AFTER “KNOWING EXPOSURE”: FIRST AND FOURTH AMENDMENT DIMENSIONS OF DRONE REGULATION

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I. INTRODUCTION

In 2006, the Pentagon asked Ross McNutt, an astronautical engineer and founder of the Air Force’s Center for Rapid Product Development, to create a surveillance system to help identify the persons planting improvised explosive devices (IED) along the roadways in Iraq to prevent them from wounding and killing tens of thousands of U.S. military.1 McNutt delivered a system of synchronized cameras dubbed “Angel Fire” that when attached to the bottom of a plane, could produce a searchable photographic map of a large area, enabling the government to move backward in time from the moment of the explosion. Angel Fire allowed the military to navigate digitally stored images, tracing the movements of an enemy combatant from the site of the IED back to their front door.2 This technology has since been adapted for commercial development and is now used by local law enforcement in several American cities.3 Right now, most of Baltimore is continuously surveilled by Cessna planes equipped with Angel Fire’s progeny, conveying real-time images to analysts on the ground from a distance of 8,500 feet. Surveillance was conducted in Baltimore and Compton without a warrant and, at least initially, without the public’s knowledge, spawning public protest and well-founded privacy concerns.4 Most people likely realize they enjoy less privacy from government observation in public than when they are in their homes. And yet, most people would probably not expect that this means the government has the right to indefinitely record in high-resolution and analyze any movement through public space of an entire city from cloud level.

2. Id.
3. Id.
The Baltimore surveillance program illustrates the radical inadequacy of traditional Fourth Amendment doctrine developed around the secrecy paradigm for preserving core constitutional protections in the digital age. Deploying military surveillance against Baltimore residents not only alienates law enforcement from the citizens the police are sworn to serve and protect; by sacrificing privacy and the Fourth Amendment at the altar of security, warrantless drone surveillance inhibits the exercise of First Amendment rights to speak and associate freely. The Fourth Amendment promises "the right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures."5 And yet, under the current doctrine, yearlong surveillance of an entire city without probable cause and without a warrant does not necessarily violate the constitution. This counterintuitive result is the consequence of a series of Fourth Amendment cases beginning with \textit{Katz v. United States},6 in which the Supreme Court held that the Fourth Amendment warrant requirement is only triggered when a government search violates an individual’s “reasonable expectation of privacy.”7 And here is the problem: according to the current doctrine, an expectation of privacy is reasonable only to the extent that the information searched has not already been “knowingly exposed” to a third party8 (e.g., the telephone company or bank) or the public at large.9 From \textit{Katz} to \textit{California v. Ciraolo}10 and \textit{Florida v. Riley},11 the Court has defined the scope of a person’s reasonable

5. U.S. CONST. amend. IV (emphasis added).
7. \textit{Id.} at 360 (Harlan, J. concurring). \textit{Katz} radically reformed Fourth Amendment doctrine—shifting constitutional protection from its mooring in property rights to the notoriously unwieldy “reasonable expectation of privacy” standard. \textit{Id.} In holding that “the Fourth Amendment protects people, not places,” Justice Stewart redefined the scope of Fourth Amendment protection to invalidate a warrantless wiretap of a public telephone booth. \textit{Id.} Historically, the Fourth Amendment warrant requirement was triggered only by government searches involving common law trespass.
8. \textit{See Smith v. Maryland}, 442 U.S. 735, 743–44 (1979) (finding that the “installation and use of a pen register” to record a person’s call history does not constitute a Fourth Amendment “search” because a “person has no legitimate expectation of privacy in information he voluntarily turns over to third parties”).
9. \textit{Katz}, 389 U.S. at 351 (finding that “what a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection”).
10. 476 U.S. 207, 214–15 (1986) (holding that no warrant was required to conduct aerial surveillance of the backyard of a house from a fixed-wing aircraft at 1000 feet, notwithstanding the fact that the yard was within traditionally protected curtilage of the home and that a fence shielded the yard from street observation).
expectation of privacy through a fact-based, probabilistic analysis of
the likelihood of third party or public access to the pertinent infor-
mation. If the information is not a strictly and effectively held se-
cret, the government is not required to show probable cause and
obtain a warrant to gain access.\textsuperscript{12}

But since the advent of digital technology, individuals know-
ingly expose nearly all aspects of their lives to their cell phone and
internet service providers. As a result, under the Fourth Amend-
ment secrecy paradigm, most people no longer retain a reasonable
expectation of privacy in the intimate details of their lives.\textsuperscript{13} If the
ubiquity of smart phones exploded the privacy boundaries erected
by \textit{Katz}, then the advent of drone technology and incorporation of
commercial drones into navigable airspace under recent Federal
Aviation Administration (FAA) regulations only renders the task of
untangling Fourth Amendment doctrine from patterns of individ-
ual behavior more urgent. In June 2016, the FAA, acting with au-
thority delegated under the FAA Modernization and Reform Act,\textsuperscript{14}
promulgated a rule incorporating unmanned aircraft systems
(UAS)—or in popular parlance, drones—into the National Air-
space System (NAS).\textsuperscript{15}

Drones portend a dramatic expansion of surveillance technol-
yogy. The spread of commercial drones has implications for the ac-
quisition of information by private firms and individuals, as well as
for the government. Commercial drones hold great promise for

\textsuperscript{12} \textit{See id.} (stating that the “relevant inquiry” to determine whether a party
has a reasonable expectation of privacy is the likelihood of a member of the gen-
eral public occupying the same vantage as the government at the time of the
search. Justice O’Connor clarifies that the reasonableness of the search depends
not upon whether the government aircraft was permitted by law to traverse the
relevant airspace, but whether “the helicopter was in the public airways at an alti-
dtude at which members of the public travel with sufficient regularity that \textit{Riley’s}
expectation of privacy from aerial observation was not one that society is prepared
to recognize as ‘reasonable.’”).

\textsuperscript{13} Some lower courts have resisted this plausible extension of the \textit{Katz}
doc-
trine with regard to tracking geolocation data produced by cellphones. \textit{Compare}
United States v. Graham, 796 F.3d 332 (4th Cir. 2015) \textit{(aff’d en banc} 824 F.3d 421
(4th Cir. 2016) \textit{(finding objectively reasonable “cell phone users’ expectation of
privacy in their long-term [cell site location information]”) and State v. Earls, 70
A.3d 630, 644 (N.J. 2013) \textit{(holding that “police must obtain a warrant based on a
showing of probable cause, or qualify for an exception to the warrant requirement,
to obtain tracking information through the use of a cell phone”) with United
States v. Skinner, 690 F.3d 772 (6th Cir. 2012) \textit{(holding that warrantless short-term
geolocation surveillance is constitutionally permissible).}

\textsuperscript{14} FAA Modernization and Reform Act, 49 U.S.C. § 40101 (2012).

\textsuperscript{15} FAA Operation and Certification of Small Unmanned Aircraft Systems, 81
Fed. Reg. 42,963 (June 28, 2016) \textit{(to be codified at 14 C.F.R. pts. 101–91).}
professional and citizen journalists, allowing the operator to take high quality images from a safe distance and for less expense in comparison with, for example, obtaining aerial footage by helicopter. But as more drones take flight, First Amendment rights will arguably become pitted against the Fourth Amendment’s protections. One commentator makes the problem plain: “If you fly a drone, so can [the] police.”16 From natural disasters to large-scale political protests, drones possess incredible potential to capture newsworthy events that have historically been beyond the scope of local reporting, throwing into relief the extent to which First and Fourth Amendment protections have become intertwined. In other words, following a purely fact-based, probabilistic analysis of reasonable expectations of privacy, it would seem that the more First Amendment protection is afforded to professional and citizen journalists recording matters of public interest by drone, the less Fourth Amendment protection the individual can claim against government-controlled drone surveillance.17

In the wake of the recent natural disasters in Florida,18 Texas,19 Puerto Rico,20 and California,21 mass-shootings in Florida and Ne-


17. See, e.g., Richard M. Thompson II, Cong. Research Serv., R43965, Do mes tic Drones and Privacy: A Primer 7 (2015) (“If secrecy remains the primary model for the Fourth Amendment and privacy torts, individuals would have little protection from drone surveillance when their location and activities have been revealed to the public.”).

18. See, e.g., Audra D. S. Burch & Jess Bidgood, Florida Is No Stranger to Hurricanes, but This Is Different, N.Y. Times (Sept. 10, 2017), https://www.nytimes.com/2017/09/10/us/key-west-naples-florida.html [https://perma.cc/5JT7-ETZY] (“Irma, which struck Florida’s coastline twice and then tore through the state with a fury, is anything but a run-of-the-mill hurricane. It was wider than the peninsula itself. There was hardly anywhere in the state to escape its blustery wrath.”).


vada, and political protest around the country, it is paramount to preserve journalists’ and citizens’ right to record public events using drone technology. But preserving this legitimate public interest in drone journalism should not diminish Fourth Amendment protection against warrantless government intrusion by drone surveillance. In fact, if Fourth Amendment protections erode much further, the First Amendment right to speak and associate freely will likewise become illusory. Consider the impact of New York Police Department surveillance on members of New York’s Muslim communities: after the extent of the police department’s surveillance was revealed, members of the target community reported that they had stopped attending religious services, engaging in political discussions, and even contacting the police to report crime. With- out protection against this type of prolonged surveillance, the autonomy interest at the core of the First Amendment is critically threatened. It is therefore important to fashion a new framework to analyze whether government action constitutes a search sufficiently invasive to trigger the warrant requirement that avoids the linkage of news-gathering rights with the scope of government surveillance discretion.

This Note proceeds in three parts: the first part examines the First Amendment implications of commercial drone use; the second explores the Fourth Amendment ramifications of the increased popularity and prevalence of commercial drones; the third applies the insights of mosaic theory to develop a Fourth Amendment framework for drone surveillance. With respect to the First Amendment, I make two main arguments: first, that the First Amendment protects the “right to record” and second, that, as a result, certain time, place, and manner restrictions on drone flight may be constitutionally impermissible. The final part seeks to disentangle the implications of this First Amendment analysis from the scope of Fourth Amendment protections by developing an alternative Fourth Amendment framework informed by mosaic theory.

ma.cc/Y8ZX-XYEY] ("Thirty-six people have been killed since the wildfires began Sunday night, making this outbreak one of the deadliest in state history, according to the California Department of Forestry and Fire Protection.").

Mosaic theory’s basic insight is that, when the government compiles sufficient information to discern a pattern of individual behavior, the mosaic (the whole) is more revealing than the sum of its parts (each discrete piece of information obtained). In light of this insight from mosaic theory and the highly invasive nature of investigative techniques using drones coupled with other sense-enhancing technology, I argue that any targeted use of drones by law enforcement should trigger the warrant requirement under the Fourth Amendment with a small exception for short-term, generalized surveillance in a discrete context which demands heightened security. This should be the case even when the First Amendment might protect journalists’ acquisition of the same information.

II. FIRST AMENDMENT RIGHTS IN THE NATIONAL AIRSPACE SYSTEM

In June 2016, the FAA reversed its former policy of prohibiting commercial entities from operating drones in the NAS, and offering only a few time-bound and closely monitored exceptions made for certain public operators. The final rule, Operation and Certification of Small Unmanned Aircraft Systems, incorporates commercial (non-hobbyist and non-recreational) drones into the NAS. The regulation adds Part 107 to Title 14 of the Code of Federal Regulations, regulating “Aeronautics and Space” and radically expands access to the sky. Under the new rule, “routine civil operation” of small UAS—under fifty-five pounds—is permissible during daylight hours and must remain within the visual line of sight (VLOS) of the remote pilot in command and the person operating the flight controls or, alternatively, within the VLOS of the visual observer. Notably, the regulation also prohibits overhead flight above “persons not directly participating in the operation.”
These FAA restrictions on commercial drone flight implicate the First Amendment. Consider, for example, the FAA prohibition on overhead flight above Ferguson, Missouri, in the wake of public protests following the shooting of an unarmed black teenager, Michael Brown. Substantial evidence obtained by the Associated Press and other public documents, indicates that the no-fly mandate was enacted in order to suppress media coverage of the protest. In a letter to the FAA protesting the no-fly order, the American Civil Liberties Union (ACLU) emphasized that aerial newsgathering allows the press to obtain coverage of an otherwise inaccessible situation. But even further, as the ACLU argues, the First Amendment requires the press be permitted access to the airspace, particularly in the face of “extensive evidence of racial profiling, excessive use of force, and an overly militarized police force.” By declaring a no-fly zone over Ferguson, the FAA not only violated the First Amendment right to record, it also jeopardized Fourth Amendment protections of protestors on the ground. The FAA was complicit in “obscuring potentially unconstitutional police practices involving use of force and detentions” by preventing press coverage. By frustrating the free circulation of information regarding a matter of public concern of the highest magnitude—the relationship between citizens and members of a historically disenfranchised group of citizens and local law enforcement—the restriction trampled First Amendment rights and threatened Fourth Amendment protection of citizens involved in political protest.


29. Id. (“Aerial newsgathering provides a unique and important perspective on breaking news, allowing for coverage that would otherwise be impossible to obtain on the ground.”).

30. Id.

31. Id.
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The FAA policy reversal represented in recent drone regulation is, at least in part, a response to similar allegations made by news media interest groups that the near total prohibition of civilian use of drones, without regard to purpose, violated the First Amendment rights of newsgathering organizations. Media groups will likely continue to exercise the right to access airspace permitted under the FAA regulation; it also requires no real stretch of the imagination to predict that these groups will engage in First Amendment litigation over the constitutionality of time-of-day (TOD), overhead flight, and VLOS restrictions that may frustrate newsgathering under certain circumstances.

A. Background on the Drone Rule and Newsgathering by Drones

The substantial and wide-ranging response by news media to the rule promulgation reflects the stakes involved. In light of the widely documented, sharp decline of the newspaper industry, the cost-effective and groundbreaking potential of drone journalism may offer struggling news media a lifeline at a critical juncture.

32. The FAA received many comments during the notice and comment period from news media organizations including The Student Press Law Center, The News Media Coalition, The National Association of Broadcasters, Google, the American Society of Media Photographers, and the International Center for Law and Economics and Techfreedom urging the FAA to consider the First Amendment implications of any restrictions on drone access to the NAS. FAA Small Unmanned Aircraft Systems, supra note 15, at 42,193.

33. For example, Marc Blitz describes possible opposition to the FAA visual line of sight requirement which “might prevent journalists or other drone operators from gathering information of public interest that can be obtained only by a drone operating far from the operations location.” Marc Jonathan Blitz et al., Regulating Drones Under the First and Fourth Amendments, 57 Wm. & Mary L. Rev. 49, 84 (2015); see also Mark J. Connot & Jason Zummo, First Amendment in the Sky, FOX ROTHSCHILD L.L.P., https://ontheradar.foxrothschild.com/2016/07/articles/drone-privacy/first-amendment-in-the-sky-drones-part-107-and-free-speech [https://perma.cc/8RGB-B6FH], https://ontheradar.foxrothschild.com/2016/08/articles/drone-privacy/first-amendment-in-the-sky-drones-part-107-and-free-speech-part-i-unto-the-breach [https://perma.cc/A6ER-BPNG] (noting that until the issue of whether U.S. airspace is a public or non public forum and whether flying a drone qualifies as speech under the First Amendment the constitutionality of the regulation remains ambiguous).

34. It is becoming clear that print journalism has not just moved to digital platforms, but the industry as a whole has realized a sharp reduction. As Alex Williams reports, the numbers of “journalists at digital native publishers has more than tripled in the past decade” but this growth “pales in comparison to the number of journalists laid off in the newspaper industry.” Alex T. Williams, Employment Picture Darkens for Journalists at Digital Outlets, COLUM. JOURNALISM REV. (Sept. 27, 2016), http://www.cjr.org/business_of_news/journalism_jobs_digital_decline.php?four#four [https://perma.cc/ZQL5-5X7Q].
The long road to FAA incorporation of commercial drones into the airspace proceeded in the decade prior to the 2016 rulemaking through a patchwork approach of policy statements and ad hoc enforcement. Tensions mounted in the private sector as the FAA continually pursued a policy of withholding permission from commercial entities, while granting waivers to government drone operations. These tensions came to the forefront in 2011, when the FAA strayed from its enforcement habit of issuing “cease and desist” notices to commercial operators in violation of FAA policy guidelines and instead initiated its first direct enforcement action against Raphael Pirker. Levying a $10,000 civil penalty, the FAA claimed Pirker had violated 14 C.F.R. § 91.13 by operating an aircraft in a “careless and reckless manner.” The FAA alleged Pirker was operating a drone for commercial purposes on and around the University of Virginia campus, sometimes within several feet of various buildings and above pedestrians on campus. News media organizations seized the opportunity to weigh in on the perceived unconstitutionality of the FAA ban on commercial drone use, both as applied to Pirker and more broadly. Filing as News Media Amici, the group of newspaper and magazine publishers, broadcast and cable television companies, included major industry players, such as the Associated Press, Hearst Corporation, and the New York Times Company.

In the main, the News Media Amici argued that, by failing to distinguish between “business operations” and the use of UAS technology for the First Amendment-protected purpose of gathering and disseminating news and information,” the FAA policy “has an impermissible chilling effect on the First Amendment newsgathering rights of journalists.” Amici urged the FAA to incorporate drones operated for newsgathering purposes into the airspace as


36. The Code of Federal Regulations prohibits “careless or reckless operation,” maintaining “no person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.” Careless or Reckless Operation, 14 C.F.R. § 91.13 (2017).


39. Id. at 5–6.
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“the public stands to benefit enormously from the news media’s use of UAS, as many news stories are best told from an aerial perspective.”

40 Citing a study by the National Press Photographers Association, the Amici pointed to the multiple ways drones could facilitate newsgathering: “improving their ability to report on fires, accidents, weather conditions, natural disasters, and construction sites.”

Drones might also provide otherwise inaccessible footage of large-scale protests, where “limited access and roadblocks” might prevent reporting by companies that lack the resources to deploy a helicopter. Even news organizations with the means to obtain footage by helicopter stand to benefit, since drones often present a safer alternative, posing less risk of accidents than news helicopters.

42 The Pirker case ultimately settled, but as the heated legal discussions and heightened public interest surrounding the protracted adjudication made clear, the FAA could no longer defend a de facto ban on commercial use of drones.

43 By regulating the NAS through the issuance of policy guidelines and adjudication, the “federal government [was depriving] its citizens and a free and independent news media of the opportunity to participate in the rulemaking process required under U.S. law when the government seeks to regulate, restrict, or curtail otherwise proper lawful activity.”

B. The First Amendment Right to Record

There are both strong policy and legal arguments for respecting a right to record newsworthy events. Put most simply: at its heart, the First Amendment encourages the “unfettered interchange of ideas for the bringing about of political and social

40. Id. at 12.
41. Id.
42. Id. at 13; see also Louise Roug, Eye in the Sky, COLUM. JOURNALISM REV. (May 1, 2014), http://www.cjr.org/cover_story/eye_in_the_sky.php [http://perma.cc/QFZ7-H56S] (“[F]or the media, drones could be a game changer, with powers to fundamentally transform a journalist’s ability to tell stories.”).
43. See Brief for News Media, supra note 38, at 14; see also, Cynthia D. Love, Sean T. Lawson, & Avery E. Holton, News from Above: First Amendment Implications of the Federal Aviation Administration Ban on Commercial Drones, 21 B.U. J. SCI. & TECH. L. 22, 32 (2015) (“Helicopters rank among the most dangerous of transportation vehicles, recording a crash rate of 9.84 per 100,000 hours, as compared to the crash rate of all general aircraft (e.g., airplanes, helicopters, balloons, blimps, etc.), which is approximately thirty-five percent lower.”).
45. Id.
46. See Brief for News Media, supra note 38, at 6.
changes desired by the people."\textsuperscript{47} The First Amendment should be regarded as protecting the commercial use of drones for information gathering, particularly where information is newsworthy and where the drone operation presents no risk to public safety or national security.\textsuperscript{48}

The Supreme Court has yet to consider whether the First Amendment protects the right to record and how far the right, if it exists, extends. However, a clear trend is emerging at the circuit and district court levels that the right to record matters of public interest, including publicly performed police activity, is constitutionally protected and may be subjected only to reasonable time, place, and manner restrictions.\textsuperscript{49} Most recently, the Southern District of New York (S.D.N.Y.) recognized a First Amendment “right to record” in \textit{Higginbotham v. City of New York}.\textsuperscript{50} In \textit{Higginbotham}, a freelance journalist was arrested for filming police officers who were violently arresting an Occupy Wall Street protestor at Zuccotti Park in downtown Manhattan.\textsuperscript{51} According to the complaint filed by the plaintiff journalist, Douglas Higginbotham, he had climbed “onto the top of a telephone booth” in order to “get a better vantage point” of “an arrest that resulted in a significant injury to the person being arrested.”\textsuperscript{52} Police then ordered Higginbotham to climb down from the booth. As he did, “three individual [defendant police officers] pulled his legs out from under him, causing him to drop his camera and fall onto the ground.”\textsuperscript{53}

\textsuperscript{47} Roth v. United States, 354 U.S. 476, 484 (1957) (describing the scope of First Amendment protection); see also Margot E. Kaminski, \textit{Privacy and the Right to Record}, 97 B.U. L. Rev. 167, 180 (2017) (providing an extended discussion of the First Amendment right to record under three distinct theories: “(1) protection for the marketplace of ideas; (2) protection of speech necessary for democratic self-governance; and (3) protection of the individual autonomy interest in speech”) (citing Robert Post, \textit{Participatory Democracy and Free Speech}, 97 Va. L. Rev. 477, 478 (2011)).

\textsuperscript{48} See Kaminski, supra note 27, at 189 (“The First Amendment protects not only speech, but also ‘the indispensable conditions of meaningful communication.’”) (citing Richmond Newspapers, Inc. v. Virginia, 448 U.S. 555, 587–88 (1980) (Brennan, J., concurring).

\textsuperscript{49} See Higginbotham v. City of New York, 105 F. Supp. 3d 369, 379 (S.D.N.Y. 2015) (“All of the circuit courts that have [considered whether a right to record police activity exists] have concluded that the First Amendment protects the right to record police officers performing their duties in a public space, subject to reasonable time, place and manner restrictions.”).

\textsuperscript{50} Higginbotham, 105 F. Supp. 3d at 379.

\textsuperscript{51} Id.

\textsuperscript{52} Id. at 372.

\textsuperscript{53} Id.
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claimed that the police officers arrested him in retaliation for filming the “violent arrest” in violation of his First Amendment rights.54

In ruling for Higginbotham, the district court held that the First Amendment extends to filming newsworthy events as an “essential step toward an expressive activity, at least when performed by a professional journalist who intends, at the time of recording, to disseminate the product of his work.”55 On the narrower issue of whether the right to record extends to police activity, the court determined that, “[i]f one accepts that photographing and filming receive First Amendment protection as a general matter (at least when they are ‘expressive’), it is difficult to see why that protection should disappear simply because their subject is public police activity.”56 Rejecting the defendants’ claim to qualified immunity on the grounds that the right was not “clearly established” at the time of the arrest, the court explained that “[w]hen neither the Supreme Court nor the Second Circuit has decided an issue, a court ‘may nonetheless treat the law as clearly established if decisions from . . . other circuits ‘clearly foreshadow a particular ruling on the issue.’”57 Significantly, the district court denied the existence of a circuit split on the right to record, construing Third and Fourth Circuit cases previously cited as evidence of the split to hold merely that the right to record was not clearly established for the purposes of qualified immunity at issue in those specific cases, but also conceding that the First Amendment may protect filming matters of public concern.58

54. Id. at 378.


56. Id. at 379.

57. Id. at 380 (citing Terebesi v. Torreso, 764 F.3d 217, 231 (2d Cir. 2014) (quoting Scott v. Fischer, 616 F.3d 100, 105 (2d Cir. 2010))).

The *Higginbotham* case highlights the tension between preserving public safety while protecting individual rights—the same, often conflicting, interests at stake in the FAA regulation of commercial drones. The case should also serve as a reminder that the constitutional protections provided under the First Amendment may ensure protection under the Fourth: the First Amendment right to record the police engaged in their professional duties provides some assurance that police will not violate Fourth Amendment protections or use excessive force in situations where heightened tension may inspire police to use unnecessary violence.\footnote{59. See, e.g., \textsc{Jay Stanley}, \textsc{Police Body-Mounted Cameras: With Right Policies in Place, a Win For All} 2 (2015) (“Historically, there was no documentary evidence of most encounters between police officers and the public, and due to the volatile nature of those encounters, this often resulted in radically divergent accounts of incidents. Cameras have the potential to be a win-win, helping protect the public against police misconduct, and at the same time helping protect police against false accusations of abuse.”). \textit{See also Kaminski, supra} note 27, at 184.}

\textbf{C. Preserving the Fourth Amendment by Protecting the First}

Like *Higginbotham*, an earlier case, *ACLU v. Alvarez*,\footnote{60. 679 F.3d 583 (7th Cir. 2012), \textit{cert. denied}, 133 S. Ct. 651 (2012).} demonstrates the extent to which preserving the Fourth Amendment depends on protecting the First. In *Alvarez*, the ACLU defended the First Amendment right to monitor police activity in public against a state “eavesdropping” statute that “criminalizes the use of machines to record conversations, regardless of whether the conversations are private.”\footnote{61. Memorandum in Support of Plaintiff’s Motion for a Preliminary Injunction at 2, ACLU of Ill. v. Alvarez, No. 1:10-cv-05235 (N.D. Ill. Sept. 3, 2010) \url{https://www.aclu-il.org/sites/default/files/field_documents/memorandum_in_support_of_plaintiffs_motion_for_a_preliminary_injunction.pdf} [\url{https://perma.cc/2RTM-7JD8}] (“[T]he Act provides: ‘A person commits eavesdropping when he . . . knowingly and intentionally uses an eavesdropping device for the purpose of hearing or recording all or any part of any conversation . . . unless he does so . . . with the consent of all of the persons to such conversation . . .’ 720 ILCS 5/14-2(a)(1)(A).”).} The ACLU sought, and on appeal ultimately obtained, a preliminary injunction prohibiting the state from prosecuting the ACLU for implementing a police “monitoring program.”\footnote{62. \textit{Id.} at 1.} Aiming to promote police accountability and to deter police misconduct, the ACLU proposed systematic audio recording of police activity “without the consent of the officers, when: (1) the officers are performing their public duties; (2) the officers are in public places; (3) the officers are speaking at a volume audible to the unassisted human ear; and (4) the manner of recording is oth-}
The court ultimately upheld the preliminary injunction against state prosecution, finding that an eavesdropping statute that would prohibit recording audible public speech by the police would likely “flunk” intermediate scrutiny for “restrict[ing] far more speech than necessary to protect legitimate privacy interests... [and] likely violates the First Amendment’s free-speech and free-press guarantees.” The court found that the First Amendment provides broad protection of audio and visual recordings as expressive activity or the necessary prerequisite to speech, recognizing that “[t]he act of making an audio or audiovisual recording is necessarily included within the First Amendment’s guarantee of speech and press rights as a corollary of the right to disseminate the resulting recording.”

The more recent mass arrests of protestors at Standing Rock, including journalists and filmmakers, amidst accusations of police brutality similarly demonstrate the extent to which the First and Fourth Amendment stand and fall together. The Standing Rock protests followed Ferguson’s pattern: as tension between police and Dakota Access pipeline opponents escalated, the FAA issued a flight ban preventing the media from using drones to cover the events without undergoing a further review process. Even before the flight restriction was officially imposed, law enforcement targeted drone operators as part of a larger strategy “to create a media blackout,” making it easier to refute claims of excessive force. Dean Dedman Jr., a member of the Standing Rock Hunkpapa tribe from South Dakota, was recording the protest by drone. Claiming that the “drone came after us,” police officers shot the drone out of the sky. Dedman denied that the drone ever presented a threat to the officers or public safety and announced his plan to continue documenting the demonstration; Dedman has also contributed footage of the protest to Huffington Post. The government violates the

63. Id. at 5.
64. ACLU v. Alvarez, 679 F.3d at 586–87.
65. Id. at 595.
68. Id.
69. Id.
heart of the First Amendment, liberty of the press, when it restricts access to airspace with the intent of suppressing newsgathering. If the First Amendment provides a right to record matters of public concern, including but not limited to police conduct in public spaces, it follows that this right should apply regardless of the technology used to obtain the recording. This rule might mandate a distinction between automated and manual recordings, given that automated recording may occur without anyone consciously intending to capture a newsworthy event. However, the same logic dictates that the First Amendment right extends to filming using a handheld device as well as to aerial photography by drone.

D. Forum Analysis of the National Airspace System

The constitutionality of FAA restrictions on commercial drone flight turns largely on whether the airspace occupied by drones is classified as a public or nonpublic forum. If the airspace is categorized as a public forum—as it should be, for reasons this note will consider below—the restrictions on drone operation established by final rulemaking may not be sufficiently tailored to survive intermediate scrutiny. Forum analysis typically begins by categorizing the space into one of three major categories: (1) public forum, (2) a

70. See, e.g., Letter from Anthony E. Rothert, Legal Dir., ACLU of Mo. Found. & Lee Rowland, Staff Attorney, ACLU, to Reggie Govan, Chief Counsel, FAA (Nov. 4, 2014) (quoting Minneapolis Star Tribune Co. v. Minnesota Comm’r of Revenue, 460 U.S. 575, 585 (1983) (“[D]ifferential treatment, unless justified by some special characteristic of the press, suggests that the goal of the regulation is not unrelated to suppression of expression, and such a goal is presumptively unconstitutional.”)).

71. See, e.g., Brief of News Media, supra note 38, at 10–14 (arguing that drone use restriction violates the First Amendment as drones “have the currently-unrealized potential to facilitate better access to news events at a more reasonable cost” and facilitate the free flow of information).

72. See, e.g., Frisby v. Schultz, 487 U.S. 474, 479 (1988) (“To ascertain what limits, if any, may be placed on protected speech, we have often focused on the ‘place’ of that speech, considering the nature of the forum the speaker seeks to employ.”); see also Preminger v. Principi, 422 F.3d 815, 823 (9th Cir. 2005) (“In order to assess [a First Amendment free speech claim], we first must ‘identify the nature of the forum, because the extent to which the Government may limit access depends on whether the forum is public or nonpublic.’”) (quoting Cornelius v. NAACP Legal Def. & Educ. Fund, Inc., 473 U.S. 788, 797 (1985)).
designated public forum, or (3) a non-public forum. The FAA maintains that the restrictions on commercial drone use currently in place under Part 107 are constitutionally permissible under either of three available theories: (a) as “reasonable and viewpoint neutral” restrictions on access to a non-public forum; (b) as an incidental restriction on speech in a public forum; and, finally, (c) as content-neutral time, place, and manner restriction of speech in a public forum. Under the latter two versions of forum analysis, the FAA restrictions must survive intermediate scrutiny—restricting no more speech than necessary to the furtherance of the government interest—to be constitutionally permissible.

To argue that airspace is a non-public forum, the FAA has relied primarily on the Ninth Circuit case Center for Bio-Ethical Reform, Inc. v. City & County of Honolulu. Property that has not been designated as public by the government and is not a traditional public forum falls under the category of nonpublic forum. Courts have held that “limitations on expressive activity conducted on this last category of property must survive only a much more limited review.” However, even if the airspace considered in Center for Bio-Ethical Reform was properly classified as a nonpublic forum, the airspace coveted by commercial drone operators is distinguishable. Center for Bio-Ethical Reform considered whether a Honolulu ordinance prohibiting aerial advertising, which restricted access to a company involved in “towing aerial banners over the beaches,” violated the First Amendment right to free speech.

Therefore, because the ordinance’s prohibition against banner towing was viewpoint neutral and reasonably tailored to “preserve the property for the purpose to which it is dedicated”—“preserving aesthetics and promoting safety”—the ordinance survived constitutional review.

75. 455 F.3d 910 (9th Cir. 2006).
77. Ctr. for Bio-Ethical Reform, 455 F.3d at 915.
78. Id. at 919–20.
79. Id. at 922.
In upholding the ordinance, the Ninth Circuit in *Center for Bio-Ethical Reform* dismissed the argument that the spatial proximity of airspace to traditional public forums—public parks and beaches—should impact the forum analysis. The court cited *United States v. Grace* for the general proposition that "spatial proximity to a public forum is determinative only if the two areas are physically 'indistinguishable.'" In *United States v. Kokinda*, the Court further clarified that the forum analysis of a space otherwise indistinguishable from a traditional public forum—there, a public sidewalk—should consider not only the physical attributes of the space but its purpose. Following this logic, the Ninth Circuit found the airspace "easily distinguishable" from the beaches below, because "the airspace is physically separate from the ground or beaches, requires special equipment and authorization for access, and has never typically been a locus of expressive activity."

However, *Center for Bio-Ethical Reform* is inapposite when considering the airspace at issue in drone regulation because the actual airspace in dispute is distinct. Where FAA regulations limit the maximum altitude of drones to 400 feet above ground, manned aircraft (the type of vehicle regulated in *Center for Bio-Ethical Reform*) maintain a minimum altitude of 500 feet above ground over "sparsely populated" areas. The minimum safe altitude established for manned flight over congested areas is significantly higher at "1000 feet above the highest obstacle." The question then becomes whether the space 100 feet above a traditional public forum—for example, a public park—is meaningfully distinguishable

80. *Id.* at 920 (citing *United States v. Grace*, 461 U.S. 171, 179 (1983) (finding sidewalks leading to the United States Supreme Court building indistinguishable in both location and purpose from other public sidewalks and thus public fora)).


82. *Ctr. for Bio-Ethical Reform*, 455 F.3d at 920.


84. 14 C.F.R. § 91.119(b) (2017).

85. § 91.119(d). It should be noted that helicopters "may be operated at less than the minimums prescribed in paragraph (b) or (c)" as long as the "operation is conducted without hazard to persons or property on the surface." *Id.* However, the point stands that under a certain altitude the airspace above a public forum becomes indistinguishable from the forum itself, whether the line is drawn at 100 or 400 feet. *Id.*
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for the purposes of forum analysis from the public park itself.\(^\text{86}\) In “News from Above: First Amendment Implications of the Federal Aviation Administrative Ban on Commercial Drones,” Cynthia Love argues that the “airspace occupied by small UAS above a public forum should be considered as within the public forum.”\(^\text{87}\) To find otherwise would involve a “radical departure from established First Amendment jurisprudence,” allowing the government to “bar the use of banners, balloons, or tall signs, even in a public park, under the theory that the airspace above the park is a nonpublic forum.”\(^\text{88}\) At the very least, the airspace occupied by small drones and by manned aircraft are physically distinguishable and have traditionally been set aside for different purposes. For these reasons, the holding in \textit{Center for Bio-Ethical Reform} cannot be found dispositive for the purposes of categorizing the forum regulation by the FAA rulemaking.

\textbf{E. Alternative Channels of Communication and Content-Neutral Restrictions}

If the airspace regulated by the drone rule in fact constitutes a public forum and the First Amendment protects the right to record conduct directly related to the dissemination of newsworthy information, then restrictions on speech imposed by FAA rules must survive intermediate scrutiny.\(^\text{89}\) The regulation triggers intermediate scrutiny regardless of whether the restriction incidentally or directly restrains expressive activity. The Court has recognized that “the First Amendment goes beyond protection of the press and the self-expression of individuals to prohibit government from limiting the stock of information from which members of the public may draw.”\(^\text{90}\) In order to protect access, it is paramount that First

\(^{86}\) \textit{Frisby}, 487 U.S. at 480 (“[The Supreme Court] has repeatedly referred to public streets as the archetype of a traditional public forum.”); \textit{see also} Perry Educ. Ass’n v. Perry Local Educators’ Ass’n, 460 U.S. 37, 45 (1983) (recognizing that “streets and parks . . . have immemorially been held in trust for the use of the public and, time out of mind, have been used for purposes of assembly, communicating thoughts between citizens, and discussing public questions. In these quintessential public forums, the government may not prohibit all communicative activity.”).

\(^{87}\) Love, \textit{supra} note 43, at 56.

\(^{88}\) \textit{Id}.

\(^{89}\) \textit{See id}. at 57 (stating that content-neutral restrictions of the time, place, or manner involving a public forum “must be ‘justified without reference to the content of the regulated speech,’ be ‘narrowly tailored to serve a significant government interest,’ and ‘leave open ample alternative channels of communication’”) (quoting \textit{Clark v. Cnty. for Creative Non-Violence}, 488 U.S. 288, 293 (1984)).

Amendment protection be understood to extend to “a right to gather news 'from any source by means within the law.'”\(^{91}\) There is no real dispute regarding whether the FAA regulation is content-neutral: “the rule applies equally to all remote pilots of small UAS subject to FAA regulation, regardless of content,” and the regulation “is not being applied because of disagreement with the message presented.”\(^{92}\) However, because the rulemaking restricts (either directly or incidentally) expressive conduct protected under the First Amendment, to survive constitutional review the restriction must be “narrowly tailored to serve a significant governmental interest” and “leave open ample alternative channels for communication.”\(^{93}\)

With regard to the first of these prongs—narrow tailoring to serve a significant interest—the FAA asserts a “substantial interest in protecting the navigable airspace of the United States, in addition to people on the ground.”\(^{94}\) As long as the “content-neutral regulation does not entirely foreclose any means of communication,” the FAA’s rule “may conceivably satisfy the tailoring requirement even though it is not the least restrictive or least intrusive means of serving the statutory goal.”\(^{95}\) The connection between means and ends, however, requires an actual empirical basis. Whether a Part 107 restriction is construed as directly restraining speech or as a restraint on non-expressive conduct that incidentally limits speech, the government still must “demonstrate that the recited harms are real, not merely conjectural, and that the regulation will in fact alleviate these harms in a direct and material way.”\(^{96}\) As technology reduces the risks of flying beyond the line of sight, above crowds, or outside daylight hours, the government’s defense of Part 107 may well slide unacceptably into conjecture. The regulation of commercial drones requires a careful balance of safety and efficiency concerns, but reg-

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91. Glik v. Cunniffe, 655 F.3d 78 (1st Cir. 2011) (finding a clearly-established First Amendment right to film police officers in a public space) (citing Houchins v. KQED, Inc., 438 U.S. 1, 11 (1978)).


96. Turner Broad. Sys., Inc. v. FCC, 512 U.S. 622, 664 (1994) (holding that must carry provisions of the Cable Television Consumer Protection and Competition act must in fact advance the government’s asserted interest “in assuring that the public has access to a multiplicity of information sources is a governmental purpose of the highest order”).
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ulation through rulemaking leaves the agency fated to “lag behind” the rapidly evolving technology.\textsuperscript{97}

With regard to the second prong, “alternative channels of communication,” the FAA construes “alternative channels” broadly, defending the regulation on the ground that the “capability to conduct aerial photography and videography using manned aircraft remains unaffected by this rule.”\textsuperscript{98} This reading of the constitutional mandate construes “communication” loosely—of course, there are still many ways besides drone recording to capture newsworthy images, but, without recourse to drones as a practical matter, certain events are left beyond the reach of audiovisual recording devices. Media companies will often lack the resources to conduct aerial photography by manned aircraft; the situation may simply be too dangerous to deploy a news helicopter, or manned aircraft may be too intrusive to render the news-gathering mission productive. In other words, the regulation has the real potential to shut down all avenues of communicating a particular story by making the expression of the same audiovisual elements that constitute the story impracticable or even impossible. If the availability of alternative channels of communication is measured by the speaker’s ability to convey the same speech and not merely similar speech, then the FAA regulation does not always leave alternative channels for gathering the desired information available.\textsuperscript{99} As initial protestsions to the regulation by the News Media coalition cited above make clear, the restrictions bar access to certain types of news-gathering—natural disasters which cannot be visually captured while adhering to VLOS restrictions, large public protests, or any event that happens after dark. It is indisputable that the FAA has a legitimate interest in preserving public safety and national security, but the FAA “cannot bar an entire category of expression to accomplish

\textsuperscript{97} FAA Small Unmanned Aircraft Systems, \textit{supra} note 15, at 42,072.  
\textsuperscript{98} Id. at 42,194.  
\textsuperscript{99} Cf. Bery v. City of New York, 97 F.3d 689 (2d Cir. 1996) (New York City’s requirement in the General Vendors Law that visual artists be licensed in order to sell their artwork in public spaces constitutes an unconstitutional infringement of their First Amendment rights because it presents a de facto prohibition against selling visual art for a large majority of the artists who apply for the vending license.; see also Ward v. Rock Against Racism, 491 U.S. 781, 791 (1989) (finding that the government may impose reasonable content-neutral restrictions on speech in a public forum provided that “they leave open ample alternative channels for communication of the information” and upholding the noise ordinance as applied to performances in the Central Park band shell on the grounds that it had no impact on the quantity or quality of the expressive content impacted beyond amplification).  
\textsuperscript{100} See Brief for News Media as Amici Curiae, \textit{supra} note 38, at 12.
this accepted objective when more narrowly drawn regulations will suffice.”

F. FAA Waiver Certificate Process as Prior Restraint on Speech

As a compromise between the conflicting goals of preserving public safety and allowing for efficient uses of new technology, the FAA designed a certificate waiver process as a “bridging mechanism for new and emerging technologies, allowing the FAA to permit testing and use of those technologies, as appropriate before the pertinent rulemaking is complete.” The “certificate-of-waiver process” permits the FAA to make a case-by-case determination of whether small drone operation may still be “safely conducted” while deviating from certain provisions under Part 107, including line-of-sight, daylight, and overflight restrictions. By proceeding in this incremental fashion, the FAA has tried to strike a compromise between industry demands and safety concerns of the highest order, but in light of recent executive action aimed at frustrating the promulgation of new federal regulations generally and the rapid evolution of drone technology, the certificate-waiver system raises First Amendment concerns. In order for the regulation to withstand intermediate scrutiny, the waiver process itself must be narrowly tailored to the government objective to qualify as a reasonable content-neutral prior restraint on speech.

By requiring a waiver before footage can be gathered by drone during non-daylight hours, beyond the line-of-sight, or over a crowd of people, the FAA effectively requires a license or permit before allowing speech to occur. Content-neutral permit schemes like the one promulgated by the FAA have not been held to the strict procedural safeguards required for content-based licensing systems described under Freedman v. Maryland. However, the Supreme Court has required that time, place, and manner regulations “contain ad-

101. Bery, 97 F.3d at 697.
103. See Exec. Order No. 13771, 89 Fed. Reg. 24582 (Jan. 30, 2017) (mandating “unless prohibited by law, whenever an executive department or agency publicly proposes for notice and comment or otherwise promulgates a new regulation, it shall identify at least two existing regulations to be repealed.” In other words, the Office of Management and Budget (OMB) might refuse to permit any new rule amending Part 107 to issue unless the FAA were to identify two unrelated rules to repeal.); see also Complaint at ¶ 5, Public Citizen v. Trump, No. 1:17-cv-00253, 2017 WL 4508646 (D.D.C. Feb. 8, 2017) (“[T]o repeal two regulations for the purpose of adopting one new one, based solely on a directive to impose zero net costs and without any consideration of benefits, is arbitrary, capricious, an abuse of discretion, and not in accordance with law.”).
To survive constitutional review, the FAA waiver-certificate program must guard against the untrammeled exercise of administrative discretion by providing reasonably specific and objective guidelines that do not appear to leave the decision “to the whim of the administrator.” The FAA outlines certain “performance-based standards” for waiver under any of the Part 107 restrictions. Whether the guidelines prove sufficiently stringent to constrain the exercise of administrative discretion remains to be seen; as of yet, most applications for waiver have been denied for “incorrect or incomplete” information. Given the recent exclusion of several reputable news organizations including the New York Times from White House press briefings, there remains a concern that an executive agency like the FAA will be influenced by political affiliation in making the determination to grant or deny a waiver. The risk inherent in any waiver system that discretion will be exercised with discriminatory intent makes it critical that the FAA conduct a further rulemaking to more decisively determine which restrictions under Part 107 are necessary to mitigate public risk and which may be abandoned in the future.

104. Freedman v. Maryland, 380 U.S. 51, 58–59 (1965) (holding that to be constitutionally permissible a licensing scheme regulating the exhibition of motion pictures must place the “burden of providing that the film is unprotected expression” on the censor, promptly determine whether or not the license will be granted, and provide opportunity for prompt judicial review of any permit denial); see also Thomas v. Chi. Park Dist., 534 U.S. 316, 322 (2002).

105. Forsyth Cty. v. Nationalist Movement, 505 U.S. 123, 133 (1992) (holding that county ordinance providing for the issuance of permits for parades, assemblies, and demonstrations, violated the First and Fourteenth Amendment because it permitted the government administrator to determine how much to charge for the permit if anything, at will, in the absence of any objective articulated standards).


107. Id.

At the very least, it would be constitutionally untenable for the FAA to return to its former policy of uniformly barring commercial drones from accessing the NAS regardless of whether drone operation implicated matters of public interest. It is fair to say the initial rulemaking will operate as a floor in terms of access, but it should not constitute the ceiling. Constitutional concerns should compel the FAA to increase the scope of access to the NAS for news media and other drone operators seeking to record newsworthy events as technology develops to ensure public safety.

III.
REASONABLE EXPECTATIONS OF PRIVACY
IN THE DIGITAL AGE

The advent of the drone, with its potential to facilitate dragnet law enforcement practices, invites the reconsideration of the doctrine of “knowing exposure” as a limitation on Fourth Amendment protection. In United States v. Knotts, the Court held that the warrantless installation of a “beeper” allowing law enforcement to track the movements of the defendant’s car did not violate the defendant’s Fourth Amendment rights because the defendant lacked a reasonable expectation of privacy in the public movements of his car—such information was “voluntarily conveyed” to anyone in a position to observe. The Court rejected defendant’s argument that extending the third party doctrine in this manner would inevitably lead to the warrantless “twenty-four hour surveillance of any citizen of this country,” but conceded that “if such dragnet-type law enforcement practices as respondent envisions should eventually occur, there will be time enough then to determine whether different constitutional principles may be applicable.”

In light of the sweeping transformation of culture and society since the advent of digital technology in the years intervening since Knotts, it is time to reassess the “constitutional principles . . . applicable” to information knowingly exposed to the public.

In order to preserve core constitutional values, including the rights to speak and associate freely, the government must be required to establish probable cause and obtain a warrant before proceeding in either of two distinct law enforcement situations.
First, any targeted suspicion-based surveillance by drone should trigger the probable cause and warrant requirements under the Fourth Amendment, regardless of whether the surveillance is brief or extended. On the other hand, where drone surveillance is suspicion-less (i.e., random or universal in application) and individuals are subjected only to temporary, time-bounded surveillance (particularly in situations mandating heightened caution to preserve public safety), the Fourth Amendment doctrine of special needs should allow government monitoring without a warrant. However, if the government then seeks to preserve and/or analyze the data collected during the generalized surveillance (e.g., employing a license plate reader or facial recognition technology to cross-reference data against other stored recordings), it should be required to establish probable cause and obtain a warrant. Prolonged mass warrantless surveillance, like that undertaken by Persistent Surveillance in Baltimore, which extends beyond the scope of a discrete event warranting heightened security, constitutes too grave an encroachment on individual privacy in ways that mosaic theory helps to illuminate, and therefore should be deemed to violate the Fourth Amendment prohibition against unreasonable search and seizure.

Not only does drone journalism increase the likelihood of an individual being unwittingly caught on camera while navigating the public space, but under the current Fourth Amendment doctrine, the more pervasive the civilian use of drones, the stronger the government’s right to surveil its citizenry without triggering Fourth Amendment protections. Following the doctrinal trajectory established by Florida v. Riley and Kyllo v. United States, no one observable in public spaces would retain a reasonable expectation of privacy.
of invisibility to drone surveillance. But this result critically threatens the constitutional protections of speech and association guaranteed under the First Amendment. For example, consider the recent case involving NYPD surveillance of participants in the Black Lives Matter (BLM) campaign after the June 2014 death of Eric Garner on Staten Island, New York. This kind of covert and undercover surveillance could easily impact an individual’s decision to engage in public protest against police use of lethal force or associate generally with persons involved with the BLM movement. One of the attorneys litigating for the surveillance records on behalf of participants in the movement describes the real possibility of the First Amendment chill resulting from this type of police activity: “It’s disturbing to know the NYPD may have a file on me, ready to be used or to prevent me from getting a job simply because I’ve been active in some political capacity.” This chilling effect goes to the core of the First Amendment’s “commitment to the principle that debate on public issues should be uninhibited, robust, and wide-open.”

There now exists a real possibility that the government may obtain a waiver to record public protests using drones equipped with facial recognition technology and then analyze those recordings to identify repeat players, all without a warrant or probable cause. Without shoring up Fourth Amendment protections against this suspicion-based type of warrantless surveillance, key First Amendment rights may be radically constrained. Recognizing journalists’ First Amendment “right to record” using drones need not reduce

118. See Riley, 488 U.S at 455 (O’Connor, J., concurring) (explaining that “if the public can generally be expected to travel over residential backyards” at a certain altitude there is no longer a reasonable expectation of privacy in the space subject to such “aerial observation” even if that space would normally enjoy Fourth Amendment protection as curtilage to a person’s home); see also Kyllo, 533 U.S. at 34 (implying use of sense-enhancing technology may only constitute a search “where . . . the technology in question is not in general public use”).

119. See Buckley v. Valeo, 424 U.S. 1, 15 (1976) (“[T]he First Amendment protects political association as well as political expression.”).

120. George Joseph, NYPD Sent Undercover Officers to Black Lives Matter Protest, Records Reveal, THE GUARDIAN, (Sept. 29, 2016), https://www.theguardian.com/us-news/2016/sep/29/nypd-black-lives-matter-undercover-protests [https://perma.cc/PLD6-A3DF]; see also Shelton v. Tucker, 364 U.S. 480, 485–86 (1960) (“[A state statute compelling] every teacher, as a condition of employment in a state-supported school or college, to file annually an affidavit listing without limitation every organization to which he has belonged or regularly contributed within the preceding five years . . . impair[s] that teacher’s right of free association, a right closely allied to freedom of speech and a right which, like free speech, lies at the foundation of a free society.”).

Fourth Amendment privacy protections that help sustain other important First Amendment rights of protest and free association.

A. From Property to Privacy: The Evolution of the Fourth Amendment

Katz, long credited as the “seminal case in modern ‘search’ law” for taking a privacy-based approach, defined Fourth Amendment protections rather unhelpfully in the negative, holding that “what a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection.” Justice Harlan’s concurrence provides a two-prong test that has since become the centerpiece of Fourth Amendment jurisprudence: “[F]irst, that a person have exhibited an actual (subjective) expectation of privacy and, second, that the expectation be one that society is prepared to recognize as ‘reasonable.’” Following Katz, the Court’s Fourth Amendment analysis has centered almost exclusively on the second (objective) prong of Justice Harlan’s two-part test; it seems to matter little whether the defendant manifests a subjective expectation that the exposed information in question remain concealed. To determine whether the defendant’s Fourth Amendment rights are implicated by any given government action, the Court focuses on whether the defendant’s expectation of privacy was reasonable. If the information is to some degree already exposed—either to a third party or to the public in general—the defendant’s expectation of privacy is constitutionally diminished.

In California v. Ciraolo, the Court extended the Katz framework to aerial surveillance, holding that warrantless aerial observation of Ciraolo’s backyard from an altitude of 1,000 feet did not constitute an illegal search triggering the Fourth Amendment warrant requirement because “any member of the public flying in this airspace who glanced down could have seen everything these officers observed.” Florida v. Riley slightly sharpened the constitutional inquiry to focus on the likelihood of observation as

123. Id. at 351 (emphasis added).
124. Id. at 361 (Harlan, J., concurring).
125. Orin S. Kerr, Katz Has Only One Step: The Irrelevance of Subjective Expectations, 82 U. Chi. L. Rev. 113, 114 (2015) (“Katz is only a one-step test. Subjective expectations are irrelevant. A majority of courts that apply Katz do not even mention the subjective inquiry; when it is mentioned, it is usually not applied; and when it is applied, it makes no difference to outcomes.”).
127. Id.
opposed to the sheer possibility of discovery.\textsuperscript{129} Extending this Ciraolo–Riley paradigm to drone surveillance, the Court would likely find that as commercial drones gain popularity, public surveillance by drone happens with “sufficient regularity” to render the expectation of privacy from aerial observation unreasonable. Writing for the dissent in \textit{Riley}, Justice Brennan seemed to foresee this very issue, commenting: “It is a curious notion that the reach of the Fourth Amendment can be so largely defined by administrative regulations issued for purposes of flight safety.”\textsuperscript{130} For Justice Brennan, the reasonableness of privacy expectations must not become merely an empirical inquiry; the Court should deem itself tasked with making normative determinations regarding how much privacy may be conceded before constitutional protections are eroded to the point “inconsistent with the aims of a free and open society.”\textsuperscript{131}

\textbf{B. Updating the Fourth Amendment to Preserve Constitutional Equilibrium}

The Fourth Amendment doctrine can and should evolve to preserve individual privacy and First Amendment freedoms in a moment where technology renders citizens increasingly vulnerable to governmental intrusion.\textsuperscript{132} As Orin Kerr has argued, the Supreme Court has historically preserved a certain equilibrium of privacy and government access to information.\textsuperscript{133} By adjusting the doctrinal framework according to relevant technology, lowering protection where technology frustrates ease of government access to information and “embrac[ing] higher protections” when technological change “makes evidence substantially easier for the government to obtain,” the Court preserves a consistent level of privacy protec-

\textsuperscript{129} Id. at 455 (arguing that the Fourth Amendment doctrine developed post-\textit{Katz} dictates that the Court ask whether the helicopter was in the public airways at an altitude at which members of the public travel with sufficient regularity that Riley’s expectation of privacy from aerial observation was not “one that society is prepared to recognize as reasonable”) (internal citation omitted).

\textsuperscript{130} Id. at 458 (Brennan, J., dissenting).

\textsuperscript{131} Id. at 456 (quoting Anthony G. Amsterdam, \textit{Perspectives on the Fourth Amendment}, 58 Minn. L. Rev. 349, 403 (1974)).

\textsuperscript{132} See Katherine Strandburg, \textit{Home, Home on the Web and Other Fourth Amendment Implications of Technosocial Change}, 70 Md. L. Rev. 614, 619 (2011) (“[A] future is nearly upon us that will make it impossible to preserve the privacy even of traditional Fourth Amendment bastions, such as the home, without considering the intertwined effects of technological and social change.”).

If Kerr is correct, then the availability of drone surveillance and the ease at which personal information may be aggregated and analyzed should induce the Court to heighten Fourth Amendment protections to preserve the baseline equilibrium.

Almost a century ago, Justice Brandeis made a similar point, anticipating the need to adapt Fourth Amendment principles to the law enforcement technology. In *Olmstead v. United States*\(^\text{135}\) the Court found that wiretapping the defendant’s telephone did not amount to a search because it entailed no “physical invasion” of the party’s house. Justice Brandeis dissented: “Ways may some day be developed by which the Government, without removing papers from secret drawers, can reproduce them in court, and by which it will be enabled to expose to a jury the most intimate occurrences of the home. . . . Advances in the psychic and related sciences may bring means of exploring unexpressed beliefs, thoughts and emotions.”\(^\text{136}\)

Preserving constitutional equilibrium requires a revaluation of Fourth Amendment doctrine to preserve constitutional protection against mass surveillance. Certain investigative techniques including drone surveillance are likely to give the government ready access to intimate details of the target subject more or less “at will” by virtue of the mosaic effect as discussed below. In light of this fact, the government should be required to show probable cause before recourse to these types of investigations.\(^\text{137}\) The appeal of this type of categorical approach is manifest when compared with the likely result of the straightforward application of existing Fourth Amendment doctrine.

### IV. MOSAIC THEORY AND DRONE SURVEILLANCE

The key insight of mosaic theory is that when the government compiles sufficient information to discern a pattern of individual behavior, the mosaic (the whole) is more revealing than the sum of its parts (each discrete piece of information obtained). This insight into the nature of the privacy intrusion contemplated by certain investigative techniques must inform Fourth Amendment doctrine.

\(^{134}\) Id.

\(^{135}\) *Olmstead v. United States*, 277 U.S. 438 (1928).

\(^{136}\) Id. at 474 (Brandeis, J., dissenting).

\(^{137}\) United States v. Jones, 565 U.S. 400, 416 (2012) (Sotomayor, J., concurring) (“I would ask whether people reasonably expect that their movements will be recorded and aggregated in a manner that enables the government to ascertain, more or less at will, their political and religious beliefs, sexual habits, and so on.”).
The theory was influentially first articulated by Judge Ginsburg on the D.C. Circuit in *United States v. Maynard*, later reviewed by the Supreme Court in *United States v. Jones*. The D.C. Circuit held that installing and operating a GPS tracking device on the defendant’s car for a period of twenty-eight days constituted a search within the meaning of the Fourth Amendment. Emphasizing the prolonged nature of the surveillance, Judge Ginsburg found that *Knotts* did not control. Even though *Knotts* held that “[a] person traveling in an automobile on public thoroughfares has no reasonable expectation of privacy in his movements from one place to another,” Ginsburg maintained that *Knotts* does not stand for the proposition that “such a person has no reasonable expectation of privacy in his movements whatsoever, world without end, as the Government would have it.” Even though the defendant’s movements were exposed to the public eye, Ginsburg reasoned that a person still retains a reasonable expectation of privacy in the “whole of [his] movements over the course of a month” because the “likelihood a stranger would observe all those movements is not just remote, it is essentially nil.”

That likelihood could well increase as civilian drone use proliferates, but Judge Ginsburg’s observation is helpful because it highlights how the invasiveness of extended, as compared with short-term, GPS tracking does not increase at the same incremental rate across time. To the extent long-term surveillance reveals what “a person does repeatedly, what he does not do, and what he does ensemble,” surveillance becomes exponentially more invasive when sufficient data is compiled to analyze in the aggregate. For example, “repeated visits to a church, a gym, a bar, or a bookie tell a story not told by any single visit, as does one’s not visiting any of these places over the course of a month.” And most importantly, the


140. Jones, 565 U.S. at 404.

141. Maynard, 615 F.3d 544.

142. Id. at 556-58.

143. Id. at 556 (quoting United States v. Knotts, 460 U.S. 276, 281 (1983)).

144. Id. at 557.

145. Id. at 560.

146. Id. at 562.

147. Id.
pattern or “sequence of a person’s movements can reveal still more; a single trip to a gynecologist’s office tells little about a woman, but that trip followed a few weeks later by a visit to a baby supply store tells a different story.”

This section will apply mosaic theory to consider the privacy interests impacted by drone surveillance to argue that the invasive potential of even relatively short-term surveillance by drone should require a warrant based on probable cause when that surveillance is part of a targeted investigation.

A. **Mosaic Theory and GPS Tracking in United States v. Jones**

The Supreme Court has indicated some willingness to consider a mosaic theory of the Fourth Amendment; concurring opinions in *Jones* filed separately by Justices Sotomayor and Alito (joined by Ginsburg, Breyer, and Kagan) follow Judge Ginsburg’s lead and consider the government actions in light of mosaic theory. Justice Alito emphasized the duration of the GPS tracking, finding that the extended monitoring—“catalogu[ing] every single movement of an individual’s car”—constituted a “degree of intrusion that a reasonable person would not have anticipated.”

While Justice Alito declines to pinpoint the threshold duration distinguishing permissible from impermissible GPS surveillance, his opinion suggests that some warrantless short-term GPS monitoring may be permitted.

By contrast, Justice Sotomayor recognizes that drawing the line of permissibility on the basis of duration may fail to adequately preserve Fourth and First Amendment freedoms in the face of contemporary surveillance technology. Because “GPS monitoring generates a precise, comprehensive record of a person’s public movements,” it allows the government swift and easy access to “a wealth of detail about her familial, political, professional, religious, and sexual associations.” Practical checks that may have otherwise impacted the scope of government investigations are diminished.

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148. *Id.*

149. *Jones*, 565 U.S. at 430 (Alito, J., concurring) (“[R]elatively short-term monitoring of a person’s movements on public streets accords with expectations of privacy that our society has recognized as reasonable. But the use of longer term GPS monitoring in investigations of most offenses impinges on expectations of privacy.”) (citing *United States v. Knotts*, 460 U.S. 276, 281–82 (1983)).

150. *Id.* (“We need not identify with precision the point at which the tracking of this vehicle became a search, for the line was surely crossed before the 4-week mark.”).

151. *Id.* at 415 (Sotomayor, J., concurring) (“In cases involving even short-term monitoring, some unique attributes of GPS surveillance relevant to the *Katz* analysis will require particular attention.”).

152. *Id.*
ished in the face of cost-efficient technology. GPS tracking, like surveillance by drone, is "cheap in comparison to conventional surveillance techniques and, by design, proceeds surreptitiously, it evades the ordinary checks that constrain constitutionally abusive law enforcement practices: 'limited police resources and community hostility.'" As Justice Sotomayor makes clear, the ease with which the government may collect and "assemble data that reveal private aspects of identity" is poised to transform the nature of the relationship between the citizen and the state.

If Fourth Amendment doctrine fails to internalize the insight of mosaic theory, awareness that the government may be monitoring one's daily movements and interactions may have profound chilling effects on First Amendment freedoms of expression and association.

B. Beyond the Secrecy Paradigm in Riley v. California

The Jones concurrences and the Court's holding in Riley v. California may forecast the Court's move away from the secrecy paradigm toward a mosaic theory-based approach to privacy. Along the lines described by Justice Sotomayor in Jones, certain types of searches may be so inherently invasive that they automatically trigger the warrant requirement regardless of whether the information gathered is publicly exposed or whether the search lasts only a short time. The Riley Court applied mosaic theory to cellphone searches by holding that the bright-line rule established in United States v. Robinson—that anything on the person can be searched without a warrant incident to a lawful arrest—does not extend to cellphones. The Court reasoned that cellphone

153. Id. at 416.
154. Id.
155. Jones, 565 U.S. at 416 ("[A]wareness that the government may be watching chills associational and expressive freedoms.").
156. Id.
158. See Kugler & Strahilevitz, supra note 139, at 208 ("[I]n light of Alito's and Sotomayor's opinions, it seems likely that there are now five votes for the mosaic theory and its 'duration-sensitive' approach.").
159. United States v. Robinson, 414 U.S. 218, 235 (1973) ("It is the fact of the lawful arrest which establishes the authority to search, and we hold that in the case of a lawful custodial arrest a full search of the person is not only an exception to the warrant requirement of the Fourth Amendment, but is also a 'reasonable' search under that Amendment.").
160. Riley, 134 S. Ct. at 2488 ("The fact that an arrestee has diminished privacy interests does not mean that the Fourth Amendment falls out of the picture entirely. Not every search 'is acceptable solely because a person is in custody.'") (quoting Maryland v. King, 133 S. Ct. 1958, 1979 (2013)).
searches are quantitatively and qualitatively distinguishable from their analog counterparts. The digital storage capacity of cellphones means “the possible intrusion on privacy is not physically limited in the same way.” But more importantly, the Court found that cellphone searches are distinguishable in kind, because “a cell phone collects in one place many distinct types of information—an address, a note, a prescription, a bank statement, a video—that reveal much more in combination than any isolated record.” The cellphone allows the government quick access to a highly personal mosaic—each discrete individual record becomes far more revealing when viewed in combination with the other personal records digitally stored on an individual’s phone.

The mosaic effect produced by cellphones is so dramatic in part because cellphones collapse time—a browsing or call history may reveal several months’ worth of information in a single glance. In the past, limited resources would have placed a practical limit on the depth of certain searches, reserving the most intensive investigations for those persons suspected of the most serious crimes. In the contemporary moment, digital technology—drones, GPS, cellphones—unshackle government investigative strategies from these historical practical limitations. Like cellphones, drones may also act as GPS tracking devices: “Historic location information . . . can reconstruct someone’s specific movements down to the minute, not only around town but also within a particular building.” Margot Kaminski argues that “persistent surveillance” of an individual producing a prolonged recording similarly collapses time, eradicating the practical limitations on a government search that may have previously shielded individual privacy. Through the analysis of an extended surveillance, “individual moments of in-

161. Riley, 134 S. Ct. at 2489.
162. Id.
163. Id.
164. See Jones, 565 U.S. at 429 (Alito, J., concurring) (“In the precomputer age, the greatest protections of privacy were neither constitutional nor statutory, but practical. Traditional surveillance for any extended period of time was difficult and costly and therefore rarely undertaken. The surveillance at issue in this case—constant monitoring of the location of a vehicle for four weeks—would have required a large team of agents, multiple vehicles, and perhaps aerial assistance. Only an investigation of unusual importance could have justified such an expenditure of law enforcement resources.”).
165. Id. at 415 (Sotomayor, J., concurring) (“GPS monitoring generates a precise, comprehensive record of a person’s public movements that reflects a wealth of detail about her familial, political, professional, religious, and sexual associations.”).
166. See, Kaminski, supra note 27, at 215.
teraction, spread out over time and mitigated through human forgetfulness” are concentrated into “one long story of an individual’s life.” If mosaic theory reveals a cellphone search to be so inherently invasive that it automatically triggers the warrant requirement regardless of duration, the same logic should extend to targeted drone surveillance.

C. Extending Riley to Drone Surveillance

The precision and amount of data that may be swiftly and cheaply compiled by law enforcement employing drone technology mandate a similar categorical treatment of targeted drone surveillance. Recent studies demonstrate that short-term drone surveillance can yield far more information than GPS surveillance of a similar duration. Unlike GPS, a drone can provide a high-resolution visual record of an individual’s movements through any given public space, revealing nuances of a person’s interaction with the space—for example, whether they entered the building surreptitiously or knocked at the front door—that would be otherwise inaccessible by GPS. Drones may be equipped with facial recognition technology, license plate readers, and visual and audio enhancement, and may be virtually undetectable with a wingspan as small as three centimeters long.

If cellphones allow the government to access the same depth of personal information that historically would have demanded a significant expenditure of time and resources, drone surveillance retains the potential for a similarly cheap and swift deep-dive into the totality of a person’s intimate life. It follows that any targeted surveillance should require a warrant. While the special needs doctrine likely protects the warrantless initiation of drone surveillance in certain situations, aggregation and analysis of any collected information should always be subject to a showing of cause and require a warrant.

167. Id.
169. See, e.g., id. at 548–49.
D. Exceptions to the Warrant Requirement Under the Special Needs Doctrine

An extended discussion of the special needs doctrine as an exception to the Fourth Amendment warrant requirement is beyond the scope of this Note. Suffice it to say that the Court’s determination in *Kyllo*—that government use of technology to discern what would otherwise not be readily perceptible to the naked eye constitutes a search—should guide the doctrine in this area. Finding that “reasonableness” is the ultimate touchstone of the Fourth Amendment, the Court sometimes permits deviation from the bright-line warrant and probable cause requirements. Accordingly, the Court has held “in those exceptional circumstances in which special needs, beyond the normal need for law enforcement, make the warrant and probable cause requirement impracticable” the “legality of a search . . . should depend simply on reasonableness, under all the circumstances.” The case law defining the line between searches for ordinary “law enforcement” or “crime control” purposes as opposed to those justified on the basis of governmental “special needs” is somewhat convoluted. But if, for example, surveillance of a large public protest to ensure public safety constitutes a special need, then the court, in deciding whether a warrant was required, will balance the nature of the individual intrusion against the asserted government interest. The government interest is substantial—preserving public safety and national security—but the court must also consider the nature of the intrusion by looking for adequate safeguards to substitute for the warrant requirement.

To protect privacy interests against discriminatory exercises of law enforcement discretion, the Court requires a certain degree of generality or randomness to guard against the inequitable exercise

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174. *Id.* at 341 (majority opinion).
of untrammeled officer discretion.\textsuperscript{177} As applied to drone surveillance, it may be permissible for the government to operate general\textsuperscript{178} or randomized surveillance\textsuperscript{179} in situations demanding heightened security for a discrete short-term period. To the extent the drone replaces what would otherwise be law enforcement’s on-the-ground observational presence, this should also preclude recording and storing footage for possible later analysis. As a kind of compromise between the warrant requirement under the Fourth Amendment and exceptions to the general requirement where exigent circumstances or special needs exist, Jake Laperruque suggests the “use of a pre-event video buffer, whereby a very short period of video is continuously recorded and deleted.”\textsuperscript{180} This buffering approach would allow law enforcement to gather “key information” in the event of exigency, but would avoid the “risk to privacy of continuous mass collection and data storage through aerial surveillance.”\textsuperscript{181} Categorically prohibiting prolonged recording also guards against the risk that law enforcement will search footage using tagging technologies (e.g., facial recognition software or license plate reader) or other sense-enhancing technology before obtaining a warrant.

V. CONCLUSION

There may be something counterintuitive in arguing that the government’s capacity to compose mosaics justifies the imposition of probable cause requirements even when the same information has been exposed to actual or potential acquisition by constitutionally protected news gatherers. Of course, the government is not

\textsuperscript{177}. Delaware v. Prouse, 440 U.S. 648, 654–55 (1979) (“In those situations in which the balance of interests precludes insistence upon ‘some quantum of individualized suspicion,’ other safeguards are generally relied upon to assure that the individual’s reasonable expectation of privacy is not subject to the discretion of the official in the field.”) (citation omitted).

\textsuperscript{178}. \textit{id.} at 663 (striking down the constitutionality of random stops made by highway patrol in an effort to catch unlicensed and unsafe drivers but clarifying that “[t]his holding does not preclude the State of Delaware or other States from developing methods for spot checks that involve less intrusion or that do not involve the unconstrained exercise of discretion”).

\textsuperscript{179}. \textit{See, e.g.,} Nat’l Treasury Emps. Union v. Von Raab, 489 U.S. 656, 679 (1989) (holding that random suspicionless drug testing of “employees who apply for promotion to positions directly involving the interdiction of illegal drugs, or to positions that require the incumbent to carry a firearm, is reasonable”).

\textsuperscript{180}. Laperruque, supra note 172, at 724.

\textsuperscript{181}. \textit{id.}
alone in exploiting the revelatory power of the data mosaic. But the case law reflects the common intuition that being the target of a government search is different. This logic guided the Court’s holding in *Florida v. Jardines*, finding that police use of a trained drug detection dog at the front door of a private home constitutes a search. In his dissent, Justice Alito questioned whether people have a “reasonable expectation of privacy with respect to odors” that can be smelled by someone standing at their front door. By finding use of the drug sniff dog impermissible, the Court tacitly implies a constitutional distinction between information knowingly exposed to the public and information in which an individual, despite exposure, holds a reasonable expectation of privacy for Fourth Amendment purposes.

The constitutional issues surrounding government access to third party databases in many ways parallel constitutional concerns prompted by government drone surveillance. The secrecy-based Fourth Amendment framework provides insufficient insulation from unreasonable government intrusion when dealing with large caches of data (stored in the cloud or filmed from cloud level). For example, DreamHost, a web hosting company, balked at the government’s request for all records or other information pertaining to an inauguration protest-organizing site DisruptJ20.org, including all email accounts associated with the website. DreamHost argued that the search warrant was invalid for being overbroad. By “fail[ing] to identify with the required particularity what will be seized by the government,” the warrant left open the possibility that the privacy of individuals far removed from the criminal investigation would be unconstitutionally violated. In an interview with NPR, Mark Rumold, senior staff attorney at the Electronic Frontier Foundation, highlighted the constitutional stakes involved: “Most critically, [Department of Justice (DOJ)] is still investigating a website that was dedicated to organizing and planning political dissent and protest. That kind of activity—whether online or off—is the

182. 133 S. Ct. 1409 (2013).
183. Id. at 1410.
184. Id. at 1424 (Alito, J., dissenting) (“I see no basis for concluding that the occupants of a dwelling have a reasonable expectation of privacy in odors that emanate from the dwelling and reach spots where members of the public may lawfully stand.”).
186. Id. at 1.
cornerstone of the First Amendment, and DOJ’s ongoing investigation should be cause for alarm to anyone, no matter your political party or beliefs.”

The DreamHost litigation clearly illustrates the First Amendment implications of government search and seizure of large databases. These issues persist in situations like the Baltimore drone surveillance program where the government is collecting and subsequently analyzing large amounts data without a warrant, but also where the government seeks access to pre-existing mountains of data stored by a private third party. Circuits are currently divided on the propriety of imposing ex ante limitations on the scope of a search authorized by warrant, such as prescribing a particular search protocol, imposing a date range on data made available, and compelling the government to waive plain view for any incriminating information found beyond the scope of the warrant. In order to prevent drone warrants from becoming so generalized that they provide constitutional protection only in theory,
particularity requirements updated for the digital age must likewise be formulated for warrants to execute drone surveillance.

While it is true that private companies compile large stores of data based on individual and group consumer habits to gain insight into the personal lives of their customer base in order to predict patterns of consumption, tort law provides a framework to analyze the privacy harm where it occurs. But when it comes to protecting individual privacy against the exercise of government authority, the First and Fourth Amendments remain the key sources of law. They afford the courts a limited, but critical capacity to protect the rights of individuals from unreasonable search and seizure, while preserving First Amendment freedoms to gather and circulate information regarding matters of public concern. Applying the insights of mosaic theory to cases involving warrantless drone surveillance reveals that any targeted or persistent drone surveillance without a warrant violates the Fourth Amendment prohibition against unreasonable searches.

By developing a categorical exception for law enforcement use of drones, the Court may ensure robust protection of both Fourth Amendment liberty and privacy interests and the First Amendment freedom to speak and associate freely. In an age where people are increasingly exposed to the public eye, it is no longer tenable to maintain that what remains private is only what has been kept secret. The possibility of drone surveillance to facilitate the type of dragnet law enforcement practices anticipated by the court in *Jones* and *Knotts* render the situation all the more urgent. “The Fourth Amendment must keep pace with the inexorable march of technological progress, or its guarantees will wither and perish.”189 If constitutional principles fundamental to a thriving democracy are to be preserved, there must be a reasonable expectation of privacy in the details of our private lives, even after all information has been “knowingly exposed.”

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