

A Developing Ecosystem

By Jonathan P. McCoy

The low-level overflight of commercial delivery and law enforcement UAS are usually not tied to the land interest below, complicating the relationship between safety regulation and property rights.

Low-level Airspace, Increasing Legal Complexity

Commercial delivery by unmanned aircraft systems (UAS), when combined with existing commercial uses, such as real estate marketing and inspection, agricultural production, and remote inspection of construction sites,

railroads, and electrical facilities, as well as law enforcement, will create a more complex relationship between safety regulation and property rights.

The COVID-19 pandemic has created a needed spotlight for the UAS commercial delivery industry. At the end of April 2020, UPS Flight Forward, working with CVS pharmacies, received Federal Aviation Administration (FAA) authorization for UAS medical deliveries to a retirement community in central Florida. Other commercial delivery uses are not far behind, such as Zipline UAS delivering personal protective equipment to hospitals. Though these operations were authorized in response to the COVID-19 pandemic, they are grounded in two particular FAA priorities: the FAA UAS Integration Pilot Program (UAS IPP), begun in 2017, and the Remote Identification (RID) proposed rule. Unmanned Aircraft Systems Integration Pilot Program Announcement, 82 Fed. Reg. 51,903 (Nov. 8, 2017); Remote Identifi-

fication of Unmanned Aircraft Systems, 84 Fed. Reg. 72438 (Dec. 31, 2019) (to be codified at 14 C.F.R. pts. 1, 47, 48, 89, 91, & 107) (pending disposition).

Both the UAS IPP and proposed RID rule originate under the FAA's congressional mandate in 49 U.S.C. §40103 to regulate the safety of the National Airspace System (NAS). Together, these programs lay the foundation for the envisioned future: an advanced air mobility ecosystem. At its core, this ecosystem involves complex, public-private collaborative relationships managing airspace, navigable airspace, real property rights, and safety. Therefore, rather than summarize UAS development, this article seeks to explore the role of these intergovernmental relationships as they are affected by preemption, regulation, and safety considerations in UAS commercial delivery. A military story from July 1942 may demonstrate how these relationships collide with advancing aerospace technology, yet still work together.



■ Jonathan P. McCoy is an associate attorney at Costello Porter Hill Heisterkamp Bushnell & Carpenter LLC, in Rapid City, South Dakota. His practice interests include aviation, construction, and contract litigation. Mr. McCoy is a former Air Force B-1 aviator. He is involved with the Rapid City Military Affairs Committee and local Veterans Treatment Court. Mr. McCoy is a member of the DRI Construction Law and Aviation Law Committees and a member of the South Dakota Defense Lawyers Association and its young lawyers committee.

As the story goes, an Air Force pilot, young and technically proficient in his craft, flew *under* the Golden Gate Bridge and along the San Francisco Bay coast at perhaps forty feet above the surface, waving to stenographic employees in the office buildings as he flew along Market Street. An Oakland resident lodged a complaint when the pilot apparently flew his P-38 close enough that the propeller wash rippled her laundry. The pilot was brought before his commanding officer, General George C. Kenney.

Washington was determined to stop low-altitude stunting and had to put out some stringent instructions about how to handle the budding young aviators who broke the rules.... Someone must have just told him how serious this court-martial thing might be. He wanted to fly and he wanted to get into the war and do his stuff, but now he was finding out that they really were tough about this low-altitude ‘buzzing’ business.... He wasn’t going to try to alibi out of it, but he sure hoped this General Kenney wasn’t going to be too rough....

I let him stand at attention while I bawled him out for getting himself in trouble, and getting me in trouble, too, besides giving people the impression that the Air Force was just a lot of irresponsible airplane jockeys.... [Consider] all the trouble he had made for me. Now, in order to quiet down the people who didn’t approve of his exuberance, I would have to talk to the Governor, the Mayor, the Chief of Police. Luckily I knew a lot of people in San Francisco who could be talked into a state of forgiveness, but I had a job of looking after the Fourth Air Force and I should spend my time doing that instead of running around explaining away the indiscretions of my wild-eyed pilots....

“Monday morning you check in at this address out in Oakland and if that woman has any washing to be hung out on the line, you do it for her. Then you hang around being useful—mowing a lawn or something—and when the clothes are dry, take them off the line and bring them into the house.... I want that woman to think we are good for something besides annoying people.

Now get out of here quick before I get mad and change my mind. That’s all.” George C. Kenney, *General Kenney Reports* 3–6 (Duell Sloan and Pearce, 1949).

Public–private relationships in aviation have not become any less complex since General Kenney intervened to seek forgiveness from the civil authorities for his pilot. Washington continues to restrict low-altitude stunting, incubating an environment for UAS technology. Today, UAS create a perception of a budding, congested, low-level airspace environment that generally prohibits flights over 400-feet above ground level (AGL). 14 C.F.R. §107.51 (prohibiting flights over 400-feet AGL). The FAA, to promote low-altitude UAS flight and to facilitate public–private collaboration, pursued its UAS IPP. The UAS IPP pairs select state, local, and tribal governments with private sector entities under the oversight of the FAA to test and evaluate the scope of integration of civil and public drone operations into the national airspace system. The program is intended to provide data to the FAA sufficient to craft new rules that support more complex low-altitude UAS operations. These operations include low-altitude flight, beyond visual line of sight (BVLOS) flight, and UAS operations over populated urban areas.

The proposed RID rule, on the other hand, may be more directly integral to the FAA’s vision of the future airspace, which concerns, in part, NAS congestion that will require complex, aircraft deconfliction. RID is advanced technology that uses digital connectivity and enables automation, allowing for technological control of airspace that reduces the minimum range and time at which a maneuver must be initiated to maintain a UAS-specific separation standard. RID is foundational to national airspace integration of UAS urban and BVLOS operations.

Federal Preemption

Navigable airspace is defined by aircraft-specific parameters with the minimum safe-operating altitude as its lower defining limit (i.e., the “floor”). For example, the minimum safe altitude for fixed-wing aircraft is defined as “[a]n altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface” and “at least 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft[.]”

14 C.F.R. §91.119(a), (b). But in its effort to regulate UAS, the FAA created a hard, 400-foot AGL ceiling for UAS, unless independent authorization is received to fly higher. 14 CFR §107.205. Low-level movement in airspace by UAS commercial delivery is short-distance transportation without linear limitations, which suggests a need to involve state departments of transportation. Such movement also forces UAS to fly within the airspace closest to the inhabitable surface and the airspace that is useable, and perhaps controllable, by landowners.

To accommodate UAS, the FAA has taken an expansive view of its regulatory authority over navigable airspace, based on Congress’s declaration of federal sovereignty over navigable airspace. However, national airspace and the airspace that is under authority of the FAA—i.e., navigable airspace—are separate. See *United States v. Causby*, 328 U.S. 256, 261 (1946); *Air Pegasus of D.C., Inc. v. United States*, 424 F.3d 1206, 1217 (Fed. Cir. 2005); *Braniff Airways v. Neb. State Bd. of Equalization & Assessment*, 347 U.S. 590, 596 (1954).

The field of aviation safety is considered preempted. See *Montalvo v. Spirit Airlines*, 508 F.3d 464 (9th Cir. 2007) (holding that a state law regulating airplane seat configuration was preempted by congressional intent to regulate the field of airspace and aircraft safety). But an inconsistent set of state and local restrictions could harm the NAS. *Causby*, 328 U.S. at 261. Therefore, it may be incorrect to conclude that state and local governments can exercise no authority in airspace, especially in an evolving airspace. Rather, preemption analysis may depend on how airspace is used. Colin Cahoon, *Low Altitude Airspace: A Property Rights No-Man’s Land*, 56 J. Air L. & Com. 157 (1990) (citing R. Wright, *The Law of Airspace* (1968)).

In this way, *Singer v. City of Newton*, may extend the principles of preemption so far as to hold that states can make no law touching or concerning airspace. *Singer v. City of Newton*, 284 F. Supp. 3d 125 (D. Mass. 2017). In *Singer*, the plaintiff challenged a city ordinance found to regulate airspace use, thereby limiting access to the airspace. The court held that the ordinance was preempted. However, the ruling narrowly concluded that municipalities cannot exercise their police power to prohibit air-

space use or to regulate an air user's access or conduct within the airspace.

However, the FAA's ecosystem envisions numerous UAS crowding the low-level airspace environment over populated areas. The *Singer* analysis may be clear enough to stand for the proposition that a municipality cannot prohibit use of airspace within its geographic boundaries. But its holding may be insufficient as to whether, and to what extent, real property rights may affect or be affected by UAS commercial delivery and the proposed ecosystem. It is presently unclear to what extent the FAA may assert control over airspace use from the ground up to establish its ecosystem and accommodate UAS.

Regulatory Taking

The value of airspace to the nation is in physical access to and use of it. Use of airspace is temporary for any area being used. An aircraft may only momentarily occupy any area of airspace equivalent to the size of the aircraft, unlike coal mining, which profits from real property that is turned into tangible property pulled from under the earth's surface. *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922) (J. Brandeis dissenting). The seminal case involving the relationship between airspace and real property remains *United States v. Causby*, in which the government, by systematic and continuous military overflight of real property at altitudes of 200-foot AGL or less, took an easement, which the Court held to be a taking under the U.S. Constitution. *United States v. Causby*, 328 U.S. 256 (1946). In short, airplanes affect land use. However, the altitudes matter in this takings discussion, specifically, the minimum safe altitudes.

The FAA regulates UAS ceilings. And UAS are positioned to challenge the traditional regulatory taking analysis. The simple solution, seemingly adopted by the FAA, anoints safety as sovereign over property rights. However, neither Congress nor the United States Supreme Court has identified any government ownership interest in the national airspace. See *Braniff Airways v. Neb. State Bd. of Equalization & Assessment*, 347 U.S. 590, 596 (1954). But see *Air Pegasus of D.C., Inc.*, 424 F.3d 1206 (Fed. Cir. 2005) (equating sovereignty with ownership where a right of access is granted to the public). Regardless of the benefits and conveniences that UAS bring to a post-COVID-19 polit-

ical-economic environment, the extent of property rights remains a vital component of any air mobility ecosystem and "considerations of public policy [must] justify the result: i.e., that private rights must yield to public convenience." *Thornburg v. Port of Portland*, 233 Or. 178, 187, 376 P.2d 100, 104 (1962). See *Pennsylvania Coal Co. v. Mahon*, 260 U.S. at 416 ("We are in danger of forgetting that a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional way of paying for the change."); *Griggs v. County of Allegheny*, 369 U.S. 84 (1962); *Hero Lands Co. v. United States*, 554 F. Supp. 1262, 1264–65 (Cl. Ct. 1983) (supporting the FAA position that any flight occurring within navigable airspace does not infringe upon the property rights of underlying land owners). The realization that such physical boundaries are no longer necessary is advantageous to the UAS industry. Safety's focus has been on the machine or its operator. However, questions of degree, such as the percentage of use of airspace by UAS to enhance the public condition, cannot be disposed of with general propositions—either in favor of the FAA, or in favor of private property interest holders. *Pennsylvania Coal Co.*, 260 U.S. at 416. Thus, without a clear demarcation of title, property rights, and navigable airspace, the FAA stands poised to capture all airspace, from the blade of grass skyward, that is not permanently occupied by an already existing improvement or structure for the benefit of private UAS commercial delivery.

For there to be a regulatory taking, a cognizable property right must be identified. In *Air Pegasus of D.C., Inc. v. U.S.*, the FAA, after September 11, 2001, issued notices to airmen that restricted flights in the navigable airspace over the entire nation, including Washington, D.C. While the notices were loosened in many areas, the restrictions remained over Washington, D.C. Air Pegasus of D.C., Inc. (Air Pegasus) leased property that it used, in part, to provide vertical take-off and landing operations for helicopters. Air Pegasus did not own or operate the helicopters. Nonetheless, due to the FAA's restrictions, it was unable to use its leasehold for helicopter operations. The Federal Court of Claims held that no taking occurred because Air Pegasus had no property right in or to airspace; therefore, it had no cogniza-

ble property right. *Air Pegasus of D.C., Inc. v. United States*, 60 Fed. Cl. 448, 456–57 (2004). However, on appeal, the federal appeals court determined that Air Pegasus did not present a cognizable property right because it sought consequential damages for loss of business, which are not compensable as a governmental taking. *Air Pegasus of D.C., Inc.*, 424 F.3d at 1215. The U.S. Court of Appeals for the Federal Circuit made no determination pertaining to ownership or property rights either in or of airspace.

Importantly, "taking" jurisprudence does not divide a single parcel into discrete segments and attempt to determine whether rights in a particular segment have been entirely abrogated. *Penn Central Transp. Co.*, 438 U.S. at 130. *Causby* ruled that to expect one's fee interest to extend to the "periphery of the universe" is unreasonable. *Causby*, 328 U.S. at 260. However, courts are not uniform in determining whether an absolute demarcation line exists separating the end of property rights from regulable navigable airspace. The Oregon Supreme Court, in *Thornburg v. Port of Portland*, 376 P.2d at 109–10, addressed the issue in a case involving a noise easement that was taken by government regulation authorizing continuous flight operations over the plaintiff's land at 500-foot AGL. *Thornburg* articulates a post-*Causby* property right in airspace:

It is sterile formality to say that the government takes an easement in private property when it repeatedly sends aircraft directly over the land at altitudes so low as to render the land unusable by its owner, but does not take an easement when it sends aircraft a few feet to the right or left of the perpendicular boundaries (thereby rendering the same land equally unusable). The line on the ground which marks the landowner's right to deflect surface invaders has no particular relevance when the invasion is a noise nuisance. Neither is a 500-foot ceiling relevant, desirable though it may be as an administrative device. If the interest to be protected is worth protecting at all, it is necessary to employ a system of rules that will meet the problem. Whatever virtue the establishment of a 500-foot floor under the cruising flight of aircraft may have as a matter of public safety, there can be only one sound reason to make it

a rule of the law of real property. That reason ought to be the knowledge, derived from factual data, that flights above 500 feet do not disturb the ordinary, reasonable landowner. This may be true. We do not know that it is. It may well be that only the most sensitive are offended by such flights. It may equally be true that some of the aircraft now in use are so disturbing to those on the ground that 500 feet of air will not provide protection to the landowner below. We are not justified in adopting the 500-foot rule as a rule of property law in cases of this character merely because to do so might make our work easier. The trier of fact in each case is best able to work out the solution. The difficulty was foreseen in the *Causby* case.

Thus, in Oregon, a landowner may have recognized airspace rights. Similarly, at the time, Justice Rehnquist acknowledged that landowners may have recognized airspace rights in his famous dissent in *Penn Central Transportation Co. v. New York City*.

In *Penn Central Transportation Co.*, the United States Supreme Court, without regard to navigable airspace, held that New York City's historic landmark ordinance, despite requiring Penn Central to maintain the historic look of Grand Central Terminal and imposing a burden on it not borne by the public, was not a taking. Justice Rehnquist argued that a taking had occurred because New York City's historic landmark ordinance placed an affirmative duty of preservation on the landowner at his or her own expense with no beneficial gain. 438 U.S. at 140. He wrote, "[N]eighboring landowners [were] free to use their land and 'air rights' in any way consistent with the broad boundaries of New York zoning[.]" *Id.* at 143 (J. Rehnquist dissenting).

It is possible, therefore, that the FAA's envisioned ecosystem, while technologically possible, may remain constrained by property law principles. But as noted, the Federal Court of Claims in *Air Pegasus of D.C.* seemed ready to give ownership of the national airspace to the federal government. *Air Pegasus of D.C., Inc.*, 60 Fed. Cl. at 456–57.

The flexibility and efficiency of UAS lie in their ability to fly close to the earth and to make every point on a given route accessible as a direct destination from every other point. In this way, UAS commercial delivery requires a central loading zone, but once

airborne, UAS fly to one or more destination points before returning to their points of origin. They can do this without the confines of linear-land-based travel. However, such routes require FAA approval. From a purely technological perspective, requiring placement of location-identification devices on UAS to communicate with and deconflict from other NAS users may not properly be in the purview of the individual states. Hypothetically, the FAA may assign a route for flight over Blackacre at 200-foot AGL and without notice to the landowner who may recently have applied for a building permit requiring an additional 150 feet of airspace. The property right may theoretically have violated a broad navigational servitude, such that commercial UAS operations and safety considerations supersede the building permit.

The FAA may or may not have a contingency for such a circumstance. At present, degree of use remains low, in proportion to the expanse of airspace; nonetheless, considering how real property is affected by UAS operations remains important as UAS commercial delivery grows. Restricting land owners' use of property could conceivably progress to benefit just the few airspace users, while imposing the burden on the majority of the population, since "restriction imposed to protect the public health, safety, or morals from dangers threatened is not a taking." *Pennsylvania Coal*, 260 U.S. at 417. Despite challenges in existing law and regulatory action, it remains important to think about how present convenience often may ask established rights for concessions only to continue to erode the rights entirely.

Conclusion

UAS are more commercially flexible, smaller, and more maneuverable than traditional aircraft. Their uses are as numerous as the people who may own and operate them. The publicity of the Air Force pilots skilled in flying low stunts and performing low-level aerobatics in 1942 is what the UAS industry has needed. This publicity has now arrived because of the COVID-19 pandemic, allowing UAS operations to demonstrate their capabilities.

However, the ability to use UAS for delivery of medical goods, and one day in the not-too-distant future, perhaps, groceries, increases their usefulness. There is a real need to en-

sure their safe integration into the national airspace system technologically and to minimize aircraft-to-aircraft mishaps. UAS also create challenges for the FAA and state and local governments. And there may be pitfalls in their low-level flight if their FAA-approved routes are not carefully planned and understood by a public too focused, perhaps appropriately, on protecting privacy interests.

It is possible, therefore, that the FAA's envisioned ecosystem, while technologically possible, may remain constrained by property law principles. But as noted, the Federal Court of Claims in *Air Pegasus of D.C.* seemed ready to give ownership of the national airspace to the federal government.

The community development to be envisioned with continued UAS integration is achievable, and such achievements will come partly from intergovernmental relationships. The FAA and state and local governments may need to collaborate more effectively where large land-use plans are conceived in ways affecting airspace that have not yet been considered. Even so, in the world of aviation, there remains no clear-cut delineation of where property rights, terrestrial, superterranean, and subterranean, begin and end. However, the FAA's envisioned ecosystem leaves more questions than answers. Therefore, for the FAA's ecosystem to become a reality, effects-considering regulation must demonstrate that safety and access can coexist with foundational principles of the Constitution. 