

NOTE

Drone Trespass and the Line Separating the National Airspace and Private Property

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ABSTRACT

On August 29, 2016, the Federal Aviation Administration (“FAA”) released a small-drone rule that will substantially increase the number of commercial drones flying throughout the national airspace. This new rule fails to specifically regulate or define when a drone is trespassing over a landowner’s private property. Moreover, since the development of drone technology, which has allowed aircraft to fly throughout the lower airspace, courts have not regularly addressed aerial trespass. Thus, the limits on where aircraft can fly and where landowners’ property rights extend are becoming murky and problematic.

The FAA has refused to address this trespass issue, claiming that states can adequately address it. This presents a problem, however, because the FAA has exclusive jurisdiction over the undefined “navigable airspace,” meaning that federal law will likely preempt any state regulation that addresses drone trespass. Any sufficient regulation covering this issue will require restrictions of the airspace that the FAA will consider to be the “navigable airspace” and thus an intrusion into its jurisdiction. This conflict will result in drone trespass remaining unregulated, leaving landowners and drone operators without any clear answer as to who is allowed to be where. This Note proposes that the FAA address this issue by defining the navigable airspace so that there is a bright-line height minimum describing where the FAA’s exclusive jurisdiction ends, where drones must fly above, and where in the airspace states can regulate without the fear of federal preemption.

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INTRODUCTION

On July 26, 2015, John Boggs was flying his unmanned aircraft system (“UAS”), commonly known as a drone, about 200 feet above ground level when, all of a sudden, his neighbor shot it out of the sky with a shotgun.¹ Local authorities first charged William Merideth, the shooter, with wanton endangerment and criminal mischief.² A state district court judge in Kentucky later dismissed the charges, however, stating that Merideth had a legal right to shoot the drone down.³ Merideth, who now calls himself “The Drone Slayer,” claims the drone was trespassing on his property and violating his right to privacy, thus giving him a right to shoot it down.⁴

1 Complaint for Declaratory Judgment and Damages at 3–4, *Boggs v. Merideth*, No. 3:16-CV-00006-TBR, 2017 WL 1088093 (W.D. Ky. Mar. 21, 2017).

2 *Id.* at 4.

3 *Id.*

4 *Id.* at 4–6.

Boggs filed a complaint in federal district court claiming he was legally operating his drone in the navigable airspace.⁵ He also claimed the state court's ruling conflicted with the exclusive jurisdiction of the Federal Aviation Administration ("FAA") over the navigable airspace, which should result in federal law preempting Kentucky law.⁶ Boggs asserted that this meant Merideth had no property right over the airspace where his drone was flying and therefore no right to shoot it out of the sky.⁷ The district court failed to answer whether the drone was trespassing on private property or flying in the navigable airspace when it dismissed Boggs's complaint for lack of subject-matter jurisdiction.⁸

This federal case demonstrates the current lack of clarity on airspace property rights, presents the question of what constitutes an aerial trespass, and highlights how blurry the line is between federal and state jurisdiction over airspace.⁹ Until the federal government or federal courts clarify the boundaries of airspace property rights and FAA jurisdiction, questions like those presented in *Boggs v. Merideth*¹⁰ will remain unanswered.¹¹ This is particularly problematic because the FAA's 2016 release of its small-drone rule could drastically increase

⁵ *Id.* at 2–3.

⁶ *Id.* at 2–3; Andrew Blake, *Drone Owner Files Federal Lawsuit After Neighbor Downs Craft with Shotgun*, WASH. TIMES (Jan. 6, 2016), <http://www.washingtontimes.com/news/2016/jan/6/drone-owner-files-federal-lawsuit-after-neighbor-d> [<https://perma.cc/PV4S-YJQC>].

⁷ Complaint for Declaratory Judgment and Damages, *supra* note 1, at 5–6.

⁸ *Boggs*, 2017 WL 1088093, at *4 (holding that no federal question jurisdiction exists because, based on the complaint, a federal issue only arises on the presumption that defendant will claim plaintiff was trespassing, along with the further presumption that plaintiff's response will be that the drone was in federally protected airspace).

⁹ Blake, *supra* note 6.

¹⁰ No. 3:16-CV-00006-TBR, 2017 WL 1088093, at *4 (W.D. Ky. Mar. 21, 2017).

¹¹ See Steve Beck, *New Jersey Man Accused of Shooting Down Neighbor's Remote Control Drone*, CBS PHILLY (Sept. 30, 2014, 12:05 PM), <http://philadelphia.cbslocal.com/2014/09/30/new-jersey-man-accused-of-shooting-down-neighbors-remote-control-drone> [<https://perma.cc/9QR8-5RN6>] (reporting that a New Jersey man was arrested for criminal mischief after shooting down a drone); Mark J. Connot & Jason J. Zummo, *Navigable Airspace: Where Private Property Rights End and Navigable Airspace Begins*, FOX ROTHSCHILD: ON THE RADAR (Jan. 15, 2016), <https://ontheradar.foxrothschild.com/2016/01/articles/auvsi/navigable-airspace-where-private-property-rights-end-and-navigable-airspace-begins> [<https://perma.cc/H2CZ-4FEB>] (explaining that *Boggs* might have "provide[d] answers to whether a drone flying below 500 feet is operating in 'navigable airspace,'" but hope for that clarification disappeared when the district court dismissed the case for lack of subject-matter jurisdiction.); Cyrus Farivar, *Man Shoots Down Neighbor's Hexacopter in Rural Drone Shotgun Battle*, ARS TECHNICA (June 27, 2015, 1:05 PM), <http://arstechnica.com/tech-policy/2015/06/man-shoots-downs-neighbors-hexacopter-in-rural-drone-shotgun-battle> [<https://perma.cc/X2ES-535Q>] (reporting a California court holding that drone shooter had to reimburse drone operator for damage to drone).

the number of commercial drones flying in the national airspace.¹² Around 670,000 operators registered their drones in 2016, and the FAA expects operators to purchase around 7,000,000 drones, for both commercial and recreational use, by 2020.¹³

Some states have tried to address airspace property rights and the possibility of drone trespass over a landowner's property,¹⁴ and the FAA has said that state laws can address trespass issues.¹⁵ These solutions to the airspace property and trespass problems, however, are inefficient because of the FAA's exclusive jurisdiction over the vague concept of "navigable airspace."¹⁶ As a result, any state or local regulation that sufficiently addresses aerial trespass will likely face federal preemption challenges, because the FAA will consider such regulations as covering the navigable airspace.¹⁷

To clarify airspace property rights, the FAA should define the navigable airspace by setting a 200-foot height minimum on its exclusive jurisdiction, which would also set a minimum height at which both commercial and recreational drones can fly. A clear definition will then allow states to regulate airspace below this minimum to sufficiently address aerial trespass, without the likelihood of federal preemption.

Part I of this Note describes the FAA's authority over drones and the development of FAA drone regulations. It also highlights the lack

12 14 C.F.R. § 107 (2016); *see, e.g., FAA Administrator Michael Huerta Reviews Successful 2016 for UAS Industry*, ASS'N FOR UNMANNED VEHICLE SYS. INT'L (Jan. 6, 2017), <http://www.auvsi.org/faa-administrator-michael-huerta-reviews-successful-2016-for-uas-industry> [<https://perma.cc/D3XB-8QWK>] (stating that since the 2016 drone rule, more than 30,000 people have started the drone pilot application process).

13 Brian Brus, *Vigilant Drafts List to Launch Drone Operations*, J. REC. (Jan. 13, 2017), <http://journalrecord.com/2017/01/13/vigilant-drafts-list-to-launch-drone-operations> [<https://perma.cc/45ST-3544>].

14 *See, e.g., NEV. REV. STAT. § 493.103* (2015); *OR. REV. STAT. ANN. § 837.380* (West 2016); S.B. 142, 2015 Leg., Reg. Sess. (Cal. 2015) (vetoed by governor).

15 Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42,064, 42,119 (June 28, 2016) (codified at 14 C.F.R. pt. 107).

16 49 U.S.C. § 40103(a), (b)(1) (2012); *see* Connot & Zummo, *supra* note 11.

17 *See infra* Section III.B; *see also* FED. AVIATION ADMIN., STATE AND LOCAL REGULATION OF UNMANNED AIRCRAFT SYSTEMS (UAS) FACT SHEET 2 (2015), https://www.faa.gov/uas/resources/uas_regulations_policy/media/UAS_Fact_Sheet_Final.pdf [<https://perma.cc/BX6K-5SFF>] (explaining that states should consult with FAA before attempting to regulate the navigable airspace); Mark J. Connot & Jason J. Zummo, *Federal Versus State Drone Laws: Part II—State Infringement of Federal Sovereignty or Federal Invasion of State Police Powers?*, FOX ROTHSCHILD: ON THE RADAR (Jan. 7, 2016), <https://ontheradar.foxrothschild.com/tag/nevada-drone-law> [<https://perma.cc/X9R9-463A>] (explaining that state drone laws could face preemption problems because the FAA has "sole responsibility 'to regulate navigable airspace to ensure its safe use'").

of regulation over drone trespass and the ambiguity surrounding the FAA's jurisdiction, specifically when looking at the term "navigable airspace." Part II examines the history of aerial trespass, the issues related to drone trespass, and some state attempts to regulate drones and drone trespass. Part III explains the potential for federal laws to preempt state and local drone regulations, which underscores the need for a proper federal solution to airspace property rights and drone trespass. Part IV responds to this need by proposing that the FAA create a bright-line minimum height for the navigable airspace of 200 feet, effectively defining where the FAA's exclusive jurisdiction ends and mandating what height drones must exceed to be covered by federal regulations. This minimum height will then allow states to effectively regulate the airspace below 200 feet to address drone trespass issues, without the possibility of the FAA preempting their laws.

I. THE FAA'S DRONE REGULATIONS, AUTHORITY, AND JURISDICTIONAL AMBIGUITY

Drones are a fairly new technological innovation, and though the use of commercial drones is not yet extremely prevalent, this is quickly changing.¹⁸ In recent years, uncertain technology and restrictive regulations have substantially limited the use of drones.¹⁹ Until the FAA's new small-drone rule went into effect on August 29, 2016, it was difficult to get permission from the FAA to fly a drone commercially.²⁰

A. *History of FAA Drone Regulations*

Prior to the 2016 rule, the FAA did not permit commercial drone use without its express authorization through an exemption process.²¹

¹⁸ See, e.g., Gregory S. McNeal, *Drones and the Future of Aerial Surveillance*, 84 GEO. WASH. L. REV. 354, 357, 394–95 (2016); Julie France, *Drone Use for Columbus Businesses to Soar After FAA Releases Commercial-Friendly Rules*, COLUMBUS CEO (Apr. 4, 2016, 2:23 AM), <http://www.columbusceo.com/news/20160401/drone-use-for-columbus-businesses-to-soar-after-faa-releases-commercial-friendly-rules> [https://perma.cc/9JFU-64QC].

¹⁹ See FAA Modernization and Reform Act of 2012, Pub. L. No. 112–95, § 332, 126 Stat. 11, 73 (requiring commercial drone operators to apply for exemption to obtain permission to fly in national airspace); SCOTT CARR ET AL., *DRONE ON! EMERGING LEGAL ISSUES FOR COMMERCIAL USE OF UNMANNED AERIAL VEHICLES (UAVS)* 1 (2016); Linda Chiem, *FAA OKs Small Drones but Leaves Big Questions Hovering*, LAW360 (June 21, 2016, 11:17 PM), <http://www.law360.com/articles/809292/faa-oks-small-drones-but-leaves-big-questions-hovering> [https://perma.cc/ZRS3-KRHC].

²⁰ See FAA Modernization and Reform Act § 333; CARR ET AL., *supra* note 19, at 1; Chiem, *supra* note 19.

²¹ CARR ET AL., *supra* note 19, at 1.

This exemption process took place under the FAA Modernization and Reform Act (“FMRA”),²² which Congress enacted in 2012 to give the FAA control over the regulation of drones.²³ Under section 333 of the FMRA, the Secretary of Transportation granted exemptions for the use of commercial drones if he determined that the particular drone could operate safely within the National Airspace System (“NAS”).²⁴ Before August 2016, the FAA had been increasing its approval rate for granting exemptions under this process.²⁵ Yet the exemption requirement drastically limited the number of drones flying for commercial purposes.²⁶ This limitation changed when the FAA’s new small-drone rule went into effect.²⁷

When Congress passed the FMRA in 2012, it directed the FAA to develop a plan and issue a final rule to help integrate small drones into the NAS.²⁸ In June 2016, the FAA published a notice of proposed rulemaking (“NPRM”) for small drones, which covers where and how drones can fly.²⁹ The rule went into effect on August 29, 2016, resulting in commercial entities no longer having to individually petition for an exemption under section 333 of the FMRA to operate a drone.³⁰ Now, as long as commercial drones are in line with the requirements set out in the new rule, they can legally operate in the NAS without a waiver.³¹

The main requirements include a fifty-five-pound weight limit, operation only within the visual line of sight of the remote pilot, operation only during daylight or civil twilight, operation only within class G airspace without Air Traffic Control permission,³² no operations above people who are not directly participating in the operation, a

²² FAA Modernization and Reform Act § 333.

²³ CARR ET AL., *supra* note 19, at 9.

²⁴ FAA Modernization and Reform Act § 333.

²⁵ CARR ET AL., *supra* note 19, at 1.

²⁶ *See id.* at 11–12.

²⁷ 14 C.F.R. § 107 (2017).

²⁸ CARR ET AL., *supra* note 19, at 17.

²⁹ *Summary of Small Unmanned Aircraft Rule (Part 107)*, FAA NEWS (June 21, 2016), https://www.faa.gov/uas/media/Part_107_Summary.pdf [<https://perma.cc/8BP9-YND7>].

³⁰ *See* CARR ET AL., *supra* note 19, at 11–12; Joshua Briones et al., *An Update on Drone Privacy Concerns*, LAW360 (Oct. 5, 2016, 12:16 PM), <https://www.law360.com/articles/848165/an-update-on-drone-privacy-concerns> [<https://perma.cc/R4J9-93Y3>]; *Summary of Small Unmanned Aircraft Rule*, *supra* note 29.

³¹ 14 C.F.R. § 107; *Summary of Small Unmanned Aircraft Rule*, *supra* note 29. The new rule does not apply to recreational drones, but recreational drones must follow similar (but less restrictive) requirements set out in 14 C.F.R. § 101 (2016).

³² Class G airspace is the lowest level of airspace (below classes A, B, C, D, and E) and is considered uncontrolled airspace because Air Traffic Control has no responsibility to direct air

maximum speed of 100 miles per hour, and a maximum altitude of 400 feet above ground level or 400 feet above a structure.³³ Additionally, there are restrictions on transporting property for compensation and on who may operate a drone and certification requirements for drone pilots.³⁴ The new rule does place some important, if burdensome, restrictions on drone use, but overall it will make it much easier for commercial drones to fly in the national airspace.³⁵

This drastic change in FAA regulations will likely result in a large increase in the number of commercial drones flying in the NAS, as well as a rapid evolution in drone technology and possible uses for drones.³⁶ Some of the emerging and expected uses for drones include assisting in farming, helping to show homes in the real estate industry, and delivering packages and food orders from companies such as Amazon, Google, and UPS.³⁷ Companies are also working on using drones to provide cellular service by acting as temporary cell towers, and in 2017 there will even be a drone-racing league.³⁸ The Association for Unmanned Vehicle Systems International estimated that the

traffic here. See U.S. DEP'T OF TRANSP., FED. AVIATION ADMIN., PILOT'S HANDBOOK OF AERONAUTICAL KNOWLEDGE 15–23 (2016).

³³ 14 C.F.R. § 107; *Summary of Small Unmanned Aircraft Rule*, *supra* note 29.

³⁴ 14 C.F.R. § 107; *Summary of Small Unmanned Aircraft Rule*, *supra* note 29.

³⁵ See Richard Raysman & Peter Brown, *Latest Development in the Law of Unmanned Aerial Vehicles*, N.Y. L.J. (Oct. 7, 2016, 2:01 PM), <https://www.law.com/newyorklawjournal/almID/1202769357169/latest-developments-in-the-law-of-unmanned-aerial-vehicles/?slreturn=20180705130007> [<https://perma.cc/A3YH-CMRB>].

³⁶ See McNeal, *supra* note 18, at 357 (asserting that the 2016 rule is the beginning of a new era in aviation and that eventually drones will do much more than the limits of the first rule currently allow); Brus, *supra* note 13 (stating that the FAA expects seven million drones to be sold in the U.S. by 2020); *FAA Administrator Michael Huerta Reviews Successful 2016 for UAS Industry*, *supra* note 12.

³⁷ See Nathan R. Bohlander, *Drone Obsession Brings Out Manufacturers' Worst Fears*, LEGAL INTELLIGENCER (Feb. 22, 2017), <http://www.thelegalintelligencer.com/id=1202779698060/Drone-Obsession-Brings-Out-Manufacturers-Worst-Fears?slreturn=20170203132220> [<https://perma.cc/6QAG-4A8P>]; see also Tom Foster, *10 Ways Drones Are Changing Your World*, CONSUMER REP. (Dec. 14, 2016), <http://www.consumerreports.org/robots-drones/10-ways-drones-are-changing-the-world> [<https://perma.cc/S846-PRKT>]; Michael Sasso, *UPS Tries Arming Its Brown-Clad Drivers with an Octocopter Drone*, BLOOMBERG (Feb. 21, 2017, 10:24 AM), <https://www.bloomberg.com/news/articles/2017-02-21/ups-tries-arming-its-brown-clad-drivers-with-an-octocopter-drone> [<https://perma.cc/N64P-VGET>]. Currently, FAA regulations do not permit drone deliveries, but the FAA is working on changing regulations to allow for expanded drone operations. Matthew Grosack & Michael Senkowski, *UAS Integration Moves Forward at Second Advisory Meeting*, DLA PIPER (Feb. 2, 2017), <https://www.dlapiper.com/en/us/insights/publications/2017/02/uas-integration> [<https://perma.cc/TG9A-CM26>].

³⁸ See Bohlander, *supra* note 37; Chris Davies, *AT&T Just Tested Its Emergency LTE Drones*, SLASHGEAR (Feb. 20, 2017), <https://www.slashgear.com/att-just-tested-its-emergency-lte-drones-20475489> [<https://perma.cc/LPJ7-REMS>].

drone industry could create 100,000 jobs and add \$82 billion to the U.S. economy over the next decade.³⁹ Further, the FAA expects both commercial and recreational operators to purchase around seven million drones by 2020.⁴⁰ This increase in drone use has the potential to benefit society, but it will also create new and unclear legal conflicts.

B. Trespass and Privacy Under the 2016 Rule

Though the 2016 rule places extensive regulations on commercial drone use, it is surprising to look at what components of this activity it does not regulate.⁴¹ The rule does not address privacy or trespass at all, which are two of the largest concerns that the American public has with drones.⁴² In its 2016 rulemaking pursuant to the FMRA, the FAA expressed its belief that it is not responsible for enforcing laws related to privacy or trespass and that this area should be left for the states.⁴³ In response to commentators' concerns with this lack of regulation, the FAA claimed that private property rights are beyond the scope of the rule and the FAA's jurisdiction.⁴⁴ It said that state and local trespass laws could adequately address these concerns, and, not surprisingly, many states have begun passing drone regulations.⁴⁵

The FAA's assertions seem to indicate that states can adequately address trespass and privacy issues.⁴⁶ However, it is unlikely that these issues will be solved easily. Though the FAA has said states can regu-

³⁹ Bohlander, *supra* note 37.

⁴⁰ Brus, *supra* note 13.

⁴¹ See *Summary of Small Unmanned Aircraft Rule*, *supra* note 29.

⁴² 14 C.F.R. § 107 (2016); see Lisa Ellman & Jared Bomberg, *The FAA's De Facto Drone Privacy Standards*, IAPP: PRIVACY TRACKER (Aug. 30, 2016), <https://iapp.org/news/a/the-faas-de-facto-drone-privacy-standards> [<https://perma.cc/EK2L-ATA8>]; Michael Frank, *Drone Privacy: Is Anyone in Charge?*, CONSUMER REP. (Feb. 10, 2016), <http://www.consumerreports.org/electronics/drone-privacy-is-anyone-in-charge> [<https://perma.cc/EDE3-KCB8>]; Zosha Millman, *Privacy Concerns Still Have a Long Way to Go with Drones*, LEXBLOG (Sept. 7, 2016) <https://www.lexblog.com/2016/09/07/privacy-concerns-still-long-way-go-drones> [<https://perma.cc/P9VF-W2S3>] (stating that "many think the FAA punted the privacy issue," and concerns over drone privacy include basic questions about what constitutes trespass). FAA regulations similarly do not address privacy or trespass issues regarding recreational drones.

⁴³ Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42,064, 42,119, 42,194 (June 28, 2016) (codified at 14 C.F.R. pt. 107).

⁴⁴ *Id.* at 42,119 (responding to commentators who raised concerns with the lack of regulations, including nonprofit organizations, research centers, and workers' associations across various industries).

⁴⁵ *Id.*; see, e.g., Henry H. Perritt, Jr. & Albert J. Plawinski, *One Centimeter over My Back Yard: Where Does Federal Preemption of State Drone Regulation Start?*, 17 N.C. J.L. & TECH. 307, 364–67 (2015) (summarizing state efforts to regulate drone trespass).

⁴⁶ Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. at 42,119.

late issues related to drones usually reserved to state authority, there is a high probability that the FAA's jurisdiction will preempt any effective state and local regulations that address these issues, such as trespass and privacy.⁴⁷

C. *FAA Jurisdiction and Ambiguity*

The federal government has exclusive authority over U.S. airspace,⁴⁸ and Congress has charged the FAA with regulating the navigable airspace to ensure that aircraft use it safely and efficiently.⁴⁹ The National Transportation Safety Board has clarified that a drone falls under the definition of aircraft, which includes "any aircraft, manned or unmanned, large or small."⁵⁰ Because the FAA has jurisdiction over aircraft in the navigable airspace, it also has jurisdiction over drones in that airspace.⁵¹ This gives the FAA the power to regulate drones, creating potential problems regarding state regulation and federal preemption.⁵² Despite the FAA's statement that states can regulate issues such as trespass and privacy, it maintains its exclusive jurisdiction over the navigable airspace.⁵³

Adding to this problem, it is unclear what constitutes the navigable airspace.⁵⁴ According to the Federal Aviation Regulations ("FAR"), "navigable airspace" refers to "airspace above the minimum altitudes of flight prescribed by [the FAR], including airspace needed to ensure safety in the takeoff and landing of aircraft."⁵⁵ The FAR establish that the minimum safe altitudes are 1,000 feet above the highest obstacle in congested areas and 500 feet above the surface in noncongested areas,⁵⁶ but the rules differ for helicopters and powered parachutes, which can fly lower than these minimums under certain circumstances.⁵⁷ These rules differ for small drones now as well, be-

⁴⁷ See McNeal, *supra* note 18, at 400; Editorial, *Getting Ahead of the Drones*, CONN. L. TRIB. 25 (Oct. 5, 2015); Bruce J. Berman & Shaun W. Hargadine, *New Federal Drone Regulations Leave Unanswered Questions*, LEXOLOGY (Aug. 8, 2016), <http://www.lexology.com/library/detail.aspx?g=4b2bdb92-bea3-4eca-b09e-65e03e4293e2> [<https://perma.cc/Y9VV-A6TM>].

⁴⁸ 49 U.S.C. § 40103(a) (2018).

⁴⁹ *Id.* § 40103(b)(1).

⁵⁰ *Huerta v. Pirker*, No. EA-5730, 2014 WL 8095629, at *2, *5 (N.T.S.B. Nov. 17, 2014).

⁵¹ *Id.*

⁵² See *id.*

⁵³ *Connot & Zummo*, *supra* note 11.

⁵⁴ *Id.*

⁵⁵ 49 U.S.C. § 40102(a)(32) (2012).

⁵⁶ 14 C.F.R. § 91.119(a), (b) (2016). A congested area could be in a "city, town, or settlement, or . . . any open air assembly of persons." *Id.* § 91.119(a).

⁵⁷ See *id.* § 91.119.

cause the FAA does not permit them to fly above 400 feet.⁵⁸ The FAA has significant discretion in prescribing minimum flight altitudes with regard to the navigable airspace, and they can and will differ depending on the type of aircraft and location.⁵⁹ These differing minimum altitudes result in an unclear definition of the navigable airspace, leading to ambiguity surrounding the relative jurisdictions of the FAA and the states.

Further, the FAA has indicated that its jurisdiction is not limited to the minimum safe altitudes and that it “is responsible for the safety of U.S. airspace from the ground up.”⁶⁰ This broadly proclaimed jurisdiction comes from the FAR as well, which state that the FAA is responsible for ensuring that aircraft operate safely.⁶¹ In achieving this goal, the FAA can provide regulations to direct aircraft on how to use the navigable airspace, but also to “protect[] individuals and property on the ground.”⁶² The breadth of this jurisdiction makes it difficult for states to establish laws that sufficiently protect individuals from drone trespass without stepping into the FAA’s jurisdictional territory.⁶³ This will ultimately result in federal preemption of state drone laws.⁶⁴

II. TRESPASS AND AIRSPACE PROPERTY RIGHTS

Trespass is one of the biggest gaps in drone regulations.⁶⁵ Traditionally, trespass constituted a direct physical invasion of someone else’s property.⁶⁶ In the context of airspace, the common law view held that whoever owned a particular piece of land owned everything

⁵⁸ 14 C.F.R. § 107 (2016).

⁵⁹ See 14 C.F.R. § 91.119.

⁶⁰ *Busting Myths About the FAA and Unmanned Aircraft*, FED. AVIATION ADMIN. (Mar. 7, 2014, 4:44 PM), <http://www.faa.gov/news/updates/?newsId=76240> [<https://perma.cc/6RX5-W5XK>].

⁶¹ 49 U.S.C. § 40103(b)(1) (2012).

⁶² *Id.* § 40103(b)(2).

⁶³ See Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42,064, 42,119 (June 28, 2016) (codified at 14 C.F.R. pt. 107) (stating that state laws may address drone trespassing, but then referring to trespass ambiguously by explaining that it does not mean “flying in the airspace above a piece of property”).

⁶⁴ See *infra* Part III.

⁶⁵ See, e.g., Troy A. Rule, *Airspace in an Age of Drones*, 95 B.U. L. Rev. 155, 170 (2015) (explaining that airspace rights law is increasingly inadequate with the rise of drones and that “there is pervasive uncertainty as to where drones may and may not fly” because there is no clear ceiling to landowners’ airspace).

⁶⁶ H. Marlow Green, Note, *Common Law, Property Rights and the Environment: A Comparative Analysis of Historical Developments in the United States and England and a Model for the Future*, 30 CORNELL INT’L L.J. 541, 558 (1997).

above it.⁶⁷ The law has since changed with regard to airspace and trespass, but the boundaries of airspace property rights are still unclear, making it particularly difficult to determine when drone use becomes a trespass.⁶⁸

A. *The Development of Trespass and Airspace Property Rights*

The *Restatement (Second) of Torts* attempts to address when there can be a trespass by way of airspace.⁶⁹ It states that if an aircraft enters airspace above someone else's land it will constitute a trespass only if the aircraft "enters into the immediate reaches of the air space next to the land" and "interferes substantially with the other's use and enjoyment of his land."⁷⁰ This characterization allows aircraft to fly over land without constantly trespassing. It does not, however, help to determine where a landowner's property rights end, because the *Restatement* fails to clarify what constitutes the "immediate reaches of the air space next to the land."⁷¹

Two federal cases have been influential in modernizing the issue of trespass of airspace property rights.⁷² In *Hinman v. Pacific Air Transport*,⁷³ the Ninth Circuit made it clear that property rights in the airspace do not extend infinitely upwards but, rather, that a property owner only owns airspace that he can occupy or use "in connection with the enjoyment of [that] land."⁷⁴ The court did not define "in connection with the enjoyment," but vaguely said that this right varies with a property owner's needs and that an owner owns what portion of the air he uses "only so long as he uses it."⁷⁵

A couple of years later in *United States v. Causby*,⁷⁶ the Supreme Court attempted to further define where property rights extend. The

⁶⁷ See, e.g., *Hannabalsen v. Sessions*, 90 N.W. 93, 95 (Iowa 1902); Roderick B. Anderson, *Some Aspects of Airspace Trespass*, 27 J. AIR L. & COM. 341, 341 (1960) (explaining that this doctrine, sometimes referred to as the "ad coelum" doctrine, meant that someone could be liable for trespass if they were in any part of the air above a landowner's property, no matter how high).

⁶⁸ See Rule, *supra* note 65, at 170.

⁶⁹ RESTATEMENT (SECOND) OF TORTS § 159 (AM. LAW INST. 1965).

⁷⁰ *Id.*

⁷¹ *Id.* cmt. 1.

⁷² See *United States v. Causby*, 328 U.S. 256 (1946); *Hinman v. Pac. Air Transp.*, 84 F.2d 755 (9th Cir. 1936).

⁷³ 84 F.2d 755.

⁷⁴ *Id.* at 756, 758 (holding that commercial airline's continual flights less than 100 feet over plaintiff's property did not constitute trespass because they did not impair plaintiff's full enjoyment of the land and did not cause any actual or substantial damage).

⁷⁵ *Id.* at 758.

⁷⁶ 328 U.S. 256.

Court found that planes flying over a landowner's property invaded his property rights and constituted a taking when they were so low and frequent that they caused him actual damage.⁷⁷ In making this decision, the Court tried to define how far into the air property rights extend, when it said that a landowner has a right to the full enjoyment of his land and that to have this "he must have exclusive control of the immediate reaches of the enveloping atmosphere."⁷⁸ The Court also said that a trespass does not require physical occupation of the land, if the landowner can show that the trespasser is occupying the airspace in a way that prevents the landowner from using the land for his enjoyment.⁷⁹

Causby showed that a landowner does have some rights to the airspace around his property.⁸⁰ It is still unclear how much of a right he or she has, however, especially with regard to the new era of technology available today.⁸¹ At the end of the *Causby* opinion, the Court stated that the airspace other than that within the immediate reaches above a landowner's property is public domain, but it would not further define what these limits are.⁸² As the *Restatement* explains, this has left airspace property rights murky, resulting in an unclear answer to when a drone's flight will constitute a trespass.⁸³

B. Drones and Aerial Trespass

Airspace property rights have been relatively free from controversy since the Supreme Court's decision in *Causby*, but now that drones are becoming more prevalent, this area is once again becoming an issue.⁸⁴ Because it is unclear how far airspace property rights extend, low-altitude airspace—the airspace where drones will be flying—is currently a "property rights 'no-man's land.'"⁸⁵

⁷⁷ See *id.* at 259 (holding that aircraft's continual flights, around eighty-three feet above plaintiff's property, constituted a taking, even though plaintiff did not occupy the airspace in question with buildings, because the flights caused actual damage by making substantial noise, lighting up the property at night, and killing around 150 of plaintiff's chickens).

⁷⁸ *Id.* at 264.

⁷⁹ See *id.*

⁸⁰ See *id.*

⁸¹ See Rule, *supra* note 65, at 170.

⁸² See *Causby*, 328 U.S. at 266.

⁸³ RESTATEMENT (SECOND) OF TORTS § 159 cmt. 1 (AM. LAW INST. 1965); see also Rule, *supra* note 65, at 169–70.

⁸⁴ See McNeal, *supra* note 18, at 372–73.

⁸⁵ See Colin Cahoon, *Low Altitude Airspace: A Property Rights No-Man's Land*, 56 J. AIR L. & COM. 157, 198 (1990).

As a result, courts will have difficulty deciding what constitutes an aerial trespass.⁸⁶ The traditional notions of aerial trespass suggest that drone flights over private property, at the heights approved by the 2016 drone rule, could constitute a trespass.⁸⁷ To determine whether a drone flight is a trespass, courts will have to figure out where the public navigable airspace begins and what constitutes the “immediate reaches” of a property owner’s land.⁸⁸ They will then have to decide if the drone “substantially” interfered with the landowner’s “use and enjoyment” of that land.⁸⁹ Not all of these terms, however, are clearly defined, which will result in inconsistent case law and conflicting understandings of airspace property rights.⁹⁰

This problem, coupled with the recent and vast increase in drone use, creates a large need for clear regulations.⁹¹ Conflicts that have already arisen between drones and property owners include drones flying over sporting events,⁹² through fireworks displays,⁹³ and over private property.⁹⁴ Additionally, there have been multiple conflicts, like the one between Boggs and Merideth, in which a property owner has tried to shoot a drone out of the sky.⁹⁵

⁸⁶ See Rule, *supra* note 65, at 170–71.

⁸⁷ See RESTATEMENT (SECOND) OF TORTS § 159; Perritt & Plawinski, *supra* note 45, at 346–47.

⁸⁸ See *United States v. Causby*, 328 U.S. 256, 264–66 (1946); Anderson, *supra* note 67, at 358–59; Rule, *supra* note 65, at 168–71.

⁸⁹ Anderson, *supra* note 67, at 358–59; see *Causby*, 328 U.S. at 264–66; Rule, *supra* note 65, at 168–71.

⁹⁰ See ALISSA M. DOLAN & RICHARD M. THOMPSON II, CONG. RESEARCH SERV., R42940, INTEGRATION OF DRONES INTO DOMESTIC AIRSPACE 8–10 (2013); Rule, *supra* note 65, at 168–71; Nabiha Syed & Michael Berry, *Journo-Drones: A Flight over the Legal Landscape*, COMM. LAW., June 2014, at 1, 24.

⁹¹ See Perritt & Plawinski, *supra* note 45, at 347; Rule, *supra* note 65, at 157–58; Sharon Kennedy Wynne, *Despite Regulations, Drones Flying High*, TAMPA BAY TIMES (Dec. 24, 2016), <https://www.pressreader.com/usa/tampa-bay-times/20161224/281487866007960> [https://perma.cc/3WLB-77FV].

⁹² See AJ Vicens, *Here’s Some of the Dumb Stuff People Did with Drones Last Year*, MOTHER JONES (Jan. 29, 2015, 11:00 AM), <http://www.motherjones.com/politics/2015/01/faa-drone-report-incidents-mishaps> [https://perma.cc/YA8E-KVLC].

⁹³ See Gregory S. McNeal, *Flying a Drone Through Fireworks May Land You in Prison*, FORBES (July 4, 2014, 2:24 PM), <http://www.forbes.com/sites/gregorymcneal/2014/07/04/video-shows-drone-flying-through-fireworks/#3991d3204125> [https://perma.cc/3ER7-RCKT].

⁹⁴ See Joe Beck, *Drone Dispute Reaches Courtroom*, NORTHERN VA. DAILY (Oct. 25, 2015), <http://www.nvdaily.com/news/2015/10/drone-dispute-reaches-courtroom> [https://perma.cc/2R8L-Y5ZT].

⁹⁵ See, e.g., Christopher Coble, *Can I Shoot Down My Neighbor’s Drone?*, FINDLAW (Oct. 19, 2015, 2:59 PM), http://blogs.findlaw.com/law_and_life/2015/10/can-i-shoot-down-my-neighbors-drone.html [https://perma.cc/DUG3-JM8K]; Chris Matyszczyk, *Judge Rules Man Had Right to Shoot Down Drone over His House*, CNET (Oct. 28, 2015, 11:13 AM), <https://www.cnet.com/>

These conflicts are common now, and, with an increase in drone use, they will only continue to escalate.⁹⁶ While federal and local laws have addressed a few of these particular conflicts,⁹⁷ it is not always clear who is at fault.⁹⁸ These incidents highlight why it is important for the FAA to create concrete regulations and limits, so that landowners know where their property rights end, drone users know where they may fly, and courts have clear lines to follow when addressing drone trespass.⁹⁹

C. *State Attempts to Regulate Drones and Drone Trespass*

In response to the increase in drone use, states and municipalities have started to create their own legislation to regulate drones and their operation.¹⁰⁰ More than forty states have enacted laws regulating drones.¹⁰¹ Some state legislatures are currently considering drone laws, while others have rejected such proposals.¹⁰² Some common issues these laws address include the definition of “drone,” how the government and law enforcement can use drones, how operators can use them for hunting and surveillance, and where they can fly.¹⁰³ Only

news/judge-rules-man-had-right-to-shoot-down-drone-over-his-house [https://perma.cc/3696-K8CQ].

⁹⁶ See Rule, *supra* note 65, at 163–64 (stating that there are daily conflicts between landowners and drones, including a drone flying over professional baseball game, a drone flying outside woman’s window, a drone flying near fireworks display, and people throwing objects at drone flying outside hockey game).

⁹⁷ See, e.g., 18 U.S.C. § 32 (2012) (making it a crime to perform an act of violence against an aircraft in aircraft jurisdiction); H.R. 195, 148th Gen. Assemb. (Del. 2016) (making it a crime to fly drone over sporting events, concerts, races, festivals, and events with more than 1,500 people).

⁹⁸ See, e.g., Complaint for Declaratory Judgment and Damages, *supra* note 1.

⁹⁹ See Perritt & Plawinski, *supra* note 45, at 347; Rule, *supra* note 65, at 158–64.

¹⁰⁰ Michael N. Widener, *Local Regulating of Drone Activity in Lower Airspace*, 22 B.U. J. SCI. & TECH. L. 239, 241 (2016); *Current Unmanned Aircraft State Law Landscape*, NAT’L CONF. ST. LEGISLATURES (Feb. 1, 2018), <http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx> [https://perma.cc/XK95-2426].

¹⁰¹ Rachel Igdal, *Game of Drones: Measuring the Progress and Shortcomings of the Federal Modernization and Reformation Act of 2012*, 9 FED. CTS. L. REV. 81, 97–99 (2016); *Current Unmanned Aircraft State Law Landscape*, *supra* note 100.

¹⁰² Mark J. Connot & Jason J. Zummo, *Everybody Wants to Rule the World: Federal vs. State Power to Regulate Drones*, 29 AIR & SPACE L. 1 (2016) (stating that in 2015, forty-five states considered 168 bills relating to drones); Igdal, *supra* note 101; *Current Unmanned Aircraft State Law Landscape*, *supra* note 100 (stating that in 2016, 38 states considered bills relating to drones).

¹⁰³ *Current Unmanned Aircraft State Law Landscape*, *supra* note 100.

a few state laws address drone trespass, and there has been at least one failed attempt to pass such a law.¹⁰⁴

For example, Nevada passed a bill in 2015 that allows a property owner to sue a drone operator for trespass if the drone is flying below 250 feet over the property owner's land, the drone has flown over the land at least once before, and the property owner has notified the drone operator that he cannot fly over his land.¹⁰⁵ Similarly, in 2016, the Oregon legislature amended a 2013 drone trespass law that is almost identical to the Nevada law, except it does not require a minimum height of flight for a property owner to sue a drone operator.¹⁰⁶ Under both laws, a drone operator will not be liable for trespass if the drone is lawfully on a flight path towards an airport, if it is landing or taking off, or if it is a commercial drone that has proper FAA authorization.¹⁰⁷

California also tried to pass a bill in 2015 that would create a cause of action for drone trespass, but the Governor vetoed it.¹⁰⁸ The law would have made drone flights below 350 feet and over private property trespass.¹⁰⁹ The Governor and other critics opposed the law, stating that the 350 foot limit was too severe a restriction on where drones can fly, it could subject FAA-approved drones to new causes of action, and it would interfere with federal and state efforts to create efficient and safe drone regulations.¹¹⁰

The Nevada, Oregon, and California bills illustrate some of the major attempts to regulate drone trespass, but many states have also enacted laws that, while not specifically addressing trespass, regulate where drones can fly and how close they can fly to certain buildings.¹¹¹ For example, an Oklahoma law prohibits flying drones within 400 feet

¹⁰⁴ See NEV. REV. STAT. § 493.103 (2015); OR. REV. STAT. ANN. § 837.380 (West 2016); S.B. 142, 2015 Leg., Reg. Sess. (Cal. 2015).

¹⁰⁵ NEV. REV. STAT. § 493.103.

¹⁰⁶ See OR. REV. STAT. ANN. § 837.380; Rule, *supra* note 65, at 188. The Oregon bill originally had a 400-foot minimum height requirement but was amended to remove the height restriction due to worries that it would conflict with FAA regulations and face preemption problems. See OR. DEP'T OF AVIATION, REPORT TO THE LEGISLATURE 41 (2014).

¹⁰⁷ NEV. REV. STAT. § 493.103; OR. REV. STAT. ANN. § 837.380.

¹⁰⁸ See Amanda Fitzsimmons & Monica D. Scott, *Drones in California: The Laws, the Proposals*, LAW360 (Mar. 8, 2016, 10:32 AM), <https://www.law360.com/articles/767445/drones-in-california-the-laws-the-proposals> [<https://perma.cc/3G5F-UZUQ>].

¹⁰⁹ S.B. 142, 2015 Leg., Reg. Sess. (Cal. 2015).

¹¹⁰ *Id.*; Gregory S. McNeal, *California's Drone Trespass Bill Goes Too Far*, FORBES (Aug. 11, 2015, 2:42 PM), <https://www.forbes.com/sites/gregorymneal/2015/08/11/californias-drone-trespass-bill-goes-too-far/#1a4ac3ed16eb> [<https://perma.cc/8F9Q-EHSM>].

¹¹¹ *Current Unmanned Aircraft State Law Landscape*, *supra* note 100.

of critical infrastructure.¹¹² A Tennessee law makes it a crime to fly a drone within 250 feet of critical infrastructure to conduct surveillance.¹¹³ Finally, a Texas law makes it a crime to fly a drone less than 400 feet over critical infrastructure.¹¹⁴

When the FAA or private parties inevitably challenge state laws addressing drone trespass and other drone-related issues, it is likely that they will face federal preemption problems.¹¹⁵ Before the creation of federal drone regulations, the issue of whether these state laws infringe on the FAA's exclusive jurisdiction over the navigable airspace would have been less prominent. Now that the FAA has enacted drone regulations, however, the likelihood that federal regulations will preempt state drone laws has increased substantially.¹¹⁶

III. FEDERAL PREEMPTION

The federal preemption doctrine derives from the Supremacy Clause, which states that “the Laws of the United States . . . shall be the supreme Law of the Land . . . any Thing in the Constitution or Laws of any state to the Contrary notwithstanding.”¹¹⁷ Under this Clause, any state law that conflicts with federal law is preempted and thus invalid.¹¹⁸ The preemption doctrine applies not only to state laws that expressly interfere with federal law (express preemption) but also to state laws that are contrary to the congressional purpose in passing the federal law (implied preemption).¹¹⁹

Generally, there is a presumption against preemption if the federal law regulates an area traditionally reserved for states, unless the federal law has a “clear and manifest purpose” to supersede the state in that area.¹²⁰ If a federal regulation is so pervasive and shows an

¹¹² Betsy Lillian, *Approved Operators Exempt from Oklahoma's New Drone Law*, UNMANNED AERIAL ONLINE (May 19, 2016), <https://unmanned-aerial.com/approved-drone-pilots-exempt-from-oklahomas-new-critical-infrastructure-law> [<https://perma.cc/LN33-EZ3Y>].

¹¹³ Dan Shea et al., *Drones and Critical Infrastructure*, NAT'L CONF. ST. LEGISLATURES (Sept. 12, 2016), <http://www.ncsl.org/research/energy/drones-and-critical-infrastructure.aspx> [<https://perma.cc/DSZ2-LR2H>].

¹¹⁴ *State Unmanned Aircraft Systems (UAS): 2015 Legislation*, NAT'L CONF. ST. LEGISLATURES (Sep. 30, 2016), <http://www.ncsl.org/research/transportation/state-unmanned-aircraft-systems-uas-2015-legislation.aspx> [<https://perma.cc/2MQ6-C5LL>].

¹¹⁵ See Connot & Zummo, *supra* note 17.

¹¹⁶ See *id.*

¹¹⁷ U.S. CONST. art. VI., cl. 2.

¹¹⁸ See *Mut. Pharm. Co. v. Bartlett*, 570 U.S. 472, 476, 479–80 (2013) (holding that federal law preempted state law that directly conflicted with federal prohibition on drug manufacturers independently changing product labels).

¹¹⁹ See *Wis. Pub. Intervenor v. Mortier*, 501 U.S. 597, 604–05 (1991).

¹²⁰ *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 485 (1996) (quoting *Rice v. Santa Fe Elevator*

intent to regulate an entire area, however, then it does not matter if it is an area traditionally reserved for states.¹²¹ This has been the case for state attempts to regulate aircraft.¹²² In determining whether a federal law preempts a state law, the most important factor is the congressional intent in passing the federal law, which “may be ‘explicitly stated in the statute’s language or implicitly contained in its structure and purpose.’”¹²³

A. Federal Preemption and Aviation Law

Express preemption occurs when congressional intent to supersede state law is expressly written in the statute.¹²⁴ A federal law may preempt state law without explicit statutory language, however, if state law conflicts with federal law or Congress implicitly indicates an intent to exclude state law in a certain area.¹²⁵ This implied preemption can occur through either conflict or field preemption.¹²⁶ Conflict preemption occurs when a state law obstructs the goals and purpose of Congress, or a federal law and state law conflict so as to make compliance with both impossible.¹²⁷

Field preemption occurs when “the pervasiveness of the federal regulation precludes supplementation by the States, where the federal interest in the field is sufficiently dominant, or where ‘the object sought to be obtained by the federal law and the character of obligations imposed by it . . . reveal the same purpose.’”¹²⁸ If a state law concerns the same conduct as a federal law and Congress intended to occupy the entire field of that conduct, a state law in that area will be

Corp., 331 U.S. 218, 230 (1947)). Areas traditionally reserved for states include matters related to health, safety, and historic police powers. *See Hillsborough Cty. v. Automated Med. Labs., Inc.*, 471 U.S. 707, 715 (1985).

¹²¹ *See, e.g., City of Burbank v. Lockheed Air Terminal, Inc.*, 411 U.S. 624, 638–40 (1973).

¹²² *See id.* (holding that even though noise control is traditionally an area reserved for state police powers, federal act controlling aircraft noise left no room for state control because of how much control it vests in the FAA and EPA).

¹²³ *Cipollone v. Liggett Grp., Inc.*, 505 U.S. 504, 516 (1992) (quoting *Jones v. Rath Packing Co.*, 430 U.S. 519, 525 (1977)).

¹²⁴ *See Wis. Pub. Intervenor*, 501 U.S. at 604–05.

¹²⁵ *See Trans World Airlines, Inc. v. Mattox*, 897 F.2d 773, 778–79 (5th Cir. 1990).

¹²⁶ *See Perritt & Plawinski, supra* note 45, at 330–31.

¹²⁷ *See Wis. Pub. Intervenor*, 501 U.S. at 605; *Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1 (1824) (holding that a federal act giving ship permission to navigate all U.S. waters preempted a New York statute prohibiting the ship from navigating in New York waters because the New York statute directly conflicted with the federal act).

¹²⁸ *Trans World Airlines*, 897 F.2d at 779 (quoting *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947)).

“superseded regardless of whether it purports to supplement the federal law.”¹²⁹

The Supreme Court has stated that the Federal Aviation Act¹³⁰ does not expressly preempt states from regulating the airspace.¹³¹ Thus, any preemption of state attempts to regulate drone trespass will fall under the category of implied preemption.¹³² There is a high probability for implied preemption in this area. Through the 1926 Air Commerce Act¹³³ and the creation of the FAA, Congress demonstrated that it intends for the national airspace to be an area controlled exclusively at the federal level.¹³⁴ Additionally, the Senate Report accompanying the Federal Aviation Act of 1958 states that the federal government has almost complete authority to regulate the aviation industry, and that it is distinct from other transportation industries because it is “subject to little or no regulation by States or local authorities.”¹³⁵

Federal courts have consistently held that the FAA’s authority impliedly preempts state and local attempts to regulate aviation and that it “preempts the entire field of aviation safety from state and territorial regulation.”¹³⁶ They have explained that there is a large federal interest in aviation and that the national airspace requires a uniform set of rules, free from the “patchwork” of inconsistent restrictions that states create when attempting to regulate the area.¹³⁷

B. Potential Issues for Federal Preemption of Drone Laws

The FAA claims that private property rights and trespass issues are beyond the scope of the new drone rule, that state laws can address these issues, and that the FAA will address preemption issues

¹²⁹ *Pennsylvania v. Nelson*, 350 U.S. 497, 504 (1956) (holding that through federal acts, Congress intended to occupy the whole field of sedition, so there was no room left for states to supplement the federal acts with their own sedition laws).

¹³⁰ Federal Aviation Act of 1958, Pub. L. No. 85-726, 72 Stat. 731.

¹³¹ *See Montalvo v. Spirit Airlines*, 508 F.3d 464, 470 (9th Cir. 2007).

¹³² *See id.* at 468.

¹³³ Air Commerce Act of 1926, Pub. L. No. 69-254, 44 Stat. 568.

¹³⁴ *See* Federal Aviation Act § 101; Air Commerce Act; *see also* Jeffrey Ellis & Vincent C. Lesch, *The Future of Federal Preemption in Aviation*, BRIEF, Spring 2016, at 32, 35–36 (explaining that the legislative histories of the Air Commerce and Federal Aviation Acts express an intent for the field of aviation to be controlled exclusively and uniformly at the federal level).

¹³⁵ S. REP. NO. 85-1811, pt. 3, at 5 (1958).

¹³⁶ *Montalvo*, 508 F.3d at 470; *Abdullah v. Am. Airlines, Inc.*, 181 F.3d 363, 367–68 (3d Cir. 1999).

¹³⁷ *Montalvo*, 508 F.3d at 473; *French v. Pan Am Express, Inc.*, 869 F.2d 1, 6 (1st Cir. 1989).

individually.¹³⁸ This approach is misleading, however, because any state laws that will actually regulate drone trespass effectively are likely to infringe on the FAA's authority, resulting in preemption.¹³⁹

There are many cases that demonstrate federal preemption of general state aviation regulations, and this will likely be the case for state drone regulations as well.¹⁴⁰ In 2014, the FAA published a fact sheet explaining that federal law will generally preempt state regulations that limit the operation of aircraft, i.e., drones.¹⁴¹ It published an additional fact sheet in 2015, recommending that states consult with the FAA before creating laws relating to drone restrictions on flight altitude, flight paths, operational bans, and any regulations on the navigable airspace because of the high probability that federal laws will preempt them.¹⁴²

The FAA has already stated that a federal court will “strictly scrutinize state and local regulation of overflight,”¹⁴³ but regulating overflight and placing restrictions on the airspace will be necessary to regulate drone trespass effectively. The FAA has implied that states cannot place regulations on flight altitude, flight paths, or the navigable airspace.¹⁴⁴ Therefore, any state regulation that places restrictions on the airspace and limits the proximity in which drones can fly to private property will likely face preemption problems.¹⁴⁵ This concern is increased by the fact that the FAA considers its regulatory authority to extend “down to millimeters above your backyard” because it claims that the national airspace includes anywhere aircraft, including drones, can operate safely.¹⁴⁶ This means the FAA will potentially consider the entire low-altitude airspace—the airspace where drones

138 Operation and Certification of Small Unmanned Aircraft Systems, 81 Fed. Reg. 42,064, 42,119 (June 28, 2016) (codified at 14 C.F.R. pt. 107).

139 See Perritt & Plawinski, *supra* note 45, at 352.

140 See *id.* at 331–32 (describing multiple cases involving federal preemption of state aviation regulations, including some that conclude the “entire field of aviation safety is off-limits to state and local law”); *Getting Ahead of the Drones*, *supra* note 47.

141 Perritt & Plawinski, *supra* note 45, at 331–32.

142 FED. AVIATION ADMIN., *supra* note 17.

143 *Id.* Overflight is any “passage over an area” by an aircraft. *Overflight*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/overflight> [<https://perma.cc/PJ7M-GXCZ>].

144 See FED. AVIATION ADMIN., *supra* note 17.

145 McNeal, *supra* note 18, at 400; Berman & Hargadine, *supra* note 47; France, *supra* note 18.

146 Gregory S. McNeal, *The Federal Government Thinks Your Backyard Is National Airspace and Toys Are Subject to FAA Regulations*, FORBES (Nov. 18, 2014, 12:47 PM), <http://www.forbes.com/sites/gregorymcneal/2014/11/18/the-federal-government-thinks-your-backyard-is-national-airspace-and-toys-are-subject-to-faa-regulations> [<https://perma.cc/3DQM-GDG3>].

will be flying—to be a part of the navigable airspace and thus subject to its exclusive jurisdictional authority.

Additionally, as explained above, just because something is traditionally left for states to regulate does not necessarily mean that a federal law will not preempt a state regulation in that area.¹⁴⁷ For example, in *City of Burbank v. Lockheed Air Terminal, Inc.*,¹⁴⁸ the Supreme Court held that although noise control is an area that is deeply rooted in the states' police powers, federal regulations over aircraft noise leave no room for state control.¹⁴⁹ The Court explained that Congress gave the FAA control to regulate this area, which therefore resulted in federal regulations preempting a California law that regulated noise around airports.¹⁵⁰ The Supreme Court's holding here suggests that although trespass issues are generally left to the states, FAA regulations over the national airspace and drones will preempt states from effectively regulating drone trespass issues because of the pervasive control Congress has given the FAA to regulate this area.¹⁵¹

As of yet, FAA regulations have only preempted one local drone law, in *Singer v. City of Newton*,¹⁵² where a federal district court held that FAA regulations impliedly preempted sections of a Massachusetts city ordinance.¹⁵³ Specifically, the court stated that the regulations preempted bans on drone flights below 400 feet and above public buildings because the bans “certainly reach[ed] into navigable airspace,” and “thwart[ed] not only the FAA’s objectives, but also those of Congress for the FAA to integrate drones into the national airspace.”¹⁵⁴ This type of preemption will become common as drone operators directly challenge more state and local laws in court, which is likely, considering that the drone industry as a whole is opposing state and local drone regulations.¹⁵⁵

¹⁴⁷ See *City of Burbank v. Lockheed Air Terminal, Inc.*, 411 U.S. 624, 638 (1973).

¹⁴⁸ *Id.*

¹⁴⁹ *Id.* at 638.

¹⁵⁰ See *id.*

¹⁵¹ See, e.g., *Getting Ahead of the Drones*, *supra* note 47. Adding to the already-high possibility that federal law will preempt state laws, the FAA recently said it will look more into particular issues, like privacy, to see if it needs to enact more regulations, and that it will also look at related preemption issues. See Dibya Sarkar, *FAA Drone Advisory Committee to Dive Deeper into Privacy Responsibilities*, WASH. INTERNET DAILY (Sept. 19, 2016), <http://www.washingtoninternetdaily.com/article/view?s=142991&p=1&id=504000> [https://perma.cc/X99R-D9EN].

¹⁵² *Singer v. City of Newton*, No. 17-10071-WGY, 2017 WL 4176477 (D. Mass. Sept. 21, 2017), *appeal dismissed*, No. 17-2045 (1st. Cir. Dec. 7, 2017).

¹⁵³ See *id.* at *4–6.

¹⁵⁴ *Id.* at *5.

¹⁵⁵ See Ben Popper, *Man Gets 30 Days in Jail for Drone Crash That Knocked Woman*

The legal ambiguity surrounding airspace property rights and the FAA's authority over the navigable airspace have already impacted state attempts to regulate these areas.¹⁵⁶ Several states have either rejected or modified drone regulations that place restrictions on where and how low drones can fly out of fear that their laws will face future preemption problems.¹⁵⁷ Trying to draft less restrictive laws could help states avoid preemption, but as the court in *Singer* noted, the FAA regulations do not create a “carve-out for state and localities to regulate,” and “whether parallel regulations are enforceable” will depend on preemption principles.¹⁵⁸ After *Singer*, courts are likely to “invalidate state or local drone . . . overflight regulations,” including “restrictions on flight altitude or flight paths . . . [and] regulation of navigable airspace.”¹⁵⁹ This means that regardless of how careful states are in drafting drone laws, without a clear line between federal and state jurisdictions, the FAA could see any restriction as an operational ban—for example, restriction on flight altitudes, flight paths, or the navigable airspace—or as a regulation of aircraft safety.¹⁶⁰ The FAA has already said it could preempt these types of restrictions because they intrude on its exclusive jurisdiction.¹⁶¹ Therefore, even though the FAA claims that states can regulate trespass issues, it is likely that they will not be able to do so effectively, resulting in a gap in necessary drone regulations.¹⁶²

Unconscious, VERGE (Feb. 27, 2017, 4:25 PM), <http://www.theverge.com/2017/2/27/14755116/jail-sentence-drone-crash-30-days-seattle> [<https://perma.cc/N8Y2-BVKG>] (explaining that most drone industry trade groups are advocating against local drone laws because the laws will create inconsistent and overlapping rules, diminish aviation safety, and stifle innovation).

¹⁵⁶ See OR. DEP'T OF AVIATION, *supra* note 106, at 50.

¹⁵⁷ See S.B. 142, 2015 Leg., Reg. Sess. (Cal. 2015); OR. DEP'T OF AVIATION, *supra* note 106, at 40, 50; Connot & Zummo, *supra* note 17; see also *supra* Section II.C. Recently, businesses threatened to challenge an Alaska city ordinance that makes it illegal to fly fifty feet over private property, claiming that FAA regulations preempt it. Travis Khachatoorian, *Proposed Drone Ordinance Rebuked by Local Businesses*, KTUU (Feb. 27, 2017, 6:33 PM), <http://www.ktuu.com/content/news/Proposed-drone-ordinance-rebuked-by-local-businesses-414926083.html> [<https://perma.cc/DF5J-3UMH>].

¹⁵⁸ *Singer*, 2017 WL 4176477, at *5–6.

¹⁵⁹ Thaddeus Lightfoot, *The Sky May Be the Limit: Local Drone Regulation and Federal Preemption*, DORSEY (Sept. 28, 2017), <https://www.dorsey.com/newsresources/publications/client-alerts/2017/09/local-drone-regulation-and-federal-preemption> [<https://perma.cc/3WX8-2ZPQ>].

¹⁶⁰ See Connot & Zummo, *supra* note 17.

¹⁶¹ See FED. AVIATION ADMIN., *supra* note 17; Connot & Zummo, *supra* note 17.

¹⁶² See FED. AVIATION ADMIN., *supra* note 17; Connot & Zummo, *supra* note 17.

IV. CREATING A JURISDICTIONAL BRIGHT-LINE AND CLARIFYING AIRSPACE PROPERTY RIGHTS

The present state of airspace property rights, the continual rise in drone use, and the expected issues concerning drones and aerial trespass leave a void in drone regulations at both the federal and state levels. The best way to solve this ambiguity is for the FAA to explicitly define the limits of the navigable airspace, which would prescribe exactly where drones may fly. This would then allow state and local governments to sufficiently enact drone regulations below the navigable airspace without preemption issues.

A. *Defining the Navigable Airspace*

The first step in addressing the ambiguity surrounding FAA jurisdiction and what states may regulate is for the FAA to clearly define the navigable airspace. At this time, the FAA has failed to take this crucial step.¹⁶³ As described above, the FAA has exclusive jurisdiction over the navigable airspace, but it is currently unclear what that means.¹⁶⁴ A clear definition of the navigable airspace will determine the FAA's and, therefore, the states' respective jurisdictions.¹⁶⁵ This clear definition will also clarify personal property rights and establish when a drone is trespassing.¹⁶⁶

An effective definition would make anything from 200 feet and above part of the navigable airspace, giving the FAA exclusive jurisdiction over this area and resolving any questions concerning preemption and the states' ability to regulate above this mark. This 200-foot limit on the navigable airspace would not only define where the FAA has exclusive jurisdiction but also set a minimum height above which both commercial and recreational drones must fly, effectively giving them a 200-foot span in which to fly under the current drone rules.¹⁶⁷

Two hundred feet is a proper height minimum for the navigable airspace, as well as a proper restriction on where the FAA permits

¹⁶³ See *Unmanned Aircraft Systems: Key Considerations Regarding Safety, Innovation, Economic Impact, and Privacy: Hearing Before the Subcomm. on Aviation Operations, Safety, and Sec. of the Comm. on Commerce, Sci., and Transp.*, 114th Cong. 81 (2015).

¹⁶⁴ See *supra* Section I.C.

¹⁶⁵ *Unmanned Aircraft Systems*, *supra* note 163.

¹⁶⁶ *Id.*

¹⁶⁷ *Summary of Small Unmanned Aircraft Rule*, *supra* note 29. The FAA does not have regulations establishing a maximum height for recreational drones, but a 200-foot minimum for the navigable airspace and drone flight would still require both commercial and recreational drones to fly more than 200 feet above private property. *Id.*

drones to fly, for multiple reasons.¹⁶⁸ A 200-foot minimum guarantees that property owners still own much of the airspace above their property by ensuring that any drone flying below 200 feet is a violation of their property rights and that they have a right to exclude that drone.¹⁶⁹ Additionally, if a state or locality deemed it proper for drones to fly below 200 feet, it could create its own regulations to cover the area below the navigable airspace. Two hundred feet is a proper minimum, however, because it is more than “five times the height of the average two-story home.”¹⁷⁰ Therefore, a minimum of 200 feet above ground level will ensure that landowners have enough space to prevent drones from flying over their property and interfering with their use of that land.¹⁷¹

Others have proposed laws that would create a similar bright-line distinction as to where property rights extend so that landowners can make valid aerial trespass claims and courts have a clear line to follow in deciding these claims.¹⁷² Some of these proposals suggest making the line as high as 500 feet, rather than 200 feet.¹⁷³ Five hundred feet would give landowners sufficient airspace property rights, but this excessive height is unnecessary and, more importantly, would be detrimental to the future of drone technology. The FAA’s new drone rule does not permit drones to fly above 400 feet, so a law creating property rights up to 500 feet would make commercial drone flight impossible.¹⁷⁴ Additionally, 200 feet will give average landowners plenty of space above their property, while also giving drones enough room for future innovation. For example, this 200 foot span will allow for the possibility of transit zones for different types of drones to travel through¹⁷⁵ and will allow a drone to fly above private property without the operator worrying that the flight constitutes a trespass.¹⁷⁶

Two hundred feet is also consistent with current FAA regulations, because the FAA has regularly ignored buildings that are below this

¹⁶⁸ See McNeal, *supra* note 18, at 400–01.

¹⁶⁹ *Id.*; Rule, *supra* note 65, at 202.

¹⁷⁰ McNeal, *supra* note 18, at 400–01. The average height of a two-story home is twenty feet. *What Is the Average Height of a Two-Story House?*, REFERENCE, <https://www.reference.com/home-garden/average-height-two-story-house-77c4bc5891e34944#> [<https://perma.cc/KRG2-WQBD>].

¹⁷¹ McNeal, *supra* note 18, at 400–01.

¹⁷² Rule, *supra* note 65, at 188.

¹⁷³ See *id.* at 187–88 (describing proposals that also differ from others by recommending that states, rather than the federal government, create this property-rights line).

¹⁷⁴ See 14 C.F.R. § 107 (2016).

¹⁷⁵ Widener, *supra* note 100, at 239.

¹⁷⁶ See *id.* at 240.

altitude and only requires notice of the construction of a building if it is above 200 feet.¹⁷⁷ The federal government has traditionally left buildings that are below 200 feet for states to regulate, so making this the height minimum for the navigable airspace (and the end of the FAA's exclusive jurisdiction) is both reasonable and logical.¹⁷⁸

Professor Gregory McNeal, as well as Oklahoma legislators working on a state drone bill, have similarly proposed that drones should have to fly above 200 feet, thus giving property owners airspace rights up to 200 feet above their property.¹⁷⁹ These proposals, however, suggest that state and local governments create this property-rights mark.¹⁸⁰ It is important that the FAA, and not state or local governments, set this height minimum for drone use because if a state attempts to set a height minimum and it extends too far into the airspace or regulates flight altitudes or paths, it will likely face federal preemption problems.¹⁸¹

Currently, it is unlikely that the FAA will allow a city to “invoke its rights to regulate land use . . . to enact a law prohibiting individuals from flying drones below 200 feet over private property.”¹⁸² If, however, the FAA sets these minimums by defining the navigable airspace, then it will become clear where states may regulate drones, and property owners, drone operators, and courts will have a more certain idea of who is allowed to be where.¹⁸³

States should also not be the ones creating height minimums for drones because this could result in a patchwork of different state and local regulations, which the FAA and federal courts have repeatedly said is undesirable and poses risks to airspace safety.¹⁸⁴ This would lead to different height minimums depending on where a drone is flown, resulting in confusion over the airspace and restrictions on the FAA's ability to efficiently regulate the navigable airspace.¹⁸⁵ If the

¹⁷⁷ See 14 C.F.R. § 77.9(a) (2017); McNeal, *supra* note 18, at 400.

¹⁷⁸ See McNeal, *supra* note 18, at 400.

¹⁷⁹ See *id.* at 399–400; Jessica Bruha, *Area Legislators Take on Task of Drone Legislation*, MIAMIOK.COM (Jan. 28, 2017, 12:01 AM), <http://www.miamiok.com/news/20170128/area-legislators-take-on-task-of-drone-legislation> [<https://perma.cc/7UMF-ZFUL>].

¹⁸⁰ See McNeal, *supra* note 18, at 398–99; Bruha, *supra* note 179.

¹⁸¹ See *supra* Section III.B.

¹⁸² Ashley Deeks, *FAA Drone Regulations: What's Left for States?*, LAWFARE (Jan. 6, 2016, 8:56 AM), <https://www.lawfareblog.com/faa-drone-regulations-whats-left-states> [<https://perma.cc/FYT8-CTQS>].

¹⁸³ See Berman & Hargadine, *supra* note 47.

¹⁸⁴ See *Montalvo v. Spirit Airlines*, 508 F.3d 464, 473 (9th Cir. 2007); *French v. Pan Am Express, Inc.*, 869 F.2d 1, 6 (1st Cir. 1989); Widener, *supra* note 100, at 249.

¹⁸⁵ See Widener, *supra* note 100, at 249 (explaining that the federal government needs to

FAA defines the navigable airspace, however, it can avoid these problems through the creation of a single, uniform height minimum for drone use.

After providing a clear definition of the navigable airspace, the FAA will have exclusive authority over the airspace from 200 feet above ground level and up. Additionally, the FAA should retain some authority to regulate aircraft below 200 feet, but only if the regulation directly relates to a material safety risk or involves other matters under the FAA's jurisdiction, such as takeoffs, landings, and airports.¹⁸⁶ This remaining jurisdictional authority below 200 feet would be limited to these few areas, and it would be much more restricted than the FAA's current authority to regulate the "airspace from the ground up."¹⁸⁷ Aside from this limited FAA authority, states would have substantial authority to regulate drones below 200 feet, including the ability to regulate flight altitudes and flight paths.¹⁸⁸

B. Allowing State and Local Governments to Regulate Drones Below the Navigable Airspace

After the FAA defines the navigable airspace, states will know where they can regulate, which will allow them to create their own legislation to address trespass issues sufficiently. A 200-foot minimum on drone flight will mean that any drone flying above 200 feet is not committing a trespass under federal law, but state and local authorities can then begin to define what constitutes a trespass beneath 200 feet.¹⁸⁹ A bright line for the end of the FAA's jurisdiction will allow state and local governments to incorporate their own drone rules into "covenants, conditions, and restrictions."¹⁹⁰ Additionally, in making these rules they will be operating under a legal certainty that the FAA will not preempt their laws.¹⁹¹ States can choose to leave trespass issues up to traditional trespass laws, which would likely mean any

exclusively control some aspects of drone flight to ensure that local regulations do not limit the FAA's ability to control air safety and air traffic).

¹⁸⁶ See Rule, *supra* note 65, at 198–200; see also 49 U.S.C. § 40101(a)(1) (2012) (mandating that a primary goal of federal aviation regulations is to preserve safety); 49 U.S.C. § 40101(a)(7) (requiring the FAA to maintain regulations regarding the U.S. air transport system); 49 U.S.C. § 40102(a)(32) (describing the navigable airspace as "airspace above the minimum altitudes of flight prescribed by regulations [which would now be 200 feet] . . . including airspace needed to ensure safety in the takeoff and landing of aircraft").

¹⁸⁷ *Busting Myths About the FAA and Unmanned Aircraft*, *supra* note 60.

¹⁸⁸ See Connot & Zummo, *supra* note 102, at 15; Rule, *supra* note 65, at 198–99.

¹⁸⁹ See Rule, *supra* note 65, at 202.

¹⁹⁰ Troy A. Rule, *Drone Zoning*, 95 N.C. L. REV. 133, 172 (2016).

¹⁹¹ See *id.*

drone flight below 200 feet constitutes an aerial trespass. They can also enact local laws that directly address if and where a drone can fly below 200 feet, including laws that say any drone flight below 200 feet is a trespass. Further, they can create their own penalties for when a drone does commit a trespass.¹⁹²

States should address specific issues with drone laws, including laws clarifying that drones are not trespassing if flying below 200 feet while in the process of landing or taking off (if the local government or the FAA has authorized them to do so in the particular area).¹⁹³ Additionally, state and local governments will be able to structure the airspace below 200 feet to promote drone innovation and welcome future drone possibilities.¹⁹⁴ These laws could allow commercial drone operators to purchase avigation easements or permits to operate in certain areas for package delivery.¹⁹⁵ They could also create transit zones below 200 feet for drones to travel through, resembling an airspace highway.¹⁹⁶

The FAA's creation of a bright-line height minimum for the navigable airspace as a national standard is critical, so that states can regulate the lower airspace, below 200 feet, without worrying about their laws facing preemption challenges.¹⁹⁷ State and local government regulation below 200 feet is desirable because these governments have a better understanding of the issues and goals of their communities, which will allow them to create more efficient low-altitude drone laws and promote local policies.¹⁹⁸ They also have better access to local information and are responsible for land use zoning, which leaves

192 Rule, *supra* note 65, at 202–03 (proposing that states create legislation to extend surface criminal trespass protections to cover aerial trespass in the same way).

193 See 49 U.S.C. § 40102(a)(32) (granting the FAA jurisdiction to regulate drone flight related to takeoffs and landings).

194 See Rule, *supra* note 65, at 202; Widener, *supra* note 100, at 241.

195 See Rule, *supra* note 65, at 202; Widener, *supra* note 100, at 254.

196 See Rule, *supra* note 65, at 204–05; Widener, *supra* note 100, at 254.

197 See *Building a 21st Century Infrastructure for America: Enabling Innovation in the National Airspace: Hearing Before the Subcomm. on Aviation of the H. Comm. on Transp. & Infrastructure*, 115th Cong. (2017) (testimony of Sean Cassidy; Director, Safety and Regulatory Affairs; Amazon Prime Air); *id.* (testimony of Gregory S. McNeal, JD/PhD; Co-founder, AirMap; Professor, Pepperdine University); Robert L. Ellis, *Drones and the Law: What You Need to Know*, OHIO ST. B. ASS'N (Jan./Feb. 2016), <https://www.ohioabar.org/newsandpublications/ohiolawyer/pages/drones-and-the-law-what-you-need-to-know.aspx> [https://perma.cc/Y2JZ-CJPW] (states can regulate nonfederal aspects of aviation, and with a 200-foot minimum, anything below 200 feet, with minor exceptions, would not be federal).

198 Rule, *supra* note 65, at 203–04.

them in an overall better position than the FAA to determine what drone policies will work best in what neighborhoods.¹⁹⁹

State and local regulation above 200 feet would cause problems because it would face preemption challenges, create a patchwork of laws in the national airspace, and negatively restrict the possibilities for drone use.²⁰⁰ Drones need enough room to fly throughout the airspace to be efficient and to further develop, but they also should not be allowed to fly so low that property owners no longer have any rights in their airspace. Setting the navigable airspace, and the drone flight minimum, at 200 feet above ground level, and then allowing states to regulate the airspace beneath that mark, sufficiently meets the balance that is necessary for drones and property owners alike.

CONCLUSION

With a bright-line definition of the navigable airspace and the end of the FAA's exclusive jurisdiction and a bright-line minimum directing where both commercial and recreational drones may fly, it will become clear whether a drone is trespassing by flying above private property. If Congress and the FAA were to accept this definition of the navigable airspace, then courts in cases similar to the "Drone Slayer" case would have a much easier task.²⁰¹ If this definition had been in place and Kentucky had not enacted any laws allowing drones to fly below the 200 foot navigable airspace, then John Boggs would have definitively trespassed onto William Merideth's private property if he was flying below 200 feet.²⁰² If Kentucky had enacted laws regulating the airspace for drones below 200 feet, however, Boggs may or may not have been liable for trespass depending on whether he was in compliance with state law. The "Drone Slayer" case is not an isolated incident of a potential drone trespass, and with the rise in drone use, especially after the FAA's 2016 small-drone rule, conflicts like this one will continue to increase.²⁰³ Under current regulations, these is-

¹⁹⁹ Rule, *supra* note 190, at 170, 176–79.

²⁰⁰ See McNeal, *supra* note 18, at 399–401; Widener, *supra* note 100, at 249.

²⁰¹ See Blake, *supra* note 6.

²⁰² Technology is available that allows drone operators to know exactly at what altitude a drone is flying. Press Release, LeddarTech, UAV Manufacturer Robota Selects the LeddarOne Altimeter (Nov. 14, 2016), <http://leddartech.com/uav-manufacturer-robota-selects-leddarone-altimeter> [<https://perma.cc/3P6J-QVZL>].

²⁰³ See FAA Administrator Michael Huerta Reviews Successful 2016 for UAS Industry, *supra* note 12 (stating that since the 2016 drone rule, over 30,000 people have started the drone pilot application process); Briones et al., *supra* note 30; Brus, *supra* note 13 (stating that the FAA expects seven million drones to be sold in the United States by 2020).

sues will result in ambiguous answers and unpredictable results. If the FAA creates a bright-line definition over where the navigable airspace ends and where drones may fly, however, it can solve these problems by giving drone operators clear guidelines over where they can fly, giving property owners clear answers as to where their property rights extend, and giving courts a clear definition as to what constitutes a drone trespass.

