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AIRPORTS, DRONEPORTS, AND THE NEW URBAN AIRSPACE

*Timothy M. Ravich**

ABSTRACT

By simply purchasing a small unmanned aerial vehicle – “UAV” or “drone” – online or off the shelf of a hobby store, anybody can fly in any airspace, from anywhere, at any time using an ordinary smartphone or tablet. The potential for conflict between these unmanned and automated devices and traditional manned aircraft is pronounced at low altitudes in flight corridors at, near, over, and around airports across the world. Under statutory and decisional precedent dating back at least to the 1940s, federal lawmakers assert exclusive jurisdiction over all aviation operations in the national airspace system (“NAS”), which is generally recognized as beginning approximately five hundred feet above ground level. With drones, however, the Federal Aviation Administration is also increasingly asserting its authority in all airspace “above the grass.”

This Article presents the central property law problems (i.e., air and land use) raised by contemporary technological advances in unmanned aviation and broadly argues against federal control of the airspace beneath the NAS, particularly with respect to uncontrolled

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areas around airports. In doing so, this Article offers a specific critique of the recently enacted regulatory scheme for small UAVs which allow some airport authorities to stop an operator from launching a drone, yet not from flying near or around the airport—a perplexing set of circumstances from a safety and operational perspective. Accordingly, federal regulators should revise or update recently enacted rules governing the operation of small UAVs to provide definitive and deferential authority to local airports with respect to the operation of drones in uncontrolled airspace.

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INTRODUCTION

Perhaps more exciting and surprising than the double-digit halftime lead that the Atlanta Falcons built over (but ultimately lost in overtime to) the defending champion New England Patriots in Super Bowl LI at NRG Stadium in Houston, Texas, in February 2017, was the halftime show. The intermission featured a synchronized swarm of three hundred illuminated “Shooting Star” drones flying over and behind Lady Gaga in the formation of an American flag as she recited the Pledge of Allegiance from the roof of the stadium—only the drones were not really there.¹ To comply with a new regulation prohibiting the flight of unmanned aerial vehicles (“UAVs”) over people,² Intel Corp. pre-recorded the formation

1. Henri Gendreau & Alan Levin, *Lady Gaga Halftime Drone Swarm Was Pretaped to Shield Crowd*, BLOOMBERG (Feb. 7, 2017), <https://www.bloomberg.com/news/articles/2017-02-07/lady-gaga-s-halftime-drone-swarm-was-pretaped-to-shield-crowd> [<https://perma.cc/9B28-C2W8>]; see also Ted Greenwald, *Intel Basks in Afterglow of Halftime Show*, WALL. ST. J., Feb. 7, 2017, at B6 (“Many TV viewers thought they were watching a live light show, a perception Intel didn’t go out of its way to dispel. ‘Our drones have returned to the ground after an amazing #PepsiHalftime show,’ the company tweeted shortly afterward.”).

2. 14 C.F.R. § 107.39 (2016) (“Operation over human beings. No person may operate a small unmanned aircraft over a human being unless that human being is: (a) [d]irectly participating in the operation of the small unmanned aircraft; or (b)

flying and then fed the footage into the game day broadcast—fans in the stadium watched the video just like home viewers.³ Although the drone portion of the show was not live—the Federal Aviation Administration (“FAA”) designated the Super Bowl as a “no drone zone”⁴—it “illustrated the ways large companies are embracing unmanned aircraft in sometimes unexpected ways.”⁵ Moreover, the halftime show spotlighted the tension between law and technology in urban settings and the precautionary steps regulators take to limit or ban even apparently reliable and safe UAV operations, while innovators push the envelope.⁶ In fact, regulators approach drones as lawmakers charged with protecting public health, safety, and welfare have historically approached novel technologies—with mistrust and restrictive rules, if not a total ban.⁷

This skepticism is not entirely unfounded. While drones that are ready to fly out of the box are celebrated for opening the skies to numerous aviation enthusiasts and entrepreneurs,⁸ the opportunity

[l]ocated under a covered structure or inside a stationary vehicle that can provide reasonable protection from a falling small unmanned aircraft.”). This limitation is waivable under 14 C.F.R. § 107.205(g).

3. Gendreau & Levin, *supra* note 1 (“Intel also produced a holiday show with Disney in Florida . . . with drones forming a green Christmas tree and a blue dove, among other effects.”).

4. *No Drone Zone for Those Attending the Super Bowl*, FED. AVIATION ADMIN., <https://www.faa.gov/news/updates/?newsId=87305> [<https://perma.cc/6RBM-2VGT>] (last updated Feb. 1, 2017) (“Temporary Flight Restrictions will prohibit certain aircraft operations, including unmanned aircraft operations, or drones, within a 34.5-mile radius of NRG Stadium in downtown Houston, Texas on game day.”).

5. Gendreau & Levin, *supra* note 1.

6. Whether relating to drones, self-driving cars, or other “smart” devices that are a part of the Internet of Things, today’s innovators and regulators are sometimes finding it difficult to find a middle ground. *See generally* Greg Bensinger, *Uber Moves Self-Driving Car Test to Arizona After Regulatory Defeat in California*, WALL ST. J. (Dec. 22, 2016), <https://www.wsj.com/articles/uber-moves-self-driving-car-test-to-arizona-after-regulatory-defeat-in-california-1482442732>

[<https://perma.cc/WK3D-9E9K>]; Greg Bensinger & Tim Higgins, *Uber’s Clash with Regulators Moves to Self-Driving Cars*, WALL ST. J. (Dec. 18, 2016), <https://www.wsj.com/articles/ubers-clash-with-regulators-moves-to-self-driving-cars-1482090589> [<https://perma.cc/4U6A-DQNZ>] (“Uber has defiantly offered rides to San Francisco customers in a handful of autonomous vehicles despite opposition from California regulators who demand the company get a state permit or pull the autos off the road [The company refused to apply for California’s autonomous-driving permit on the basis that] its robot cars must be manned by humans, rendering them less than fully autonomous.”).

7. *See, e.g.*, EDWARD TENNER, *WHY THINGS BITE BACK* (1996) (discussing how unintended effects of technology may warrant the need for increased vigilance).

8. Notwithstanding obvious challenges posed by UAV flight over, near, at, and around airports, UAV operations offer airport owners, operators, and users many potentially beneficial applications: terminal and perimeter inspection; airfield

for novices with no experience or operators with bad intentions to fly at any time from any place, or “virtually” from any place, and for any purpose in relative anonymity is concerning. Inexperienced and nefarious operation of UAVs raises important questions of safety, privacy, and security—issues that are acute for airport owners, operators, and users. The potential for drones to collide or interfere with traditional airplanes is perhaps the most obvious concern associated with UAVs flying over, near, at, and around airports and heliports. Designing a new set of rules to eliminate or mitigate this risk requires regulators to weigh the probability of harm and the seriousness of harm that might result from errant or reckless drone operation. Until only recently (with the enactment of 14 C.F.R. Part 107 in August of 2016), the FAA effectively banned all civil (i.e., non-governmental) operations of small drones (those weighing less than fifty-five pounds), reflecting a policy decision that the gravity of an accident or incident involving a drone outweighed any probability of such an event occurring.⁹ This reasoning was undoubtedly informed by reports about drones conflicting and nearly colliding with passenger jets and other aviation traffic around some airports.¹⁰

condition inspections and foreign object debris detection; traffic management; parking surveillance; emergency response and event management; airport construction, infrastructure and property surveying, and capital project support; wildlife management; aircraft maintenance; passenger services; cargo operations; accident response; and safety management and inspections. See, e.g., Alan Levin, *FAA: Small Drones Will Provide Significant Benefits*, BLOOMBERG (Feb. 14, 2015), <https://www.bloomberg.com/news/articles/2015-02-14/small-drones-to-provide-significant-benefits-faa-says> [<https://perma.cc/9MPY-F9LC>]; *Proposals for Droneport Project Launched to Save Lives and Build Economies*, FOSTER + PARTNERS (Sept. 16, 2015), <http://www.fosterandpartners.com/news/archive/2015/09/proposals-for-droneport-project-launched-to-save-lives-and-build-economies/> [<https://perma.cc/7TYG-AEVC>].

9. Manufacturers and safety-conscious drone operators themselves believe that just one tragedy involving a reckless or careless drone operator and a commercial jet would undo the progress made by responsible drone builders and users and doom the development of all civil and commercial drone industries from a regulatory point of view. Am. Ass’n of Airport Execs., UAS Issues and Integration Conference (Nov. 9-11, 2016) [hereinafter UAS Issues and Integration Conference] (comments of various panelists and attendees).

10. *FAA Releases Updated Drone Sighting Reports*, FED. AVIATION ADMIN., <https://www.faa.gov/news/updates/?newsId=87565> [<https://perma.cc/ZV78-8YSW>] (last updated Feb. 23, 2017), stating that, as of February 23, 2017,

[r]eports of possible drone sightings to FAA air traffic facilities continued to increase during FY 2016. There were 1,274 such reports from February through September last year, compared with 874 for the same period in 2015. Although the data contain several reports of pilots claiming drone strikes on their aircraft, to date the FAA has not verified any collision between a civil aircraft and a civil drone. Every investigation has found the

In fact, in 2015, the FAA released a report of 650 “possible encounters with unmanned aircraft” between November 2014 and August 2015—with drone “sightings” estimated as high as one hundred per month in 2015—five times as many as one year earlier.¹¹ Most reported drone encounters occurred above 3000 feet, an airspace that is well above the five hundred foot ceiling established for commercial UAVs and the four hundred feet recommended for model aircraft, a fact that prompted a critical *Aviation Week & Space Technology* editorial:

The FAA did itself no favors by releasing a list of 650 “possible encounters with unmanned aircraft” between November 2014 and August 2015. This mixes pilot sightings close to airports, where the threat is highest, with passing encounters and reports from air traffic controllers and the public. It is good for grabbing headlines, but not for defining the dangers.¹²

Perhaps so, but in 2016 headlines of drone encounters with commercial jets persisted as a Porter Airlines Bombardier Q400 twin-propeller airplane reportedly swerved over Canadian airspace to avoid colliding with a drone; two cabin crew were injured, making the incident perhaps the first reported example of personal injury caused by a near-collision with a drone.¹³

Although complete data showing the actual number of potential conflicts between manned and unmanned airplanes near airports is wanting, anecdotal evidence is not hard to find worldwide.¹⁴ In March 2015 for example, the United Arab Emirates Department of Economic Development banned the use and sale of recreational drones after one flew too close to critical flight paths and forced the

reported collisions were either birds, impact with other items such as wires and posts, or structural failure not related to colliding with an unmanned aircraft.

11. *Get Data on Risk UAS Pose to Air Traffic*, AVIATION WK. & SPACE TECH., Sept. 11, 2015, at 1.

12. *Id.*; see also Craig Whitlock, *FAA Records Detail Hundreds of Close Calls Between Airplanes and Drones*, WASH. POST (Aug. 20, 2015), https://www.washingtonpost.com/world/national-security/faa-records-detail-hundreds-of-close-calls-between-airplanes-and-drones/2015/08/20/5ef812ae-4737-11e5-846d-02792f854297_story.html [<https://perma.cc/8X9E-CAMG>].

13. *Crew Members Injured as Plane Avoids Near Collision with Suspected Drone*, GUARDIAN (Nov. 14, 2016), <https://www.theguardian.com/world/2016/nov/14/toronto-airport-drone-incident-injuries-canada> [<https://perma.cc/USE6-J3JT>].

14. See, e.g., Gareth Corfield, *Idiot Flies Drone Alongside Flybe Jet Landing at Newquay Airport*, REG. (Aug. 11, 2016), http://www.theregister.co.uk/2016/08/11/drone_near_miss_flybe_newquay_airport/ [<https://perma.cc/X53E-9D67>] (“Although the near-miss was reported to police, a search of the area revealed no trace of the drone or its operator . . .”).

suspension of all flights at Dubai International Airport.¹⁵ In 2016, Dubai's airport—the third busiest in the world—was forced to shut down three separate times because of unauthorized drone activity, with the most recent shutdown requiring the diversion of flights and the closing of the airport for ninety minutes at a cost of one million dollars per minute.¹⁶ Dubai's experience is not isolated; Polish aviation authorities took steps to revise their drone regulations as a reaction to a near-collision between a drone and a commercial jetliner at Warsaw Chopin Airport.¹⁷ In the United States, meanwhile, vendors Brookstone and Hudson News removed UAVs from their airport store shelves after New York and New Jersey transportation authorities demanded that they stop offering the merchandise for sale.¹⁸ With the FAA projecting seven million drones in the national airspace by 2020,¹⁹ whether and how to integrate UAV operations in an ecosystem originally designed for manned flights is as unresolved as the question of who (local, state, or federal authorities) should have authority over operations in that airspace.

This Article focuses on the operational and regulatory problems implicated by drones operated near, over, at, and around the nation's airports. While a new body of scholarship discussing the constitutional and common law issues connected to UAV operations is developing,²⁰ no literature dedicated specifically to the unique legal

15. Anwar Ahmad, *Sale of Recreational Drones Banned in Abu Dhabi*, NAT'L (Mar. 11, 2015), <http://www.thenational.ae/uae/sale-of-recreational-drones-banned-in-abu-dhabi> [https://perma.cc/DK54-KMJN].

16. Zahraa Alkhalisi, *Dubai Deploys a 'Drone Hunter' to Keep Its Airport Open*, CNNMONEY (Nov. 4, 2016), <http://money.cnn.com/2016/11/04/technology/dubai-airport-drone-hunter/> [https://perma.cc/69T5-KN63].

17. *Safe Sky—Regulations on Flying Drones in Poland*, URZAD LOTNICTWA CYWILNEGO (Oct. 2, 2015), <http://www.ulc.gov.pl/en/270-english/current-information/3806-safe-sky-regulations-on-flying-drones-in-poland> [https://perma.cc/47DC-K4AL]; see also Andy Eckardt, *Drone Nearly Hits Lufthansa Plane near Warsaw Airport: Man Questioned*, NBC NEWS (July 22, 2015), <http://www.nbcnews.com/news/world/drone-nearly-hits-lufthansa-plane-near-warsaw-airport-man-questioned-n396481> [https://perma.cc/FPV9-9WQG].

18. Pavithra Mohan, *Airport Stores Agree to Stop Selling Drones After Plea from Port Authority*, FAST CO. (Aug. 20, 2015), <https://www.fastcompany.com/3050155/fast-feed/airport-stores-agree-to-stop-selling-drones-after-plea-from-port-authority> [https://perma.cc/5RA5-G7XZ].

19. *FAA Releases 2016 to 2036 Aerospace Forecast*, FED. AVIATION ADMIN., <https://www.faa.gov/news/updates/?newsId=85227> [https://perma.cc/E5V3-P6TS] (last updated Mar. 24, 2016).

20. See, e.g., Marc Jonathan Blitz et al., *Regulating Drones Under the First and Fourth Amendments*, 57 WM. & MARY L. REV. 49 (2015); A. Michael Froomkin & P. Zak Colangelo, *Self-Defense Against Robots and Drones*, 48 CONN. L. REV. 1 (2015); Margot E. Kaminski, *Drone Federalism: Civilian Drones and the Things They Carry*,

issues of drones and airports exists. This Article intends to fill that gap, first by offering an overview of lawmaking and airports historically, then by evaluating the precedent upon which current decisions respecting airspace are based, and finally by drawing from scholarship arguing in favor of a state- and local-based approach to privacy regulation and private property rights implicated by the drone revolution,²¹ to posit that federal regulators should revamp recently enacted laws to give definitive guidance and authority that is deferential to local airports with respect to the operation of drones in uncontrolled airspace.

I. REGULATORY AND JUDICIAL APPROACHES TO INNOVATIONS IN AVIATION

Legal controversies introduced by drone operations are more jurisdictional than technological. And, they are not entirely new. In fact, the operation of drones is reminiscent of the land use and urban planning issues associated with airports during the last century. Both involve a contest between private and public land ownership and use, on the one hand, and federal versus state and local government, on the other hand. Thus, where drones are permitted to fly is a critical issue whose resolution both depends upon and is limited by legal precedent established in the middle of the last century with respect to manned airplane operations vis-à-vis airports and private property. Now, as then, courts are asked to decide controversies pitting new technologies against long-standing legal principles from a utilitarian point of view.

In the 1920s case *Dysart v. City of St. Louis*,²² for example, a Missouri taxpayer attempted to enjoin the development of a publicly-funded airport on the basis that the concept of an airport ran counter to the general or public welfare:

It will afford a starting and landing place for a few wealthy, ultra-reckless persons, who own planes and who are engaged in private pleasure flying. They may pay somewhat for the privilege. It will

4 CAL. L. REV. CIR. 57 (2013); Kenneth Maher, *Flying Under the Radar: Low-Altitude Local Drone Use and the Reentry of Property Rights*, 15 DUKE L. & TECH. REV. 102 (2017); Gregory S. McNeal, *Drones and the Future of Aerial Surveillance*, 84 GEO. WASH. L. REV. 354 (2016); Troy A. Rule, *Airspace in an Age of Drones*, 95 B.U. L. REV. 155 (2015); John Villasenor, *Observations from Above: Unmanned Aircraft Systems and Privacy*, 36 HARV. J.L. PUB. POL'Y 457 (2013).

21. See, e.g., Kaminski, *supra* note 20, at 59 (arguing that the “complex space of privacy regulation is best left to the states”); Troy A. Rule, *Drone Zoning*, 95 N.C. L. REV. 133 (2016).

22. 11 S.W.2d 1045 (Mo. 1928).

afford a starting and landing place for pleasure tourists from other cities, alighting in St. Louis while flitting here and yon. It will offer a passenger station for the very few persons who are able to afford, and who desire to experience, the thrill of a novel and expensive mode of luxurious transportation.

The number of persons using the airport will be about equal to the total number of persons who engage in big-game hunting, trips to the African wilderness, and voyages of North Pole exploration.

....

In the very nature of things, the vast majority of the inhabitants of the city, a 99 per cent. majority, cannot now and never can, reap any benefit from the existence of an airport.

True it may be permitted to the ordinary common garden variety of citizen to enter the airport free of charge, so that he may press his face against some restricting barrier, and sunburn his throat gazing at his more fortunate compatriots as they sportingly navigate the empyrean blue.

But beyond that, beyond the right to hungrily look on, the ordinary citizen gets no benefit from the taxes he is forced to pay.²³

The Supreme Court of Missouri rejected this view, however, recognizing that, by 1928, it was “unquestionably true that the airplane [was] not in general use as a means of travel or transportation, either in the city of St. Louis or elsewhere; [but] *it never will be unless properly equipped landing fields are established.*”²⁴

In *Hesse v. Rath*,²⁵ also decided in 1928, Judge Benjamin N. Cardozo, the Chief Judge of the New York Court of Appeals at the time, similarly embraced the era of modern aviation, recognizing that “[a]viation is to-day an established method of transportation.”²⁶ In doing so, the eventual United States Supreme Court Justice cautioned against shortsighted urban planners and politicians:

The city that is without the foresight to build the ports for the new traffic may soon be left behind in the race of competition. Chalcedon was called the city of the blind, because its founders rejected the nobler site of Byzantium lying at their feet. The need for vision of the future in the governance of cities has not lessened

23. *Id.* at 1047.

24. *Id.* (emphasis added).

25. 164 N.E. 342 (N.Y. 1928).

26. *Id.* at 342.

with the years. The dweller within the gates, even more than the stranger from afar, will pay the price of blindness.²⁷

Legislatures around the nation embraced this message as courts recognized airport development as a valid municipal purpose. For example, the Florida Legislature authorized municipal corporations to purchase (including by way of a right of condemnation), establish, construct, and operate airports and landing fields. Courts upheld such laws on constitutional grounds, including in *State v. Dade County*, in which the Supreme Court of Florida stated:

[T]his Court knows that air transportation is one of the great innovations of the age, that Miami is potentially one of the greatest air distribution points in the World, and that Florida is the port of entry for air transportation from South and Central America, the West Indies, and Africa. It is quite true that there were no Jules Verns or Wright Brothers in the Constitutional Convention to portend the marvelous changes the future had in store, but it was not intended by those present that the dead hand of the past should shape the destiny of the future. Constitutional mandates are wise in proportion to the manner in which they respond to the public welfare and should be construed to effectuate that purpose when possible. The law does not look with favor on social or progressive stalemates . . . [and] extension of political controls should keep pace with physical changes, and collective ingenuity should not be hobbled by the Constitution in a way to be outclassed by collective design to overreach and serve a selfish purpose.²⁸

Between the time of these court decisions and the end of World War II, private, public, and commercial aviation became routine, so much so that state courts, again such as the Supreme Court of Florida in the decision of *Brooks v. Patterson*, rejected claims sounding in nuisance and trespass in connection with airplane operations:

The City should be mindful at all times of the admonition which comes to us from the days of the Roman Empire, ‘sicutere tuo ut alienum non laedas’—so use your own property as not to injure another’s. That aviation is as much a part of modern civilization is as the railroad, steamship and automobile as a means of transportation of both freight and passengers is too obvious for serious discussion.²⁹

Today, a world without airports and airplanes is unimaginable. But the question of where the newest airplanes can fly, particularly in the

27. *Id.*

28. *State v. Dade Cty.*, 27 So. 2d 283, 285 (Fla. 1946).

29. 31 So. 2d 472, 474 (Fla. 1946).

middle area between privately owned air space and the public navigable airspace, is unsettled. *Dysart*, *Hesse*, and *Brooks* suggest that this issue is one that 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.

II. AIRSPACE AND SUPREMACY: ACCESS AND CONTROL

While the zoning, planning, and funding of airports are generally matters of local authority,³⁰ allowing airplanes—manned or unmanned—to fly requires regulators to balance national (and even international) airspace rights with local and state ground rights. The nineteenth century case *Guille v. Swan*³¹ was one of the first cases to examine these competing interests. There, the operator of an air balloon crash-landed into a private garden in New York.³² “When the balloon descended, [the balloonist called for assistance and] more than two hundred persons broke into [the] garden through the fences, and came onto the premises [to his rescue], beating down [the garden’s] vegetables and flowers.”³³ The landowner sued for damages and won, convincing the court that the balloonist was liable because the damages caused by his trespass were foreseeable as a matter of law:

Ascending in a balloon is not an unlawful act . . . but, it is certain, that the Aeronaut has no control over its motion horizontally; he is at the sport of the winds, and is to descend when and how he can; his reaching the earth is a matter of hazard. He did descend on the premises of the plaintiff below, at a short distance from the place where he ascended. Now, if his descent, under such circumstances, would, ordinarily and naturally, draw a crowd of people about him, either from curiosity, or for the purpose of rescuing him from a perilous situation; all this he ought to have foreseen, and must be responsible for.³⁴

30. Beyond the scope of this Article are the laws and policies associated with federal funding of airports, including the grant assurance program, which obligate putatively local airports to comply with federal law. See FED. AVIATION ADMIN., ASSURANCES: AIRPORT SPONSORS (2014), https://www.faa.gov/airports/aip/grant_assurances/media/airport-sponsor-assurances-aip.pdf [<https://perma.cc/P63C-UV8A>].

31. 19 Johns. 381 (N.Y. Sup. Ct. 1822).

32. *Id.*

33. *Id.* at 381

34. *Id.* at 381, 383. More than a century after it was announced, the rule expressed in *Guille*, that the doctrine of strict liability controls legal disputes concerning injuries caused by aircraft to persons and things on land, was reformulated:

Guille reflected an early view of aviation as an ultra-hazardous activity for which owners, operators, and manufacturers were strictly liable.³⁵ The court subordinated the rights of early aviators to the rights of private property owners.³⁶ This changed in the middle of the last century, when regulators diminished the reach of private property owners relative to aviators.

In *United States v. Causby*, the United States Supreme Court abandoned the Roman doctrine of *cujus est solum ejus usque ad coelom*—“whoever owns the soil, it is theirs up to Heaven.”³⁷ The Court did so in connection with a lawsuit by a North Carolina farmer who sued the federal government for inverse condemnation. The landowner contended that Army and Navy bombers and fighter airplanes taking off and landing at an airfield close to his barn deprived him of the commercial uses and private enjoyment of his property.³⁸ In fact, heavy bombers, transports, and fighter airplanes repeatedly flew at low altitudes and landed along a “path of glide” that was a mere eighty-three feet above the farmer’s property, sixty-three feet above his barn, and eighteen feet above the highest tree on his property.³⁹ He claimed that light and noise from the airplanes not only terrified his family, but caused his chickens to kill themselves

If physical harm to land or to persons or chattels on the ground is caused by the ascent, descent or flight of aircraft, or by the dropping or falling of an object from the aircraft,

(a) the operator of the aircraft is subject to liability for the harm, even though he has exercised the utmost care to prevent it, and

(b) the owner of the aircraft is subject to similar liability if he has authorized or permitted the operation.

RESTATEMENT (SECOND) OF TORTS § 520A (AM. L. INST. 1977) (“Ground Damage from Aircraft”).

Some courts have applied a comparative negligence standard to the issue of whether owners and operators flying aircraft should be strictly liability for ground damage caused by operation of aircraft. *See, e.g., Crosby v. Cox Aircraft Co. of Wash.*, 746 P.2d 1198 (Wash. 1987). *Compare Rochester Gas & Elec. Corp. v. Dunlop*, 266 N.Y.S. 469, 473 (Ct. Ct. 1933) (finding strict liability for trespass and property damaged caused by airplane crash), *with Crist v. Civil Air Patrol*, 278 N.Y.S.2d 430, 433-34 (Sup. Ct. 1967) (declining application of strict liability or doctrine of *res ipsa loquitur* in absence of showing of intent to crash airplane: “Technological advances and development, and the experiences of the last two decades have dissipated the universal early fears that flying was an ultra-hazardous occupation. The application of the trespass theory advanced in the Dunlop case appears to be based to some extent on a recognition of such earlier fear.”).

35. *See* 19 Johns. at 383.

36. *Id.* at 382.

37. *See* 328 U.S. 256, 260-61 (1946).

38. *Id.* at 258.

39. *Id.*

from fright, effectively destroying his commercial chicken farming business on his private property.⁴⁰ The federal government argued that its airplane operations had not effected a deprivation or taking of the farmer's property under the Constitution.⁴¹

Government lawyers defended the flights on the basis of the Air Commerce Act of 1926. Under that law, Congress vested the national government with "complete and exclusive national sovereignty in the air space," reserving to American citizens "a public right of freedom of transit in air commerce through the navigable air space of the United States."⁴² The "navigable air space" included "airspace above the minimum safe altitudes of flight prescribed by the "Civil Aeronautics Board" (the FAA's predecessor entity).⁴³ Thus, according to the government, the flights at issue were merely an exercise of the right of travel through the airspace within the minimum safe altitudes for flight established under the Air Commerce Act.⁴⁴ Moreover, the flights could not and did not effect a taking because they occurred within the navigable airspace without any physical invasion of the farmer's property.⁴⁵ The government argued that, at most, only incidental damage occurred as a consequence of authorized air navigation.⁴⁶

The Supreme Court agreed that a taking had occurred, concluding that the airplane landings were as much an appropriation of the use of private property as a more conventional entry upon it:

We would not doubt that if the United States erected an elevated railway over [the farmer's] land at the precise altitude where its planes now fly, there would be a partial taking, even though none of the supports of the structure rested on the land. The reason is that there would be an intrusion so immediate and direct as to subtract from the owner's full enjoyment of the property and to limit his exploitation of it. While the owner does not in any physical manner occupy that stratum of airspace or make use of it in the conventional sense, he does use it in somewhat the same sense that space left between buildings for the purpose of light and air is used. The superadjacent airspace at this low altitude is so close to the land that continuous invasions of it affect the use of the surface of the land itself. We think that the landowner, as an incident to his ownership,

40. *Id.* at 259.

41. *See id.* at 260.

42. *Id.* (quoting 49 U.S.C. §§ 176(a), 403 (1938)).

43. *Id.* (quoting 49 U.S.C. § 180 (1938)).

44. *Id.*

45. *Id.*

46. *Id.*

has a claim to it and that invasions of it are in the same category as invasions of the surface.⁴⁷

Notably, the flights in *Causby* were not those of private operators, but of a public operator—the federal government. The farmer’s only remedy was monetary, in an amount that corresponded to whether the taking was temporary or permanent (an issue the Court did not reach). In its reasoning, the Court abandoned historical notions of unlimited air rights for private property rights and instead recognized a public navigational easement above private property for the use of aviators:

The flight of aircraft is lawful ‘unless at such a low altitude as to interfere with the then existing use to which the land or water, or the space over 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.’⁴⁸

The *Causby* majority reasoned that “[t]he airplane is part of the modern environment of life” where ancient doctrines of airspace ownership such as *ad coelom* “ha[d] no place in the modern world. The air is a public highway Were that not true, every transcontinental flight would subject the operator to countless trespass suits.”⁴⁹ *Causby* thus marked a reboot of putatively fixed property law doctrines, accepting as routine the concept of machines flying in the sky—above and through columns of airspace above privately owned parcels of land. But, *Causby* did not address at what altitude a private property owner’s air rights ended and the navigable air space began, particularly at low altitudes.

This unanswered question left many low-altitude airspace issues unresolved. In fact, mid-1940s era regulators had not codified any air traffic rules placing the airspace needed for take-off and landing within the public domain. Therefore, the Supreme Court was not asked to evaluate the validity of any regulation prescribing any specific altitude as the minimum safe altitude or the “immediate reaches above the land.”⁵⁰ As such, *Causby* did not define a precise altitude beneath which an aircraft (whether government- or privately-operated) could not fly over private property—an issue brought front and center by innovations in drone technology.

47. *Id.* at 264-65.

48. *Id.* at 266 (quoting N.C. GEN. STAT. § 63-11 (1943)).

49. *See id.* at 261, 266.

50. *See id.* at 266.

Today, FAA regulations define the minimum safe operating altitudes for different kinds of aircraft. Other than for takeoff and landing, a fixed-wing aircraft must fly at an altitude that allows its operators to conduct an emergency landing “without undue hazard to persons or property on the surface.”⁵¹ Over congested areas, the aircraft also must operate at least “1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.”⁵² Regulations reduce this altitude to “500 feet above the surface” over non-congested areas.⁵³ In contrast, a helicopter may be flown below the minimum safe altitudes prescribed for fixed-wing aircraft if operated “without hazard to persons or property on the surface.”⁵⁴

In all, the national airspace system (“NAS”) is segmented into two airspace areas: regulatory (Class A, B, C, D, and E airspace areas, as well as restricted and prohibited areas) and non-regulatory (military operations areas (“MOAs”), warning areas, alert areas, and controlled firing areas).⁵⁵ Within these two categories, there are four types of airspace: controlled, uncontrolled (e.g., Class G airspace is uncontrolled airspace), special use, and other airspace, extending to outer space (flight level 60,000 feet (“FL 600”)).⁵⁶

51. 14 C.F.R. § 91.119(a) (2010).

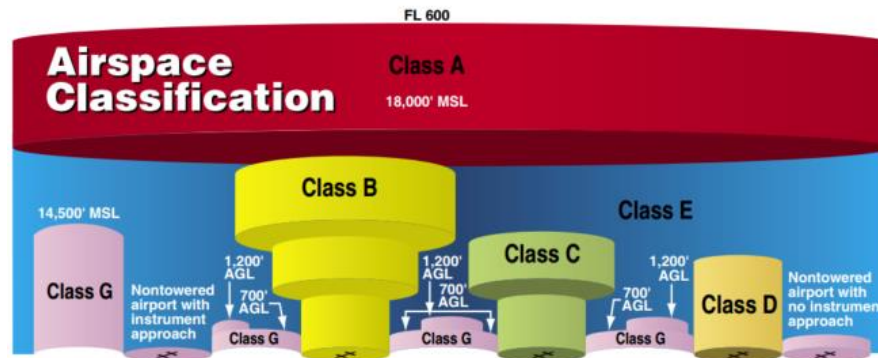
52. *Id.* § 91.119(b).

53. *See id.* § 91.119(c).

54. *Id.* § 91.119(d); *see also* People v. Sabo, 230 Cal. Rptr. 170, 174-75 (Cal. Ct. App. 1986) (“While helicopters may be operated at less than minimum altitudes so long as no hazard results, it does not follow that such operation is conducted within navigable airspace. The plain meaning of the statutes defining navigable airspace as that airspace above specified altitudes compels the conclusion that helicopters operated below the minimum are not in navigable airspace. The helicopter hovering above the surface of the land in such fashion as not to constitute a hazard to persons or property is, however, lawfully operated.”).

55. *Compare Types of Controlled Airspace*, FED. AVIATION ADMIN., https://www.faa.gov/gslac/ALC/course_content.aspx?cID=42&sID=505 [<https://perma.cc/MU29-TQ5K>] (discussing types of regulatory airspace areas), *with Other Special Use Airspace*, FED. AVIATION ADMIN., https://www.faa.gov/gslac/ALC/course_content.aspx?cID=42&sID=243 [<https://perma.cc/HEV2-2SCQ>] (discussing non-regulatory types of airspace areas).

56. *See* FAA, *Types of Controlled Airspace*, *supra* note 55.



The United States has sole and exclusive authority over the NAS pursuant to the Supremacy Clause of the Constitution. Its authority is announced in 49 U.S.C. § 40103(a):

Sovereignty and Public Right of Transit.

(1) The United States Government has exclusive sovereignty of airspace of the United States.

(2) A citizen of the United States has a public right of transit through the navigable airspace.⁵⁷

In addition to granting the United States government sole and exclusive authority of the NAS, federal law also authorizes the FAA to determine uses of the national airspace. Under 49 U.S.C. § 40103, the FAA has broad authority to regulate, control, and develop plans for the use of the navigable airspace and to formulate policy for navigable airspace.⁵⁸ The FAA specifically is invested with the power to “develop plans and policy for the use of the navigable airspace and assign by regulation or order the use of the airspace necessary to

57. 49 U.S.C. § 40103(a) (2012).

58. See 49 U.S.C. § 40101(d), which provides that the FAA must consider several matters as being in the public interest:

(1) assigning, maintaining, and enhancing safety and security as the highest priorities in air commerce; (2) regulating air commerce in a way that best promotes safety and fulfills national defense requirements; (3) encouraging and developing civil aeronautics, including new aviation technology; (4) controlling the use of the navigable airspace and regulating civil and military operations in that airspace in the interest of the safety and efficiency of both of those operations; (5) consolidating research and development for air navigation facilities and the installation and operation of those facilities; (6) developing and operating a common system of air traffic control and navigation for military and civil aircraft; and (7) providing assistance to law enforcement agencies in the enforcement of laws related to regulation of controlled substances, to the extent consistent with aviation safety.

ensure the safety of aircraft and the efficient use of airspace.”⁵⁹ Where drones fit into this regulatory scheme is unclear, as is who (e.g., local, state, or federal authorities) is empowered to regulate access and control of the low altitude airspace beneath the NAS where drones fly—including in areas below ground level and indoors.

III. QUESTIONS OF POLICE POWER AND REGULATORY AUTHORITY

The FAA has acknowledged the principle that local authorities have “police powers” in five areas that are generally not subject to federal regulation: land use, zoning, privacy, trespass, and law enforcement operations.⁶⁰ In this context many states and local governments have enacted their own drone specific laws, which include extending existing criminal laws to drone owners and operators, e.g., reckless endangerment, a requirement for police to obtain a warrant prior to using a UAV for surveillance, a prohibition on the use of UAVs for voyeuristic purposes, a ban on UAVs for hunting or fishing, and a disallowance on the weaponization of UAVs, etc.⁶¹ In areas such as law enforcement, however, local interests overlap with federal enforcement powers, raising the complicated question of who, as among federal, state, and local authorities, has jurisdiction and control over the airspace above airports with respect to UAS operations.

To date, the FAA has neither taken any legal action against any city or state’s drone-related laws, nor has it historically ever taken preemption action against decades-old city ordinances governing the flight of remote controlled aircraft within city limits and above city airspace.⁶² This inaction may reflect the well-established legal principle that cities have the authority to make reasonable time, manner, and place restrictions on airport and aircraft operations.⁶³ Under a 1940s-era statute in Florida, for example, the placement of

59. 49 U.S.C. § 40103(b).

60. Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42,064, 42,194 (June 28, 2016) (codified at 14 C.F.R. pts. 21, 43, 61, 91, 101, 107, et al.); *see also* Skysign Int’l, Inc. v. City & Cty. of Honolulu, 276 F.3d 1109, 1115 (9th Cir. 2002) (noting that advertising is not one of the five areas that local authorities have police powers over).

61. *See e.g.*, TIMOTHY M. RAVICH, COMMERCIAL DRONE LAW: DIGEST OF U.S. AND GLOBAL UAS RULES, POLICIES, AND PRACTICES (forthcoming American Bar Association 2017).

62. CTR. FOR CITY SOLS. & APPLIED RES., NAT’L LEAGUE OF CITIES, CITIES AND DRONES: WHAT CITIES NEED TO KNOW ABOUT UNMANNED AERIAL VEHICLES (UAVS) 5, 8 (2016), <http://www.nlc.org/sites/default/files/2016-12/NLC%20Drone%20Report.pdf> [<https://perma.cc/785J-HRLS>].

63. *See id.* at 9.

airports is a matter of state regulation,⁶⁴ as is the “area of land or water used for, or intended to be used for, landing and takeoff of aircraft, including appurtenant areas, buildings, facilities, or rights-of-way necessary to facilitate such use or intended use.”⁶⁵ Similar regulatory schemes exist in California,⁶⁶ Illinois,⁶⁷ Minnesota,⁶⁸ New York,⁶⁹ Oregon,⁷⁰ and Texas.⁷¹ As detailed below, how and whether laws originally designed for manned aviation can or should coexist with emerging federal law respecting unmanned aviation is an elephant in the room and likely an issue for litigation in courthouses around the nation.

A. Federalism and Preemption

While the new civil small UAV rule announced in June 2016—14 C.F.R. Part 107—allows private (i.e., civil) operators to fly small UAVs (i.e., less than fifty-five pounds) commercially, it does so in an incremental way. Indeed, the rule is a “performance-based” approach by federal aviation regulators to integrate drones into the

64. See FLA. STAT. § 330.30 (2005).

65. FLA. STAT. § 330.27 (2003).

66. See CAL. PUB. UTIL. CODE § 21663 (West 2016) (“It is unlawful for any political subdivision, any of its officers or employees, or any person to operate an airport unless an appropriate airport permit required by rule of the department has been issued by the department and has not subsequently been revoked.”).

67. See 620 ILL. COMP. STAT. 5/6, 42(b)(2) (2017) (authorizing the state to “classify and approve airports and restricted landing areas and any alterations or extensions thereof” where an “airport” means “any area of land, water, or both, except a restricted landing area, which is designed for the landing and take-off of aircraft . . . and all appurtenant areas used or suitable for airport buildings or other airport facilities, and all appurtenant rights of way . . .”).

68. See CITY OF HAM LAKE, MINN., CITY CODE 9-470 (2000) (“It shall be unlawful for any person operating a Regulated Aircraft to take off from or land upon any land in the City of Ham Lake except as provided herein.”); CITY OF HAM LAKE, MINN., CITY CODE 9-470.1 (2000) (“Regulated Aircraft are prohibited from landing or taking off in the R-1, R-2, R-M, ML-PUD, PUD, RS-1, and RS-2 zoning districts.”).

69. See N.Y. GEN. BUS. LAW §§ 240, 249 (McKinney 1967) (“No person shall . . . establish a privately-owned airport . . . except by authorization of the governing body of the city, village or town in which such airport or any part thereof is proposed to be established or improved” where “airport” means “any locality . . . which is used or intended to be used for the landing and take-off of aircraft . . .”).

70. See OR. REV. STAT. § 215.416 (2015); see also *Skydive Or., Inc. v. Clackamas Cty.*, 857 P.2d 879, 881-82 (Or. Ct. App. 1993).

71. See TEX. TRANSP. CODE ANN. § 24.021 (West 1997) (penalizing anyone who “takes off, lands, or maneuvers an aircraft, whether heavier or lighter than air, on a public highway, road, or street, except” in emergencies).

NAS.⁷² By August 2016, however, many states had already enacted their own UAV specific laws both to prevent risky operations and to respond to concerns about the potential for UAV operations of any kind to violate personal property and dignity (i.e., privacy) rights. Consequently, today, even after the enactment of Part 107, a patchwork of drone-centered statutes and ordinances has emerged beneath the altitude at which the NAS begins, pitting state UAV laws against national drone laws and presenting the questions of whether and how federal and state law are on the same level, and whether similar subject matters can coexist.⁷³

In contrast to the laws that have defined the relationship between federal and state governments for manned aviation over the last fifty years, UAV laws are not centralized. In fact, federal law on the matter is incomplete, and not every state has enacted drone specific laws. That being said, several states have enacted drone-centered laws alongside federal UAV laws, and in some states lawmakers acted specifically to fill a regulatory vacuum created by the years-long pace of rulemaking at the federal level. In the 2016 legislative session alone, at least thirty-eight states considered legislation related to UAVs.⁷⁴ Eighteen states—Alaska, Arizona, California, Delaware, Idaho, Illinois, Indiana, Kansas, Louisiana, Michigan, Oklahoma, Oregon, Rhode Island, Tennessee, Utah, Vermont, Virginia, and Wisconsin—passed thirty-two pieces of legislation.⁷⁵ “Alaska adopted a resolution supporting the aviation industry and urging the governor to make state land available for use in the

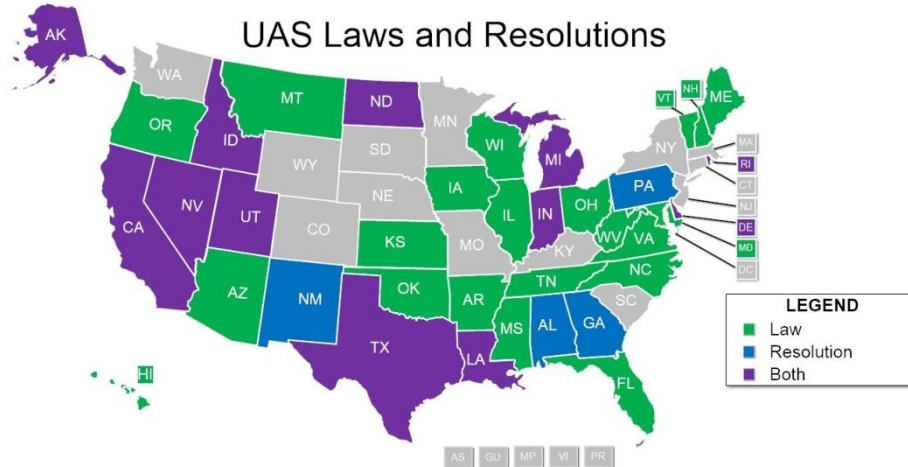
72. *See* Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42,071 (June 28, 2016) (“After considering the comments, the FAA has decided to proceed incrementally and issue a final rule that immediately integrates the lowest-risk small UAS operations into the NAS.”).

73. In 2016, Section 2152 of the Senate’s proposed FAA Reauthorization Act set out to broadly preempt both states and cities from enacting laws related to the design, manufacture, testing, licensing, registration, certification, operation, or maintenance of UAS, including airspace, altitude, flight paths, equipment or technology requirements, purpose of operations, and pilot, operator, and observer qualifications, training, and certification. *See* CTR. FOR CITY SOLS. & APPLIED RES., *supra* note 62, at 17 (citing H.R. 636, 114th Cong. (2016), <https://www.congress.gov/114/bills/hr636/BILLS-114hr636eas.pdf> [<https://perma.cc/V74F-J8CW>]). The proposed law also sought to prohibit states and cities from including drones in laws related to nuisance, voyeurism, privacy, data security, harassment, reckless endangerment, wrongful death, personal injury, or property damage. *Id.* Although this preemption language was not included in the final reauthorization act approved by Congress, it is unclear whether Congress will revisit the issue in the future. *See id.*

74. *Current Unmanned Aircraft State Law Landscape*, NAT’L CONF. OF ST. LEGISLATURES (Jan. 5, 2017), <http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape> [<https://perma.cc/KDJ5-XFBZ>].

75. *Id.*

development of UAS technology.”⁷⁶ Delaware adopted a resolution expressing support for the development of many facets of UAVs and the increased economic and training opportunities available within the FAA regulatory framework.⁷⁷ The governors of Georgia and North Dakota issued executive orders related to UAVs.⁷⁸ In all, while not every state has enacted UAV related legislation, every state except South Dakota has considered some type of UAV legislation as of 2017.⁷⁹



Of the states that enacted UAV laws, several expressly subordinated their laws to federal law or stated that their intent was *not* to interfere with federal law.⁸⁰ For example, in a standalone provision entitled “Conformity to Federal Law,” Alaska’s drone laws provide that state aviation authorities “may not adopt a regulation, order, or standard that is inconsistent or contrary to any act of the Congress of the United States or regulations promulgated or standards established.”⁸¹ The law goes on to say that “[a] regulation, order, or standard may not be adopted that duplicates any current rules or regulations issued by a federal agency, or that applies to aircraft, airports, or air navigation facilities owned or operated by the

76. *Id.*

77. *Id.*

78. *Id.*

79. See *Taking Off: State Unmanned Aircraft Systems (Drones) Policies*, NAT’L CONF. OF ST. LEGISLATURES (Jan. 24, 2017), <http://www.ncsl.org/research/transportation/taking-off-state-unmanned-aircraft-systems-policies> [<https://perma.cc/7SAA-LWWJ>].

80. See NAT’L CONF. OF ST. LEGISLATURES, *supra* note 74.

81. ALASKA STAT. § 02.15.030 (2016).

federal government.”⁸² No court has had the occasion to decide if this sort of language is consistent with existing federal law or whether existing federal aviation regulations have priority over state drone laws under no less an authority than the Supremacy Clause of the United States Constitution.

In the absence of definite authority on the matter, the FAA issued a fact sheet in December of 2015 entitled “State and Local Regulation of Unmanned Aircraft Systems (UAS).”⁸³ There, the FAA suggested that “[s]tate and local restrictions affecting UAS operations should be consistent with the extensive federal statutory and regulatory framework pertaining to control of the airspace, flight management and efficiency, air traffic control, aviation safety, navigational facilities, and the regulation of aircraft noise at its source.”⁸⁴ Otherwise, the FAA contends:

Substantial air safety issues are raised when state or local governments attempt to regulate the operation or flight of aircraft. If one or two municipalities enacted ordinances regulating UAS in the navigable airspace and a significant number of municipalities followed suit, fractionalized control of the navigable airspace could result. In turn, this “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 air traffic flow. A navigable airspace free from inconsistent state and local restrictions is essential to the maintenance of a safe and sound air transportation system.⁸⁵

Framed in this way, the FAA has asserted exclusive jurisdiction over UAS operations in the NAS on the basis that Congress vested it with authority to regulate the areas of airspace use, management and efficiency, air traffic control, safety, navigational facilities, and aircraft noise at its source.⁸⁶ Indeed, Congress directed the FAA to “develop plans and policy for the use of the navigable airspace and assign by

82. *Id.*

83. OFF. OF THE CHIEF COUNSEL, FED. AVIATION ADMIN., STATE AND LOCAL REGULATION OF UNMANNED AIRCRAFT SYSTEMS (UAS) FACT SHEET (2015) [hereinafter UAS FACT SHEET], https://www.faa.gov/uas/resources/uas_regulations_policy/media/uas_fact_sheet_final.pdf [https://perma.cc/9RDZ-VAFC]; see also *FAA Issues Fact Sheet on State and Local UAS Laws*, FED. AVIATION ADMIN. (Dec. 17, 2015), <https://www.faa.gov/news/updates/?newsId=84369> [https://perma.cc/M4LT-S4S8].

84. UAS FACT SHEET, *supra* note 83, at 1.

85. *Id.* at 2.

86. See *id.* at 1 (citing 49 U.S.C. §§ 40103, 44502, 44701-44735 (2012)).

regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace.”⁸⁷ Congress

[f]urther directed the FAA to “prescribe air traffic regulations on the flight of aircraft (including regulations on safe altitudes)” for navigating, protecting, and identifying aircraft; protecting individuals and property on the ground; using the navigable airspace efficiently; and preventing collisions between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.⁸⁸

From this grant, the FAA has taken the position that it has total regulatory authority over matters pertaining to aviation safety and that its complete authority in the area of aviation safety ensures the maintenance of a safe and sound air transportation system and of navigable airspace free from inconsistent restrictions.⁸⁹

At the same time, however, the FAA elected not to supply a rule addressing the extent of Part 107’s preemptive effect on state and local regulation of UAS. In the preamble to Part 107, the FAA actually stated several matters over which local regulation could be appropriate, noting:

[T]his rule does not address preemption issues because those issues necessitate a case-specific analysis that is not appropriate in a rule of general applicability. The FAA notes, however, that state governments have historically been able to regulate the takeoffs and landings of aircraft within their state boundaries.⁹⁰

....

The FAA is not persuaded that including a preemption provision in the final rule is warranted at this time. Preemption issues involving small UAS necessitate a case-specific analysis that is not appropriate in a rule of general applicability. Additionally, certain legal aspects concerning small UAS use may be best addressed at the State or local level. For example, State law and other legal protections for individual privacy may provide recourse for a person whose privacy may be affected through another person’s use of a UAS.⁹¹

....

Adjudicating private property rights are beyond the scope of this rule. However, the provisions of this rule are not the only set of

87. *Id.* (quoting 49 U.S.C. § 40103(b)(1) (2012)).

88. *Id.* at 1-2 (quoting 49 U.S.C. § 40103(b)(2) (2012)).

89. *Id.* at 2 (“A consistent regulatory system for aircraft and use of airspace has the broader effect of ensuring the highest level of safety for all aviation operations.”).

90. Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42,064, 42,189 (June 28, 2016).

91. *Id.* at 42,194.

laws that may apply to the operation of a small UAS. With regard to property rights, trespassing . . . may be addressed by State and local trespassing laws.⁹²

....

[UAV operators] who do not have the facility owner's permission to operate a UAS near or over the perimeter or interior of amusement parks and attractions may be violating State or local trespassing laws.⁹³

....

State law and other legal protections may already provide recourse for a person whose individual privacy, data privacy, private property rights, or intellectual property rights may be implicated by a remote pilot's civil or public use of a UAS.⁹⁴

....

Substantial air safety issues are implicated when State or local governments attempt to regulate the operation of aircraft in the national airspace. The Fact Sheet provides examples of State and local laws affecting UAS for which consultation with the FAA is recommended and those that are likely to fall within State and local government authority. For example, consultation with FAA is recommended when State or local governments enact operational UAS restrictions on flight altitude, flight paths; operational bans; or any regulation of the navigable airspace.⁹⁵

The FAA has thus conceded some room for state and local UAS laws, albeit recommending that state authorities first consult federal aviation authorities in such matters. For example, a city ordinance that bans anyone from operating UAS within the city limits, within the airspace of the city, or within certain distances of landmarks should be coordinated with the FAA, as should operational UAS restrictions on flight altitude, flight path, operational bans, and any regulation of the navigable airspace.⁹⁶ State and local authorities should also consult with the FAA if and when mandating safety-related equipment or UAS training—areas the FAA contends would likely be preempted.⁹⁷

92. *Id.* at 42,119.

93. *Id.* at 42,132.

94. *Id.* at 42,192.

95. *Id.*

96. UAS FACT SHEET, *supra* note 83, at 3.

97. *See id.* (“Courts have found that state regulation pertaining to mandatory training and equipment requirements related to aviation safety is not consistent with the federal regulatory framework.”).

Miami-Dade County's Ordinance Section 37-12 entitled, "Public Safety and Unmanned Aircraft Systems Commonly Known as Drones," is an example of a failure in coordination between local and federal UAS regulators—with fault attributable to both parties.⁹⁸ Miami's ordinance brought national attention to the tension between local governments and the FAA, when lawyers from the FAA called the city council to clarify that the federal agency had ultimate control over airspace.⁹⁹ Part 107 does not diminish the potential for future similar conflicts between local and national authorities, as the FAA intends to "address preemption issues on a case-by-case basis rather than doing so in a rule of general applicability."¹⁰⁰ As to the regulation of flight altitude, flight paths, operational bans, or any regulation of the navigable airspace, moreover, the FAA declined to say whether local law was prohibited, stating instead that "consultation with FAA is recommended."¹⁰¹

B. Dillon's Rule: The Role of Local UAV Governance

Like their counterparts at the national and state level, local lawmakers have tried to manage the proliferation of UAV operations over, near, at, and around airports, critical infrastructure, and public and private property by enacting various codes, ordinances, and policies.¹⁰² An unsuccessful attempt by the town of Deer Trail, Colorado, to authorize the issuance of licenses that would allow residents to hunt and shoot down drones is perhaps the most fantastic example.¹⁰³

Like their state counterparts, local authorities have acted where the efforts of federal regulators have lagged. In November 2015, for example, Chicago became the first major American city to pass a

98. See Matt Grosack, *New Miami City Drone Ordinance Here to Stay?*, DAILY BUS. REV. (Jan. 12, 2016), <http://www.dailybusinessreview.com/id=1202746857801/New-Miami-City-Drone-Ordinance-Here-to-Stay> [<https://perma.cc/3Z84-MQV3>].

99. Cecilia Kang, *F.A.A. Drone Laws Start to Clash with Stricter Local Rules*, N.Y. TIMES (Dec. 27, 2015), <https://www.nytimes.com/2015/12/28/technology/faa-drone-laws-start-to-clash-with-stricter-local-rules.html> [<https://perma.cc/D7F4-Z7PL>].

100. Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42,119 (June 28, 2016) (to be codified at 14 C.F.R. pt. 107).

101. *Id.* at 42,194.

102. To access a broad listing of county and municipal UAS legislative proposals, see *Local Regulation*, DOMESTICATING THE DRONE, <http://uavs.insct.org/local-regulation> [<https://perma.cc/7JUZ-LV7D>].

103. See, e.g., Katy Steinmetz, *Colorado Town Won't Issue Drone-Hunting Licenses*, TIME (Apr. 1, 2014), <http://time.com/46327/drone-hunting-deer-trail> [<https://perma.cc/ZEA2-TUBE>].

comprehensive drone ordinance.¹⁰⁴ The co-sponsor of the ordinance, Alderman Edward Burke, explained the need for a local ordinance by stating, “[notwithstanding] those proposals being discussed in Washington, Chicago simply needs local laws in place to authorize the city to take action against those who operate drones recklessly and threaten public safety.”¹⁰⁵

Relating specifically to “small unmanned aircraft,” the Chicago ordinance did what many other local ordinances do—it established some of the same rules already promulgated by the FAA. Namely, the ordinance prohibits any person from flying such aircraft “in city airspace” with the following exceptions: for hobby or recreational purposes; over any person who is not involved in the operation of the small unmanned aircraft, without such person’s consent; over property that the operator does not own without the property owner’s consent and subject to any restrictions that the property owner may place on such operation; at an altitude higher than four hundred feet above ground level; in a careless or reckless manner; in violation of federal or state law; or within five miles of an airport.¹⁰⁶ Violators are subject to a fine between five hundred and five thousand dollars or may be incarcerated for a term of up to 180 days.¹⁰⁷ Despite its redundancy with federal UAV regulations, the ordinance carves out an exception for federal law:

Operations Authorized by the FAA—Exception. Notwithstanding the prohibitions set forth in this section, nothing in this section shall be construed to prohibit, limit or otherwise restrict any person who is authorized by the Federal Aviation Administration to operate a small unmanned aircraft in city air space, pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 or a certificate of waiver, certificate of authorization or airworthiness certificate under Section 44704 of Title 49 of the United States Code or other Federal Aviation Administration grant of authority for a specific flight operation(s), from conducting such operation(s) in accordance with the authority granted by the Federal Aviation Administration.

....

104. See CTR. FOR CITY SOLS. & APPLIED RES., *supra* note 62, at 21; see also CHI., ILL., MUN. CODE § 10-36-400 (2015).

105. Fran Spielman, *Drone Regulations Fly with City Council*, CHI. SUN-TIMES (Nov. 18, 2015), <http://chicago.suntimes.com/politics/drone-regulations-fly-with-city-council> [<https://perma.cc/4W9N-WDEU>].

106. CHI., ILL., MUN. CODE § 10-36-400(b); see also CTR. FOR CITY SOLS. & APPLIED RES., *supra* note 62, at 21.

107. CHI., ILL., MUN. CODE § 10-36-400(d).

Operations Prohibited by the FAA—Clarification. Nothing in this section shall be construed to authorize the operation of any small unmanned aircraft in city airspace in violation of any Federal statute or rules promulgated thereunder, including, but not limited to, any temporary flight restrictions or notices to airmen issued by the Federal Aviation Administration.¹⁰⁸

Other local laws around the nation are both subordinate on their face and duplicative of federal regulations. For example, Ordinance No. 16-10 in Lawton, Oklahoma, relies on federal regulations, stating that “[u]nmanned aircraft Systems operations must be conducted in strict compliance with all Federal Aviation Administration regulations applicable to the particular operation” and that “[e]xcept for UAS operations specifically authorized by the FAA, the area within five (5) miles of and on airport property is a no drone zone. Unauthorized UAS operations in the no drone zone are strictly prohibited.”¹⁰⁹ Again, whether these laws could survive a preemption challenge by federal regulators is a legal question that has not been yet tested in court.

Finally, some states have cut off the ability of cities, municipalities, and local governments to regulate UAVs altogether by enacting state statutes giving state UAV law preemptive effect. A state’s right to preempt and subordinate local law is sometimes referred to as Dillon’s Rule, named in connection with court decisions issued by Judge John F. Dillon of Iowa in 1868.¹¹⁰ Dillon’s Rule affirms the narrow interpretation of a local government’s authority, in which a sub-state government may engage in an activity only if it is specifically sanctioned by the state government.¹¹¹ The tenets of Dillon’s Rule have become a cornerstone of American municipal law and have been applied to municipal powers in most states, providing that: municipal corporations can exercise only the powers explicitly granted to them; those necessarily or fairly implied in or incident to the powers expressly granted; and those essential to the declared objects and purposes of the corporation, not simply convenient, but

108. *Id.*

109. LAWTON, OKLA., CODE OF ORDINANCES, § 7-3-2-343 (2016).

110. *See Local Government Authority*, NAT’L LEAGUE OF CITIES, <http://www.nlc.org/build-skills-and-networks/resources/cities-101/city-powers/local-government-authority> [https://perma.cc/HS4L-QJS3].

111. *See generally* JOHN F. DILLON, COMMENTARIES ON THE LAW OF MUNICIPAL CORPORATIONS § 237 (5th ed. 1911).

indispensable.¹¹² A number of states have applied Dillon’s Rule to drone law:

- Alaska state law preempts local law with respect to images captured by drones, stating, “[a] municipality may not adopt an ordinance that permits the release of images captured by an unmanned aircraft system in a manner inconsistent with [Alaska Stat.] 18.65.903” which governs the retention of images.¹¹³

- Arizona state law provides that “[e]xcept as authorized by law, a city, town or county may not enact or adopt any ordinance, policy or rule that relates to the ownership or operation of an unmanned aircraft system or otherwise engage in the regulation of the ownership or operation of an unmanned aircraft or unmanned aircraft system. Any ordinance, policy or rule that violates this subsection, whether enacted or adopted by the city, town or county before or after [the effective date of this section], is void.”¹¹⁴

- Maryland codified a law that vests the state government with exclusive authority to regulate the testing or operation of unmanned aircraft systems, preempting the authority of counties and municipalities: “Only the State may enact a law or take any other action to prohibit, restrict, or regulate the testing or operation of unmanned aircraft systems in the State.” As such, the law “(1) preempts the authority of a county or municipality to prohibit, restrict, or regulate the testing or operation of unmanned aircraft systems; and (2) supersedes any existing law or ordinance of a county or municipality that prohibits, restricts, or regulates the testing or operation of unmanned aircraft systems.”¹¹⁵

- In 2016, Rhode Island enacted its first drone law, giving the state and the Rhode Island Airport Cooperation exclusive authority to regulate “any object capable of flying that is remotely controlled and flies autonomously through software-controlled flight plans embedded in the object’s system by a global-position system,

112. *See id.* at 449; NAT’L LEAGUE OF CITIES, *supra* note 110 (“Thirty-nine states employ Dillon’s Rule to all municipalities: Arizona, Arkansas, Connecticut, Delaware, Georgia, Hawaii, Idaho, Kentucky, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New York, North Carolina, North Dakota, Oklahoma, Pennsylvania, Rhode Island, South Dakota, Texas, Vermont, Virginia, West Virginia, Washington, Wisconsin and Wyoming. The following eight states employ the rule for only certain municipalities: Alabama, California, Colorado, Illinois, Indiana, Louisiana and Tennessee. The only exception to the exclusive selection of home rule or Dillon’s rule is the state of Florida, which employs home rule but reserves taxing authority for the state.”).

113. ALASKA STAT. § 29.35.146 (2014).

114. ARIZ. REV. STAT. ANN. § 13-3729(C) (2016).

115. MD. CODE ANN., ECON. DEV. § 14-301(b)-(c) (West 2015).

commonly known as unpiloted aerial vehicles, remotely piloted aircraft, drones, or unmanned aircraft systems.”¹¹⁶ But all of this may be for naught as the law concludes by stating that “[i]f federal law preempts any provision of this chapter, that provision shall not apply.”¹¹⁷

- No locality in Virginia is permitted to regulate the use of privately owned, unmanned aircraft system within its boundaries.¹¹⁸

In contrast to these jurisdictions, a unit of local government in North Carolina has explicit authority to adopt an ordinance to regulate the use of the local government’s property for the launch and recovery of UAS.¹¹⁹ Overall, applying Dillon’s Rule in the drone age is a new legal issue, though it would seem that local laws should have priority over broader state laws, which should have priority over even broader federal rules of the air, as is the case in other transportation modes and as was the case when state courts acceded to local and municipal plans to zone, finance, and operate local airports.¹²⁰

IV. UAVS AND AIRPORTS

The likely emergence of airports dedicated exclusively to unmanned aviation further complicates the foregoing discussion of police powers, preemption and Dillon’s Rule as applied to traditional airports and manned aviation.¹²¹ For example, just last year the

116. 1 R.I. GEN. LAWS § 1-8-1 (2016); 2016 R.I. Pub. Laws 261.

117. 2016 R.I. Pub. Laws 261.

118. VA. CODE ANN. § 15.2-926.3 (2016); *see also* Op. Att’y Gen. (2015), 2015 WL 4502248 (Va. A.G.) (“[I]t is my opinion that the federal Deregulation Act expressly preempts state or local regulation of the routes, rates, and services of commercial drones used to transport property across state lines. Furthermore, the Aviation Act and FMRA preempt state and local regulation of drone safety, operational standards, and airspace designations, including particular issues relating to drone certification, training, and licensure. There are certain exceptions to federal preemption, as discussed above. States remain free to enact laws relating to drones if the laws fall outside the scope of the Aviation Act and FMRA and do not conflict with other federal laws or regulations. In particular, states may regulate small drones that are exempted from federal regulation under the FMRA, and they may also enact laws for drones that address issues of privacy and property and also criminal offenses, so long as the laws do not conflict with the language or purpose of any existing federal aviation law.”).

119. *See* N.C. GEN. STAT. ANN. § 15A-300.2(b) (West 2014).

120. *See supra* Part I.

121. Though rare, drones and traditional aircraft do operate side-by-side at some airports today. At airfields like Creech Air Force Base in Clark County, Nevada, for example, UAVs with wingspans as wide as a Boeing 757 take off, navigate, communicate, and land in a coordinated and integrated way with traditional manned aircraft. *See, e.g., Creech Air Force Base in Indian Springs, NV*, MILITARYBASES.COM, <https://militarybases.com/creech-afb-air-force-base-in-indian->

Boulder City Council in Nevada unanimously approved a twenty-year joint land-lease agreement between the city and Aerodrome to build a drone airport in Eldorado Valley.¹²² In addition, the Small Business Committee of the United States House of Representatives recently heard testimony about private companies interested in developing airports specifically for drones—so-called “droneports.”¹²³

Meanwhile, interest in drone-only facilities is significant internationally. For example, Rwanda could be the first country in the world with a network of drone airports, as its civil aviation authority is reportedly drafting regulations ahead of investor interest in building a logistics system in Africa to transport medicine in areas difficult to reach by road.¹²⁴ These droneports will “support cargo drone routes capable of delivering urgent and precious supplies to remote areas on a massive scale,” according to a British architecture firm that foresees droneports as a new and potentially ubiquitous typology:

Cargo drone routes have utility wherever there is a lack of roads. Just as mobile phones dispensed with landlines, cargo drones can transcend geographical barriers such as mountains, lakes, and unnavigable rivers without the need for large-scale physical infrastructure. Just a third of Africans live within two kilometres of an all-season road, and there are no continental motorways, almost no tunnels, and not enough bridges that can reach people living in far-flung areas of the continent. It would require unprecedented levels of investment in roads and railways to catch up with the exponential growth in Africa’s population, which is set to double to 2.2 billion by 2050. An ‘infrastructural leap’ is essential using drone technology and clean energy systems to surmount the challenges of the future.

springs-nv [<https://perma.cc/7AF2-NDUC>]. Meanwhile, Syracuse’s Hancock International Airport became the nation’s first commercial airport with federal permission to launch and land unmanned aircraft, including daily training flights of the Air National Guard’s 174th Attack Wing MQ-9 Reaper drones. *See, e.g.*, Rick Moriarty, *Reaper Military Drone Makes History in Syracuse*, SYRACUSE.COM (Dec. 16, 2015), http://www.syracuse.com/business-news/index.ssf/2015/12/reaper_military_drone_makes_history_in_syracuse.html [<https://perma.cc/4GEN-92SD>].

122. *See* Max Lancaster, *City OKs 20-Year Land Lease to Build Droneport*, BOULDER CITY REV. (Oct. 26, 2016), <http://bouldercityreview.com/news/city-oks-20-year-land-lease-build-droneport> [<https://perma.cc/3WJD-HPZQ>].

123. Stephanie Beasley, *Droneport Approval Sought from FAA*, BLOOMBERG BNA (Sept. 28, 2016), <https://www.bna.com/droneport-approval-sought-n57982077642> [<https://perma.cc/9CQ6-3KCN>].

124. *See Rwanda to Host World’s First ‘Drone Airport,’* NEW TIMES (Oct. 8, 2015), <http://www.newtimes.co.rw/section/article/2015-10-08/193297> [<https://perma.cc/VD3M-G5CB>].

The specialist drones can carry blood and life-saving supplies over 100 kilometres at minimal cost, providing an affordable alternative that can complement road-based deliveries. Two parallel networks would operate services, the Redline using smaller drones for medical and emergency supplies; and the commercial Blueline that would transport crucial larger payloads such as spare parts, electronics, and e-commerce, complementing and subsidising the Redline network.

The Droneport offers a new typology for a building which we hope will grow into a ubiquitous presence, much like petrol stations have become dispersed infrastructure for road traffic. The proposal will have a strong civic presence, based on sharing and multiple uses. It allows for safe landing of quiet drones in a densely packed area, and includes a health clinic, a digital fabrication shop, a post and courier room, and an e-commerce trading hub, allowing it to become part of local community life.¹²⁵

Notwithstanding this and other future-oriented initiatives for droneports, current UAV operations present traditional airports with significant challenges, particularly in the dynamic and comparatively busy NAS over the United States. For instance, no standards, including established traffic patterns, exist for UAV operation.¹²⁶ In terms of facility planning, moreover, the United States Department of Transportation transmitted the 2017-2021 National Plan of Integrated Airport Systems (“NPIAS”) to Congress on September 30, 2016, and recently released the National Plan of Integrated Airports Systems 2017-2021.¹²⁷ But, only two of eighty pages in these documents discuss UAS, and even then only by way of brief overview and summary.¹²⁸ Still, the FAA has voiced certain goals respecting the safe integration of UAS proximity to airports:

The FAA’s goal is to safely integrate UAS into the NAS. Safety of the NAS is enhanced when the operator of a UAS and the airport operator coordinate prior to a UAS flight on or near an airport. This coordination enhances integration into the NAS by:

- Allowing the airport operator to help the operator of the UAS aircraft understand the areas of manned aircraft flight near

125. *Proposals for Droneport*, *supra* note 8.

126. Jonathan Daniels, *Aerodrome*, Comments at UAS Issues and Integration Conference, *supra* note 9 (noting that *Aerodrome* is treating UAS like an ultralight in the absence of traffic patterns and standards for UAS operations).

127. FED. AVIATION ADMIN., REPORT TO CONGRESS: NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS) 2017-2021, https://www.faa.gov/airports/planning_capacity/npias/reports/media/NPIAS-Report-2017-2021-Narrative.pdf [<https://perma.cc/4NT9-YNHU>].

128. *See id.* at 51-52.

the airport, reducing the potential for conflicts between UAS activities and manned aircraft flights;

- Allowing the airport operator to understand the proposed parameters of the UAS activities for situational awareness and coordination with airport tenants and users as necessary;
- Allowing the airport operator to advise the UAS operator of unique manned aircraft activities near the airport (e.g., parachute activities, glider activities, etc.);
- Allowing the airport operator to understand where UAS activities on or near the airport are occurring; and
- Encouraging coordination of the airport sponsor with the local Air Traffic Control (ATC) facilities, Flight Standards District Office (FSDO), and Airports District Office (ADO), and local law enforcement.¹²⁹

While these regulatory aspirations for small UAV operations have been generally well received—as has Part 107, allowing flight for civil (including commercial) purposes under certain circumstances—the UAV community has expressed confusion about UAV operations near the nation’s 19,000 commercial, cargo, and general aviation airports, particularly with respect to: (1) the notice UAS operators must give airports in (uncontrolled) Class G airspace, if any, and (2) whether airport owners, managers, and sponsors can refuse or decline to allow UAV operations near their airports without running afoul of FAA jurisdiction over matters of safety in the NAS.¹³⁰

Indeed, while Part 107 identifies who can fly and under what circumstances, airports around the nation have expressed uncertainty about whether UAV operators must provide advance notice of their operations and, as important, whether airports can deny requests for UAV operation.¹³¹ Part 107, in fact, offers scant guidance, containing two—but only two—provisions explicitly dealing with airports and airspace in the vicinity of airports:

14 C.F.R. § 107.41 Operation in certain airspace. No person may operate a small unmanned aircraft in Class B, Class C, or Class D airspace or within the lateral boundaries of the surface area of Class E airspace designated for an airport unless that person has prior authorization from Air Traffic Control (ATC).

129. *Unmanned Aircraft Systems (UAS) for Airport Operators*, FED. AVIATION ADMIN., https://www.faa.gov/airports/special_programs/uas_airports [https://perma.cc/KHP2-JH7H] (last updated Nov. 1, 2016).

130. *See, e.g.*, UAS Issues and Integration Conference, *supra* note 9 (various stakeholder comments).

131. *See id.*

14 C.F.R. § 107.43 Operation in the vicinity of airports. No person may operate a small unmanned aircraft in a manner that interferes with operations and traffic patterns at any airport, heliport, or seaplane base.

Causing further confusion is language in the preamble to Part 107 in which the FAA has emphasized its exclusive authority of the airspace overlying an airport, while at the same time acknowledging that airports have the power to govern UAV operations on the surface of the airport. The FAA stopped short of allowing airports to regulate the airspace above and near the airport with respect to UAV operations:

Under 49 U.S.C. 40103, the FAA has the sole authority to regulate airspace, including airspace overlying an airport. While airport operators have the ability to manage operations on the surface of the airport, airport operators may not regulate the use of airspace above and near the airport. In an effort to safely integrate small unmanned aircraft and manned aircraft at an airport, airport operators may recommend certain areas where small UAS operate, in order to avoid conflicts with manned aircraft. The FAA does not consider the notification of airport operators to significantly enhance the safety of integration with existing operations. The requirement for notification creates a burden on the airport operator with little benefit to users of the airport, because the airport operator would have no requirement to disseminate knowledge of small UAS operations to other airport users.¹³²

In this context, the Experimental Aircraft Association, the National Association of State Aviation Officials, the Minneapolis-Saint Paul Metropolitan Airports Commission, the United States Hang Gliding & Paragliding Association, the Permanent Editorial Board of the Aviators Model Code of Conduct Initiative, and several individual commentators argued that the FAA should require operators intending to fly small UAVs within five miles of airports in Class G airspace to notify airport authorities in advance of the operations.¹³³ These commenters said that such notification would allow airport authorities, in turn, to notify aircraft in proximity of the airport of the small UAV activity.¹³⁴ Other airport stakeholders argued that airport operators should be permitted to limit small UAV operations on and around airports.¹³⁵ The FAA has specifically

132. Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42,064, 42,149 (June 28, 2016).

133. *Id.*

134. *See id.*

135. *See id.*

declined to require notification to the airport under Part 107, however, providing instead:

Because the NPRM did not contemplate prohibiting operations within the vicinity of an airport in class G airspace, the FAA will not restrict small UAS operations within a specified distance from an airport. Rather, in response to concerns regarding the integration of small UAS and manned aircraft, this rule will prohibit remote pilots from operating their small unmanned aircraft in a manner that interferes with operations and traffic patterns at airports, heliports, and seaplane bases.¹³⁶

....

Because remote pilots have an obligation to yield right of way to all other aircraft and avoid interfering in traffic pattern operations, the FAA expects that most remote pilots will avoid operating in the vicinity of airports because their aircraft generally do not require airport infrastructure, and the concentration of other aircraft increases in the vicinity of airports.¹³⁷

This scheme, instead of offering clarity, has created uncertainty about airport notification requirements related to UAV activity. While Part 107 seems not to require advance notice by UAV operators to uncontrolled airports, other laws, including Section 333 of the FAA Modernization and Reform Act of 2012, require UAV operators to either notify or seek approval from airports regarding their intent to operate near airports.¹³⁸

Some local authorities are filling the regulatory void. For example, the City of Longmont, Colorado, Ordinance 13.39.040 identifies UAV flight as a “restricted activity” such that operators must provide advance notification to an airport manager before flying and fly in accordance with the specific requirements stipulated by the airport manager unless otherwise approved by agreement, aircraft operators, or owners.¹³⁹ The ordinance further states that UAV operators “within five miles of the airport shall comply with all applicable legal requirements. This may include, but is not limited to, notifying and obtaining written permission from the airport manager to fly UAV

136. *Id.* at 42,148.

137. *Id.*

138. *See, e.g.*, H.R. REP. NO. 112-381 (2012) (Conf. Rep.), www.gpo.gov/fdsys/pkg/CRPT-112hrpt381/pdf/CRPT-112hrpt381.pdf [<https://perma.cc/J6LP-FKG7>]; *see also* AIRPORTS COUNCIL INT’L-N. AM., REPORT OF ACI-NA MULTI-COMMITTEE TASK FORCE ON UNMANNED AERIAL VEHICLES 6 (2016), <http://www.aci-na.org/sites/default/files/2016-uavs-taskforce-report.pdf> [<https://perma.cc/FEE9-TT23>].

139. LONGMONT, COLO., MUN. CODE § 13.39.040(L)(6).

or UAS within protected airspace.”¹⁴⁰ Ordinances like this fail to resolve the questions raised above about reconciling police power, preemption, and Dillon’s Rule.

In any case, the absence of any regulatory requirement of notice of UAV operations in unsupervised airspace (Class G airspace) near airport runways is a major issue for many airport operators. “Dangerous” is how one airport manager described the situation: “What’s to prevent somebody from flying at the end of my runway?”¹⁴¹ Indeed, while the FAA has asserted exclusive jurisdiction over the NAS—that is, all airspace “above the grass”—airport operators and sponsors have expressed concern about a regulatory scheme that allows them to stop an operator from launching a UAV, but not from flying near or around the airport.¹⁴²

CONCLUSION

Nearly thirty years ago, in a dissenting opinion in *Florida v. Riley*, Justice William Brennan presented a hypothetical situation prophetic of modern drone operations and the limitations of property law:

Imagine a helicopter capable of hovering just above an enclosed courtyard or patio without generating any noise, wind, or dust at all—and, for good measure, without posing any threat of injury. Suppose the police employed this miraculous tool to discover not only what crops people were growing in their greenhouses, but also what books they were reading and who their dinner guests were. Suppose, finally, that the FAA regulations remained unchanged, so that the police were undeniably “where they had a right to be.” Would today’s plurality continue to assert that “[t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures” was not infringed by such surveillance? Yet that is the logical consequence of the plurality’s rule that, so long as the police are where they have a right to be under air traffic regulations, the Fourth Amendment is offended only if the aerial surveillance interferes with the use of the backyard as a garden spot. Nor is there anything in the plurality’s opinion to suggest that any different rule would apply were the

140. *Id.*

141. Telephone Interview with Executive Director of a Regional Airport (Sept. 27, 2016) (contending that safety is all about layers and that by removing the airport, the FAA—which has limited staff to deal with UAS operators in the first place—has given airports “no teeth” in enforcing safe operations of UAS).

142. See Tara Kalar & Rick Braunig, *Drones in the City—How to Fly Within the Law*, LEAGUE OF MINN. CITIES (Dec. 13, 2016), <http://www.lmc.org/drones-webinar2016> [https://perma.cc/5LYN-3QYE].

police looking from their helicopter, not into the open curtilage, but through an open window into a room viewable only from the air.¹⁴³

Today, drones are the “miraculous tool” Justice Brennan imagined. However, the law remains unsettled as to where public or private operators “have a right to be” or who has the authority to say. In addition, drone operations pose a complex problem beyond where to fly and who, among local, state, and federal officials, should regulate that flight. The equipage of over-the-counter drones, including high-definition cameras and live-streaming imaging sensors, is incredibly invasive. The law has yet to catch up with these advances on the ground even as the availability of “smart” devices become common and public attitudes about privacy (e.g., Facebook) change in comprehensive ways.

Alternatively, consider the first aviation law in the United States, which was well ahead of its time. The town of Kissimmee, Florida, enacted an ordinance in 1908 regulating the town’s airspace up to twenty-five miles above the ground, forbidding the flight of any balloons, airplanes, helicopters, ornithopters, or airships from flying within ten feet of streets and alleys, or within twenty feet of any pavement at a speed greater than eight miles per hour.¹⁴⁴ Section 10 of the ordinance stated: “As soon as practicable, the Council shall purchase an aeroplane of approved modern type for the use of the marshal in the performance of his public duties, and to enable him to properly enforce the provisions of this ordinance.”¹⁴⁵ The ordinance is noteworthy because no airplanes flew in Kissimmee until 1911—three years after the ordinance was enacted, prompting the *Washington Post* to report in 1910:

It is safe to predict that legislation to govern the regulation of aerial traffic will before very long engage the attention of State and city legislative bodies throughout the country. And when the questions of speed, height, or proximity to congested centers of population have become the subject of animated debate it may be expected that Kissimmee, Fla., will extend the municipal chest in haughty satisfaction, for it was Kissimmee that raised a laugh some two years ago by framing a city ordinance covering the subject. The only thing that was really laughable about Kissimmee’s agitation over the

143. 488 U.S. 445, 462-63 (1989) (Brennan, J., dissenting).

144. Rebecca Maksel, *The First U.S. Air Law Was in a Town Without Airplanes*, AIR & SPACE (June 8, 2015), <http://www.airspacemag.com/daily-planet/first-us-air-law-was-town-without-airplanes-180955524> [https://perma.cc/92AD-LNVS].

145. *Id.*

deviltries of aerial craft was the fact that it was somewhat premature.¹⁴⁶

Taken together, *Riley* and the Kissimmee ordinance demonstrate the degree to which the law alternatively lags behind or over-anticipates¹⁴⁷ technological change. These authorities also illustrate how regulators have both over-regulated and under-regulated the airspace in the drone age. On the one hand, federal regulators have crafted a workable set of regulations for civil and commercial drones at 14 C.F.R. Part 107. On the other hand, they have failed to create a clear rule to restrict drone operations in the uncontrolled airspace near airports. The FAA's claim of exclusive jurisdiction in the airspace beneath the NAS is an aggravating factor. As a result, airport owners, operators, and managers remain uncertain as to whether they can deny drone operations near their fields in uncontrolled airspace. The FAA should ultimately clarify the current state of affairs by granting airports the power to deny drone operations, preserving local autonomy as a new era of airports, droneports, and airspace arrives.¹⁴⁸

146. *Id.* (“Residents of Kissimmee—also known as the cow capital of Florida—waited until 1911 to see an actual aircraft overhead. As *Flying* magazine reported in 1958, ‘Kissimmee’s first flying machine, on its very first take-off, killed a cow. This unhappy circumstance nipped the city’s chances to boast an early flying school which the pilot intended to establish.’”).

147. *See id.* (suggesting that some residents felt the ordinance was meant to be a practical joke played on the town’s mayor).

148. *See* Troy A. Rule, *Take Cover Against This Drone Attack*, WALL ST. J. (Mar. 29, 2016), <https://www.wsj.com/articles/take-cover-against-this-drone-attack-1459291069> [https://perma.cc/6AFM-ZULH].