

Drones and Real Estate Law

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DRONES AND REAL ESTATE LAW

Angela M. Christy

- I. Overlapping Jurisdiction
 - A. The federal government has jurisdiction over navigable airspace
 1. Does FAA have authority to control below flight levels?
 2. FAA contends it does
 - B. State jurisdiction
 1. States control real property law
 2. The “heaven to hell” doctrine (*ad coelum et ad inferos*) creates some confusion
 - C. In Singer v. City of Newton, No. 7-10071-WGY, D. Mass. Filed September 21, 2017, a federal district court held that federal law preempts certain provisions of a city ordinance that attempts to regulate unmanned aerial vehicles (UAV) (a/k/a drones).*
 - D. Approximately thirty-seven states have adopted some type of legislation or regulations regulating UAV.
 1. States (7) have passed legislation that preempts localities from adopting regulations limiting UAV.
 2. States (24) have adopted legislation related to privacy, including requirements that law enforcement agencies must obtain a search warrant to conduct UAV surveillance
 3. Michigan and Vermont adopted laws related to hobby use of drones
 4. Several states have adopted statutes regarding commercial use
 5. States have addressed use of drones and hunting
 6. Commercial UAV classified as aircraft must be registered with the Minnesota Department of Transportation

* The term drone, UAV, and UAS are somewhat interchangeable. UAV is an unmanned aerial vehicle, UAS is an all-encompassing description that includes the UAV, the ground-based controller, and the system communications between ground and the UAV. Drone is the commonly used term which is generally not a preferred term in the industry.

II. Property Rights

A. Uses to Consider

1. Agricultural-the ability to do crop spraying
 - a. Lower cost
 - b. Target specific problems
2. Real estate sales-videos of properties for sale
3. Replace helicopters for live news stories and photos
4. Commercial package delivery
5. U.S. Postal Service
6. Disaster relief
7. Surveys
8. Property security

B. Trespass Law

1. Chickens and Drones
 - a. United States v. Causby, 328 U.S. 256 (1946)
 - i. Causby owned a chicken farm in North Carolina.
 - ii. After the government leased a small municipal airport in 1942, the farm was in the flight path of large military aircraft which flew within 83 feet of the surface of the farm. The chickens stopped producing eggs and many were killed while running away from the lights and noise causing the Causbys to abandon their chicken business.
 - b. *Ad coelom* doctrine was generally applicable before Causby:
 - i. *Cujus est solum, ejus est usque ad coelom*
 - ii. To whomever the soil belongs, he also owns the sky
 - iii. Ownership had no upper limit
 - c. Federal legislation in 1926 and 1938 authorized interstate flights within navigable airspace (over 500 feet)

- d. The Court concluded:
 - i. The *ad coelom* doctrine has no place in a modern world.
 - ii. If the landowner is to have full enjoyment of the land, ***he must have exclusive control of the immediate reaches of the enveloping atmosphere.*** Otherwise buildings could not be erected, trees could not be planted, and even fences could not be run. ...The landowner ***owns at least as much of the space above the ground as he can occupy or use in connection with the land.***
 - e. The Court said a property owner:
 - i. Has exclusive control of the immediate reaches of the enveloping atmosphere, plus
 - ii. A buffer zone
 - f. The Court did not specify distances creating a nebulous standard
2. **The Restatement of the Law, Second, Torts, § 159** uses the Causby analysis
- a. Flights that encroach on airspace next to the land and interferes with property owner’s use constitute trespass
 - b. Owner need not prove actual damages
3. Several states have passed laws regarding when a property owner can sue a drone operator for trespass (Oregon (400 ft.), Nevada (250 ft.))
- a. Michigan prohibits using drones for hunting or to harass those who are hunting
 - b. Jason Lewis has introduced the Drone Innovation Act to address drones flying below 200 feet above ground level
 - c. Oregon law permits treble damages for injuries to persons or property
4. Right to Destroy Drones
- a. A California court found a property owner liable for destroying a drone
 - b. In Kentucky, a federal court found that the “drone slayer” was not liable for shooting down a drone (based on lack of subject matter jurisdiction in federal court)

- c. It is a felony to damage or destroy any aircraft under the Aircraft Sabotage Act, 18 USC 32
 - i. The FAA has indicated that this statute applies to drones
 - ii. Penalties include fines and imprisonment for up to 20 years

C. Nuisance Claims

- 1. Nuisance consists of an intentional and unreasonable invasion that interferes with a property owner's enjoyment of the owner's land.
- 2. Flights need not actually invade space to constitute a nuisance.
- 3. Cases involving claims against golf courses for stray golf balls could provide precedent.

D. Takings Claims

- 1. Establishment of a regular drone flight path over property may constitute a taking
- 2. Require showing that there is substantial interference with property owner's use and enjoyment of the surface
- 3. Courts have found that the regular intrusion of aircraft can constitute a taking.

E. Privacy Issues

- 1. Twenty-five (25) states have enacted laws limiting ability to take photographs, make recordings, or engage in surveillance over property
- 2. "Peeping Tom" laws may apply – See Minn. Stat. § 609.746 dealing with surreptitious intrusion.
- 3. The tort of intrusion upon seclusion may apply
 - a. The concept originated in the case of DeMay v. Roberts, 9 N.W. 146 (Mich. 1881).
 - b. **The Restatement of the Law, Second, Torts, § 652**
 - i. One who intentionally intrudes, physically or otherwise, upon the solitude or seclusion of another or his private affairs or concerns, is subject to liability to the other for invasion of his privacy, if the intrusion would be highly offensive to a reasonable person.

3. Although the drone itself is probably covered as personal property, deductibles probably limit the value of this coverage.
4. Most homeowners' policies probably cover damage to property owned by third parties or third party personal injury.
5. Supplemental coverage can be obtained on a short term basis for drone operations. (Verify)
 - a. \$1,000,000 liability coverage can be as inexpensive as \$10 per hour.
 - b. Cost depends on location, proposed use and weather conditions.
6. Questions to Ask Your Insurer
 - a. What does your homeowner's policy cover?
 - i. Any exclusions for aircraft?
 - ii. Is your drone an aircraft (the answer may depend on size and proposed use)
 - iii. Injury to third parties
 - iv. Damage to property owned by others
 - v. Injury to yourself or your family
 - vi. Injury to your property (all risk coverage is better than named perils)
 - vii. Coverage for the drone
 - b. What is the deductible?
 - c. Is there a drone rider or endorsement and what would it cover?
7. Membership in a drone club (e.g. Academy of Model Aeronautics) may include supplemental coverage.

B. Commercial Coverage

1. Liability insurance (UAS insurance policy) protects a business from property damage and bodily injury claims that arise through the commercial operation of a UAS.
2. Hull Coverage – Covers damage to the UAV.

3. Payload Coverage – Covers items carried by the UAV, including cameras.
4. Personal Injury – Might cover privacy claims
5. If there is extensive commercial use, clients should consult with a drone insurance expert.

ATTACHMENT 1

LAR A MAGO GUEST UAS (DRONE) POLICY

Prohibition

Out of safety concerns for guests, employees, and resort property, as well as concerns for individual privacy, the use of Unmanned Aerial Systems (UAS), including, but not limited to, drones and radio-controlled aircraft is prohibited in the airspace above the resort.

This prohibition includes any UAS launched or operated from the resort, as well as UAS launched from outside the resort, but crossing the resort property.

Any violation could result in termination of your stay at the resort, as well as confiscation of the UAS and may subject you to any damages resulting from the use of the UAS, as well as any regulatory fines and legal fees.

Limited Authorized Use With Permission

For catering, conference and wedding events contracted at the resort, professional vendors may request the resort's advance written permission for drone photography and filming exclusively within the contracted event venue. The resort may require an employee accompany the drone operator in which case the charge will be \$_____ per hour. Any authorized use must be in strict compliance with state and federal laws and regulations and the policies established by the resort. The resort reserves the right to review all footage taken by the UAS.

Bring on the Drones: Legal and Regulatory Issues in Using Unmanned Aircraft Systems

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Bring on the Drones: Legal and Regulatory Issues in Using Unmanned Aircraft Systems

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Commercial uses for drones, also known as unmanned aerial vehicles (UAVs) or unmanned aircraft systems (UAS) abound. However, safety and privacy concerns have hindered widespread commercial UAS use, at least until now. New regulations appear to clear the way for American businesses to benefit from the many commercial uses for UAS.

These materials will discuss the history and current framework for Federal Aviation Administration (FAA) regulation of UAS operations. The discussion will include Section 333 of the FAA Modernization and Reform Act of 2012, the FAA small UAS rules effective August 29, 2016, and additional FAA rulemaking Congress mandated in the FAA Extension, Safety and Security Act of 2016. It will also discuss current and potential future uses of drones in industry as well as legal questions arising from the scope of federal preemption of state laws governing drones.

A. Regulatory Background

The Air Commerce Act of 1926, as amended, provides the United States government with exclusive sovereignty over the airspace of the lands of the United States. 49 U.S.C. § 40103(a)(1). FAA manages the navigable airspace, which means the airspace above the minimum safe altitudes of flight prescribed by the Secretary of Commerce. 49 U.S.C. § 40113(a). Such airspace is "a public highway." *United States v. Causby*, 328 U.S. 256, 264 (1946). FAA calls this public highway the National Airspace System (NAS), which it defines as the common network of navigable airspace and air navigation facilities, including airports. Mark Edward Peterson, *The UAV and the*

Current and Future Regulatory Construct for Integration into the National Airspace System, 71 J. Air L. & Com. 521, 524 n.11 (2006).

The NAS includes a series of seven altitude classes from Class A to Class G. Each class is denominated by above ground level (AGL) or height above mean sea level (MSL). Class A, the most controlled, is the height at which commercial passenger aircraft operate and is between 18,000 feet and 60,000 feet. Class G is airspace below 60,000 feet AGL not near an airport and uncontrolled by an air traffic control tower. Given the pervasive nature of air traffic control in the United States, Class G airspace is typically below 1,200 feet AGL. Timothy T. Takashi, *Rise of the Drones--The Need for Comprehensive Federal Regulation of Robot Aircraft*, 8 Alb. Gov't L. Rev. 63, 74-77 (2015). This is the airspace in which UAVs operate; most commercial UAVs operate at an altitude below 500 feet. Hillary B. Farber, *Keep Out! The Efficacy of Trespass, Nuisance and Privacy Torts as Applied to Drones*, 33 Ga. St. U.L. Rev. 359, 384 (2017).

FAA strictly regulates aircraft operations in the NAS. Any aircraft operations in the NAS require a certified and registered aircraft, a licensed pilot, and operational approval. *Unmanned Aircraft Systems in the National Airspace System*, 72 Fed. Reg. 6689, 6690 (Feb. 13, 2007). UAS meet FAA's broad definition of "aircraft," which includes "any contrivance invented, used, or designated to navigate, or fly in, the air." 49 U.S.C. § 40102. Therefore, absent congressional action or regulatory relief, UAS are aircraft that operate in the NAS. Indeed, before 2012, FAA considered all UAS to be civil aircraft and all federal aviation regulations applied to UAS operations in the NAS without regard to the size of the UAS or the altitude at which it is flying. *Unmanned Aircraft Systems in the National Airspace System*, 72 Fed. Reg. at 6690.

There have been recent statutory and regulatory developments regarding FAA authority over hobby or model aircraft and UAVs. Historically, FAA did not apply its general aircraft registration statute to model aircraft. In 2007, FAA began to distinguish between "commercial" unmanned aircraft and "recreational" unmanned aircraft. Unmanned Aircraft Systems in the National Airspace System, 72 Fed. Reg. 6689, 6690 (Feb. 13, 2007). FAA declared that commercial unmanned aircraft operations in the NAS were subject to mandatory FAA regulations but that the regulations were voluntary with respect to recreational (or model) aircraft. *Id.*

Congress passed the FAA Modernization and Reform Act of 2012 (the 2012 Act) in response to the perceived need for additional statutory clarity. Section 336 of that Act provides FAA may not promulgate any rule or regulation regarding model aircraft, which the statute defines as an unmanned aircraft "flown for hobby or recreational purposes." Pub. L. No. 112-95, § 336(a), 126 Stat. 11, 77 (2012) (codified at 49 U.S.C. § 40101). However, in December 2015, just in time for Christmas, FAA issued a final rule requiring owners of all unmanned aircraft, including model or hobby aircraft, to register with FAA. Registration and Marking Requirements for Small Unmanned Aircraft, 80 Fed. Reg. 78,594 (Dec. 16, 2015). The rule required all hobby unmanned aircraft owners to obtain and display on the aircraft a unique identification number that FAA would issue for a nominal \$5 registration fee. Hobby aircraft owners failing to register faced civil or criminal monetary penalties and up to three years' imprisonment. *Id.* at 78595-96, 78630. A hobby aircraft owner challenged the FAA regulation, arguing that Section 336 of the 2012 Act barred the registration rule. The United States Court of Appeals for the District of Columbia agreed, holding Section 336 rendered FAA's registration rule

unlawful as applied to model or hobby aircraft. *Taylor v. Huerta*, 856 F.3d 1089, 1094 (D.C. Cir. 2017).

B. The FAA Modernization and Reform Act of 2012, FAA Enforcement, and the Small UAS Rule

Section 336 of the 2012 Act exempts from FAA regulation all model or hobby aircraft weighing not more than 55 pounds and flown strictly for hobby or recreational use, so long as the model aircraft is not flown within five miles of an airport. Pub. L. No. 112-95, § 336(a), 126 Stat. 11, 77 (2012). But FAA interprets the hobby exemption narrowly and considers any flight of an aircraft, including a UAS, for a direct or indirect benefit, to be a commercial use. Unmanned Aircraft Operations in the National Airspace System, 72 Fed Reg. 6689, 6690 (Feb. 13, 2007). To address commercial uses, Section 333 of the 2012 Act directed FAA to set expedited operational authorization requirements for UAS operations in the NAS and to undertake a rulemaking allowing commercial small UAS operations. Pub. L. No. 112-95, § 333, 126 Stat. 11, 75 (2012). But the operational authorization requirements are not always straightforward.

FAA's processes for issuing airworthiness certificates--a determination of an aircraft's suitability for safe flight and required for all aircraft operating in the NAS--were designed for manned aircraft. See Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42064, 42069 (June 28, 2016) (summarizing historical airworthiness certificate process). In 2014, FAA established a process allowing commercial UAS to operate after obtaining a Section 333 exemption from an aircraft airworthiness certificate. But the Section 333 exemption process is complex, requiring a multi-page application that details operations including the size, weight, speed, and operational capacity of the UAV, as well as proximity of the UAV operations to airports

and populated areas. The application also requires a showing that the operation is in the public interest. And the pilot of the UAS must hold the same FAA credentials as those necessary to pilot a manned aircraft, including an airman's certification and the appropriate medical certificate. *Id.* at 42069-70. There were also substantial delays as FAA processed petitions for Section 333 exemptions.

Given the complexity of the regulatory exemption process, some companies chose to fly UAS without first complying with Section 333, risking significant consequences. In the most noteworthy enforcement action, *Huerta v. SkyPan International*, FAA alleged an aerial photography firm flew more than sixty flights in Class B airspace in Chicago and New York City from 2012 to 2014, near high-rise buildings and over heavily populated areas, without a Section 333 exemption. FAA proposed a fine of \$1.9 million, the largest ever sought. The case settled in January 2017 for \$200,000. Before *SkyPan*, the largest commercial fine was \$18,700. Darlene Ricker, *Taking Flight*, ABA J., July 2017, at 58-60.

The risks of flying without an exemption do not appear limited to purely commercial activities. In August 2015, a Minnesota man used his UAS to take aerial photographs of a "human chain" of persons protesting the killing of Cecil the Lion by a Bloomington, Minnesota, dentist. FAA apparently warned the event organizer by letter before the event took place, explaining that the flight might constitute a "commercial" rather than "recreational" or hobby use. Although the UAS operator had unanswered questions regarding the scope of the FAA warning, he flew his UAS and took aerial photographs of the protest. Even though he did not charge for his services and offered the photographs to local media outlets free of charge, FAA proposed a fine of \$55,000

for flying the drone for a commercial purpose without a Section 333 exemption. Mike Mullen, *Is "Cecil the Lion" Photo Worth \$55,000*, City Pages (June 13, 2016), <http://www.citypages.com/news/is-this-cecil-the-lion-drone-photo-worth-55000-8351165>.

In addition to establishing the aircraft airworthiness certificate exemption, Section 333 of the 2012 Act directed the Secretary of Transportation to determine whether certain UAS may operate safely within the NAS. Under this authority, in June 2016 the FAA promulgated regulations for non-hobbyist use of small unmanned aircraft systems (sUAS). Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42064 (June 28, 2016). The regulations, codified at Part 107 of Chapter 14 of the Code of Federal Regulations and which took effect on August 29, 2016, define sUAS as having a gross weight of 55 pounds or less at take-off, including all accessories or attachments. 14 C.F.R. § 107.3. They reflect a major milestone in that the regulations allow operators greater flexibility to use sUAS for routine activities without requiring case-by-case prior review and approval by FAA and enable operators to approach FAA on a case-by-case basis to relax or remove certain Part 107 restrictions on the operation of sUAS.

The Part 107 regulations establish a much less complex regulatory framework allowing for routine commercial use of certain sUAS today while maintaining flexibility to accommodate future technological innovations. The regulations create a new type of pilot, known as the remote pilot in command. 14 C.F.R. § 107.19. All operations of UAS under Part 107 must be by a person holding a remote pilot in command certificate or by a person under the direct supervision of another person holding such a certificate. 14 C.F.R. § 107.12. To obtain the certificate, a person must pass an aeronautical

knowledge test at an FAA-approved knowledge testing center, undergo a vetting process with the United States Transportation Security Administration, and be at least 16 years old. 14 C.F.R. § 107.61. Once issued, a remote pilot in command certificate is valid for 24 months. 14 C.F.R. § 107.64.

Part 107 of the regulations also includes numerous requirements for safe sUAS operation. They authorize sUAS to carry cameras, probes, payload, cargo, and other accessories and attachments if they do not impair flight. *Id.* All flights must be conducted within the unaided visual line of sight of the remote pilot in command, and each pilot in command may control only one drone at a time. 14 C.F.R. §§ 107.31, 107.35. Minimum weather visibility must be three miles from the control station, and the sUAS must stay at least 500 feet below and at least 2,000 feet horizontally from any cloud. 14 C.F.R. §§ 107.29, 107.51. Part 107 authorizes flights only during daylight hours. 14 C.F.R. § 107.29. However, if the sUAS is carrying anti-collision lighting it may also operate during “civil twilight,” which is 30 minutes before official sunrise and 30 minutes after official sunset. *Id.* The maximum altitude of the sUAS flight is 400 feet; if a structure is taller than 400 feet, the sUAS may only fly within 400 feet of the top of the structure. 14 C.F.R. § 107.51. Maximum ground speed is 87 knots or 100 miles per hour. *Id.* Part 107 prohibits the use of sUAS to carry another’s property for compensation. 14 C.F.R. § 107.205.

Under Part 107, sUAS may fly only in certain classes of the NAS. 14 C.F.R. § 107.41. Typically, sUAS operations will occur in Class G airspace and usually below an altitude of 700 feet AGL in airspace not near an airport and not under the control of an air traffic control tower. Operations in Class B, C, D and E airspace—typically at

altitudes above 700 feet AGL and near an airport—require permission from air traffic control. *Id.* There are several additional important Part 107 operational limits; SUAs cannot operate over persons other than the remote pilot in command unless those persons are protected by structures with roofs. 14 C.F.R. § 107.39.

FAA has the authority to waive certain Part 107 restrictions if an operator files a waiver petition. 14 C.F.R. § 107.205. Waiver of certain restrictions under Part 107 may authorize: nighttime operations; operations from a moving vehicle or aircraft; operations beyond visual line of sight; operations over persons other than the remote pilot in command; and operations otherwise restricted by airspace, groundspeed, altitude, minimum visibility, and distance from clouds. *Id.* As of this writing, FAA has granted nearly 1,200 waivers of Part 107 restrictions. Most of FAA's waivers authorize night flights but many also allow flights beyond the visual line of sight of the remote pilot in command. https://www.faa.gov/uas/request_waiver/waivers_granted. Almost all of the waivers have been in Class G airspace and not near airports. Successful waiver applications under Part 107 share certain characteristics. Typically, the applications are customized and contain specific details, including exact flight dates and flight locations.

The Part 107 rules and waiver process have largely supplanted but not replaced the Section 333 exemption process. Certain restrictions, including the 55-pound weight limit and the ban on carrying hazardous materials, are not subject to waiver under Part 107. If an operator seeks to fly a drone weighing more than 55 pounds or carrying hazardous materials, the flight must be covered by a Section 333 exemption.

C. Federal Preemption and State Regulation

An open question regarding UAS regulation is the extent to which federal law preempts state and local laws governing UAS use. Congress granted FAA the statutory authority to regulate all aspects of air safety and aircraft in flight. 49 U.S.C. §§ 40103, 44502, and 44701-44735. As the Supreme Court explained, “Planes do not wander about the sky like vagrant clouds. They move only by federal permission . . . [an aircraft's] privileges, rights, and protection, so far as transit is concerned, it owes to the Federal Government alone and not to any state government.” *Northwest Airlines v. State of Minnesota*, 322 U.S. 292, 303 (1944) (Jackson R., concurring). Because federal regulation of aviation is pervasive, federal courts frequently invalidate local attempts to regulate aircraft, holding federal law preempts such local regulation. See, e.g., *City of Burbank v. Lockheed Air Terminal*, 411 U.S. 624, 639 (1973) (invalidating local ordinance placing curfew on jet flights because such municipal ordinances would “severely limit the flexibility of FAA in controlling air traffic flow.”); *Montalvo v. Spirit Airlines*, 508 F.3d 464, 473-74 (9th Cir. 2007) (holding “federal law occupies the entire field of aviation safety” and preempts any state regulation attempting to reach into the navigable airspace).

Many commenters on the Part 107 sUAS rule urged FAA to include a preemption provision in the rule. 81 Fed. Reg. at 42194. FAA declined, instead referring to a December 2015 memorandum from FAA’s Office of Chief Counsel discussing preemption. *Id.* According to the FAA memorandum, state and local government police power is not subject to federal regulation. FAA Office of the Chief Counsel, State and Local Regulation of Unmanned Aircraft Systems (UAS) Fact Sheet, Dec. 17, 2015, at 3. However, the FAA memorandum notes federal courts carefully scrutinize state and local

regulation of aircraft overflight. *Id.* at 2. The memorandum warns of a "patchwork quilt" of "differing restrictions could severely limit the flexibility of FAA in controlling the airspace and flight patterns, and ensuring safety and an efficient traffic flow." *Id.*

But states and municipalities are regulating UAS operations. More than twenty states approved drone laws in 2015, as have major cities such as Chicago, Los Angeles, Miami, and Santa Clara. Michael N. Widener, *Local Regulation of Drone Activity in Lower Airspace*, 22 B.U. J Sci. & Tech L. 239, 241 (2016). In 2017, thirty-eight states considered UAS bills and seventeen states passed legislation. <http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx>. In general, these legislative enactments impose restrictions on overflight areas and control the use of UAS that may invade privacy. Michael N. Widener, *Local Regulation of Drone Activity in Lower Airspace*, 22 B.U. J Sci. & Tech L. 239, 241 (2016).

In a case of first impression, a federal district court recently held federal law preempts certain provisions of a city ordinance that attempted to regulate UAV operations. The case involves an ordinance enacted by the City of Newtown, Massachusetts, and challenged by an FAA-certified sUAS pilot who owns and operates multiple UAVs for commercial purposes in the city. *Singer v. City of Newton*, No. 7-10071-WGY (D. Mass. filed Sept. 21, 2017). The ordinance applies to "pilotless aircraft," which it defines as "an unmanned, powered aerial vehicle, weighing less than 55 pounds, that is operated without direct human contact from within or on the aircraft." *Id.* at 4. Violations of the ordinance are punishable by a fine of \$50 following a one-time warning. *Id.* at 5. According to the court, federal law preempted four provisions of the

ordinance that plaintiff challenged: (1) a requirement that owners register all pilotless aircraft with the City of Newton; (2) a ban on operation of pilotless aircraft below an altitude of 400 feet over private property without the express permission of the property owner; (3) a ban on operation of pilotless aircraft at any altitude over public property without prior permission of the City of Newtown; and (4) a ban on operations of pilotless aircraft beyond the visual line of sight of the operator. *Id.* at 10-16. The court let stand the remaining provisions of the ordinance because plaintiff did not challenge those provisions. *Id.* at 16. Among the provisions unchallenged provisions were a ban on operations of pilotless aircraft in "a manner that interferes with any manned aircraft" or to "conduct surveillance or invade any place where a person has a reasonable expectation of privacy." *Id.* at 5.

At least one municipality considered and rejected a UAS ban in the wake of possible federal preemption. City leaders in Andover, Minnesota, recently contemplated a UAS ban after reading stories of "camera drones hovering creepily outside bedroom windows or buzzing around wildfires in swarms so thick it made it hard for bucket planes to reach their targets." Jennifer Brooks, *Drones Deliver New Legal Questions*, Mpls. Star-Tribune, June 25, 2017, at A7. But upon reviewing preemption issues, the city administrator "found out how little control we have" and decided not to pursue a UAS ban. *Id.*

Some in Congress are attempting to draw a legislative line between where FAA control of the NAS ends and local control begins. FAA has been subject to criticism that it is attempting to assert NAS jurisdiction "from the top of blades of grass to infinity." Michael N. Widener, *Local Regulation of Drone Activity in Lower Airspace*, 22 B.U. J

Sci. & Tech L. 239, 240 (2016). In *Causby*, the Supreme Court rejected the doctrine of *est sloum ejus usque ad coelom*, that a property owner's estate extends from the depths of the earth to "the periphery of the universe." *United States v. Causby*, 328 U.S. 256, 260-61 (1946). *Causby* held low overflights that disrupted a chicken farm--as low as eighty-three feet above the property--did not constitute a taking under the Fifth Amendment because the "immediate reaches above the land" were "part of the public domain." *Id.* at 266. But the Court observed it "need not determine at this time what those precise limits are." *Id.* Several members of Congress are supporting legislation that would allow state, local, and tribal governments to limit FAA regulation of UAS operations to an altitude of greater than 200 feet and allow state and local governments to regulate UAS flying at below 200 feet. Jennifer Brooks, *Drones Deliver New Legal Questions*, Mpls. Star-Tribune, June 25, 2017, at A1. Such legislation would draw the "precise limit" of FAA regulation that the Supreme Court in *Causby* declined to determine.

Unless Congress changes the law, it appears that the scope of federal aviation preemption will remain broad. Where congressional regulation "occupies an entire field," as it appears to in aviation, "even complimentary state regulation is impermissible." *Arizona v. United States*, 567 U.S. ___, 132 S.Ct. 2492, 2502 (2012). Accordingly, federal law would likely preempt state or local laws addressing operational UAS restrictions on flight altitude or flight paths, outright flight bans, regulation of navigable airspace, and mandated UAS equipment, certification, registration, or training beyond federal requirements. *City of Burbank v. Lockheed Air Terminal*, 411 U.S. 624 (1973); *Skysign Int'l v. City & County of Honolulu*, 276 F.3d 1109, 1117 (9th Cir. 2002).

However, laws traditionally related to local police power, such as land use, zoning, privacy, trespass, and law enforcement operations, are generally not subject to federal preemption. *Skysign Int'l*, 276 F.3d at 1115. State and local governments appear to be on solid ground if they attempt to regulate UAS operations based upon considerations of land use, zoning, privacy, trespass, and law enforcement. Acceptable constraints might include requiring police to obtain a warrant before using a UAS for surveillance or prohibiting certain UAS uses, such as for voyeurism, hunting or fishing, or carrying weapons. FAA Office of the Chief Counsel, State and Local Regulation of Unmanned Aircraft Systems (UAS) Fact Sheet, Dec. 17, 2015, at 3.

D. Conclusion

UAS operations in the United States are ready to take off. FAA's Part 107 regulations offer greater flexibility for UAS operations, opening the way for many more potential users to employ UAS. The Part 107 procedures for obtaining a remote pilot in command certificate make the credential more accessible. Persons holding the certificate may fly a small UAS without obtaining additional approvals, as long as operations follow the Part 107 regulations. However, the Part 107 regulations do not supplant other FAA requirements. Parties interested in flying UAS missions should investigate and comply with federal, state, and local requirements for operations.

