁷³ See Michael Kamprath, *A Legal and Practical Overview of How Local Governments Can Help Protect the Safety of Manned Flight in the Vicinity of Airports*, 49 URB. LAW. 563, 564 (2017); see, e.g., Tim Wright, *Army Blackhawk Collides with Drone Over NYC*, AIR & SPACE (Sept. 27, 2017), <https://www.airspacemag.com/daily-planet/army-blackhawk-hits-drone-180965047/> (reporting on the first confirmed collision of a drone and helicopter, which occurred at 500 feet over Staten Island in New York).

⁷⁴ E.g., *Small Unmanned Aircraft Systems (SUAS) ("Drones")*, W. VA. U. STRATEGIC INITIATIVES, <https://strategicinitiatives.wvu.edu/policies/university-policies-policies/small-unmanned-aircraft-systems-suas-drones> (last visited Mar. 1, 2020) (requiring an authorized certificate for UAS use on campus); *WVU Enacts Drone Policy for Faculty, Staff and Students*, MOUNTAINEERNEWS (Nov. 8, 2018), <https://enews.wvu.edu/articles/2018/11/08/wvu-enacts-drone-policy-for-faculty-staff-and-students>.

⁷⁵ For example, Southern Illinois University-Carbondale currently has such a recreational ban. See Interview with John T. Bennett, SIU/PSO UAV Adm'r, S. Ill. Univ.-Carbondale (Dec. 4, 2019); see also *Unmanned Aerial Vehicles*, S. ILL. U.-CARBONDALE, <https://pso.siu.edu/uav/> (last visited Feb. 16, 2020) ("Because of FAA regulations and University regulations regarding UAV operations, ALL recreational use of all classes of remotely piloted aircraft is prohibited on ALL SIU Carbondale property – inside or outside.").

areas for recreational hobbyist use, but prohibits UAS operation on most of the campus due to “safety and privacy risks in a campus environment.”⁷⁶

Federal and state law regulating UAS also focused on public safety first, with some clear areas of preemption. For example, federal law securing borders or protecting against foreign threats will solely govern UAS applications.⁷⁷ In the fight against foreign and domestic terrorism, targeted drone strikes or deliveries of biological and chemical weapons are a serious risk to public safety and national security.⁷⁸ According to the Center for the Study of the Drone at Bard College, military drones are actively employed in 95 countries, including Class I aircraft over 150 kilograms.⁷⁹ At the state level, the Massachusetts legislature has addressed the specter of such use on domestic soil with a bill prohibiting UAS use near critical infrastructure, such as refineries, power plants, telecommunications centers, and water treatment plants.⁸⁰

Generally, the development of drone-specific state criminal law makes sense regarding more dangerous UAS practices, where local sentiments are not likely to vary regarding serious safety threats.⁸¹ North Carolina amended its criminal code to create a felony offense “for any person to possess or use an unmanned aircraft or unmanned aircraft system that has a weapon attached.”⁸² Massachusetts also considered a similar bill in the last two legislative sessions.⁸³

⁷⁶ Brad Hayward, *New Policy Governs UFV Flying at Stanford*, STAN. NEWS (Aug. 29, 2016), <https://news.stanford.edu/2016/08/29/policy-ufv-flying/>.

⁷⁷ See FAA Reauthorization Act of 2018, 49 U.S.C.A. § 44802 (West 2020) (Division H – Preventing Emerging Threats); Vivek Sehrawat, *Legal Status of Drones Under LOAC and International Law*, 5 PENN ST. J.L. & INT’L AFF. 164, 198 (2017) (addressing, in part, the use of drones in national self-defense under international customary law).

⁷⁸ See Jackson, *supra* note 12.

⁷⁹ DAN GETTINGER, THE DRONE DATABOOK, CTR. FOR THE STUDY OF THE DRONE AT BARD COLLEGE at VIII (2019), <https://dronecenter.bard.edu/files/2019/10/CSD-Drone-Databook-Web.pdf>.

⁸⁰ An Act Relative to Unmanned Aerial Vehicles, H.R. 1406, 191st Gen. Court (Mass. 2019–2020) (previously filed without passage in 2017–2018 as H.R. 3496) (“(d) Whoever, without lawful authority, willfully uses an unmanned aerial vehicle to photograph, videotape or electronically surveil a critical infrastructure facility, shall be punished by imprisonment in the house of correction for not more than 2 1/2 years or by a fine of not more than \$5,000, or by both such fine and imprisonment.”). Critical infrastructure sites are defined in section (a) of the bill.

⁸¹ Cf. Alan Frazier, *Hunting with Drones: Aerial Search and Seizure and Weaponization of Small Unmanned Aircraft Systems*, 93 N.D. L. REV. 481, 495 (2018) (asserting that no law enforcement agency or association in the United States supports or should support weaponization of UAS for use of force in search and seizure). *Contra* Michael R. Sinclair, *Proposed Rules to Determine the Legal Use of Autonomous and Semi-Autonomous Platforms in Domestic U.S. Law Enforcement*, 20 N.C. J.L. & TECH. 1 (2018) (recommending authorization of reasonable lethal use of force by remotely-piloted and semi-autonomous devices, such as robots and drones, if operated by humans).

⁸² N.C. GEN. STAT. ANN. § 14-401.24(a) (West 2020).

⁸³ An Act Relative to Unmanned Aerial Vehicles, H. 1406 191st Gen. Court (Mass. 2019–2020 session) (previously filed without passage in 2017–2018 as H.R. 3496) (“(b) Whoever,

Both North Carolina and Oregon criminalize hunting and fishing by UAS.⁸⁴ Weaponizing UAS may include attachments and functions, such as flamethrowers and handguns that could kill or injure persons or property.⁸⁵ The FAA already regulates against weaponizing drones, but provides for civil fines rather than criminal charges.⁸⁶

Drones also create potential disturbances of the peace, inciting strong reactions by those who find their presence intrusive and who take matters into their own hands.⁸⁷ In one case involving a neighbor using a firearm to shoot down a drone over his property, the Western District of Kentucky held it to be a state question of trespass law and dismissed the federal claim.⁸⁸ The court did not deem the destruction of the drone a federal matter, even though federal criminal liability could attach as drones are considered aircraft.⁸⁹ As stated succinctly by the West Virginia Supreme Court, in order to “promote domestic tranquility and the general welfare,” it has long been the role of state and local government to protect property rights and help communities avoid conflicts based on trespass.⁹⁰

Home rule states do permit the development of criminal law at the local level; however, most provide only narrow authority. In Illinois, for example, the

without lawful authority, weaponizes an unmanned aerial vehicle or operates a weaponized unmanned aerial vehicle shall be punished by imprisonment in the state prison for not less than 3 years nor more than 20 years or imprisonment in the house of correction for not less than 6 months nor more than 2 1/2 years, or by fine of not less than \$1,000 nor more than \$50,000, or by both such fine and imprisonment.”); *see also* WIS. STAT. ANN. § 941.292 (West 2019) (felony offense for operation of a “weaponized drone”).

⁸⁴ N.C. GEN. STAT. ANN. § 14-401.24(b) (West 2020); OR. STAT. ANN. § 498.128 (West 2020) (prohibiting use of drones to hunt, fish, and harass wildlife).

⁸⁵ *See* Sean O’Kane, *FAA Asks Public Not to Attach Guns, Bombs, or Flamethrowers to Drones*, VERGE (Aug. 23, 2019, 12:13 PM EDT), <https://www.theverge.com/2019/8/23/20829812/faa-drone-weapons-warning-quadcopters>; *see, e.g.*, Huerta v. Haughwout, No. 3:16-cv-358, 2016 WL 3919799 (D. Conn. July 18, 2016) (handgun); Hannah Sparks, *Company Unveils \$1,500 Flamethrower That Will Attach to Your Drone*, N.Y. POST (July 22, 2019, 10:59 AM), <https://nypost.com/2019/07/22/company-unveils-1500-flamethrower-that-will-attach-to-your-drone/>.

⁸⁶ FAA Reauthorization Act of 2018, 49 U.S.C.A. § 44809 (West 2020).

⁸⁷ *See generally* A. Michael Froomkin & P. Zak Colangelo, *Self-Defense Against Robots and Drones*, 48 CONN. L. REV. 1 (2015).

⁸⁸ *Boggs v. Meredith*, No. 3:16-cv-00006-TBR, 2017 WL 1088093 (W.D. Ky. Mar. 21, 2017); *see also* Brady Getlan, *Boggs v. Meredith and the Present and Future Laws and Regulations of Drone Usage*, 7 U. BALT. J. LAND & DEV. 1 (2017); Farivar, *supra* note 34.

⁸⁹ *E.g.*, 18 U.S.C.A. § 32 (West 2020) (Destruction of aircraft or aircraft facilities). “Aircraft” is defined as “any contrivance invented, used, or designed to navigate, or fly in, the air.” 49 U.S.C.A. § 40102(a)(6) (West 2020). For a discussion of the available defenses, such as defense of property, *see* Joseph J. Vacek, *Counter-UAS Applications Illegal Under 18 U.S.C. § 32 Are Justified When Using a Reasonably Defensible Counter-UAS Strategy That Incorporates Risk and Compliance Categorizations*, 93 N.D. L. REV. 499 (2018).

⁹⁰ *State v. McDowell Lodge*, No. 112, Ancient Free and Accepted Masons, 123 S.E. 561, 563 (W. Va. 1924).

Constitution specifically states that a home rule unit may not define or enact punishment for a felony crime.⁹¹ In Oregon, regarding an indecent exposure offense, the Supreme Court has upheld the home rule authority of the City of Portland to enact and enforce a charge under the city code that is more prohibitive than the more narrowly worded state criminal statute.⁹² The Court reasoned: “Local governments cannot enact criminal laws in conflict with state criminal laws. Local governments thus are barred from, e.g., creating a ‘safe haven’ for outlaws by legalizing, within the boundaries of the city, that which the legislature has made criminal statewide.”⁹³ Yet the Court also held that, as criminal statutes typically prohibit conduct, silence with respect to conduct should not be interpreted as express permission of conduct.⁹⁴ Therefore, a city ordinance that more strictly prohibits conduct is not presumptively in conflict with the state offense.

Civil trespass will be more fully discussed in Part IV below, but it is particularly relevant to criminal justice enforcement of UAS operations that legislatures in home rule states, such as Kentucky, have been willing to grant home units authority to adopt criminal trespass and other misdemeanors without interfering with state preemption.⁹⁵ Similarly, in the town of Oxford, Alabama, a six-month jail sentence may be imposed if a person flies a drone in a city park without permission from the police department.⁹⁶ In other words, in a home rule jurisdiction, municipal authority may already be readily available to impose both civil and criminal remedies for unlawful UAS operations.

IV. PROTECTING PROPERTY: AERIAL AND SUBSURFACE TRESPASS AND NUISANCE

Common law doctrines protect a landowner’s property rights to superadjacent and subjacent areas directly above and below the land surface. Under the traditional *ad coelum* doctrine, “he who owns the soil has it even to the sky and to the lowest depths”⁹⁷ (i.e., *cujus est solum, ejus est usque ad coelum et ad inferos*).⁹⁸ When an invasion of such space occurs that substantially impacts

⁹¹ ILL. CONST. art. VII, § 6(d).

⁹² *City of Portland v. Jackson*, 850 P.2d 1093 (Or. 1993) (upholding the city ordinance that prohibits the display of genitalia for any reason, which is broader than the state criminal statute which requires specific intent to sexually arouse).

⁹³ *Id.* at 1094.

⁹⁴ *Id.* at 1096.

⁹⁵ *See supra* notes 88–89 and accompanying text; KY. REV. STAT. ANN. § 83A.065(2) (West 2020) (granting local units authority to impose criminal penalties of fines and imprisonment).

⁹⁶ OXFORD, ALA., CODE OF ORDINANCES § 26-293 (2019).

⁹⁷ *Warren Twp. Sch. Dist. No. 7, Macomb Cty. v. City of Detroit*, 14 N.W.2d 134 (Mich. 1944).

⁹⁸ *Hoffman v. Armstrong*, 46 Barb. 337, 337 (N.Y. 1866).

the exclusory rights and use and enjoyment of the surface area, the landowner may have remedies in trespass or nuisance, as well as other potential constitutional claims.

Today, with respect to a landowner's aerial rights, one state has decided that "[t]he person has a property interest in the block of air that is bounded by the length and width of the person's land holdings . . . and rises up to approximately the height of the government-defined minimum safe altitude of flight."⁹⁹ For jurisdictions that adhere to a fixed height approach in defining property rights, the federally defined minimum altitude will change over time and location, and is dependent on how congested the area is and the presence of existing obstacles.¹⁰⁰ It represents a modern refinement of the common law *ad coelum* doctrine, providing an avigation easement to allow for unimpeded aviation traffic, while acknowledging that the landowner with the servient estate does, in fact, own the airspace directly above his property.¹⁰¹ As early as the 1940s, courts recognized that:

Flight by aircraft over the lands and waters is lawful unless at such low altitudes as to interfere with the then existing use to which the land or water is put by the owner, or unless so conducted as to be imminently dangerous to persons or property lawfully on the land or water beneath.¹⁰²

While the discussion below focuses on UAS technology in airspace, the technology also generates some concern about the use of drones that interfere with a landowner's interest in subsurface space.¹⁰³ For example, underground infrared thermal imaging, used in environmental surveillance, commercial excavation, and archaeological projects, could be implemented via an aerial drone. Although limited in this discussion, the *ad coelum* doctrine would also apply in these scenarios.¹⁰⁴ The FAA, however, expressly asserts that it does not regulate UAV use below ground for mining purposes,¹⁰⁵ but, nevertheless,

⁹⁹ Brenner v. New Richmond Reg'l Airport, 816 N.W.2d 291, 303 (Wis. 2012).

¹⁰⁰ See *id.* at 305 (citing FFA Air Traffic and General Operating Rules, 14 C.F.R. § 91.119 (2020)).

¹⁰¹ See *id.* at 307.

¹⁰² Warren Twp. Sch. Dist., 14 N.W.2d at 136.

¹⁰³ The Oregon legislature, in prohibiting drone use for fishing and hunting, defines "drone" as a vehicle "that is able to operate in the air, in or under water or on land, either remotely or autonomously, and without a human occupant." OR. REV. STAT. ANN. § 498.128(4) (West, 2020).

¹⁰⁴ Christopher S. Kulander & R. Jordan Shaw, *Comparing Subsurface Trespass Jurisprudence—Geophysical Surveying and Hydraulic Fracturing*, 46 N.M. L. REV. 67, 73 (2016) ("Although the owner of the mineral estate hypothetically owns to the deepest depths of the earth, horizontally the *ad coelum* doctrine is limited to the interior of the surface boundaries from which the mineral estate is derived.").

¹⁰⁵ FAA Reauthorization Act of 2018, 49 U.S.C.A § 44802 (West 2020) (Treatment of Unmanned Aircraft Operating Underground).

remains silent with respect to other subjacent uses. State courts have developed longstanding interpretations of mineral, gas, oil, and water rights as matters of subsurface property rights, approaches which litigants could draw from in arguing cases for and against UAV subsurface use.¹⁰⁶ New technology, however, may call for new fashioning of old cloth.

For example, the Supreme Court of West Virginia recently held, as a matter of first impression, that a mineral owner of subsurface rights has no implied right to surface access on an adjacent landowner's property for the purpose of reaching those mineral resources, absent agreement with the landowner.¹⁰⁷ Similarly, it is unlikely an aerial drone operator would be impliedly authorized to physically enter the land of another to launch the unmanned vehicle without consent. In Colorado, the Supreme Court denied claims that natural waterways were to be enjoyed for recreational use by all, even through private property,¹⁰⁸ the same position is even more easily argued with respect to the recreational flying of drones where the expanse of air over private property is far greater than a narrow riparian tributary.

Many scholars have already discussed potential trespass and nuisance actions for unwanted UAS activity.¹⁰⁹ In general, by focusing on reasonableness and a balance of interests, nuisance provides a more flexible standard than trespass, but the degree of interference required to sustain the action is quite high depending on the value of the aircraft to the public interest and the substantial nature of the interference. Litigants may raise claims for both torts when examining aerial invasions of quietude. As the Supreme Court of Oregon noted in considering a private airport's impact on neighboring landowners: "Whether Oregon courts should meet the airport problem with the ancient and formal doctrine of trespass or the more flexible concept of nuisance is still an open question."¹¹⁰ As early as 1960, the Court directly considered the role of technology and invention as naturally applicable to nuisance claims, acknowledging that the protection of "the freedom of air travel" was a valid public interest.¹¹¹

Once the commercial use of UAS, such as delivery drones, becomes safer and more prevalent, to avoid the risk of trespass, corridors or highways

¹⁰⁶ *E.g.*, *Coastal Oil & Gas Corp. v. Garza Energy Tr.*, 268 S.W.3d 1 (Tex. 2008) (applying the rule of capture to bar recovery for trespass for subsurface hydraulic fracturing that extends into another's property); *see also* Kulander & Shaw, *supra* note 1044; Lucas Satterlee, *Climate Drones: A New Tool for Oil and Gas Air Emission Monitoring*, 46 ENVTL. L. REP. 11069 (2016).

¹⁰⁷ *EQT Prod. Co. v. Crowder*, 828 S.E.2d 800 (W. Va. 2019).

¹⁰⁸ *People v. Emmert*, 597 P.2d 1025, 1029 (Colo. 1979).

¹⁰⁹ *See, e.g.*, Hilary B. Farber, *Keep Out! The Efficacy of Trespass, Nuisance and Privacy Torts as Applied to Drones*, 33 GA. ST. U. L. REV. 359 (2017); Vivek Sehrawat, *Liability of Domestic Drones*, 35 SANTA CLARA HIGH TECH. L.J. 110 (2018); Lane Page, Note, *Drone Trespass and the Line Separating the National Airspace and Private Property*, 86 GEO. WASH. L. REV. 1152 (2018).

¹¹⁰ *Atkinson v. Bernard, Inc.*, 355 P.2d 229, 232 (Or. 1960).

¹¹¹ *Id.*

could be carved into airspace which is below navigable airspace designated for larger aircraft.¹¹² Testing in local jurisdictions has already begun, such as the 50-mile test corridor in New York City, which began commercial drone testing in 2017 for delivery of packages, search and rescue, and structure inspection in low-altitude corridors of national airspace.¹¹³

Local authorities are experienced at crafting zoning laws, deftly considering distinct and mixed uses of space. The zoning could promote certain UAS uses, while protecting against the risks of trespass and privacy intrusions. As noted by Troy Rule, one of the first to comment on the emerging need for balanced regulation of UAS:

[D]rone zoning laws adopted at the local level could permit wider use of drones in certain commercial or agricultural zones while imposing greater restrictions on drones above residential areas. Municipalities could even adopt temporary-use permit provisions to accommodate occasional drone use by real estate agents and wedding photographers without compromising landowner privacy.¹¹⁴

However, unlike motor vehicle laws or regulation of air traffic with designated communication systems and traffic control towers, clear signage and corridors for UAS are not immediately obvious. Geofencing is already in place for some UAS use near airports, and perhaps this could be feasible in future for flying over areas of land with individually owned properties.¹¹⁵

The balance of interests that must be weighed in property nuisance claims is one already familiar to courts addressing other types of aircraft. Upon

¹¹² Over most of the United States, the current corridor of airspace for navigable airplanes, governed exclusively by the FAA, is set at a height of at least 500 feet above ground. Rule, *supra* note 5, at 179. For helicopters, the height of navigable airspace would begin at 400 feet. Satterlee, *supra* note 1066.

¹¹³ See *Project U-SAFE Central New York: Safely Integrating Unmanned Aircraft in the National Airspace*, UAS CENT., <http://uascentral.com/unmanned-secure-autonomous-flight-environment/> (last visited Mar. 1, 2020); Lauren Sigfusson, *New York's Drone Superhighway Officially Launches*, DISCOVER (Sept. 29, 2017, 3:54 PM), <https://www.discovermagazine.com/technology/new-yorks-drone-superhighway-officially-launches> (including, under the Unmanned Aircraft System Secure Autonomous Flight Environment (U-SAFE) program, the community placement of tracking and monitoring radars so that drones could fly safely out of the line of sight of operators).

¹¹⁴ Troy A. Rule, *Commercial Drone Rules Should Be Less Restrictive*, in CURRENT CONTROVERSIES: DRONES 156 (Tamara Thompson ed., 2016); see also Rule, *supra* note 5.

¹¹⁵ See Farber & Nodiff, *supra* note 37, at 650 (noting the FAA's concerns that state mandates of geofencing and other restrictive technology against UAS could be preempted); Terry Jarrell, *Geofencing for Drones: Keeping the Skies Safe*, GEN. AVIATION NEWS (Jan. 9, 2019), <https://generalaviationnews.com/2019/01/09/geofencing-for-drones-keeping-the-skies-safe/> ("For drones, geofencing stops takeoffs and flight in restricted places, such as near airports, prisons, amusement parks, and other sensitive areas.").

the development of aircraft, courts had to consider how to balance the public need for air transportation and the private landowner's existing rights to superadjacent space above their property.¹¹⁶ State courts have interpreted the aircraft's privilege of travel to include factors such as the manner of the flight and unreasonable stunts or low-level flying that would interfere with the landowner's enjoyment of the surface of the property.¹¹⁷ At lower altitudes, municipal ordinances have often included view as an important factor in the enjoyment of property.

For example, in California, the City of Berkeley has adopted a Views Ordinance, which protects local residents from obstruction of views and sunlight by neighbors.¹¹⁸ In a cross-claim alleging a residential property owner's trees were obstructing a neighbor's view of the San Francisco skyline, the property owner claimed invasion of privacy and trespass claims against the neighbor.¹¹⁹ The neighbor had retained experts who set up a ladder to look onto the property owner's backyard and take still photographs, but they also sent a pre-programmed drone to take aerial photographs of the property.¹²⁰ The operator testified via affidavit at trial that:

[T]heir "objective was not to fly over the 51 Stevenson property, but to fly around it," [sic] and that "while I cannot say with 100 percent certain[t]y that I did not fly directly over the 51 Stevenson property, I can say that it was not my intent to do so."¹²¹

The property owner conceded he was not home when the drone flights occurred.¹²² Nevertheless, the court found no error in the trial court's finding of sufficient evidence that the neighbor had knowledge of the invasion of privacy via drone use and that the property owner had a reasonable expectation of privacy in their yard. Notably, the trial court had made a finding that, when a person has a reasonable expectation of privacy, "unconsented photo-taking [is] 'highly offensive to a reasonable person.'"¹²³

Unlike nuisance, state and local trespass laws generally provide exclusory rights to property owners which do not require a balancing test: an intentional physical intrusion, whether minor or substantial, is sufficient to

¹¹⁶ RESTATEMENT (FIRST) OF TORTS § 194 (AM. LAW INST. 1934) (Travel Through Air Space).

¹¹⁷ See *Atkinson v. Bernard, Inc.*, 355 P.2d 229, 231 (Or. 1960).

¹¹⁸ BERKELEY, CAL., MUN. CODE §§ 12.45.010–12.45.080 (Jan. 21, 2020).

¹¹⁹ *Glaser v. Mitchel*, No. A155815, 2019 WL 5800428 (Cal. Ct. App. Nov. 7, 2019).

¹²⁰ *Id.*

¹²¹ Appellant's Opening Brief at 64, *Glaser v. Mitchel*, No. A155815, 2019 WL 3154716 (Cal. Ct. App. 2019), 2019 WL 1999322.

¹²² *Id.* at 59.

¹²³ *Glaser*, 2019 WL at *2 (internal quotation marks omitted).

constitute a “breaking of the close.”¹²⁴ Exceptions have been made for subsurface trespass, considering the economic benefits of commercial mining to the local and state economy. Even here, however, “[t]he interplay of common-law trespass and oil and gas law must be shaped by concern for the public good.”¹²⁵ UAS operators, whether recreational or commercial, flying at low altitudes and invading the airspace of private property, could face innumerable and varying ordinances restricting operation not only across city and county boundaries, but across zoned regions within a single municipality. One fairly restrictive approach is to zone a designated space for recreational UAS use, particularly in more open spaces.¹²⁶

In addition to common law tort remedies, property owners seeking respite from regular drone traffic could mirror eminent domain claims related to airport traffic. Airport traffic that significantly interferes with a landowner’s use and enjoyment of real property can amount to a government taking, although the legal standard may be a difficult one for landowners to meet.¹²⁷ Recently, in *Brenner v. New Richmond Regional Airport*, the Supreme Court of Wisconsin affirmed a decision in which landowners were allowed to pursue an action for inverse condemnation, trespass, and nuisance based on airplane overflights after a runway was extended near their property.¹²⁸ The airport authority conceded that the extension had decreased the landowners’ quiet enjoyment and value of their property.¹²⁹ Also, the airport unsuccessfully sought application of the high standard for regulatory takings under federal law; that is, that “the property owner must be deprived of all or practically all of the beneficial use of the property or of any part.”¹³⁰ Some states have applied a similarly high standard, following *United States v. Causby*,¹³¹ with mixed outcomes depending on the

¹²⁴ E.g., *Johnson v. Paynesville Farmers Union Coop. Oil Co.*, 817 N.W.2d 693, 701 (Minn. 2012) (dismissing a trespass claim for pesticide particulates invading a neighbor’s organic farm, while affirming the common law strict liability standard of trespass). See *Leonard v. Nat Harrison Assocs.*, 122 So. 2d 432, 433 (Fl. Dist. Ct. App. 1960) (explaining that civil trespass actions emerged from the criminal law).

¹²⁵ *Coastal Oil & Gas Corp. v. Garza Energy Tr.*, 268 S.W.3d 1, 34 (Tex. 2008).

¹²⁶ See Rule, *supra* note 5, at 204 (discussing the cost-benefit analysis of a community’s various uses, and asserting that “[i]n much of a community’s low-altitude airspace, the highest valued use of the space may be as a ‘conservation commons’ in which no drone flights are allowed”).

¹²⁷ See, e.g., *Palisades Citizens Ass’n v. Civil Aeronautics Bd.*, 420 F. 2d 188, 192 (D.C. Cir. 1969); *Town of E. Haven v. E. Airlines, Inc.*, 331 F. Supp. 16 (D. Conn. 1971).

¹²⁸ 816 N.W.2d 291 (Wis. 2012). Inverse condemnation is a cause of action for a public taking when the government has not formally exercised its eminent domain power. *United States v. Clarke*, 445 U.S. 253, 257 (1980).

¹²⁹ *Brenner*, 816 N.W.2d at 298.

¹³⁰ *Id.* In addition to the federal Fifth Amendment Takings Clause, the parties asserted rights under the State Constitution. See WIS. CONST. art. I, § 13 (“The property of no person shall be taken for public use without just compensation therefor.”).

¹³¹ 328 U.S. 256 (1946).

severity of the overflight impact.¹³² The Supreme Court of Wisconsin concluded that a lower standard should be applied due to the low height of the flights: “We conclude that a taking occurs in airplane overflight cases when government action results in aircraft flying over a landowner’s property low enough and with sufficient frequency to have a direct and immediate effect on the use and enjoyment of the property.”¹³³ The Court directed the lower court to consider “actual physical occupation” of private property as supporting a condemnation action.¹³⁴

The facts of the case naturally invite UAS application. In *Brenner*, “[t]he landowners complained that the extended runway led to noise, dust, dirt, flashing lights, disruption of their sleep, diminished enjoyment of their property, concerns about safety, direct overflights, and a decrease in property value.”¹³⁵ Power lines had been lowered nearer to their homes to increase safety to aircraft, but the action increased dangers to the homeowners.¹³⁶ When dismissing the plaintiff landowners’ claims, the trial court applied *Causby* because only a partial loss of enjoyment and use of property due to airport activity would arguably not constitute an unconstitutional regulatory taking for the residents living nearby.¹³⁷

In 1946, the United States Supreme Court held in *Causby* that “flights over the private land of the Plaintiffs are not a taking because they have not rendered the subject property uninhabitable or destroyed existing business on the property.”¹³⁸ The Supreme Court of Wisconsin distinguished the holding in *Causby*, asserting that overflights are not merely a nuisance, but may constitute an actual physical taking of the land depending on the height of the aircraft,¹³⁹ which *Causby* had contemplated.¹⁴⁰ The Supreme Court of Wisconsin explained that the United States Supreme Court in *Causby* had stated in dicta that “if a property owner is to have full enjoyment of his land, he must have ‘exclusive control of the immediate reaches of the enveloping atmosphere,’ the

¹³² *E.g.*, *Smart v. City of Los Angeles*, 169 Cal. Rptr. 174 (Ct. App. 1980) (holding that a taking did not occur based on insufficient damage or interference); *Melillo v. City of New Haven*, 732 A.2d 133 (Conn. 1999) (holding that a taking occurred under the Connecticut Constitution); *Hillsborough Cty. Aviation Auth. v. Benitez*, 200 So. 2d 194 (Fla. Ct. App. 1967) (holding that a taking occurred under the Florida Constitution when conversation impossible due to noise); *City of Austin v. Travis Cty. Landfill Co.*, 73 S.W.3d 234 (Tex. 2002) (holding that aircraft overflights do not constitute a taking of private property because it did not render the property “unusable for its intended purpose”).

¹³³ *Brenner*, 816 N.W.2d. at 311.

¹³⁴ *Id.* at 300, 302 (relying in part on *Loretto v. Teleprompter Manhattan Cable Television Corp.*, 458 U.S. 419 (1982); *Griggs v. Allegheny Cty.*, 369 U.S. 84 (1962)).

¹³⁵ *Id.* at 295.

¹³⁶ *Id.* at 297.

¹³⁷ *Id.* at 298 (discussing *United States v. Causby*, 328 U.S. 256 (1946)).

¹³⁸ *Id.*

¹³⁹ *Id.*

¹⁴⁰ *Id.* at 302.

‘superadjacent airspace’ below the altitude that Congress appropriately determines to be a public highway.”¹⁴¹ This line of precedent bodes well for claims under the Takings Clause in state and locally-based UAS cases at low heights, where airspace itself is taken by the government—space which the landowner owns, uses, and enjoys.

Also, states, such as Kentucky, grant home rule units the power of eminent domain.¹⁴² There is longstanding precedent addressing land use ordinances restricting building on superadjacent airspace, such as *Penn Central Transportation Company*,¹⁴³ which has adopted a balance of interests reasonableness test with respect to a takings analysis. The reasonableness factors could be applied by a municipality eager to create commercial drone delivery or public safety surveillance corridors. A court, applying traditional land use and zoning precedent, would likely acknowledge a municipality’s valid interest in regulating UAS through local airspace when addressing claims related to eminent domain.

An important distinction, however, is that government airspace activity for transportation provides more opportunity for a remedy under the Fifth Amendment Takings Clause than government uses of UAS solely under its police power. One alarming example involves local law enforcement destruction of a home during a five-hour stand-off to apprehend an escaped suspect who did not live there, including the use of robotics entry to increase communications.¹⁴⁴ The city argued that its lawful exercise of police power did not support a claim under the Takings Clause and, thus, it would not financially help the family rebuild their home because law enforcement had not acted within the power of eminent domain.¹⁴⁵

The Tenth Circuit Court of Appeals aligned with the Federal, Third, and Seventh Circuit Courts, holding that physical interference and seizure of private property during law enforcement investigations does not constitute a taking if it is pursuant to the state’s police power and is not a taking for public use.¹⁴⁶ If local law enforcement should weaponize UAS and burn down private property during pursuit or apprehension of suspects, residents and guests may have few legal remedies if the current approach is taken.¹⁴⁷ Yet the federal courts acknowledge

¹⁴¹ *Id.* (citing *Causby*, 328 U.S. at 264–65).

¹⁴² KY. REV. STAT. ANN. § 82.082 (West 2020).

¹⁴³ *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 137–38 (1978) (finding no taking occurred where the financial burden on the property owner was not outweighed by building restrictions substantially related to the “promotion of the general welfare”).

¹⁴⁴ *Lech v. Jackson*, 791 F. App’x 711, 713 (10th Cir. 2019).

¹⁴⁵ *Id.* at 714.

¹⁴⁶ *Id.*

¹⁴⁷ *See, e.g., Bachmann v. United States*, 134 Fed. Cl. 694 (2017) (holding that Federal Marshalls’ use of a battering ram and robot to gain entry to a house was not a taking, but an exercise

that a state constitution's separate Takings Clause could provide for a remedy for property damage during law enforcement raids, as state courts in Texas and Minnesota have done when applying their state constitutions.¹⁴⁸ The exercise of police power must be lawful, of course, with restraints imposed by the Due Process Clause and state tort liability.¹⁴⁹

V. PROTECTING LIBERTY: COMPLEX PRIVACY CONSIDERATIONS

In contrast to the applicability of local UAS ordinances to address physical safety concerns or property rights, asserting privacy interests against drone invasions is much more complicated. Private citizens use technology to invade the privacy of others in a manner that tests the limits of traditional legal tenets, given the extent of the harmful impact.¹⁵⁰ Not vigorously protecting individual privacy could embolden the predatory potential for everyone to invade everyone's privacy, regardless of the technology implemented.¹⁵¹ It has been suggested, somewhat hopefully, that "UAS technology may be just what privacy law needs to push the legal framework forward."¹⁵² For while civil rights for the protection of person and property are well established in the law, the right of privacy generally remains a matter of debate and development.

Effecting progress in privacy rights faces aggressive competing interests, where the lucrative surveillance industry has promoted its products to protect individual safety and privacy, while also contracting with the government to provide technology to surveil the public on behalf of public welfare.¹⁵³ These

of police power, and therefore did not warrant just compensation to the owners, who were unaware the fugitive was living there).

¹⁴⁸ *Id.* at 697.

¹⁴⁹ *Lech*, 791 F. App'x at 719.

¹⁵⁰ See generally Michal Lavi, *The Good, the Bad, and the Ugly Behavior*, 40 CARDOZO L. REV. 2597 (2019) (discussing the added dignitary harm of public shaming from recording and exposure of persons shared online and the limits of existing legal remedies); see also Jennifer A. Brobst, *The Modern Penny Dreadful: Public Prosecution and the Need for Litigation Privacy in a Digital Age*, 96 NEB. L. REV. 281 (2017); Jennifer A. Brobst, *Reverse Sunshine in the Digital Wild Frontier: Protecting Individual Privacy Against Public Records Requests for Government Databases*, 42 N. KY. L. REV. 197 (2015).

¹⁵¹ Cf. McNeal, *supra* note 7, at 367–68 (arguing that a focus on drones and other specific technologies to protect privacy fails to consider the better potential to protect privacy by addressing the impact of surveillance generally); Woodrow Hartzog, *The Public Information Fallacy*, 99 B.U. L. REV. 459 (2019) (criticizing definitions of public information, particularly in the form of big data, when the focus ought to be on the human impact of surveillance and shared values).

¹⁵² Iva Todorova, Note, *The Sky is the Limit: UAVs by Private Actors and the Implications to Common-Law Privacy*, 10 FLA. INT'L U. L. REV. 803, 838 (2015).

¹⁵³ See Scharf, *supra* note 4, at 457 (2018) (arguing for a warrant requirement under the Fourth Amendment for law enforcement UAS searches). *E.g.*, CITY OF PITTSBURGH, PA., CODE OF ORDINANCES § 686.02 (2019) (protecting the public's privacy by prohibiting the City from using

interests are inherently in conflict. Ongoing inequities in developing and enforcing American civil liberties are enabled by surveillance technology, manifesting a constant tension between ideals of social justice and the reality of injustice.¹⁵⁴ Indiana, for example, expressly permits use of electronic monitoring of prisoners outside of prisons through GPS ankle bracelets as a form of lawful detention.¹⁵⁵ However, state law excludes law enforcement use of drones for such purposes from the definition of detention, limiting potential constitutional claims for abuse of the technology.¹⁵⁶ Increasing home detention to reduce jail and prison populations could disproportionately impact even larger segments of disadvantaged local communities.¹⁵⁷ With respect to gender, many of the initial stories related to misuse of drones addressed stalking and harassment of women and girls.¹⁵⁸ These problems reflect disparate risk from UAS and thus call for tailored, local ordinances that would be better situated to craft regulatory measures protecting privacy.

At a minimum, a comprehensive jurisdictional approach will be required. The FAA has expressly recognized the interests of parallel jurisdictions in the need for UAS operators to protect privacy: “It is the policy of the United States that the operation of any unmanned aircraft or unmanned aircraft system

privately collected security camera footage “with such regularity as to effectively circumvent the provisions of this article”).

¹⁵⁴ See generally Mary D. Fan, *Democratizing Proof: Pooling Public and Police Body-Camera Videos*, 96 N.C. L. REV. 1639, 1662–64 (2018) (addressing misleading perceptions from video recording of police encounters based on selective timing, framing, and cultural perceptions). Cf. N.C. GEN. STAT. ANN. § 15A-300.1(f) (West 2020) (prohibiting as evidence in criminal prosecutions, unlawful UAS surveillance imagery, whether taken by the government or other persons).

¹⁵⁵ IND. CODE ANN. § 35-31.5-2-186(a)(8) (West 2020). See *Keith v. State*, 91 N.E.3d 1029 (Ind. Ct. App. 2018) (interpreting the felony offense of escape as applied to a person with GPS ankle monitoring, who fails to remain in home detention), *transfer denied*, 97 N.E.3d 236 (Ind. 2018).

¹⁵⁶ IND. CODE ANN. § 35-31.5-2-186(c); see also *id.* § 35-33-5-9 (prescribing the requirements for law enforcement use of UAS for searches and surveillance).

¹⁵⁷ William Farrell, *Predominately Black Neighborhoods in D.C. Bear the Brunt of Automated Traffic Enforcement*, D.C. POL’Y CTR. (June 28, 2018), <https://www.dcpolicycenter.org/publications/predominately-black-neighborhoods-in-d-c-bear-the-brunt-of-automated-traffic-enforcement/>; Dawn M. Turner, *What Red Light Cameras May Reveal About Racial Profiling*, CHI. TRIB. (Nov. 3, 2015, 2:15 PM), <https://www.chicagotribune.com/columns/ct-red-light-cameras-race-turner-20151103-column.html>.

¹⁵⁸ For an excellent discussion on the disproportionate panoptical effect on women, inhibiting their social experience, if UAS are not properly regulated, see generally Kristen M.J. Thomassen, *Beyond Airspace Safety: A Feminist Perspective on Drone Privacy Regulation*, 16 CAN. J.L. & TECH. 307 (2018) (unpublished manuscript), <https://femlaw.queensu.ca/sites/webpublish.queensu.ca/files/files/Law692Law693/law693Winter2018/Thomassen%20-%20A%20Feminist%20Perspective%20on%20Drone%20Privacy%20Regulation.pdf>.

shall be carried out in a manner that respects and protects personal privacy consistent with the United States Constitution and Federal, State, and local law.”¹⁵⁹ Indeed, police power exercised by state government continues to improve upon the limited privacy protections offered by the federal government. The Supreme Court of Alaska stated:

While the federal right of privacy derives from a broad reading of the due process clause of the fourteenth amendment or from “emanations” from other constitutional provisions, the right to privacy in Alaska is guaranteed by an explicit constitutional provision art. I, sec. 22 of the Alaska Constitution which states in part: “The right of the people to privacy is recognized and shall not be infringed.”¹⁶⁰

This state constitutional protection is generous, but not unlimited, where it requires an individual’s legitimate expectation of privacy and a claim of substantial infringement.¹⁶¹

A growing number of state constitutions protect individual privacy interests.¹⁶² However, in a review of municipal ordinances across the country, few appear to directly protect privacy beyond a general protection against trespass and nuisance.¹⁶³ New drone ordinances could change this framework. For example, the municipal code of Narragansett, Rhode Island, regulates drones in public in order “to promote personal privacy” and public safety.¹⁶⁴ In this municipal code, Chapter 46, Miscellaneous Offenses, is the only section to specifically use the term privacy. Its provisions are clear and detailed, relying in part on the federal constitutional foundation of a reasonable expectation of privacy:

¹⁵⁹ FAA Reauthorization Act of 2018, 49 U.S.C.A. § 44801 (West 2020) (Unmanned Aircraft Systems Privacy Policy).

¹⁶⁰ Falcon v. Alaska Pub. Offices Comm’n, 570 P.2d 469, 476 (Alaska 1977) (internal quotation marks added).

¹⁶¹ Doe v. Dep’t of Pub. Safety, 444 P.3d 116, 126–27 (Alaska 2019) (holding that the state sex offender registration requirement of internet publication of offender information was not sufficiently narrowly tailored, applying strict scrutiny).

¹⁶² See *Privacy Protections in State Constitutions*, NAT’L CONF. ST. LEGISLATURES (Nov. 7, 2018), <http://www.ncsl.org/research/telecommunications-and-information-technology/privacy-protections-in-stateconstitutions.aspx>; *New Hampshire Voters Approve Constitutional Amendment on Privacy*, NAT’L CONF. ST. LEGISLATURES (Nov. 14, 2018), <http://www.ncsl.org/blog/2018/11/14/new-hampshire-voters-approve-constitutional-amendment-on-privacy.aspx> (identifying an initial 11 states with express constitutional privacy provisions: Alaska, Arizona, California, Florida, Hawaii, Illinois, Louisiana, Montana, New Hampshire, South Carolina, and Washington).

¹⁶³ E.g., CITY OF BENSALEM, PA., CODE OF ORDINANCES § 160-1(12) (2019) (prohibiting any person to willfully “lurk, loiter, prowl, lie in wait or conceal himself . . . in any yard, lot or street, with the intent to do any mischief, . . . or to commit any crime whatever”).

¹⁶⁴ NARRAGANSETT, R.I., CODE OF ORDINANCES § 46-16 (2019).

UAS may not be used to engage in either a physical or constructive invasion of privacy.

(i) A physical invasion of privacy occurs when the person knowingly enters onto the land or into the airspace above the land of another person without permission or otherwise commits a trespass in order to capture any type of visual image, sound recording, or other physical impression of the plaintiff engaging in a private, personal, or familial activity *and the invasion occurs in a manner that is offensive to a reasonable person.*

(ii) A constructive invasion of privacy occurs when the defendant attempts to capture, in a manner that is *offensive to a reasonable person*, any type of visual image, sound recording, or other physical impression of the person engaging in a personal or familial activity under circumstances in which the person had a *reasonable expectation of privacy*, through the use of any device, regardless of whether there is a physical trespass, if this image, sound recording, or other physical impression could not have been achieved without a trespass unless the device was used.¹⁶⁵

Here, the “reasonable expectation of privacy” language refers to a civil ordinance protecting against UAS invasions of privacy. What constitutes reasonableness when faced with new technology is always an interesting question, for how does the average person expect a novel situation? Until the technology becomes more acclimated into general society, perhaps its regulation is served best by local perspective and control.

A. *A Reasonable Expectation of Privacy from UAS Surveillance*

It is also challenging to determine public sentiment and a reasonable expectation of privacy regarding drones in local communities when the FAA has equivocated. The FAA and administrative rulings on UAS regulation have been criticized for inconsistency, for providing piecemeal regulation of commercial use before non-commercial use,¹⁶⁶ and for overreaching by restricting even minor commercial use without express FAA authorization in 2014.¹⁶⁷ The FAA Reauthorization Act of 2018 finally crafted an exception for hobbyists flying

¹⁶⁵ *Id.* § 46-16(C)(2)(c) (emphasis added).

¹⁶⁶ Kamprath, *supra* note 733, at 565.

¹⁶⁷ See Troy A. Rule, *supra* note 1144; Jason Koebler, *The Commercial Drone Pilot Who Ruined the FAA's 2014 Has Settled His Case*, VICE (Jan. 22, 2015, 4:25 PM), https://www.vice.com/en_us/article/wnj49x/the-commercial-drone-pilot-who-ruined-the-faas-2014-has-settled-his-case (addressing a UAS pilot fined for filming a promotional video of Virginia with a lightweight drone).

small UAS.¹⁶⁸ At present, the agency is requesting public comment on implementation of its new exception for recreational UAS and, in the meantime, it permits recreational UAS operation without FAA safety guidance until further regulations are implemented.¹⁶⁹ However, the public notice reminds recreational operators that they must register on the online federal website and mark their unmanned aerial vehicle accordingly, pursuant to 14 C.F.R. § 48: “[r]ecreational flyers also must maintain proof of registration and make it available to FAA inspectors or law enforcement officials upon request.”¹⁷⁰ Nothing in the recent FAA notice suggests that state and local regulation is prohibited or discouraged.

Implementing police power over matters of privacy is encouraged not only by the FAA, but by the federal courts as well: “[T]he protection of a person’s general right to privacy—his right to be let alone by other people—is, like the protection of his property and of his very life, left largely to the law of the individual States.”¹⁷¹ The most express privacy provisions in the United States Constitution, prohibiting unreasonable searches and seizures and for issuing warrants only on probable cause “are only applicable to the State and Federal Governments and not to private individuals.”¹⁷² State common law provides other remedies for individual violations, such as actionable torts for trespassory invasions and interference with the rights and liberties of individuals.

Again, emerging trends in state constitutional and statutory reform appear to enhance the privacy rights of individuals, where the United States Constitution and tort remedies for privacy intrusions are weak or non-existent.¹⁷³ For example, in 2019, the Indiana Legislature adopted a statute requiring law

¹⁶⁸ FAA Reauthorization Act of 2018, 49 U.S.C.A. § 44809 (West 2018) (Exception for Limited Recreational Operations of Unmanned Aircraft) (defining small UAS as weighing less than 55 lbs. and repealing the Special Rule for Model Aircraft).

¹⁶⁹ Robert C. Carty, FAA Flight Standards Service, *Notice of Exception for Limited Recreational Operations of Unmanned Aircraft*, 84 Fed. Reg. 22,552 (May 17, 2019), <https://www.regulations.gov/document?D=FAA-2019-0364-0001>.

¹⁷⁰ *Id.*

¹⁷¹ *Katz v. United States*, 389 U.S. 347, 374 (1967); *see also* *United States v. Thompson*, 866 F.3d 1149, 1159 (10th Cir. 2017) (relying on, *Katz*, 389 U.S. at 374, which held that the Fourth Amendment provides no general right to privacy, when promoting state adoption of enhanced privacy legislation).

¹⁷² *Sutherland v. Kroger Co.*, 110 S.E.2d 716, 723 (W. Va. 1959).

¹⁷³ *See, e.g.*, HAW. CONST. art. I, § 6 (adopting in the original state Bill of Rights in 1978 a right to privacy); N.H. CONST. art. 2-b (adopting on December 5, 2018, the provision Right to Privacy: “An individual’s right to live free from governmental intrusion in private or personal information is natural, essential, and inherent.”); *Valley Hosp. Ass’n v. Mat-Su Coal. for Choice*, 948 P.2d 963, 968 (Alaska 1997) (holding that the express privacy provision in the Alaska Constitution, under article I, section 22, provides more protections than that found in the U.S. Constitution). For an extensive discussion of the recent development of state constitutional and legislative privacy provisions, *see* Jennifer A. Brobst, *The Metal Eye: Ethical Regulation of the State’s Use of Surveillance Technology and Artificial Intelligence to Observe Humans in Confinement*, 55 CAL. W. L. REV. 1 (2018).

enforcement to obtain a warrant before using UAS “to conduct a search, perform surveillance, obtain a photograph, or obtain video of private property or of individuals, items, or structures located on private property,” although the existing exceptions for warrantless searches would still apply.¹⁷⁴ In contrast, Tennessee has narrowly expanded the scope of warrantless searches by law enforcement to include drone use in fire investigations and to search for missing persons or fugitives.¹⁷⁵

Meanwhile, Congress has only gradually expanded the Supreme Court’s ephemeral view of privacy beyond the need to provide special protection to the home environment,¹⁷⁶ where voices on the Court identify the need for protection against constant government surveillance.¹⁷⁷ State and local law expanding individual privacy rights, and influencing what is deemed a reasonable expectation of privacy, is often much more specific. Alaska’s constitutional right to privacy protects “an individual’s interest in personal autonomy and independence in decision making. The other is an individual’s interest in protecting sensitive personal information which if [] disclosed, could cause embarrassment, anxiety, humiliation, harassment, or economic and physical reprisals.”¹⁷⁸

As debated by many scholars, claims against warrantless government drone surveillance may be subject to a Fourth Amendment analysis.¹⁷⁹ The United States Supreme Court in *California v. Ciraolo*¹⁸⁰ held that observations from public navigable airspace are not intrusions into a reasonable expectation of privacy. More recently, the Supreme Court of New Mexico has chosen to redefine privacy expectations when addressing UAS government surveillance:

¹⁷⁴ IND. CODE ANN. § 35-33-5-9 (West 2020).

¹⁷⁵ TENN. CODE ANN. § 39-13-609(d)(2) (West 2020).

¹⁷⁶ See *United States v. Orito*, 413 U.S. 139 (1973) (addressing the protection of possession of obscene materials in the privacy of the home, but not outside the home); *Katz*, 389 U.S. at 374 (Fourth Amendment limitations on government search and seizure in the sanctuary of the home).

¹⁷⁷ *United States v. Jones*, 565 U.S. 400, 416 (2012) (Sotomayor, J., concurring) (arguing that government surveillance chills freedom of association and expression).

¹⁷⁸ *Doe v. Dep’t of Pub. Safety*, 444 P.3d 116, 127 (Alaska 2019) (internal alterations and quotation marks omitted).

¹⁷⁹ See, e.g., Gregory S. McNeal et al., *Warrantless Operations of Public Use Drones: Considerations for Government Agencies*, 44 *FORDHAM URB. L.J.* 703 (2017); Matthew M. Meacham, *The Perfect Storm: How Narrowing of the State Action Doctrine, Inconsistency in Fourth Amendment Caselaw, and Advancing Security Technologies Converge to Erode Our Privacy Rights*, 55 *IDAHO L. REV.* 309 (2019).

¹⁸⁰ *California v. Ciraolo*, 476 U.S. 207, 213 (1986) (airplane); see also *Florida v. Riley*, 488 U.S. 445, 447 (1989) (helicopter).

[W]arrantless surveillance can go beyond benign observation in a number of different ways, one of those being when surveillance creates a ‘hazard’—a physical disturbance on the ground or unreasonable interference with a resident’s use of his property. In that case, surveillance more closely resembles a physical invasion of privacy which has always been a violation of the Fourth Amendment.¹⁸¹

Thus, as in any Fourth Amendment analysis, factors in determining a reasonable or unreasonable expectation of privacy are objective, but fact-sensitive. For aerial surveillance, they may include consideration of the level of intrusion based on the repetitive nature and duration of the intrusion, whether it interferes with the use of the property, and the legality of the object’s use of the airspace.¹⁸² Physical manifestations of the intrusion, such as noise, wind, dust, vibrations, emotional alarm, and injury would also support unreasonableness.¹⁸³

B. *Civil and Criminal Action Protecting Privacy*

A reasonable expectation of privacy for purposes of the Fourth Amendment in criminal investigation limits law enforcement’s use of UAS. Although the phrase is regularly used in other contexts to define the legal parameters of privacy rights, the application may be quite different. For example, civil remedies are particularly difficult to pursue. Traditional and modern tort remedies for protection of privacy are available but require the means and capacity to sue, where litigation is often protracted and expensive.¹⁸⁴ This is true even with constant surveillance, a practice disfavored under a Fourth Amendment analysis. Where a defendant tracked a person only in public spaces, a state court may provide no civil remedy, asserting that one does not enjoy a reasonable expectation of privacy in public.¹⁸⁵

¹⁸¹ State v. Davis, 360 P.3d 1161, 1169 (N.M. 2015) (aerial surveillance of defendant’s greenhouse).

¹⁸² *Id.*

¹⁸³ *Id.*

¹⁸⁴ *E.g.*, Cockrum v. Donald J. Trump for President, Inc., 365 F. Supp. 3d 652, 667 (E.D. Va. 2019) (denying state claims for online dissemination of allegedly illegal acquisition of private information, where the court noted “[p]ublic disclosure of private facts is a sparsely litigated invasion of privacy tort” and not recognized in Virginia); Demo v. Kirksey, No. 8:18-cv-00716-PX, 2018 WL 5994995 (D. Md. Nov. 15, 2018) (in a protracted child custody matter, addressing attachment without consent of a GPS tracking device to the father’s car and in the child’s diaper bag in a claim of intrusion upon seclusion); *see also* Rebecca L. Scharf, *Drone Invasion: Unmanned Aerial Vehicles and the Right to Privacy*, 94 IND. L.J. 1065 (2019) (discussing intrusion upon seclusion tort claims).

¹⁸⁵ *E.g.*, United States v. Knotts, 460 U.S. 276, 281 (1983) (government surveillance); Moran v. Lewis, 114 N.E.3d 1254 (Ohio Ct. App. 2018) (private surveillance). *But see* Carpenter v. United States, 138 S. Ct. 2206 (2018) (providing an array of judicial perspectives on the changing societal

Civil remedies in West Virginia include invasion of privacy torts, upheld by the Supreme Court of West Virginia in *Baughman v. Wal-Mart Stores, Inc.*,¹⁸⁶ a case which declared that privacy is one of the “valuable rights and freedoms” of the individual.¹⁸⁷ In *Baughman*, the employee, on behalf of a class of plaintiffs, claimed that employee-mandated urine screenings had caused her “embarrassment, indignity, humiliation, annoyance, inconvenience and other general damages.”¹⁸⁸ In a home rule jurisdiction, such as West Virginia, or a state with a constitution that explicitly provides a right of privacy, repeated UAS surveillance causing a similar reaction may support a tort claim for invasion of privacy.

A harassment action may be civil or criminal in nature and is frequently a basis for a protective order. For example, Massachusetts and Kansas state law both authorize a protective order for trespass, including harassment by use of UAS.¹⁸⁹ Harassment is defined in Massachusetts as three or more “acts of willful and malicious conduct aimed at a specific person committed with the intent to cause fear, intimidation, abuse or damage to property and that do[] in fact cause fear, intimidation, abuse or damage to property.”¹⁹⁰ As in many harassment cases, proof of the requisite intent is challenging and requires a course of conduct. In *F.W.T. v. F.T.*,¹⁹¹ a Massachusetts case in which the defendant was accused of flying a drone over the plaintiff’s property, the court was not convinced sufficient evidence was presented that the drone was “aimed at a specific person,” nor would it presume malice.¹⁹² In a notable footnote, the court in *F.W.T.* stated: “Our decision should not be construed as approving of the defendant’s conduct. To the contrary, the alleged actions, if properly established, may be grounds for a claim of nuisance, trespass, or other cause of action, enforceable through properly obtained injunctive, equitable, or other relief.”¹⁹³ Of course, a state need not specifically include UAS use in its stalking statutes to consider drone use as a form of harassment.¹⁹⁴

views of privacy in public spaces with respect to government access to geo-location data from an individual’s cell phone).

¹⁸⁶ 592 S.E.2d 824 (W. Va. 2003) (per curiam).

¹⁸⁷ *Id.* at 827 (quoting *Roach v. Harper*, 105 S.E.2d 564, 568 (W. Va. 1958)).

¹⁸⁸ *Id.* at 826.

¹⁸⁹ KAN. STAT. ANN. § 2017 Supp. 60-31a02(d) (West 2019); MASS. GEN. LAWS ANN. ch. 258E, § 1 (West 2019).

¹⁹⁰ MASS. GEN. LAWS ANN. ch. 258E, § 1 (West 2019).

¹⁹¹ 101 N.E. 3d 336 (Mass. App. Ct. 2018).

¹⁹² *Id.* at 338.

¹⁹³ *Id.* at n.8.

¹⁹⁴ *E.g.*, *Raulerson v. Font*, 277 So. 3d 1057, 1063 (Fla. Dist. Ct. App. 2018) (denying relief related to allegations by an attorney that opposing counsel was stalking her, including telling her he was having her watched by means of a remote drone).

These civil remedies highlight how the mere presence of drones over a specific home or that follow a specific person in public would provide a limited opportunity for relief. It would often be impossible to identify the operator or to know if one is actually being recorded. Commercially available UAS technology now allows for autonomous tracking of specific individuals on the ground and autonomous avoidance of objects should a person or the government seek to stop the tracking.¹⁹⁵ One manufacturer explains that “[u]nshakeable GPS tracking means Skydio 2 will stay with you, even if it can’t see you.”¹⁹⁶ State and local measures to remove the mens rea element or craft careful zoning restrictions could help communities create a greater sense of safety and security. In addition, public dissemination of the unlawfully obtained imagery should also be restricted and compensable.¹⁹⁷

With the advent of online opportunities to share information, state criminal statutes have expanded punitive measures to protect privacy related to most new surveillance technologies.¹⁹⁸ The North Carolina legislature has adopted a new misdemeanor offense prohibiting the unlawful distribution of images recorded “through the use of infrared or other similar thermal imaging technology attached to an unmanned aircraft system, . . . and revealing individuals, materials, or activities inside of a structure without the consent of the property owner.”¹⁹⁹ That is, the criminal statute contemplates that UAS in adjacent airspace can see *through* the walls of a home or building. The Massachusetts legislature has also considered passage of a bill prohibiting UAS surveillance of individuals without consent as a felony crime.²⁰⁰

Finally, as criminal justice and other government UAS activity increases, public record requests for access to related surveillance files will increase as well. Tensions would arise, inviting state action to adopt and enforce clear rights of privacy, where the government’s UAS records involve

¹⁹⁵ See SKYDIO, <https://www.skydio.com/> (last visited Mar. 1, 2020).

¹⁹⁶ *Id.*

¹⁹⁷ See, e.g., N.C. GEN. STAT. ANN. § 15A-300.1 (West 2019) (prohibiting unlawful surveillance and dissemination of imagery obtained by UAS and imposing civil fines).

¹⁹⁸ E.g., W. VA. CODE ANN. § 61-8-28 (West 2020) (creating a misdemeanor offense for invasion of privacy: “It is unlawful for a person to knowingly visually portray another person without that other person’s knowledge, while that other person is fully or partially nude and is in a place where a reasonable person would have an expectation of privacy.”).

¹⁹⁹ N.C. GEN. STAT. ANN. § 14-401.25 (West 2019).

²⁰⁰ An Act Relative to Unmanned Aerial Vehicles, H.R. 1406, 191st Gen. Court (Mass. 2019–2020 session) (previously filed without passage in 2017–2018 as H.R. 3496) (“(c) Whoever willfully uses an unmanned aerial vehicle to photograph, videotape or electronically surveil another person when the other person in such place and circumstance would have a reasonable expectation of privacy in not being so photographed, videotaped or electronically surveilled, and without that person’s knowledge and consent, shall be punished by imprisonment in the house of correction for not more than 2 1/2 years or by a fine of not more than \$5,000, or by both such fine and imprisonment.”).

surveillance of private citizens.²⁰¹ In general, the various Freedom of Information Acts are to be interpreted liberally to allow the public access to monitor its government's records of activity.²⁰² State codification of the various acts has generally allowed them to supersede potentially conflicting local and administrative rules.²⁰³ This makes it all the more critical that public records exemptions in state law are properly tailored should a home rule unit develop ordinances that promote UAS use within government services. The State of West Virginia, for example, includes an express exemption stating that the public does not have a right of access to all information gleaned from local law enforcement UAS surveillance.²⁰⁴

C. Art, Activism, and Journalism: UAS and the First Amendment

While it is important to consider the risks to privacy rights by governments, influential commercial entities, and individuals with improper motives, UAS also offers exceptional opportunities to aid in public service, such as natural disaster relief and checking for building structure integrity. These opportunities for good works by non-governmental entities through UAS also create risks of invading individual privacy interests. Cultural and artistic use of UAS also test the limits of the First Amendment.²⁰⁵

For example, one tribal ordinance "strictly" prohibits UAS recording of cultural or religious ceremonial events, which are regarded as "sacred and private."²⁰⁶ The scope of the First Amendment rights of journalists and activists to surveil and reveal injustice have often tested such limits.²⁰⁷ Each of these considers a liberty interest to an extent, where freedom of expression and association are cherished aspects in the pursuit of happiness, as are privacy and the freedom to be left alone. Here, liberty, freedom, and autonomy may be

²⁰¹ See *Doe v. Dep't of Pub. Safety*, 444 P.3d 116, 129 (Alaska 2019) (discussing the motivation to adopt a state constitutional privacy provision to protect against government dossiers on citizens and the greater invasion of privacy interests upon internet disclosure of public information).

²⁰² E.g., W. VA. CODE ANN. § 29B-1-1 (West 2019). For the legislative history of the Freedom of Information Act, see *Charleston Gazette v. Smithers*, 752 S.E.2d 603 (W. Va. 2013).

²⁰³ *Charleston Gazette*, 752 S.E.2d at 648.

²⁰⁴ W. VA. CODE ANN. § 29B-1-4(a)(2) (West 2019) (balancing the "individual's right of privacy against the public's right to know"); *id.* § 29B-1-4(a)(4) (criminal investigation record exemption); see *Manns v. City of Charleston Police Dep't*, 550 S.E.2d 598, 602 (W. Va. 2001) (per curiam) (citing *Hechler v. Casey*, 333 S.E.2d 799 (W. Va. 1985)).

²⁰⁵ See generally John Villasenor, *Observations from Above: Unmanned Aircraft Systems and Privacy*, 36 HARV. J.L. & PUB. POL'Y 457, 498–506 (2013).

²⁰⁶ E.g., PUEBLO OF LAGUNA, N.M., TRIBAL CODE OF ORDINANCES § 12-8-5 (2019) (specifically referencing "time, place, and manner" restrictions under the First Amendment).

²⁰⁷ See Scott Skinner-Thompson, *Recording as Heckling*, 108 GEO. L.J. 125, 129 (2019) (discussing the democratic functions protected by the First Amendment of citizens recording law enforcement).

hindered by UAS technology, and also enhanced by it. The competing interests involved create a complex analysis, involving several constitutional provisions, as well as the multi-jurisdictional layers of UAS regulation.

For example, laws restricting speech related to the animal and agriculture industries, known as “ag-gag laws,” could prevent the press from exploring the mistreatment of undocumented farmworkers and victims of human trafficking, and prevent even the workers themselves from speaking up.²⁰⁸ Ag-gag laws have been passed in at least nine states, creating criminal and civil penalties for undercover investigations and recordings.²⁰⁹ Idaho, for example, specifically prohibits UAS surveillance of a farm, dairy, or ranch without the landowner’s consent.²¹⁰ And yet advocates for UAS use continue to note the drones’ potential to detect hidden misconduct of significant local importance, such as environmental contamination.²¹¹

A different intersection with the First Amendment relates to protections for speech and expression based on creative uses of UAS. These more easily reflect the interplay between federal constitutional protections and local law. Drone operators record marketing for tourism or work as artists to display the world in extraordinary ways, which are all potentially protected under the First Amendment. Understandably, photographic art exhibits of persons recorded surreptitiously in public and private spaces, caught “in secret to create natural and un-posed portraiture,” have incurred individual outrage and mixed public reactions.²¹² Judicial interpretation applying a First Amendment analysis in these contexts has inevitably relied on state and local law defining rights of privacy,²¹³ as well as the constitutional reasonable expectation of privacy.

Whether laws restricting UAS operations impact activism, journalism, or artistic creations, traditional trespass and nuisance laws will be supported by state and local police power. As one scholar noted, “if a state passed a law prohibiting trespass by a drone into private airspace, the aim of that law—to protect private property—would be unrelated to the suppression of speech, and the law would likely be constitutional even if it prevented a drone videographer

²⁰⁸ See Justin Marceau & Alan K. Chen, *Free Speech and Democracy in the Video Age*, 116 COLUM. L. REV. 991, 994 (2016); Shaakirrah R. Sanders, *Ag-gag Free Nation*, 54 WAKE FOREST L. REV. 491, 494 (2019).

²⁰⁹ Sanders, *supra* note 208, at 494, 507, 529 (noting that corporations and partnerships do not generally benefit from an individual right of privacy under traditional tort remedies but receive even greater privacy than tort remedies through ag-gag laws).

²¹⁰ IDAHO CODE ANN. § 21-213(2)(a)(ii) (West 2019).

²¹¹ *E.g.*, Satterlee, *supra* note 106 (suggesting that monitoring environmental pollution from public airspace to ensure regulatory compliance is analogous to a private citizen recording police conduct in public).

²¹² *E.g.*, Meghan Sackman, ‘Faces of the 7 Train’ Exhibit Abruptly Canceled by Queens Library Over Privacy Concerns, *Artist Cries Foul*, FLUSHING POST (Dec. 11, 2018), <https://flushingpost.com/faces-of-the-7-train-exhibit-abruptly-canceled-by-queens-library-over-privacy-concerns-artist-cries-foul> (photography art exhibit of commuter train passengers).

from accessing particular information.”²¹⁴ It is a comfort to recognize that traditional common law principles will protect human interests as technology evolves. The fundamental legal principles protecting life, liberty, and property as applied to UAS find support in federal, state, and local law.

VI. WHY PREEMPTION OF DRONE USED COULD DIMINISH CIVIL LIBERTIES AND HOME RULE INNOVATION

The parallel jurisdictional approaches to UAS offer multiple and innovative opportunities to protect civil rights and individual interests. However, this layered approach inevitably invites the tool of preemption. Most early academic discussions of preemption and UAS restrictions focused on the FAA’s authority to control airspace.²¹⁵ Longstanding precedent provides that “where a state’s exercise of police power infringes upon the federal government’s regulation of aviation, state law is preempted.”²¹⁶ However, states are already beginning to exert efforts to control the power to regulate non-navigable airspace, sometimes preempting local units from doing the same.²¹⁷ The National League of Cities might argue that this was to be expected, given that it has argued that “[s]tate legislatures have gotten more aggressive in their use of preemption in recent years,” and have sought to “rein in” cities deemed “too powerful.”²¹⁸

In 2018, the state legislature in Illinois, a home rule state, expressly preempted UAS regulation: “No unit of local government, including home rule unit, may enact an ordinance or resolution to regulate unmanned aircraft systems. This Section is a denial and limitation of home rule powers”²¹⁹ Local UAS ordinances in Illinois continue to remain in municipal codes subsequent to the adoption of the preemption directive, as yet without judicial interpretation on scope of authority.²²⁰ As is common in other home rule states, some of the

²¹⁴ Margot E. Kaminski, *Privacy and the Right to Record*, 97 B.U.L. Rev. 167, 197 (2017).

²¹⁵ One of the first and most clearly articulated articles on the issue of UAS and federal preemption is Jol A. Silversmith, *You Can’t Regulate This: State Regulation of the Private Use of Unmanned Aircraft*, 26 AIR & SPACE LAW. 1 (2013); see also Robert A. Heverly, *The State of Drones: State Authority to Regulate Drones*, 8 ALB. GOV’T L. REV. 29, 31 (2015).

²¹⁶ *Singer v. City of Newton*, 284 F. Supp. 3d 125, 129 (D. Mass. 2017).

²¹⁷ The first state to preempt local unit regulation of UAS was Virginia in 2013. See VA. CODE ANN. § 15.2-926.3 (West 2019).

²¹⁸ NAT’L LEAGUE OF CITIES, *CITY RIGHTS IN AN ERA OF PREEMPTION: A STATE-BY-STATE ANALYSIS* 3, 19 (2018). The report identifies at least 17 state legislatures that preempt municipalities from offering a public broadband service, either through statutory prohibition or by procedural hurdles. Among the 17, three are purely home rule states (Florida, Montana, and Nevada), while the remaining 14 states enforce the more restrictive Dillon’s Rule. *Id.*

²¹⁹ Illinois Aeronautics Act of 2018, 620 ILL. COMP. STAT. ANN. 5/42.1(b) (West 2018).

²²⁰ See, e.g., WOODSTOCK, ILL., CITY CODE § 6.2.6 (2019) (prohibiting, by ordinance adopted April 5, 2016, any person “using any parks, playgrounds, public facilities and public grounds

ordinances regulating UAS had already added severability clauses; that is, provisions that the section should not be read in conflict with FAA regulations or Illinois State Law,²²¹ or in violation of “any other Federal, State or local law.”²²² Timothy Ravich, in reviewing some of the first municipal drone ordinances, highlighted the fact that many were “subordinate to” or “duplicative of” FAA regulations.²²³ That still remains the case.

In July 2019, Florida, a home rule state, enacted the Unmanned Aircraft Systems Act.²²⁴ The state legislature not only vested the state with UAS regulatory authority, except as provided by federal law, but it also expressly barred local units from adopting ordinances or resolutions related to the manufacture, registration, and operation of UAS.²²⁵ Interestingly, the State opted to expressly grant local units with some authority to regulate UAS: “to enact or enforce local ordinances relating to nuisances, voyeurism, harassment, reckless endangerment, property damage, or other illegal acts arising from the use of unmanned aircraft systems *if such laws or ordinances are not specifically related to the use of an unmanned aircraft system for those illegal acts.*”²²⁶ In other words, municipalities in Florida can address local UAS operations, but they cannot state in the ordinance that they are doing so. In a Dillon’s Rule jurisdiction, where the state requires legislative approval of municipal initiatives and gives the local units only such power as is expressly granted, it is, of course, even easier to preempt all UAS regulation.²²⁷

Silence or ambiguity in federal law with respect to preemption has always kept open the door to state and local action serving state and local interests.²²⁸ According to the Supreme Court upholding a Minnesota state pension plan against federal preemption claims,

within the City . . . [t]o use or fly a drone without first obtaining City staff approval from the City Manager’s Office”).

²²¹ *E.g.*, BLOOMINGDALE, ILL., VILLAGE CODE § 6-5-15(B) (2019) (Drones/Small Unmanned Aircraft) (limiting operation of small UAS to “public areas where designated”).

²²² *E.g.*, CARBONDALE, ILL., REV. CODE § 13-1-3(D) (2020) (declaring as a nuisance certain operations of “drones” within five miles of The Southern Illinois Airport).

²²³ Ravich, *supra* note 29, at 611.

²²⁴ FLA. STAT. ANN. § 330.41 (West 2019).

²²⁵ *Id.* § 330.41(3).

²²⁶ *Id.* § 330.41(3)(c) (emphasis added).

²²⁷ Ravich, *supra* note 29, at 611–12 (identifying at least partial state preemption of UAS operations in Alaska, Arizona, Maryland, and Rhode Island).

²²⁸ *See* Va. Uranium, Inc. v. Warren, 139 S. Ct. 1894, 1912 (2019) (Ginsburg, J., concurring) (explaining that silence on an issue of which Congress is aware would not ordinarily allow for preemption, for “if Congress did not provide for regulation of private conventional mining, it is hard to see how or why state law on the subject would be preempted, whatever the reason for the law’s enactment”).

[o]ften Congress does not clearly state in its legislation whether it intends to pre-empt state laws; and in such instances, the courts normally sustain local regulation of the same subject matter unless it conflicts with federal law or would frustrate the federal scheme, or unless the courts discern from the totality of the circumstances that Congress sought to occupy the field to the exclusion of the States.²²⁹

If Congress wishes to preempt local regulation of UAS airspace, it must provide a clear and manifest intent to do so.²³⁰ The Supreme Court has repeatedly held that Congress may not “cavalierly” preempt traditional fields of State law, “because the States are independent sovereigns in our federal system.”²³¹

Moreover, preemption analysis must “start with the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress.”²³² Traditional state and local power includes regulating private land use, including airspace and subsurface use affecting an owner’s use of the land.²³³

Federal preemption occurs when: (1) Congress enacts a statute that explicitly preempts state law; (2) state law actually conflicts with federal law; or (3) federal law occupies a legislative field to such an extent that it is reasonable to conclude that Congress left no room for state regulation in the legislative field.²³⁴

Most agree that federal aviation laws and FAA oversight of UAS registration do not establish field preemption precluding all local government action related to airspace.²³⁵ In fact, the FAA has indicated that it does not have the capacity to monitor and address many local UAS matters.²³⁶ Nevertheless,

²²⁹ *Malone v. White Motor Corp.*, 435 U.S. 497, 504 (1978); *see also Va. Uranium*, 139 S. Ct. at 1901 (debating the level of importance of determining Congressional intent in a preemption analysis).

²³⁰ *Arizona v. United States*, 567 U.S. 387, 400 (2012).

²³¹ *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 485 (1996).

²³² *Id.* (quoting *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947)).

²³³ *See Va. Uranium*, 139 S. Ct. at 1901 (holding that the Nuclear Regulatory Commission authority under the Atomic Energy Act does not preempt the State of Virginia from enacting a law prohibiting uranium mining).

²³⁴ *CTIA - The Wireless Ass’n v. City of Berkeley*, 928 F.3d 832, 849 (9th Cir. 2019) (citation omitted).

²³⁵ *See Kamprath*, *supra* note 733, at 566.

²³⁶ *See NAT’L LEAGUE OF CITIES, A MODEL FOR CITIES: ORDINANCE FOR THE PROMOTION OF DRONE INNOVATION & ACCOUNTABILITY 4* (2017), https://www.nlc.org/sites/default/files/2017-02/FA_drone_ordinance_brief.pdf (“WHEREAS, the FAA has declared that they lack the resources and willingness to investigate drone related accidents involving less than \$500 worth of damage or injuries that do not require hospitalization.”); *Kamprath*, *supra* note 733, at 567 (“[T]he federal government does not have the resources to address the risks posed by the hundreds of

the few federal opinions that have addressed the issue have limited local control to those laws and ordinances relating to traditional police power functions for the health, safety, and welfare of the community.²³⁷

In one of the first opinions on the issue, *Singer v. City of Newton*,²³⁸ the court held that when a local ordinance denies an individual the right to fly UAS below navigable airspace, the ordinance faced conflict preemption by 2016 federal aviation law. Although an isolated decision, *Singer* holds that the FAA does not exert field preemption over state or local UAS ordinances.²³⁹ *Singer* instead holds that only conflict preemption is possible in this emerging regulation of UAS.²⁴⁰

Conflict preemption requires proof that the purportedly preempted law “stands as an impermissible obstacle to the accomplishment and execution of the full purposes and objectives of Congress.”²⁴¹ The Supreme Court has recently split on the point of discerning Congressional intent through textual clarity in *Virginia Uranium, Inc. v. Warren*,²⁴² a case addressing preemption over the production of nuclear power. Justice Gorsuch wrote for the majority: “Invoking some brooding federal interest or appealing to a judicial policy preference should never be enough to win preemption of a state law; a litigant must point specifically to ‘a constitutional text or a federal statute’ that does the displacing or conflicts with state law.”²⁴³

In a dissenting opinion, Chief Justice Roberts responded that an underlying purpose inquiry is necessary to a preemption analysis, because “so long as the State is not boneheaded enough to express its real purpose in the statute, the State will have free rein to subvert Congress’s judgment on nuclear safety.”²⁴⁴ The legislative interests in regulating UAS are complex as a technology with both risks and benefits, a type of complexity which Justice Gorsuch noted was a reason to require a high degree of textual clarity for both

thousands of UAS that exist today let alone the millions that are expected to enter the NAS [National Airspace System] over the next five years.”).

²³⁷ See *Singer v. City of Newton*, 284 F. Supp. 3d 125, 128 (D. Mass. 2017); *Pan Am. Tel. Co. v. Municipality of San Juan*, Civil No. 18-1017 (PAD), 2018 WL 6503215, at *25 (D. P.R. Mar. 9, 2018) (referring to *Singer* for the proposition that federal law preempts only some aspects of drone registration and use, while emphasizing the municipality’s interest in regulating for the purpose of public safety).

²³⁸ *Singer*, 284 F. Supp. 3d at 128.

²³⁹ *Id.* at 130.

²⁴⁰ *Id.*

²⁴¹ *Va. Uranium, Inc. v. Warren*, 139 S. Ct. 1894, 1907 (2019) (internal quotation marks and citation omitted).

²⁴² *Id.* at 1901. Under the Supremacy Clause, the “Constitution, and the Laws of the United States which shall be made in Pursuance thereof,” are “the supreme Law of the Land.” U.S. CONST., art. VI, cl. 2.

²⁴³ *Va. Uranium*, 139 S. Ct. at 1901.

²⁴⁴ *Id.* at 1919 (Roberts, C.J., dissenting).

field and conflict preemption.²⁴⁵ However, with the incremental progress in FAA drone regulation, and myriad new state and local UAS laws, conflict preemption, rather than field preemption, is still likely to be the persistent risk to state and local regulation of UAS.

Recent decisions support this prediction. In *Mozilla Corp. v. FCC*,²⁴⁶ the D.C. Circuit Court of Appeals outlined the changing FCC standards in broadband coverage and net neutrality, shifting from a “light-touch” market-based policy to a “utility-style” regulatory approach. Much of the debate centered around how Congress and the FCC had defined different forms and functions of a rapidly evolving internet service, which, if states happened to weigh in and adopt their own net neutrality laws, could create confusion over conflict preemption.²⁴⁷ Rather than resolve the confusion over what the technology is and does, the court instead used purpose interpretation to pick sides and uphold the initial light touch approach.²⁴⁸ In another arena, some have noted the quiet and successful emergence of local environmental laws, shoring up, so to speak, stream banks and wetlands through local zoning ordinances.²⁴⁹ In both examples, the current judicial climate addressing federal regulation has made way for state and local efforts to regulate advances in science and technology.

Whether strictly textual or interpretive of purpose, preemption analysis has a pragmatic streak. As previously discussed, much of the UAS regulation to date has related to ensuring physically safe use,²⁵⁰ an undeniably pragmatic interest. On the other hand, the Supreme Court has suggested that some matters are best left to federal authority, where the States’ differing concerns reflect a “parochial view” at odds with national policy.²⁵¹ A collaborative model among federal, state, and local jurisdictions is shrewd for UAS regulation of non-navigable airspace.²⁵² With inevitable ambiguity around the impact of new technological innovation, a period of coordinated multi-jurisdictional control would test the unknown impacts and balance of interests.²⁵³ Unlike airplanes or helicopters, drones are smaller, slower, lighter, and within the line of sight of

²⁴⁵ *Id.* at 1908 (majority opinion).

²⁴⁶ 940 F.3d 1, 17 (D.C. Cir. 2019) (addressing *In re Restoring Internet Freedom*, 33 FCC Rcd. 311 (2018)).

²⁴⁷ *Id.* at 31.

²⁴⁸ *Id.* at 31–32.

²⁴⁹ See John R. Nolan, *In Praise of Parochialism: The Advent of Local Environmental Law*, 26 HARV. ENVTL. L. REV. 365, 373 (2002).

²⁵⁰ See *supra* Part III.

²⁵¹ *Malone v. White Motor Corp.*, 435 U.S. 497, 517–18 (1978) (Stewart, J., dissenting).

²⁵² See Ravich, *supra* note 29.

²⁵³ See Sarah E. Light, *Advisory Nonpreemption*, 95 WASH. U. L. REV. 327, 337 (2017) (focusing on robotics and highly automated vehicles in recommending coordinated but temporary federal, state, and local jurisdictional authority as a form of “precautionary federalism”); see also NAT’L LEAGUE OF CITIES, *supra* note 236; Rule, *supra* note 114.

ordinary citizens in their daily lives. This technology has a distinctly local flavor and local impact. The regulatory scheme should also be tailored to local sensibilities, where residents are most likely to voice their preferences for quality of life. As Timothy Ravich has commented, “local courts are well able to handle, and are also perhaps better situated than federal lawmakers and regulators far removed from local tolerances (and intolerances) connected to drone operations.”²⁵⁴

However, because of their mobility and great potential for interstate or international transport of goods in the market, federal and state government interest in conflict preemption also makes sense, even in some matters of public health, a traditionally local field.²⁵⁵ Some assert that commercial regulation of UAS contemplates federal field preemption, in part, because the drone proliferation would enable interstate trafficking of contraband.²⁵⁶ Similarly, interstate disaster relief employing UAS surveillance technology is of great benefit to many and may require at least federal or state oversight for safe and efficient use. The outcome remains to be seen, but UAS built-in reliance on internet communications and storage of digital information also incorporate existing state and federal debates over net neutrality and access.²⁵⁷

Even with some flexibility to regulate UAS activity, municipalities and their residents still, of course, benefit from state and federal conflict preemption and the enforcement of federal constitutional rights.²⁵⁸ For example, in December 2019, Congress finally passed a law to empower the federal government to fine robocallers up to \$10,000 per call.²⁵⁹ Such examples abound, where new

²⁵⁴ Ravich, *supra* note 29, at 596.

²⁵⁵ *E.g.*, *Debernardis v. IQ Formulations, L.L.C.*, 942 F.3d 1076, 1080–81 (11th Cir. 2019) (discussing Congressional intent and federal regulatory oversight of dietary supplements in interstate commerce for the protection of public health); *Aquino v. C.R. Bard, Inc.*, 413 F. Supp. 3d 770, 781–82 (N.D. Ill. 2019) (holding that Congress did not clearly preempt state tort liability under the Medical Device amendments to the federal Food, Drug, and Cosmetics Act).

²⁵⁶ *See* Jamie Busby, *Drone Delivery: The Danger of Opening the Air as a Commercial Highway*, 18 LOY. MAR. L.J. 287, 296–97 (2019).

²⁵⁷ *See generally* *Mozilla Corp. v. FCC*, 940 F.3d 1 (D.C. Cir. 2019),

²⁵⁸ 1 WAYNE R. LAFAVE, *SEARCH & SEIZURE: A TREATISE ON THE FOURTH AMENDMENT* § 2.3(g) (5th ed. 2019) (“Judicial implementations of the Fourth Amendment need constant accommodation to the ever-intensifying technology of surveillance.” (quoting *Dean v. Superior Court*, 110 Cal. Rptr. 585 (Ct. App. 1974))).

²⁵⁹ Telephone Robocall Abuse Criminal Enforcement and Deterrence Act (TRACED Act), H.R. 1602, 116th Cong. (2019) (passed on Dec. 19, 2019 and signed by the President on Dec. 30, 2019 as Pub. L. No. 116-105); *see also* FED. COMM’NS COMM’N & GOV’T AFFAIRS BUREAU, *REPORT ON ROBOCALLS* (Feb. 2019), <https://docs.fcc.gov/public/attachments/DOC-356196A1.pdf>; Makena Kelly, *Robocall Fines Rise to \$10,000 Per Call Under Newly Passed Law*, VERGE (Dec. 19, 2019, 1:35 PM), <https://www.theverge.com/2019/12/19/21030114/robocalls-bill-congress-president-trump-sign-law-illegal-fcc-ajit-pai>.

technology presents new and unforeseen benefits and dangers.²⁶⁰ With UAS technology, the impact is multi-jurisdictional, thereby calling for a multi-jurisdictional, coordinated response to regulation, with full respect for the power of home rule.

VII. CONCLUSION

Drones and UAS provide a test case on the vitality of local power in a world made increasingly global through information-sharing. There is nothing more local than a physical trespass or the need for privacy and protection from intruders. Home rule jurisdictions readily apply their police power to quickly tailor remedies to new problems created by new technology. Sometimes, the remedies are based in longstanding legal approaches, such as straightforward applications of common law nuisance to UAS regulation. However, states such as West Virginia, that recently adopted home rule, also recognize that innovative home rule remedies can even influence future state statutory schemes.²⁶¹ The development of privacy rights for individuals at the local level, where Congress has failed to act, is a clear example regarding restrictive UAS ordinances. Thus, these local government units are able to face the challenge of UAS use, while simultaneously developing privacy law that could influence other jurisdictions, including both criminal and civil remedies.

Importantly, home rule authority is more likely to be upheld against preemption challenges if it falls within an area of regulation within the historic police powers of a municipality.²⁶² Matters of trespass, nuisance, invasions of privacy, and even lower level criminal offenses involving UAS could fall within this historic sphere. Clearly, federal, state, and local governmental units are working together to build the legal framework for effective regulation of airspace. State constitutional provisions protecting a right to privacy in many states, beyond that granted by the United States Constitution, have already demonstrated the potential for enhancing American civil liberties. With respect to UAS regulation and other potentially invasive technologies, local ordinances are beginning to protect the public and reflect important local interests, which may vary substantially in the desire to be left alone or to profit from the emerging commercial opportunities drones offer.

²⁶⁰ *E.g.*, VT. STAT. ANN. tit. 20, § 4625 (West 2019) (providing a civil penalty up to \$500 for private UAS use over correctional facilities which could interfere with security).

²⁶¹ *See, e.g.*, W. VA. CODE ANN. § 8-1-5A(a)(1) (West 2019) (“The Initial Home Rule Pilot Program brought innovative results, including novel municipal ideas that became municipal ordinances which later resulted in new statewide statutes.”); *Home Rule Charter*, *supra* note 33; *see generally* Arnold, *supra* note 33; Widener, *supra* note 33.

²⁶² *Arizona v. United States*, 567 U.S. 387, 400 (2012); *DeHart v. Town of Austin*, 39 F.3d 718, 722 (7th Cir. 1994).

After all, in the earliest years of the emerging railway and aircraft industries, the courts came to respect the commercial and public value of these disruptive technologies, finding ways to help communities adapt:

The right of private convenience, the right of the private citizen to hold and own any particular property, must yield to public convenience and public service whenever and wherever the Legislature says yield . . . ; but private life and private health are more precious in the eyes of the law than even public convenience.²⁶³

These sage words from the Georgia Supreme Court will likely prove apropos when regulating a host of new technologies to come, particularly in its respect for the individual and the power of local law.

²⁶³ See *Thrasher v. City of Atlanta*, 173 S.E. 817, 821 (Ga. 1934).