The Drones are Coming! Will the Fourth Amendment Stop the Threat to our Privacy.

Robert Molko
The Drones Are Coming!
Will the Fourth Amendment Stop their Threat to our Privacy?

Robert Molko

Introduction

The use of drones/unmanned aircraft in military operations has become very public. What is less known is that local law enforcement is now using drones and is planning to expand their use to conduct surveillance of communities for criminal activity.

Today, in the twenty-first century, it seems that our privacy has been eroded virtually to the point of non-existence. We have already lost substantial privacy in our cars, our cell phones, our business records, our bodies and even in our homes. And now, the drones coming to our communities threaten to further erode our right to privacy by silently hovering over our neighborhoods and monitoring our every move. Will the United States Supreme Court and the Fourth Amendment stop the impending threat to our privacy from these government drones?

Copyright@2012 by Robert Molko
1 Assistant Professor of Law, Western State College of Law; J.D., Southwestern Law School, 1974; M.S.E.E., New York University, 1970; B.S.E.E., City College of New York, 1967. From 1975 to 2007, Professor Molko served as a prosecutor in the Orange County District Attorney’s Office, California, where he tried more than one hundred and fifty jury trials, including thirty five homicides and a death penalty case. Over those thirty two years, he was involved in numerous Fourth Amendment suppression issues where the Reasonable Expectation of Privacy (REP) test controlled the outcome. The author thanks Dean Susan Keller, Professor Neil Gotanda, Professor Stacey Sobel, and Michelle Molko for their suggestions and encouragement. Special thanks go to Reference Librarian Scott Frey and Samuel Solodar for their research assistance.

2 In five days, the Unmanned Applications Institute International can teach a police officer how to use a drone the size of a bathtub toy. The University of North Dakota operates a fleet of seven different drones. It offers a four-year degree in unmanned aircraft piloting. See Mark Brunswick, Spies in the sky signal new age of surveillance, Star Tribune, July 22, 2012.

3 Advances in technology have been blamed for a lot of this loss of privacy. On the other hand, as Professor Simmons points out, technology has also enhanced our everyday life privacy, allowing us to communicate more privately (e.g. cell phones, emails, text messages, anonymizers), store data more privately ("cloud" remote electronic storage, encryption), and conduct a greater number of activities within the privacy of our homes in the computer age. See Ric Simmons, Why 2007 Is Not Like 1984: A Broader Perspective on Technology’s Effect on Privacy and Fourth Amendment Jurisprudence, 97:2 J. Crim. L. & Criminology 531 (2007).

4 We have lost most of our privacy to warrantless government intrusions due to the United States Supreme Court’s creation of numerous exceptions to the Fourth Amendment’s search warrant requirement. These exceptions continue to grow and expand all the time. This trend seems unstoppable. The Court has also found that many of the governmental intrusions are “reasonable” and therefore not in violation of the Fourth Amendment. At the same time, we have been subject to far worse intrusions by private individuals that are not governed by the 4th Amendment. (e.g. Compromises of data bases, hackers, insiders.)
The Fourth Amendment of the U.S. Constitution protects our privacy from unreasonable intrusions by the government and we have come to depend on that protection. Over the years, we have learned to cherish our privacy and shield it from not only governmental intrusion but also from everyone else if we so choose. It is probably our most cherished “possession.” For more than forty years, the courts have used the *Katz* “reasonable expectation of privacy” (REP) test to determine whether government conduct is constitutional. This test has been highly criticized by the courts and scholars when applied to advancing technology. Yet, it still survives and, as this paper will demonstrate, it will continue to survive in drone surveillance cases. However, the United States Supreme Court may alter its manner of application.

Over the years, the courts have permitted aerial surveillance from navigable airspace where civilian planes or helicopters routinely fly, but have disallowed such surveillance if it occurred from unusually low altitudes. However, the advances in surveillance and optics technology have made it possible to detect very small objects from high altitudes. If we add to that the stealth nature of drones, we are suddenly faced with silent monitors in the sky that can observe everything we do in any area exposed to the sky. Carried to an extreme, we would not be able to enjoy any privacy in even a secluded and fenced-in backyard or private estate.

The City of Lancaster, California recently started using aerial surveillance to monitor the city’s neighborhoods. The plane will fly above the city for up to 10 hours a day. The North Dakota police used a drone to monitor activity on a ranch to determine when the suspects would not be armed in order to avoid a violent shootout while trying to apprehend the armed suspects. The

---

5 The United States Constitution does not explicitly delineate a Right of Privacy. Rather, it has been implied from the protections for “persons, houses, papers, and effects” under the Fourth Amendment. In addition, in 1965, the Court developed a separate basis of privacy out of what it called "penumbras, formed by emanations from [the Bill of Rights'] guarantees that help give them life and substance”. Griswold v. Connecticut, 381 U.S. 479, 484 (1965). Moreover, the Court has indicated that one aspect of the “liberty” protected by the Due Process Clause of the Fourteenth Amendment is "a right of personal privacy, or a guarantee of certain areas or zones of privacy." Roe v. Wade, 410 U.S. 113, 152 (1973). This latter concept of privacy is primarily used in relation to the right to abortion and issues involving consensual acts by adults in their own home.

6 As Justice Brandeis described it, the right of privacy is the “right to be let alone - the most comprehensive of rights and the right most valued by civilized men.” Olmstead v. United States, 277 U.S. 438, 478 (1928) (Brandeis, J., dissenting).

9 See infraPart II.
12 See e.g. the WASP or the Qube by AeroVironment inc., infra.
13 See e.g. the WASP AE by AeroVironment Inc., infra.
14 George Orwell saw it before any of us. See *1984*, George Orwell. (1949).
15 Abby Sewell, Richard Winton and Melissa Leu, *Lancaster takes a Long View on Crime*, L.A. Times, Aug. 25, 2012. The plane is equipped with a video camera. This program is the equivalent of drone surveillance for the purpose of Fourth Amendment analysis because the plane’s civilian pilot cannot see the encrypted video that is fed down to the police dispatch center.
Gadsden, Alabama police bought a lightweight drone to help in drug investigations.\(^\text{17}\) Authorities in Tampa Bay, Florida considered using drones for security surveillance at the 2012 Republican National Convention.\(^\text{18}\) The Montgomery County Sheriff’s Office in Texas is considering arming drones with rubber bullets and tear gas.\(^\text{19}\) This is only a small sampling of local law enforcement agencies that have begun to use drones.\(^\text{20}\)

At the same time, two private software companies (Apple and Google) are using aerial surveillance and military-grade cameras in a race to be the first to create very detailed 3D images of city and residential streets throughout the world. These cameras are so powerful that they can show objects four inches wide and potentially see into homes through skylights and windows.\(^\text{21}\)

On the legislative side, on February 14, 2012, President Obama signed into law the “FAA Modernization and Reform Act of 2012”\(^\text{22}\). This law requires the FAA to expedite the process of authorizing both public and private use of drones in the national navigable airspace.\(^\text{23}\) This statutory mandate will inevitably result in a further invasion of our privacy through increased aerial surveillance of neighborhoods and public places by law enforcement drones bringing us closer to an Orwellian\(^\text{24}\) state. Indeed, the government has predicted that as many as 30,000 drones will be flying over U.S. skies by the end of the decade.\(^\text{25}\) According to experts, “journalists, police departments, disaster rescue teams, scientists, real estate agents, and private citizens” will then be using drones.\(^\text{26}\)

In the past, the constitutionality of aerial surveillance has turned on the argument that one does not have a REP for matters that he/she exposes to the public.\(^\text{27}\) However, there should be a limit as to how far law enforcement can invade our privacy by overhead surveillance of our


\(^{20}\) In April 2012, the Federal Aviation Administration (FAA) released a list of police departments who have been issued Certificates of Authorizations (COAs) to fly drones domestically. Those departments include, inter alia, the FBI; Orange County Sheriff’s Office; Miami-Dade; North Little Rock, Arkansas; Houston, Texas; Arlington, Texas; Seattle, Washington; Gadsden, Alabama; Georgia Tech Police Department and Ogden, Utah, and small cities and counties like Otter Tail, Minnesota and Herington, Kansas. See Electronic Frontier Foundation, *FAA List Of Certificates Of Authorizations (COAs)*, https://www.eff.org/document/faa-list-certificates-authorizations-coas (last accessed Aug. 12, 2012).


\(^{24}\) The surveillance state that George Orwell depicted in his novel *1984*.


\(^{27}\) Katz, 389 U.S. at 351.
neighborhoods. Drone surveillance may be the right impetus for the United States Supreme Court to draw this limit under the current jurisprudence of REP or perhaps under a different rationale.

Dicta in the Court’s recent decision in *United States v. Jones*\(^{28}\) regarding GPS location monitoring of cars in public demonstrates that none of the Justices are willing to abandon the REP test, but suggests that some of them may approach it differently in the future. As discussed below, many of the Justices seem very concerned about warrantless governmental monitoring of persons in their day-to-day activities and appear willing to put a limit on the extent of such law enforcement activity.

This paper explores the ramifications of the *Jones* decision and its dicta as they suggest what future Fourth Amendment limitations might be imposed on drone surveillance of our neighborhoods. *Jones* provides insight concerning the permissible duration\(^ {29}\) of police observations, something that had not been addressed in the Court’s previous jurisprudence which had instead focused on the nature\(^ {30}\) of the observations. At the same time, because *Jones* focused only on monitoring activities occurring in public places, it only provides minimal insight\(^ {31}\) as to drone surveillance of the home or curtilage. Accordingly, it is necessary to also consider previous jurisprudence related to surveillance of those two areas.

Part I will be an introduction to the FAA Modernization and Reform Act of 2012, the currently available drone technology and how such technology could be used by law enforcement. Part II will provide a short overview of the Fourth Amendment protection\(^ {32}\) from unreasonable government intrusion. Part III will explore what the United States Supreme Court has previously allowed under the Fourth Amendment with respect to aerial surveillance and new technology. Part IV will analyze *Jones* and will discuss what the Justices’ various opinions may foretell for the future Fourth Amendment fate of drone technology surveillance. In Part V, I will explore how the Court may apply the *Jones* rationales and current Fourth Amendment jurisprudence to the inevitable drone invasion of our neighborhoods.

\(^{29}\) The observations in *Jones* lasted 24/7 for twenty eight days. See U.S. v. Jones, 132 S. Ct. 945 (2012). See discussion infra, Part IV.
\(^{30}\) Previous jurisprudence focused on the type of observation: e.g. naked eye; photography; binoculars; infrared technology. See discussion infra in Part III.
\(^{31}\) *Jones* does provide some indirect insight as to drone surveillance of the home and curtilage because the courts have traditionally held that the Fourth Amendment offers greater protection against the invasion of privacy in those areas than in public places. See infra. Accordingly, if the Fourth Amendment would preclude some drone surveillance in public places, it would follow that similar protection would extend to the curtilage and the home.
\(^{32}\) The issue of other potential Constitutional rights violations, such as the First Amendment freedom of assembly, etc… is a separate issue that is left for another day and is beyond the scope of this paper. The issue of public safety related to possible collisions of drones with passenger planes or possible crashes to the ground of a drone is also beyond the scope of this paper. E.g. A navy drone recently crashed in Maryland; see CNN, *Maryland Drone Crash*, http://www.cnn.com/2012/06/11/us/maryland-drone-crash/index.html?hpt=hp_t2t, (accessed July 12, 2012).
Part I
The ACT and Current Drone Technology

The FAA Modernization and Reform Act of 2012[^33] requires that the FAA authorize public agencies to use unmanned aircraft systems (a.k.a. drones) in the domestic navigable airspace.[^34] On May 14, 2012, the FAA announced that an agreement that meets this Congressional mandate had been reached with the Department of Justice’s National Institute of Justice. The agreement will allow a government public safety agency to operate drones under certain restrictions. When a public agency has demonstrated proficiency[^35] in flying its drones, it will receive an operational Certificate of Authorization (COA). At the same time, the private manufacturers of drones are eager to sell their products to law enforcement, as they accurately perceive that it will be a very profitable market.[^36] “The goal is to have [drones] in the trunk of a police car and to have them be able to access those unmanned systems within minutes, if need be.”

Drones can be used for many beneficial reasons other than everyday government surveillance. Such uses include, inter alia, search and rescue operations, spotting and fighting wildfires, police chases, hostage crises, manhunts, bomb threats, SWAT team operations, industrial disasters, riot control strategy, hurricane studies, and assessment of damages caused by nuclear accidents, tsunamis and earthquakes. No one would rightfully claim that these emergency-type of governmental operations violate the Fourth Amendment; they would be permissible under the Court-condoned emergency exception[^37] to the Fourth Amendment warrant requirement even if drone surveillance in other circumstances were otherwise found unconstitutional. This paper focuses on law enforcement drone surveillance in non-emergency situations.

Drones come in many shapes and sizes, from as large as a commercial airplane[^38] to as small as a hummingbird[^39] and are a lot cheaper than a helicopter[^40]. Some drones are small and light enough

[^33]: Section 334 of the ACT provides that the FAA shall issue guidance regarding the operation of public unmanned aircraft systems (UASs) by public agencies in order to allow for an incremental expansion of access to the national airspace system. Private use of UASs is covered by other sections of the ACT. FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, H.R. 658 to amend Title 49, U.S.C.

[^34]: Section 334 of the ACT provides that the FAA shall enter into agreements with appropriate government agencies to simplify and expedite the process of obtaining authorization to operate public UASs in the national airspace system. The agreements shall allow a government public safety agency to operate unmanned aircraft during daylight conditions, within uncontrolled airspace where operations may be conducted under Instrument Flight Rules or Visual Flight Rules. This is consistent with the list of already approved law enforcement COAs. See, supra note 20 for a partial list. FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, H.R. 658 to amend Title 49, U.S.C.

[^35]: Proficiency would include safety-related issues which are beyond the scope of this paper. Section 332 et. seq. of the ACT requires that the UASs have the “sense and avoid capability”, meaning the capability to remain a safe distance from and to avoid collisions with other airborne aircraft. FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, H.R. 658 to amend Title 49, U.S.C.


to fit in the trunk of a car and are designed to be hand-launched by one person.\textsuperscript{41} The following examples of existing drones that could be used by law enforcement to conduct aerial surveillance provide the reader some perspective concerning the breadth and adaptability of drone technology:

- The pocketsize NANO HUMMINGBIRD has a wingspan of 6.5 inches, weighs 19 grams, and is equipped with a video camera.\textsuperscript{42}
- The WASP MICRO AIR VEHICLE has a wingspan of 28.5 inches, a length of 1.25 feet and weighs 0.95 pounds.\textsuperscript{43}
- The WASP AE has a wingspan of 3.3 feet, a length of 2.5 feet, weighs 2.85 pounds and is designed to be hand-launched.\textsuperscript{44}
- The RAVEN has a wingspan of 4.5 feet, weighs 4.2 pounds and is designed to be hand-launched.\textsuperscript{45}
- The Qube weighs 5.5 pounds and can fit in the trunk of a car.\textsuperscript{46}
- The Boeing SCAN EAGLE can fly at speeds of 139 kilometers per hour for up to 20 hours.\textsuperscript{47}
- The A160T HUMMINGBIRD is a large 35-foot long drone that can takeoff or land vertically, and can hover for 20 hours at 15,000 feet.\textsuperscript{48}

Drones are designed to carry various instruments that allow them to conduct stealth aerial surveillance for varying periods of time. They can be equipped with still and video cameras,

\textsuperscript{40} A Police helicopter can cost $1.7 million, whereas a Qube drone only costs $30,000. See W.J. Hennigan, \textit{Opening Home Skies to Drones}, L.A. Times (Nov. 27, 2011).
\textsuperscript{41} One can imagine two different uses for police drones: (1) a small drone in the trunk of patrol cars to be used by an unassisted officer for unplanned short periods of surveillance; and (2) a larger drone that can hover for long periods of time for a more complex planned surveillance.
\textsuperscript{42} It is able to fly at speeds of up to 11 miles per hour, hover and fly sideways, backwards and forward, as well as go clockwise and counterclockwise. See W.J. Hennigan, \textit{Opening Home Skies to Drones}, L.A. Times (Nov. 27, 2011).
\textsuperscript{43} The WASP Micro Air Vehicle has an operating altitude range from 50 to 1,000 feet. The WASP includes “live video downlink, self tracking, still photography and nighttime IR technology.” It can be operated manually but is also capable of GPS-based autonomous flight and navigation. AV AeroVironment, \textit{Wasp III}, \url{www.avinc.com/downloads/WASP-III_datasheet.pdf} (last visited Aug. 7, 2012).
\textsuperscript{44} The WASP AE can fly at an altitude of 500 feet for 50 minutes. It is man-packable and is designed to be very quiet in order to avoid detection. AV AeroVironment, \textit{Wasp AE}, \url{www.avinc.com/downloads/WaspAE.pdf} (last visited Aug. 7, 2012).
\textsuperscript{45} The RAVEN has an operating altitude range from 100-500 feet. It can be used for low-altitude day and night surveillance. It delivers real-time color or infrared imagery to ground control and remote viewing stations. Although the single cost is $35,000, the entire system costs $250,000. AV AeroVironment, \textit{Raven Overview}, \url{www.avinc.com/downloads/USAF_Raven_FactSheet.pdf} (last visited Aug. 7, 2012).
\textsuperscript{46} The AeroVironment Inc. Qube can swoop back and forth at an altitude of 200 feet, can capture crystal-clear video and is controlled remotely by a tablet computer. See W.J. Hennigan, \textit{Opening Home Skies to Drones}, L.A. Times (Nov. 27, 2011).
\textsuperscript{47} The Boeing SCAN EAGLE is larger and has a wingspan of 10 feet. Gary Mortimor, \textit{Boeing ScanEagle}, \url{http://www.suasnews.com/boeing-scaneagle/} (March 17, 2011).
\textsuperscript{48} The A160T HUMMINGBIRD weighs 6,500 pounds, but does not need a runway for takeoffs or landing. Boeing, \textit{A160T Hummingbird}, \url{www.boeing.com/bds/phantom_works/hummingbird/docs/hummingbird_overview.pdf} (last visited Aug. 7, 2012).
infrared cameras, heat sensors and radar. Drones can also carry tear gas or weapons. In addition to conducting visual surveillance, drones have the capability of using sophisticated instruments to, *inter alia*, measure infrared radiation emanating from houses, eavesdrop on cell-phone conversations and text messages by impersonating cell-phone towers and spy on Wi-Fi networks through automated password cracking. This paper, however, focuses strictly on aerial visual surveillance. In that context, drones can be used to hover over a location and observe, find or follow a specific person or vehicle or search for suspicious activities.

PART II

THE FOURTH AMENDMENT and PROTECTION of PRIVACY

“The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.”

The Fourth Amendment does not ban all searches and seizures, only the unreasonable ones. There are two steps required to determine whether a search violates the Fourth Amendment: (1) whether it is a “search” within the meaning of the Fourth Amendment; and (2) if it is a “search”, whether it “unreasonable” within the meaning of the Fourth Amendment.

An essential purpose of this Amendment is to protect privacy interests against the random or arbitrary acts of the government, with the reasonableness requirement being the safeguard and

---


53 Visual surveillance includes photographs and video photography. The issues of electronic surveillance will be left for another day.


55 U.S. CONST. amend. IV. emphasis added.


57 Most of this paper focuses on searches, rather than seizures. A seizure is a “meaningful interference with an individual’s possessory interests in that property” *Jones*, 132 S. Ct. at 957. (J., Alito concurring)). (citing United States v. Jacobsen, 466 U.S. 109, 113 (1984)). By its very nature, aerial surveillance by a drone is not a seizure because it does not interfere with any possessory interest of a person on the ground below. That is so because the success of the surveillance depends on the stealth of the drone.

58 Skinner, 489 U.S. at 621-622.

59 Skinner, 489 U.S. at 621-622.
pivotal protection of a person's privacy interest. Simply put, "[t]he Amendment guarantees the privacy, dignity, and security of persons against certain arbitrary and invasive acts by officers of the Government or those acting at their direction."  

What is "reasonable" depends on the individual circumstances existing at the time of the search. The degree of privacy secured to citizens by the Fourth Amendment has changed over time, especially in light of technological advances. Computers, smart phones, GPS devices, infrared detectors, night goggles and X-ray scanners did not exist, nor were they foreseen, at the time of the Fourth Amendment’s enactment in 1791 or at the time of the judicial pronouncements of many of its exceptions in the twentieth century. On one hand, these advances in technology have increased the privacy of individuals in many ways. On the other hand, they have also increased the technical ability to intrude on the privacy of individuals. This double-edged sword that technology plays has posed a difficult challenge for the courts in their application of the privacy protections of the Fourth Amendment.

Fourth Amendment jurisprudence has also changed over time. The most significant recent change occurred in 1967 when the United States Supreme Court decided *Katz v. United States*. In *Katz*, the Court considered the legality of police eavesdropping on a telephone call made from an enclosed public telephone booth. The police listened in on Katz’s conversation that was taking place inside the booth by placing a listening device on the outside of the booth. In many of the Fourth Amendment decisions prior to *Katz*, the Court had used physical intrusion into the defendant’s property as the triggering search that led to a constitutional violation. Because there was no physical intrusion in *Katz*, the Court took a different approach finding a violation despite the absence of a physical trespassory act by the police.

As promulgated in *Katz* and its progeny, the controlling test to determine if a governmental action is a “search” is whether the individual has a Reasonable Expectation of Privacy (REP). If the individual has a REP, then a warrant, or an exception to the warrant requirement, is necessary to avoid a violation of the Fourth Amendment. On the other hand, if the individual does not have a REP, there is no Fourth Amendment violation.

The Supreme Court has established a two-prong test for determining whether an individual has a REP: (1) whether the individual's conduct reflects “an actual expectation of privacy” and (2)

---

61 *Skinner*, 489 U.S. at 613-614.
62 *Kincade*, 379 F.3d at 822.
64 We are able to perform many tasks from our home that previously required us to leave our home and be observed in public: e.g. electronic banking, electronic emails, text messages, phone and video conferences, Skype, etc…
69 *Katz*, 389 U.S. at 361.
70 This two-prong approach was initially suggested by Justice Harlan in his concurring opinion in *Katz*. *Katz*, 389 U.S. at 360. (Harlan, J., concurring).
whether it is an expectation that society is prepared to recognize as “reasonable”. The first prong is subjective, and is fairly easy to apply based on the facts of the situation. The second prong is objective and is the one that has given the courts a great deal of difficulty because what society considers “reasonable” has changed over time.

The *Katz* court emphasized that “[w]hat a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection. But what he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.”

The *Katz* test has been applied repeatedly, despite having been criticized by subsequent judicial decisions. Justice Powell expressed concern that Fourth Amendment rights would “gradually decay” under the REP as technology advances. Justice Marshall suggested that the *Katz* test be replaced with a test that focuses “on the risks (the individual) should be forced to assume in a free and open society.”

Over the years, scholars have also suggested that the *Katz* test has outlived its usefulness and that a new test should be used in today’s rapidly changing technological society. Although well thought out, the proposed tests would be equally (if not more) difficult to apply than the REP test; this is inevitable because of the “reasonable” exception to the warrant requirement of

---

71. The Court has indicated that in some very unusual situations, the subjective expectation prong of the REP test might “provide an inadequate index of Fourth Amendment protection. For example, if the Government were suddenly to announce on nationwide television that all homes henceforth would be subject to warrantless entry, individuals thereafter might not in fact entertain any actual expectation of privacy regarding their homes, papers, and effects. Similarly, if a refugee from a totalitarian country, unaware of this Nation's traditions, erroneously assumed that police were continuously monitoring his telephone conversations, a subjective expectation of privacy regarding the contents of his calls might be lacking as well. In such circumstances, where an individual's subjective expectations had been 'conditioned' by influences alien to well-recognized Fourth Amendment freedoms, those subjective expectations obviously could play no meaningful role in ascertaining what the scope of Fourth Amendment protection was. In determining whether a 'legitimate expectation of privacy' existed in such cases, a normative inquiry would be proper”. Smith v. Maryland, 442 U.S. 735, 741, n.5 (1979).

72. This first prong is a subjective test and the second prong is an objective test. Both need to be satisfied to find a REP. Examples of this test's application can be found in Minn. v. Olson, 495 U.S. 91 (1990) (overnight houseguest has a REP in his temporary quarters); U.S. v. Lyons, 992 F.2d 1029 (10th Cir. 1993) (no REP in contents of computer that the suspect stole); U.S. v. Cunag, 386 F.3d 888 (9th Cir. 2004) (no REP in hotel room procured with forged ID documents and dead woman’s credit card); People v. Leon, 40 Cal. 4th 376, 396 (2007) (person who uses false name to procure cell phone subscription maintains a REP in communications over that phone); People v. Pleasant, 123 Cal. App. 4th 194 (2004) (people who live with probationers subject to probation searches cannot reasonably expect privacy in areas of the residence that they share with probationers).

73. *Katz*, 389 U.S. at 351.

74. It has been criticized as being circular, subjective and unpredictable. See *Kyllo*, 533 U.S. at 34. It has also been criticized because it may lead the trial judge to substitute his/her own expectations of privacy for society’s reasonable person’s expectations in the second prong of the test. See *Jones*, 132 S. Ct. at 962 (Alito, J., concurring). Justice Scalia has sarcastically pointed out that the expectations of privacy “that society is prepared to recognize as reasonable bear an uncanny resemblance to those expectations of privacy that this Court considers reasonable.” Minnesota v. Carter, 525 U.S. 83, 97 (1998). (internal citations and quote marks omitted)


the Fourth Amendment. For example, Professor Clancy’s “right to exclude” the government test still requires the court to determine whether the police conduct was “reasonable”. Nowlin’s refocusing of reasonableness around the Fourth Amendment’s “right to be secure” replaces reasonable expectation of privacy with reasonable security. Penney’s economically informed cost-benefit analysis of the REP test where privacy is not to be protected “when its primary effect is to impede the optimal deterrence of crime” would be even more difficult for a court to apply than the present REP. Slobogin’s two-part proportionality and exigency framework appears to eliminate any warrantless exception other than exigency.

Equilibrium Adjustment theories have been proposed by Professors Kerr and Ohm where the balance is maintained between police power and civil liberties. Under Kerr’s approach, The Supreme Court would adjust the scope of protection in response to new facts in order to maintain the status quo level of protection. The difficulty with this test is in the significant lag time (at least five to ten years) between technological development and the issue being resolved by the

77 Thomas K. Clancy, Coping with Technological Change: Kyllo and the Proper Analytical Structure to Measure the Scope of Fourth Amendment Rights, 72 Miss. L.J. 525 (2002). “To adequately protect and give recognition to the ability to exclude, normative values must be employed. Do the precautions taken by the person objectively evidence intent to exclude the human senses? Does the particular surveillance technique utilized by the government defeat the individual's right to exclude? Would the ‘spirit motivating the framers’ of the Amendment ‘abhor these new devices no less’ than the ‘direct and obvious methods of oppression’ that inspired the Fourth Amendment? The answer to each of these questions may be an empirical inquiry at times, but is always a value judgment”. “The right to exclude is the sum and essence of the right protected”. A “search” would occur whenever “the police have learned something about the object that would otherwise have been imperceptible absent the use of the technological device”. Although this right is not absolute because it only protects against unreasonable searches and seizures, “the burden [would be] on the government to justify its actions” as reasonable.

78 See Jake Wade Nowlin, The Warren Court’s House Built on Sand: From Security in Persons, Houses, Papers, and Effects to More Reasonableness in Fourth Amendment Doctrine, 81 Miss. L. J. 1017 (2012). The author’s contention is that in its effort to expand the Fourth Amendment protection by introducing the REP standard, the Warren Court actually set in motion the unintended consequences of loss of privacy in one’s person, house, papers and effects. This occurred because the focus shifted away from the enumerated protected interests of that clause and focused on the reasonableness of the police conduct in light of the circumstances. Nowlin would require that police conduct provide “reasonable security” to the protected interests enumerated in the amendment. See also Timothy Casey, Electronic Surveillance and the Right To Be Secure, 41 U.C. Davis L. Rev. 977 (2008). Casey would redefine the Amendment’s protection as a security interest rather than a privacy interest, thereby dispelling “the false dichotomy between privacy and security”.

79 Steven Penney, Reasonable Expectations of Privacy and Novel Search Technologies: An Economic Approach, 97:2 Crim. Law & Criminology (2007). As Penney explains, if privacy is “used chiefly to conceal socially harmful conduct (such as crime), then legal protection for privacy in that realm should be weak and police should be given broad powers. If, on the other hand, privacy encourages efficient behaviors, then legal protections should be strong and police powers should be limited”. In essence, Penney proposes a balancing test, weighing the costs and benefits of limiting the government’s ability to obtain information about criminal activities.

80 Christopher Slobogin, Government Dragnets, 73 Law & Contemp. Probs. 101, 107 (2010). 1. The justification for the search must be proportional to its intrusiveness. Look at hit rates and likelihood of success, not the importance of the governmental interest. 2. If no exigency, the police must obtain judicial authorization. But, Slobogin also exempts most suspiciousless group searches and would defer to legislative approach on those.

81 Orin S. Kerr, An Equilibrium Adjustment Theory of the Fourth Amendment, 125 Harvard L. Rev. 476 (2011). “When changing technology or social practice expands police power, threatening civil liberties, courts can tighten Fourth Amendment rules to restore the status quo. The converse is true, as well. When changing technology or social practice restricts police power, threatening public safety, courts can loosen Fourth Amendment rules to achieve the same goal”.

United States Supreme Court. Ohm would determine the proper balance by using Metrics to determine that on average, it should take just as long to solve a crime today as it has in the past.\textsuperscript{83} There are a few issues that could pose difficulty in applying the Ohm test: First, how would the courts decide what starting date to use as a basis for the “past”? Second, the test could also blind itself to the fact that police techniques have significantly changed over the years and police investigations have become much more efficient. Third, it would also seem almost impossible to try to measure the average length of investigations in the past even if that data were available.

Underlying each of these proposed substitute tests and the current REP test itself is the same fundamental question of where to draw the balance between police power and civil liberties:\textsuperscript{84} How should the Court determine what society is willing to accept as “reasonable” or what is “reasonable security”? “Reasonableness” should vary as a function of society’s evolving practices and mores and national events. It should not be based on a poll of society.\textsuperscript{85} Such an

\textsuperscript{83} See Paul Ohm, The Fourth Amendment in a World without Privacy, 81:5 Miss. Law Journal 1309 (2012). The author discusses the different scholarly suggestions in a world where privacy is disappearing and finds them inadequate, including Kerr’s Equilibrium Adjustment theory. Ohm proposes a different kind of Equilibrium Adjustment theory where the balance of power between the police and the citizens is adjusted by the courts as needed based on the metrics either shifting the balance back to the citizen by introducing other requirements such as necessity or back to the police such as is found in the Electronic Communication Privacy Act (ECPA) (when material and relevant may be enough) and making the default rule in favor of the citizen.

\textsuperscript{84} Professor Lee would shift the balance more in favor of the citizen. See Cynthia Lee, Reasonableness with Teeth: The Future of Fourth Amendment Reasonableness Analysis, 81 Miss. Law Journal 1133 (2012). Lee proposes replacing the reasonableness standard that defers too much to governmental interest with a more rigorous non-deferential standard of review. She proposes a hybrid model involving rebuttable presumptions and 4 factors if the warrantless search did not fall within an established exception: (1). Consider nature and scope of the intrusion; presumption of unreasonableness if highly intrusive. (2) Was search supported by Probable Cause? If not, presumption of unreasonableness arises. (3) Was it impracticable to get search warrant? Consider danger to officer, the public or the investigation. If little or no danger, then there would be a presumption of unreasonableness. (4) Good faith or bad faith? If an exception applied, at least two factors are needed to rebut the presumption of reasonableness.

\textsuperscript{85} E.g. The “anger” of smart phone subscribers and cars when it was suggested that the GPS in those devices could be used for covert tracking of their movements. See U.S. v. Jones, 132 S. Ct. 945, 956 n. 8 (2012) (Sotomayor, J., concurring). A February 13, 2012 Rasmussen poll reported that 52% of voters are opposed to domestic police drone surveillance. Only 30% favor the use of unmanned drones for domestic surveillance. Seventeen percent (17%) are undecided. See Rasmussen Reports, http://www.rasmussenreports.com/public_content/politics/current_events/afghanistan/voters_are_gung_ho_for_use_of_drones_but_not_over_the_united_states (Feb. 13, 2012). A Monmouth University June 12, 2012 poll showed that an overwhelming majority of Americans support the idea of using drones to help with search and rescue missions (80%). Two-thirds of the public also support using drones to track down runaway criminals (67%) and control illegal immigration on the nation’s border (64%). One area where Americans say that drones should not be used, though, is to issue speeding tickets. Only 23% support using drones for this routine police activity while a large majority (67%) opposes the idea. Specifically, 42% of Americans would be very concerned and 22% would be somewhat concerned about their own privacy if U.S. law enforcement started using unmanned drones with high tech surveillance cameras. Another 16% would be just a little concerned and 15% would not be concerned at all. See Monmouth University Polling Institute, U.S. Supports Some Domestic Drone Use But Public Registers Concern About Privacy, http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CEkQFjAA&url=http%3A%2F%2Fwww.monmouth.edu%2Fassets%2F0%2F0%2F15972f147f483694%2F3b904214-b247-4e28-a5a7-cf3ee1f9261c.pdf&ei=AQykUMKfNcjA2gWRi4DwCQ&usg=AFQjCNCGcjuFXdq7nxcębg9VPJcO-E4twtQ (June 12, 2012).
approach would create enormous difficulties.\textsuperscript{86} And, it certainly should not be based on the personal views of nine Justices based only on their own life experiences\textsuperscript{87}, nor on the personal view of each trial judge.\textsuperscript{88} As suggested by Justice Alito in Jones\textsuperscript{89}, Congressional action may be the closest practical way of determining the pulse of the nation, given that legislators are elected to (supposedly) represent the will of the people. But it would be an abdication of the supremacy of the United States Constitution if legislation were used as the sole measuring tool for Fourth Amendment protection.

The discussion above shows why the \textit{Katz} REP test has survived and still endures today despite all the criticism and suggested alternatives.\textsuperscript{90} The question is how long can it survive in our rapidly evolving technological world of drones? That issue is addressed below in part V.

\textbf{Part III}

\textbf{Overview of current aerial surveillance jurisprudence}

The United States Supreme Court did not overrule prior aerial surveillance cases in \textit{Jones}. Therefore, the existing aerial surveillance jurisprudence must be reviewed in order to foretell the extent to which the United States Supreme Court may allow drone surveillance of our neighborhoods in light of the conflicting opinions in \textit{Jones}.

The leading case on police aerial surveillance is the 1986 \textit{Ciraolo} case, in which the United States Supreme Court applied the two-prong \textit{Katz} REP test and held (5-4) that a naked-eye police warrantless observation of the backyard of a house from a fixed-wing aircraft at 1,000 feet above the ground was not a “search” under the Fourth Amendment.\textsuperscript{91} The Court accepted the fact that the backyard was within the curtilage of the house and that the defendant had exhibited a subjective expectation of privacy by erecting a fence that completely shielded the yard from observation from the street. Nevertheless, the Court held that the defendant’s expectations were not “reasonable” under the second \textit{Katz} prong; they were not ones “that society was prepared to honor”\textsuperscript{92} because private and commercial flights in the navigable airspace\textsuperscript{93} were routine.\textsuperscript{94} The \textit{Ciraolo} majority deemed the fact that the flight and observations were not part of a routine police flight, but instead were acts specifically focused on the defendant’s property irrelevant.\textsuperscript{95}

\begin{footnotesize}
\begin{itemize}
\item[86] What if the public was almost evenly divided on the issue? Would a simple majority dictate what is “reasonable”? How often should the poll be taken? Should another poll be taken when a major national event, such as the 9/11 attacks on the World Trade Center and the Pentagon occurs? In addition, should the poll questions distinguish between the different types of investigations? E.g. Surveillance of domestic terrorists versus drug cases.
\item[87] \textit{See} Note 74 supra.
\item[88] \textit{See} Note 74 supra.
\item[89] \textit{See} \textit{Jones}, 132 S. Ct. at 962-963. (Alito, J., concurring).
\item[90] \textit{See} \textit{Jones}, 132 S. Ct. at 953-954.
\item[91] California v. Ciraolo, 476 U.S. 207 (1986).
\item[92] \textit{Ciraolo}, 476 U.S. at 214.
\item[93] One thousand (1000) feet was within the navigable airspace as defined by the FAA. \textit{Ciraolo}, 476 U.S. at 214. (citing 49 U.S.C. App. 1304).
\item[94] \textit{Ciraolo}, 476 U.S. at 215.
\item[95] \textit{Ciraolo}, 476 U.S. at 214.
\end{itemize}
\end{footnotesize}
The Court indicated that, if there is no physical intrusion, even the home and its curtilage are not necessarily protected from inspection. \(^9^6\) "What a person knowingly exposes to the public, even in his own home or office, is not subject of Fourth Amendment protection." \(^9^7\) The Court analogized the public navigable airspace to public thoroughfares. \(^9^8\)

On the same day as *Ciraolo* was decided, the Court also decided another aerial surveillance case in the *Dow Chemical Co. v. United States*. \(^9^9\) In *Dow*, the Environmental Protection Agency (EPA) had taken photographs, using a standard precision aerial mapping camera, of the open areas of Dow Chemical Inc.’s 2,000-acre manufacturing facility. The Court (with the same exact 5-4 split as in *Ciraolo*) held that “the taking of aerial photographs of an industrial complex from navigable airspace is not a search prohibited by the Fourth Amendment.” \(^1^0^0\) It found that Dow had exhibited a subjective expectation of privacy by all the security that it had installed to prevent visual observation of its complex from the outside. \(^1^0^1\) However, in applying the second *Katz* prong, the majority concluded that the open areas of the industrial complex were not analogous to a house’s “curtilage”, \(^1^0^2\) but instead were more comparable to an “open field” \(^1^0^3\) and therefore open to observation by persons in aircraft lawfully in navigable public airspace. \(^1^0^4\)

The majority emphasized that the camera used was not a “unique sensory device that, for example, could penetrate the walls of buildings and record conversations in” the buildings’ interiors, but “rather a conventional, albeit precise, commercial camera commonly used in mapmaking.” \(^1^0^5\) The majority suggested that it was not opening the floodgates for all photography, and that the Fourth Amendment may limit the technological sophistication of the cameras involved: “It may well be, as the Government concedes, that surveillance of private property by using highly sophisticated surveillance equipment *not generally available to the public*, such as satellite technology, might be constitutionally proscribed absent a warrant.” \(^1^0^6\)

Three years later, in *Florida v. Riley* \(^1^0^7\), the Court was faced with a factual pattern similar to the one in *Ciraolo*. The main difference was that the observing officer was in a helicopter at an altitude of 400 feet instead of the *Ciraolo* fixed-wing plane at 1,000 feet. A divided Court agreed (5-4), \(^1^0^8\) that an officer’s
warrantless observation, with his naked eye, of the interior of a partially covered greenhouse in a residential backyard\(^{109}\) from a helicopter circling 400 feet above did not constitute a “search” under the Fourth Amendment.\(^{110}\)

Once again, the Court accepted the fact that the defendant had exhibited a subjective expectation of privacy by having trees, shrubs and his mobile home shielding the greenhouse from observation from the surrounding property.\(^{111}\) In applying the *Katz* REP test, five Justices found that the defendant could not reasonably have expected that the uncovered sides and roof of the greenhouse were protected from public inspection from the air, since private and commercial flights by planes and helicopters were *routine* at the time.\(^{112}\)

All nine Justices agreed that the second *Katz* prong was the controlling issue and that the decision turned on the regularity (or rarity) of public\(^{113}\) travel in that airspace and at the altitude at issue. On that point, five Justices placed the burden of proof on the defendant finding no violation because there was no evidence that public flight over the property at the altitude in question was rare\(^{114}\), the dissenting four Justices would have placed the burden of proof on the state.\(^{115}\) The four plurality Justices indicated that a significant factor to consider was that helicopters were legally permitted by the FAA to fly at the altitude in question\(^{116}\); five Justices disagreed on that point.\(^{117}\)

The *Riley* case is a prime example of the continued existence of the *Katz* REP test and the difficulty in applying it. Notably, the composition of the Court had changed between the decisions in *Ciraolo* and *Riley*.\(^{118}\) It also changed between the time of the *Riley* decision and the *Jones* decision: Justices Scalia and Kennedy who were part of the *Riley* majority are the only two Justices from the *Riley* Court who remain on the Court today and both were part of the *Jones* majority.

**Part IV**

**United States v. Jones**\(^{119}\)

In *Jones*, government agents had placed a Global-Positioning-System (GPS) tracking device on a car registered to the defendant’s wife.\(^{120}\) The agents were able to remotely monitor the location

---

\(^{109}\) The defendant lived in a mobile home located on five acres of rural property. The greenhouse was 10 to 20 feet behind the mobile home.

\(^{110}\) *Riley*, 488 U.S. at 452.

\(^{111}\) *Riley*, 488 U.S. at 450.

\(^{112}\) Five Justices agreed on imposing the burden of proof on this issue on the defendant. *Riley*, 488 U.S. at 451.; *Riley*, 488 U.S. at 455. (O’Connor, J., concurring).

\(^{113}\) *i.e.* Non-police helicopters

\(^{114}\) *Riley*, 488 U.S. at 451; *Riley*, 488 U.S. at 455. (O’Connor, J., concurring).


\(^{116}\) *Riley*, 488 U.S. at 451.

\(^{117}\) *Riley*, 488 U.S. at 452. (O’Connor, J., concurring); *Riley*, 488 U.S. at 457. (Brennan, J., dissenting); *Riley*, 488 U.S. at 467. (Blackmun, J., dissenting).

\(^{118}\) *Ciraolo* was decided 5-4 with Burger C.J., Rehnquist, White, Stevens and O’Connor, J.J. in the majority, and Powell, Marshall, Brennan and Blackmun J.J. dissenting. On the other hand, *Riley* was decided by the plurality of White J., Rehnquist C.J., Scalia, Kennedy and O’Connor, J.J. and the dissent of Brennan, Marshall, Stevens and Blackmun, J.J.

of the car continuously for 28 days. The device was placed on the undercarriage of the car while it was parked in a public parking lot. The defendant and others were indicted on cocaine trafficking conspiracy charges. The trial court suppressed the GPS information obtained when the car was parked inside the garage adjoining the defendant’s residence, but allowed all other remaining data because the trial court found that the defendant had “no reasonable expectation of privacy” when the car was on public streets. The defendant was convicted and sentenced to life in prison. The appellate court reversed, finding that the admission of the GPS location information violated the Fourth Amendment. The United States Supreme Court granted certiorari on the issue of “whether the attachment of a Global-Positioning-System (GPS) tracking device to an individual’s vehicle, and subsequent use of that device to monitor the vehicle’s movements on public streets, constitutes a search or seizure within the meaning of the Fourth Amendment.”

On January 23, 2012, the Court unanimously held that the admission of this evidence violated the Fourth Amendment. However, all of the Justices could not agree on the reasoning for upholding the judgment.

Five Justices joined in the majority opinion written by Justice Scalia. The majority held that the attachment of the GPS to the car and its use in monitoring the car’s movements was a search and that it violated the Fourth Amendment. In an opinion written by Justice Alito that concurred only in the judgment, the other four Justices believed that the placement of the GPS device was not a search, but that the subsequent 24/7 monitoring itself violated the Fourth Amendment. Justice Sotomayor filed a separate concurring opinion, agreeing with both the majority and part of Justice Alito’s concurring opinion.

The majority found that the placement of the GPS device was a trespass on the defendant’s personal property and therefore violated the Fourth Amendment. That portion of the opinion will not be helpful in analyzing the drone issues because drone surveillance will most likely occur from an aerial position above properties and will not involve any type of trespass to property. Because of that, it is harder to predict how four of the majority justices would deal with drone surveillance without a physical trespass. On the other hand, the concurrences of the other five justices give us far more insight as how the Court will treat such an occurrence. This Part analyzes the dicta in the various opinions which shed light on what path the Court may follow in deciding drone cases in the future.

---

120 There was no dispute as to whether the defendant had standing to raise the Fourth Amendment issue as to his wife’s car because the defendant was the “exclusive driver” of the car. U.S. v. Jones, 132 S. Ct. 945, 949, n. 2.
121 The agents had obtained a search warrant allowing them to install the GPS device within 10 days in the District of Columbia. The GPS was placed on the 11th day (i.e. after the warrant period had expired) and the installation took place in Maryland, not in the District of Columbia. Accordingly, the government conceded non-compliance with the warrant and the case was decided as if there had been no warrant.
122 Jones, 132 S. Ct. at 948.
123 Jones, 132 S. Ct. at 948.
124 Jones, 132 S. Ct. at 945.
125 Roberts, C.J., Kennedy, Thomas, Sotomayor and Scalia, J.J.
126 Ginsburg, Breyer, Kagan and Alito, J.J.
127 But see discussion, infra, concerning the capability of very small drones, such as the Nano Hummingbird, that allows it to fly in and out of open windows or doorways.
The Majority Opinion

In the majority opinion, Justice Scalia made it clear that the Court was not abandoning the REP test. He pointed out that the *Katz* REP test had not repudiated the common-law trespassory test that existed before *Katz* and that both tests continued to exist concurrently in testing for Fourth Amendment violations.\(^{129}\)

*Katz*, the Court explained, established that the ‘property rights are not the sole measure of Fourth Amendment violations’ but did not ‘snuff[f] out the previously recognized protection for property.’\(^{130}\)

The majority indicated that it did not need to decide whether the defendant had a REP because the trespass\(^{131}\) upon the defendant’s personal property alone was sufficient to violate the Fourth Amendment. The majority referred to the *Knotts*\(^{132}\) and *Karo*\(^{133}\) cases in which the Court had allowed location monitoring of a police beeper attached to a container in a car. The majority distinguished those two cases by pointing out that in those cases the police had planted the beeper before the defendant obtained a possessory interest in the property. Therefore no initial trespass on the defendant’s property had occurred in those cases.\(^{134}\)

The *Jones* majority emphasized the importance that the originalism theory must play in interpreting the Fourth Amendment: it “must provide at a minimum the degree of protection it afforded when it was adopted”.\(^{135}\) When no trespass occurs, such as in a case involving “merely the transmission of electronic signals,”\(^{136}\) the *Katz* REP test applies. The majority also reiterated that a person traveling on public roads has no reasonable expectation of privacy in his movements and that visual surveillance by a large team of officers, multiple vehicles and aerial assistance is constitutionally permissible.\(^{137}\) However, it found it unnecessary to decide whether achieving the same result through electronic means was unconstitutional leaving that question for another day.\(^{138}\)

---

---


\(^{129}\) *Katz*, 389 U.S. at 353.

\(^{130}\) *Jones*, 132 S. Ct. at 951.

\(^{131}\) The majority conceded that “a trespass on “houses” or “effects”, or a *Katz* invasion of privacy is not alone a search unless it is done to obtain information; and the obtaining of information is not alone a search unless it is achieved by such a trespass or invasion of privacy” *Jones*, 132 S. Ct. at 951 n. 5.

\(^{132}\) In *United States v. Knotts*, 460 U.S. 275 (1983), the police monitored the location of the defendant’s car by tracking a beeper in a container in the car while the car was on public roads for a few hours (the record is not specific on this issue; the distance between the locations described is approximately 200 miles).

\(^{133}\) Similar to the circumstances in *Knotts*, in *United States v. Karo*, 468 U.S. 705 (1984), the police tracked a beeper in a can of ether in the defendant’s car off and on for multiple days as the car moved from place to place on public roads. The *Karo* opinion was not specific as to the length of each surveillance, but the beeper was tracked on at least six separate days over five months. The longest distance travelled was approximately 140 miles. The Court only allowed the beeper information when the car was on public roads but not any information that was obtained when the beeper was inside any house or building.


\(^{135}\) *Jones*, 132 S. Ct. at 953.

\(^{136}\) *Jones*, 132 S. Ct. at 953.

\(^{137}\) *Jones*, 132 S. Ct. at 953.

\(^{138}\) *Jones*, 132 S. Ct. at 953-954.
What insight does the majority opinion provide us with respect to drone surveillance? One can infer that four Justices, by not willing to join the other five Justices in finding that 24/7 surveillance for twenty-eight days necessarily violated the subject’s REP, could find such surveillance constitutionally permissible in this type of drug case if no physical trespass to property is involved.

Justice Alito’s Concurring Opinion

Although Justice Alito concurred in the judgment, he strongly disagreed about the continued existence of the trespassory-based rule. He pointed out that after being repeatedly criticized, Katz finally had done away with the trespass approach. Indeed, twenty-three years after Katz, the Karo Court had made it clear that “an actual trespass is neither necessary nor sufficient to establish a constitutional violation.”

Justice Alito insisted that, despite its difficulties, the Katz REP test was the proper test to use. He acknowledged that it involved a “degree of circularity” and that “judges are apt to confuse their own expectations of privacy with those of the hypothetical reasonable person.” Society, he stated, may “eventually reconcile” “with the diminution of privacy that new technology” brings, accepting the convenience at the expense of privacy. He suggested that the enactment of legislation might be the “best solution to privacy concerns” in the rapidly evolving technological computer era.

However, because Congress had not acted to regulate this matter, Justice Alito conceded that “[t]he best that we can do in this case” is to apply the Katz REP test and ask, “whether the use of the GPS tracking in a particular case involved a degree of intrusion that a reasonable person would not have anticipated.”

Under this approach, the four concurring Justices stated the following: “A relatively short-term monitoring” of a person’s movements on public streets would be reasonable (citing Knotts as an

---

139 Although Justice Sotomayor joined the majority’s trespass theory, she also agreed with Justice Alito’s concurring opinion that the 24/7 twenty-eight days monitoring violated the Fourth Amendment.
140 Contrary to the other five Justices who found this case not to involve an “extraordinary offense” where it would allow such surveillance. See discussion of Justice Alito’s concurring opinion.
141 Joined by Justices Ginsburg, Breyer and Kagan
142 [Jones](132 S. Ct. at 959). (Alito, J., concurring).
143 [Jones](132 S. Ct. at 959). (Alito, J., concurring).
144 [Jones](132 S. Ct. at 960). (Alito, J., concurring) (citing Karo, 468 U.S. at 713). (emphasis added)
145 [Jones](132 S. Ct. at 962). (Alito, J., concurring).
146 [Jones](132 S. Ct. at 962). (Alito, J., concurring).
147 [Jones](132 S. Ct. at 964). (Alito, J., concurring).
149 [Jones](132 S. Ct. at 964). (Alito, J., concurring). It does not appear that Justice Alito was changing the Katz second prong by substituting “the reasonable person’s anticipation” for “what society is prepared to accept as reasonable”. The terms would seem to be interchangeable as an expression of “society’s expectations”; the latter is a term that Justice Alito also used in the same context.
example); "longer term GPS monitoring in investigations of most offenses" would be unreasonable, society’s expectations are that the police cannot “secretly monitor and catalogue every single movement of an individual’s car for a very long period”\(^\text{152}\); and the 24/7 monitoring for four weeks was unreasonable and constituted a search and a violation of the Fourth Amendment.\(^\text{153}\) (emphasis added)

Justice Alito did not define what a “very long period” or what a “longer term” meant, indicating simply that “[o]ther cases may present more difficult questions.”\(^\text{154}\) Likewise, he did not define what he meant by “most offenses”, suggesting that in “extraordinary offenses” “prolonged” GPS monitoring may be reasonable because in those cases, “long term tracking might have been mounted using previously available techniques.”\(^\text{155}\) Nor did he define the demarcation line for what constituted “prolonged” monitoring, or what qualifies as an “extraordinary offense.”

However, Justice Alito’s concurring opinion along with Justice Sotomayor’s opinion gives sufficient indication that the Court will draw the line at short-term surveillance and will not allow 24/7 long-term surveillance. Part V discusses this issue further.

Justice Sotomayor’s Concurring Opinion

Justice Sotomayor, in her concurring opinion, joined in the majority’s originalism concept, finding that the trespassory test was an “irreducible constitutional minimum” of the Fourth Amendment.\(^\text{156}\) She also agreed that, in situations without a trespass, the \textit{Katz} REP test would apply.\(^\text{157}\) On the other hand, she agreed with Justice Alito’s concurring opinion that “at the very least, ‘longer term GPS monitoring in investigations of most offenses impinges on expectations of privacy.’”\(^\text{158}\)

As far as short term GPS monitoring in non-trespassory cases, Justice Sotomayor went further than Justice Alito. She expressed concerns that such monitoring may chill associational and expressive freedoms\(^\text{159}\) and that the government’s “unrestrained power ‘to collect private information on individuals may be susceptible to abuse’.”\(^\text{160}\)

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. (citation omitted) ("Disclosed will be…trips to the psychiatrist, the plastic surgeon, the abortion clinic, the AIDS treatment center, the strip
club, the criminal defense attorney, the by-the hour motel, the union meeting, the mosque, synagogue or church, the gay bar and on and on”).

Justice Sotomayor added that she would consider these factors when deciding the “reasonable expectation of privacy” in the “sum of one’s public movements” in short-term GPS monitoring. The fact that all this information could have been gathered by means of “lawful conventional surveillance” would not be dispositive of this issue. Moreover, she expressed strong concern about entrusting law enforcement, in the absence of judicial oversight, “with such a tool amenable to misuse, especially in light of the Fourth Amendment’s goal to curb arbitrary exercises of police power and to prevent ‘a too permeating police surveillance.’” GPS monitoring could collect such a “substantial quantum of intimate information about any person whom the government, in its unfettered discretion, chooses to track.” This “may alter the relationship between citizen and government in a way that is inimical to democratic society.”

In addition to these passionate concerns, Justice Sotomayor suggested two important developments in her future analyses of Fourth Amendment issues. First, she criticized the long-standing concept of third party disclosure.

More fundamentally, it may be necessary to reconsider the premise that an individual has no reasonable expectation of privacy in information voluntarily disclosed to third parties. This approach may be ill suited to the digital age, in which people reveal a great deal of information about themselves to third parties in the course of carrying out mundane tasks.

Second, Justice Sotomayor stated that it was time to stop treating “secrecy as a prerequisite for privacy”. Information disclosed to a member of the public for a limited purpose “may be constitutionally protected”. “Privacy is not a discrete commodity, possessed absolutely or not at all”.

An inference that can be drawn from Justice Sotomayor’s dicta is that she would reject the rule that “what someone exposes to the public” is automatically not entitled to Fourth Amendment protection, and would find that, even if a person’s activities are observable by drone surveillance, that surveillance is unconstitutional if the governmental intrusion on the person’s privacy is extensive.

161 *Jones*, 132 S. Ct. at 955. (Sotomayor, J., concurring).
162 *Jones*, 132 S. Ct. at 956. (Sotomayor, J., concurring).
163 Referring to visual surveillance by police.
164 *Jones*, 132 S. Ct. at 956. (Sotomayor, J., concurring).
166 *Jones*, 132 S. Ct. at 956. (Sotomayor, J., concurring).
167 *Jones*, 132 S. Ct. at 956. (Sotomayor, J., concurring).
168 *Jones*, 132 S. Ct. at 957. (Sotomayor, J., concurring).
169 *Jones*, 132 S. Ct. at 957. (Sotomayor, J., concurring) (citing *Smith*, 442 US at 749.) (Marshall, J., dissenting)).
170 *Jones*, 132 S. Ct. at 957. (Sotomayor, J., concurring).
171 *Jones*, 132 S. Ct. at 957. (Sotomayor, J., concurring).
The concurrences in *Jones* provide significant insight about what the Court may do in the future when faced with drone surveillance in public places. Because *Jones* focused on the *duration* of surveillances, and not the *nature* of the observations, it is necessary to also consider previous surveillance jurisprudence that looked at the nature of the observations, whether it is with the naked eye \(^\text{172}\) or with photography \(^\text{173}\), since drone surveillance will necessarily involve photography of visual observations.

**Part V**

How will the United States Supreme Court apply the Fourth Amendment
When police use drones in our neighborhoods?

When, as is likely to occur, the use of drones by law enforcement becomes more routine, how will the United States Supreme Court apply the Fourth Amendment to strike the proper balance? Drones will most likely be surveying from what the FAA will define as navigable space. \(^\text{174}\) The designs of drones are intended not to interfere with the people on the ground by creating undue noise, dust, pollution or threat of injury. \(^\text{175}\) Their use will not include any physical intrusion on property unless the drone physically enters the home (the latter being an unlikely event). \(^\text{176}\) Visual surveillance is not, in itself, trespassory because “the eye cannot be guilty of trespass”. \(^\text{177}\) As such, the trespass theory of the *Jones* majority and of pre-*Katz* cases will be of no avail in applying the Fourth Amendment. The Court will have no choice \(^\text{178}\) but to either use the *Katz* REP test or create a new test. There is no reason to create a new test because, as will be discussed infra, the existing REP test can be effectively used to control drone surveillance.

While the *Katz* REP test may be difficult to apply in our rapidly evolving technological society, all other replacement tests suggested thus far \(^\text{179}\) also have their own application problems. Even originalism is not without its own critics. \(^\text{180}\) Originalism will not solve the problem in many

---


\(^{173}\) *See* Dow Chemical Co., 476 U.S. at 236.

\(^{174}\) Once the FAA acts as mandated by ACT.

\(^{175}\) *See* Part I, supra. The absence of undue noise, wind, dust and threat of injury was a factor considered by the majority in deciding that the aerial surveillance of the curtilage was not a “search” in Florida v. Riley. *Riley*, 488 U.S. at 452.

\(^{176}\) It is unlikely that any law enforcement would push the envelope to the point of having the drone enter the home, even though it is technologically possible. *See* Nano Hummingbird infra.

\(^{177}\) *Kyllo*, 533 U.S. at 32. (citations omitted).

\(^{178}\) It is highly unlikely that the Court would allow complete free-for-all use of drones by law enforcement, relegating the entire controlling authority to Congress. This is true despite Justice Alito’s concurrence in *Jones* that made it clear that the best solution in the rapidly evolving technological world is Congressional action. The question will be where the Court will draw the line under the Fourth Amendment.

\(^{179}\) *See* Part II supra.

\(^{180}\) *See* Donald A. Dripps, *Responding to the challenges of Contextual change and legal dynamism in interpreting the Fourth amendment*, 81 Miss. Law Journal 1085 (2012) (the social and institutional context was completely different: the founders of the Fourth Amendment understood that the common law was dynamic and subject to change by judicial decisions or by statutes; there was no pro-active police force then; the 1791 criminal justice system was amateurish, reactive and took little action absent judicial authorization; the 1791 search and seizure rule vanished during the 19th century. “It is arbitrary to suppose that the founders would have clung to specific rules
cases because the framers of the Fourth Amendment could not have foreseen the *advances* in privacy that technology brought as well as the threat to these aspects of this newly acquired privacy. As Justice Alito argued in *Jones*, it is “unwise” and highly artificial” to try to draw realistic analogies more than two hundred years after the enactment of the Amendment.\textsuperscript{181} How can anyone pre-tell what the framers of the Amendment would have intended had they been faced with the incredible *augmentation* of privacy of our computer age, as well as the violation of this then-nonexistent increased privacy? If originalism means that the protection of privacy should remain exactly the same as in 1791 regardless of the method used by law enforcement, then it should follow that the privacy of a citizen in his secluded-from-public-sight curtilage should be as protected as it was in 1791 and would be violated by any surveillance from the sky today. Yet, the Court has held otherwise in *Ciralo* and *Riley*.\textsuperscript{182} Even Justice Scalia, the passionate advocate of originalism, joined the majority in *Florida v. Riley*\textsuperscript{183} in holding that aerial surveillance of the curtilage from an altitude of 400 feet is constitutionally permissible.

Underlying the REP test and most of the suggested substitute tests, whether it is labeled “reasonableness”, “protection of security”, “equilibrium adjustment”, or by any other name, is the controlling issue of where to strike the proper balance between providing protection of the citizen by government and protecting the privacy/security of the citizen in his/her intimate activities; i.e. one of the fundamental issues in the “social contract”\textsuperscript{184} between an individual and his/her government.

In striking the proper balance, “[it] would be foolish to contend that the degree of privacy secured to citizens by the *Fourth Amendment* has been entirely unaffected by the advance of technology.”\textsuperscript{185} Regardless of the test used, it will have to be used in the twenty first century context: i.e. take into consideration the actual *gain* of privacy as well as the extent of privacy *loss* in our “modern” society, including the loss of privacy caused by private parties and the electronic age. It would be unreasonable for the Court to ignore all the exposure of private personal and intimate information made available to the public by private companies in deciding what the proper balance should be. “[M]any people may find the tradeoff” between technology and loss of privacy worthwhile.\textsuperscript{186} If indeed the public, while not welcoming the “diminution of privacy that the new technology entails…eventually reconcile themselves to this development as inevitable”\textsuperscript{187}, does that not help define the reasonableness of the public’s expectations? When large enough groups in society start to manifest an adoption or acceptance of the necessary loss

---

\textsuperscript{181} See *Jones*, 132 S. Ct. at 957. (Alito, J., concurring).
\textsuperscript{184} See Jean Jacques Rousseau, *The Social Contract or Principles of Political Right* (1762).
\textsuperscript{185} *Kyllo*, 533 U.S. at 33-34. Opinion by Justice Scalia.
\textsuperscript{186} *Jones*, 132 S. Ct. at 962. (Alito, J., concurring).
\textsuperscript{187} *Jones*, 132 S. Ct. at 962. (Alito, J., concurring).
of privacy that technology brings, the courts would have to find that it is unreasonable for “society” to expect otherwise.\textsuperscript{188}

For example, there will soon be an additional loss of privacy in our homes and backyards as a result of Google’s and Apple’s plans to provide 3D mapping of metropolitan areas of the nation.\textsuperscript{189} Both those companies are competing with each other to be the first to better achieve that goal by presently taking multiple aerial photographs with what is believed to be very precise cameras.\textsuperscript{190} At least one politician has already voiced concerns about the invasion of privacy by the upcoming publication of these images of “people’s backyards and other private settings”.\textsuperscript{191}

If such images are available to the public by merely going to the Google website, how can the Court forbid the police from using aerial surveillance to obtain similar images?\textsuperscript{192} Assuming that Congress would step in and regulate these private companies, the Court would be in a better position to strike the proper balance.\textsuperscript{193}

\textsuperscript{188} This is a necessary corollary to what one commentator suggested, “When a large enough group of people start to manifest subjective expectations of privacy, ‘society [becomes] prepared to recognize [that expectation] as reasonable, the expectations becomes reasonable, and courts adopt it.’” See Joseph J. Vaceck, \textit{Big Brother Will Soon Be Watching-Or Will He? Constitutional, Regulatory, and Operational Issues Surrounding The Use of Unmanned Aerial Vehicles in Law Enforcement}, 85 North Dakota L. Rev. 673, 692 (2009).


\textsuperscript{190} See Alexei Oreskovic, \textit{Google's, Apple's Eyes In The Sky Draw Scrutiny}, http://www.reuters.com/article/2012/06/19/us-google-privacy-idUSBRE85I1QU20120619 (June 19, 2012).

\textsuperscript{191} See Carl Franzen, \textit{Schumer: Google, Apple Moves To 3D Maps A Dimension Too Far!}, http://idealab.talkingpointsmemo.com/2012/06/sen-schumer-questions-google-and-apple-over-3d-mapping-surveys.php, (June 19, 2012). (Remarks by United States Senator Charles Schumer of New York. He claims that the technology used is the equivalent military-grade capable of imaging objects as small as four inches. Apple claims that it removes objects like cars and people “wherever possible”). See also Joe Barton and Ed Markey, letter by Reps. Ed Markey, D-Massachusetts, and Joe Barton, R-Texas to the FAA, markey.house.gov/sites/markey.house.gov/files/documents/4-19-12.Letter%20FAA%20Drones%20.pdf (April 19, 2012) (“there is also the potential for drone technology to enable protections. “The surveillance power of drones is amplified when the information from on-board sensors is used in conjunction with facial recognition, behavior analysis, license plate recognition or any other system than can identify and track individuals as they go about their daily lives.”)

\textsuperscript{192} Of course, the police could just go to the Google website and use the images there instead of doing any aerial surveillance. However, the Google images would be archived images, not real-time ones, but could still provide a basis for ‘reasonable suspicion” to investigate further by aerial surveillance. As one commentator envisioned, “[t]omorrow’s police and journalists might sit in an office or vehicle as their metal agents methodically search for interesting behavior to record and relay”. See M. Ryan Calo, \textit{The Drone as Privacy Catalyst}, 64 Stan. L. Rev. Online 29 (Dec 12, 2011).

\textsuperscript{193} \textit{See The Preserving Freedom from Unwarranted Surveillance Act of 2012}, S. 3287, 112th Cong. (2012) (authored by Senator Rand Paul). It would force the police to obtain a warrant based on probable cause before using domestic drones. There are some exceptions within this bill, such as the patrol of our national borders, when immediate action is needed to prevent “imminent danger to life,” and when we are under a high risk of a terrorist attack. Any evidence obtained or collected in violation of the act would be inadmissible in a criminal, civil or regulatory action. Any (affected) person could sue the government. See \textit{Don't Let Drones Invade Our Privacy}, Rand Paul, June 5, 2012 at http://www.cnn.com/2012/06/14/opinion/rand-paul-drones/index.html. See also House Bill H.R. 5925 introduced by Congressman Austin Scott. Both bills have been referred to committees. These bills can be viewed at http://www.govtrack.us/congress/bills/112.
This Part will examine what can be gleaned from the dicta of the *Jones* opinions that may foretell what the Court may do in the future when faced with the actuality of police drones over our neighborhoods. As indicated above, the rest of the current Fourth Amendment jurisprudence cannot be ignored in projecting these future developments.

Because the courts traditionally have held that the degree of privacy protection varies in descending order from the home, to the curtilage, to open fields and public places, it is necessary to break down the analysis of drone aerial surveillance in these four categories. It is logical to start with public places since that was the focus of the *Jones* court, the most recent case on this Fourth Amendment privacy issue.

**Drone Aerial Surveillance of Public places**

The *Jones* dicta and the previous aerial surveillance cases give us a lot of insight as to how the Court might deal with aerial surveillance of public places by drones. Should there be a distinction between public highways and other public places? After the events of 9/11, it would be difficult to successfully argue that one has any privacy interest when attending an open-air concert or a football game with forty-thousand or more people where surveillance cameras are present for security reasons. A similar result should follow as to other outdoor entertainment centers, such as Live-L.A., New York’s Times Square or downtown areas of some cities where cameras are also present for security reasons. I suppose that if we were to reach a point of a “surveillance state” with cameras everywhere, the Court may have to revisit the issue of whether that is consistent with a “free and open society”. But, we are not there yet, although the threat of it does not seem that far away.

**Public highways and other public places (where cameras are not everywhere)**

As discussed above, the *Jones* case dealt with tracking the movements of a person on public highways (via a GPS device attached to the car); i.e. location of the person only. It did not deal with surveillance of what the person was doing during these movements. Drones could similarly track a person’s movements in outdoor public places. What limitations will the Court impose on location tracking by drones?

The five concurring Justices in the *Jones* case expressed very clearly that they would draw the line at “prolonged” or “long-term” tracking of a person for “most offenses.” It appears that

---

194 Public highways are included by definition in public places.
195 Similarly, one would need to separate visual surveillance from other advanced sense-enhanced non-visual surveillance. However, as indicated supra, this paper focuses only on visual surveillance.
196 E.g. modern day raves where the concern is the extensive use of drugs and alcohol. Those are comparable to other huge festivals, such as the “Burning Man” festival in the Coachella Valley in California or Woodstock for those of us who are old enough to remember, or perhaps the Superbowl, or the Olympics where there is always (unfortunately) a potential threat of terrorism.
198 A good example of how modern society may be approaching that type of surveillance state is found in Britain where subways and downtown areas are continually surveyed by cameras.
199 Justices Alito, Ginsburg, Breyer, Kagan and Sotomayor.
Justice Alito used those two terms interchangeably in his concurring opinion. However, he never explained how long is “long-term.” The *Jones* concurrences tell us that 24/7 for twenty-eight days is “surely” too long. Justice Alito never defined nor gave examples of an “extraordinary offense” that would permit “prolonged” surveillance under the Fourth Amendment. But, he was obviously saying that there could be such a situation that would not require a warrant. We are left in the dark as to what constitutes an “extraordinary offense” except that it probably would be the type of case where long-term surveillance would have been used with traditional visual surveillance with police cars and aircraft.

Justice Alito used the “short term” monitoring in *Knotts* as an example of permissible surveillance. The *Knotts* Court upheld location tracking on a single trip over a period of a few hours in a single day covering a distance of 200 miles. Just one year later, the same Court upheld in *Karo* location monitoring involving multiple trips over multiple days (at least six) during a period of five months; the longest trip covered a distance of 140 miles. At first glance, it would seem that the same *Jones* five Justices would continue to uphold *Knotts* and *Karo* types of short-term surveillances. However, Justice Sotomayor, in her separate concurring opinion, forcefully suggested that she might not support that conclusion.

In cases involving even short-term monitoring, some unique attribute of GPS surveillance relevant to the Katz analysis will require particular attention. 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.

It seems that the type of surveillance that Justice Sotomayor was referring to is long-term surveillance or the accumulation of many short-term surveillances required to capture all the information that she is referring to; around-the-clock surveillance of a person for one day would not likely yield the comprehensive record that she seems to be concerned with. She also expressed concerns about government mining such a “substantial quantum of intimate information” for years, about the potential for abuse of this type of government power and about lack of (judicial) oversight over the government’s unfettered discretion to track whomever it chooses to. She stressed that this “may alter the relationship between citizen and government in a way that is inimical to democratic society”. One is left with the unmistakable impression that Justice Sotomayor is going to look at the reason for the aerial surveillance very carefully and

---

200 *Jones*, 132 S. Ct. at 955, 964.
201 *Jones*, 132 S. Ct. at 964. (Alito, J., concurring).
203 As the *Jones* plurality opinion implied, this is does not provide a bright line for the police to follow.
204 *Jones*, 132 S. Ct. at 964. (Alito, J., concurring). One wonders how this would be proved. Would the trial court have to take testimony from experts in order to make that determination? Would it be up to the trial court to make that judgment by taking judicial notice of certain facts without any testimony?
205 *Jones*, 132 S. Ct. at 955.
206 United States v. *Karo*, 468 U.S. 705 (1984). The ether can with the beeper was initially tracked to one house, then another house on the same day, then 2 days later to a storage facility, then on the next day to another storage facility, and eventually tracked for 140 miles to another house in another city. It should be noted that the tracking information from location to location was permitted by the Court, but all location information when the can/beeper was inside any of the houses or storage structures was suppressed.
207 *Jones*, 132 S. Ct. at 955.
examine what type of intimate information is being gathered before deciding whether even a short-term one or two-day aerial surveillance violates the Fourth Amendment. Only time will tell.

As far as “long-term” or “prolonged” drone surveillance, Justice Sotomayor’s comments are akin to the “mosaic theory” that is often referred to by the colloquialism that "the whole is greater than the sum of its parts.” Based on the principle of circumstantial evidence, each piece of a mosaic may seem trivial or insignificant but acquires much greater meaning when all the pieces are assembled together in a pattern. As the lower court in the Maynard case explained, “What may seem trivial to the uninformed may appear of great moment to one who has a broad view of the scene.”

Prolonged surveillance reveals types of information not revealed by short-term surveillance, such as what a person does repeatedly, what he does not do, and what he does ensemble. These types of information can each reveal more about a person than does any individual trip viewed in isolation. 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. The sequence of a person’s movements can reveal 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. A person who knows all of another’s travels can deduce whether he is a weekly church goer, a heavy drinker, a regular at the gym, an unfaithful husband, an outpatient receiving medical treatment, an associate of particular individuals or political groups -- and not just one such fact about a person, but all such facts.

Although not stated in those words, that was probably also the underlying concern in Justice Alito’s Jones concurrence that would find the 24/7 twenty-eight day surveillance “surely” too long. As he stated, society’s expectations are that law enforcement will not “secretly monitor and catalogue every single movement of an individual’s car for a very long period.”

As far as the majority, Justice Scalia implied in his dicta that the 24/7 twenty eight-day location tracking surveillance could amount to the “dragnet-type law enforcement practices” that was referred to in Knotts. Knotts had allowed the single trip single day location monitoring, but

---

208 United States v. Maynard, 615 F.3d 544, 562 (2010). It should be noted that the Maynard case is the case that led to the Jones opinion when the United States Supreme Court granted certiorari to the respondent Jones who had been a co-defendant of Maynard in the lower court.

209 See Maynard, 615 F.3d at 567. Distinguishing between a “way of life” of a person from a day in the life of that person.

210 Maynard, 615 F.3d at 563. That court pointed out that the prosecutor had used the importance of the “pattern” in his presentation of the case at trial.

211 Jones, 132 S. Ct. at 964. (Sotomayor, J., concurring). See also Maynard, 615 F.3d at 560. (“The whole of a person's movements over the course of a month is not actually exposed to the public because the likelihood a stranger would observe all those movements is not just remote, it is essentially nil. It is one thing for a passerby to observe or even to follow someone during a single journey as he goes to the market or returns home from work. It is another thing entirely for that stranger to pick up the scent again the next day and the day after that, week in and week out, dogging his prey until he has identified all the places, people, amusements, and chores that make up that person's hitherto private routine”).

212 Jones, 132 S. Ct. at 951-952 n. 6
had reserved the question of whether “different constitutional principles may be applicable” if
the situation involved twenty-four hour surveillance of any citizen of the country.214 It is difficult
to decipher if Justice Scalia was broadly referring to any suspiciousless continuous around-the-
clock surveillance of any citizen at any time for no reason at all, or if he was just referring to
mass surveillance by the government. Lower courts have broadly interpreted that *Knotts*
language to refer to prolonged surveillance of a single individual, not just to mass surveillance.215

On the other hand, Justice Scalia found the concurrence’s short-term long-term dichotomy
unnecessary and questioned its application: Why was a 4-week investigation “surely” too long?
Why the *Jones* “drug-trafficking conspiracy involving substantial amounts of cash and narcotics
(was) not an ‘extraordinary offense’ which would permit longer observation” according to the
concurrence?* What of a 2-day monitoring of a suspected purveyor of stolen electronics? Or a
six-month monitoring of a suspected terrorist?”216 Indeed, by intentionally leaving the
permissible length of the surveillance ambiguous, the concurring Justices failed to provide any
type of bright line for law enforcement.

One more vote from any of the four majority Justices would support short-term aerial
surveillance such as in *Knotts* or in *Karo*. We need to look at other opinions for any clues on the
subject. Justice Kennedy and Justice Scalia who were both in the *Jones* majority had previously
joined the majority opinion in the *Riley* case which upheld the short-term aerial surveillance and
photography of a greenhouse in the curtilage of a home.217 Since the curtilage has traditionally
been more protected by the courts than public highways, it follows that one or both of these
Justices would probably uphold short-term drone aerial surveillance of a person’s movements on
public highways. We also know that the Court has previously rejected any distinction between
routine police surveillance and one that is specifically focused on a particular person.218

What we can say about this Court is that any warrantless and suspiciousless drone aerial non-
continuous surveillance period of six days or less will be deemed to satisfy the Fourth
Amendment and that any such surveillance covering a distance of 200 miles or less will also be
permissible. It’s also clear that twenty-eight days of 24/7 surveillance will not be permissible
unless the offense involved is “extraordinary”. As pointed out by Justice Scalia, five Justices
believed that a drug conspiracy as in *Jones* is not “extraordinary”. However, a terrorist threat
could be, thereby allowing prolonged around-the-clock drone surveillance. Another example
could be an organized crime investigation where the investigation has not been able to infiltrate
the conspiracy.219 Except for the “extraordinary” case, we can rest assured that the Court will not
allow, nor would we want, a “surveillance state”220 where our way of life is constantly being
monitored by the government.

216 *Jones*, 132 S. Ct. at 954.
218 See *Ciraolo*, 476 U.S. at 214 n. 2.
219 Necessity could come into play, by analogy to the requirements for obtaining a wiretap.
220 Referring to indiscriminate mass surveillance by government: e.g. as described in George Orwell’s 1984 novel. I
have tried time and again in this paper not to refer to this overly-mentioned novel, although it is indeed appropriate.
At the same time, the practical issues of drone surveillance will also most assuredly limit their long-term around-the-clock use. It is predictable that the FAA will impose safety regulations that will require constant monitoring of the drone for safety reasons, primarily in order to avoid interference with or collisions with other aircraft in navigable space. Safety concerns would also limit the number of drones in any particular airspace. Because of these practical limitations, most investigations will probably consist of one or a series of short-term surveillances.

Nevertheless, the Court needs to draw a bright-line rule that law enforcement can understand and use. It is unworkable and unfair to both the public and the police to have to guess as to the type of permissible surveillance of public places. A logical place to start is to exclude any warrantless 24/7 drone surveillance in excess of a few days: a week may be an appropriate demarcation because that period of time is less likely to generate enough repeated activities to create the mosaic effect that some of the justices justifiably seemed concerned about. It is also consistent with Jones, Knotts and Karo. Any surveillance in excess of a week would have to be justified by the police.

Next, we need to consider drone surveillance of “open fields”. As will be seen below, there is a significant body of law concerning the Fourth Amendment and “open fields”.

Drone surveillance of “Open Fields”

The United States Supreme Court in the leading case of Oliver v. United States reaffirmed the “Open Fields” common law doctrine. It allows law enforcement to enter and search a “field” without a warrant; i.e. that search is not considered an “unreasonable search” under the Fourth Amendment. “[T]he special protection accorded by the Fourth Amendment to the people in their ‘persons, houses, papers, and effects’, is not extended to the open fields. The distinction between the latter and the house is as old as the common law.” As explained by the Oliver Court, that conclusion is derived “from the text of the Fourth Amendment and from the historical and contemporary understanding of its purposes.” An open field is simply not an “effect” of a person.

In Oliver, the Court held that even if the defendant had a subjective expectation of privacy, the Katz second prong was not satisfied as to activities conducted outdoors in fields. As the Court explained,

221 Other than for security reasons.
222 Oliver v. United States, 466 U.S. 170 (1984). The decision confirmed that the Katz decision had not changed the open fields doctrine.
223 Oliver, 466 U.S. at 173. (citing Hester v. United States, 265 U.S. 57 (1924)).
224 Oliver, 466 U.S. at 177.
225 Hester, 265 U.S. at 59.
226 Oliver, 466 U.S. at 181.
227 Oliver, 466 U.S. at 178. (two officers went to the defendant’s farm, drove past his house to a locked gate with a "No Trespassing" sign, walked around the gate and along the road for several hundred yards, passing a barn and a parked camper and found a field of marijuana over a mile from the house).
Open fields do not provide the setting for those intimate activities that the Amendment is intended to shelter from government interference or surveillance. There is no societal interest in protecting the privacy of those activities, such as the cultivation of crops that occur in open fields. Moreover, as a practical matter these lands usually are accessible to the public and the police in ways that a home, an office, or commercial structure would not be. It is not generally true that fences or "No Trespassing" signs effectively bar the public from viewing open fields in rural areas. And both petitioner Oliver and respondent Thornton concede that the public and police lawfully may survey lands from the air. For these reasons, the asserted expectation of privacy in open fields is not an expectation that "society recognizes as reasonable." 228

An “open field” need be neither "open" nor a "field" as those terms are commonly used. 229 The term may include “any unoccupied or undeveloped area outside of the curtilage”, including a thickly wooded area. 230 The Dunn Court identified four factors 231 to determine whether the area at issue was an open field or within the curtilage: “the proximity of the area claimed to be curtilage to the home, whether the area is included within an enclosure surrounding the home, the nature of the uses to which the area is put, and the steps taken by the resident to protect the area from observation by people passing by.” 232 Lower courts have applied these factors in finding that even areas close to the home can be considered “open fields.” 233

The Supreme Court has rejected a case-by-case analysis in order to determine if an open field was entitled to Fourth Amendment protection. 234 It also found that in the “open fields” context, “the common law of trespass has little or no relevance to the applicability of the Fourth Amendment”. 235

228 Oliver, 466 U.S. at 179.
229 Dow Chemical Co., 476 U.S. at 236. (citing Oliver v. United States, 466 U.S. 170 (1984)).
230 In Oliver’s companion case of Thornton v. Maine, the court found that a thickly wooded area is an “open field” as that term is used in construing the Fourth Amendment. Oliver, 466 U.S. at 180.
232 Dunn, 480 U.S. at 301.

233 See State v. Marolda, 394 N.J. Super.430, 444 (2007).(a cornfield (with marijuana growing in it) directly behind a house with a row of weeds separating the cornfield from the house was not within the curtilage); United Sates v. Breza, 308 F.3d 430 (2002). (a vegetable garden fifty feet from the home that was separately enclosed by an interior fence that was a clear demarcation from the rest of the landscaping around the house and was used to grow marijuana was an open field); United States v. Waterfield, 2006 WL 1645068 (S.D. Ohio June 8, 2006). (an area thirty–three feet from a home and a greenhouse eighty feet from that home were deemed to be an open field where the area next to the greenhouse was being used solely to grow marijuana); United States v. Boyster, 4365 F.3d 986, 991 (8th Cir. 2006). (an unenclosed field located 100 yards from a home that was used only to grow marijuana where no precaution had been made to keep it from being visible to onlookers was not within the curtilage); United States v. Broadhurst, 805 F.2d 849 (9th Cir. 1986). (a greenhouse that was 125 yards from the home, separated by hills, grass and oak trees and with no road between the greenhouse and the home qualified as an open field).
234 Oliver, 466 U.S. at 182-183.
235 Oliver, 466 U.S. at 183-184. An interesting comment, considering that trespass was the trigger for the Jones’ majority finding of a Fourth Amendment violation with the planting of the GPS device on the defendant’s car. The trespass on a person’s real property outside the curtilage is not a basis for finding a constitutional violation; i.e. the trespass must be on the proprietary interest enumerated in the Fourth Amendment: “house, papers or (personal) effects”.

28
The *Oliver* Court held that aerial surveillance of open fields does not violate the Fourth Amendment.\(^{236}\) The *Dow* Court reiterated that “the public and police lawfully may survey lands from the air “if it involves an “open field.”\(^{237}\) The *Dow* case allowed aerial surveillance of an industrial complex by finding an analogy to open fields.\(^{238}\)

It follows that drone aerial surveillance of open fields would not violate the Fourth Amendment anymore\(^ {239}\) than surveillance of public highways and other public places. They are equivalent for the purpose of privacy analysis.\(^ {240}\) The length of allowable surveillance would be the same as in surveillance of public places.

**Drone surveillance of the Curtilage**

Despite the fact that the curtilage of a house is not enumerated as a protected area in the Fourth Amendment, the United States Supreme Court has extended its protection to the curtilage\(^ {241}\), as if it were part of the house itself. The courts have “defined the curtilage, as did the common law, by reference to the factors that determine whether an individual reasonably may expect that an area immediately adjacent to the home will remain private.”\(^ {242}\)

At common law, the curtilage is the area to which extends the intimate activity associated with the ‘sanctity of a man's home and the privacies of life’. The protection afforded the curtilage is essentially a protection of families and personal privacy in an area intimately linked to the home, both physically and psychologically, where privacy expectations are most heightened.\(^ {243}\)

As discussed above, the four *Dunn* factors should be considered in deciding whether the area in question is within the curtilage of the home. The Court has cautioned not to use the factors in a mechanical application. Rather, they are “useful analytical tools only to the degree that, in any given case, they bear upon the centrally relevant consideration -- whether the area in question is so intimately tied to the home itself that it should be placed under the home’s ‘umbrella’ of Fourth Amendment protection.”\(^ {244}\) The proximity to the home is only one factor in the analysis and not by itself determinative. “There is not …any fixed distance at which the curtilage

\(^ {236}\) *Oliver*, 466 U.S. at 183-184.
\(^ {237}\) *Dow Chemical Co.*, 476 U.S. at 238.
\(^ {238}\) *Dow Chemical Co.*, 476 U.S. at 239.
\(^ {239}\) The issue of “prolonged” surveillance of open fields would be the same as one of public places.
\(^ {240}\) See also *Knotts*, 460 U.S. at 282. Impliedly equating public highways and open fields. (“no such expectation of privacy extended to the visual observation of Petschen's automobile arriving on his premises after leaving a public highway, nor to movements of objects such as the drum of chloroform outside the cabin in the "open fields." )
\(^ {241}\) *Oliver*, 466 U.S. at 180.
\(^ {242}\) *Oliver*, 466 U.S. at 180.
\(^ {243}\) *Ciraolo*, 476 U.S. at 212-213. (citations omitted)
\(^ {244}\) *Dunn*, 480 U.S. at 301. For example of an application of the Dunn factors, see United States v. Jenkins, 124 F. 3d 768,773 (1997) where the defendant’s backyard that was encircled with the house on three sides by a wire fence, that was used as a garden with flowers and numerous small trees and that was shielded from public view by the house was held to be within the curtilage.
ends.”245 A fence that encircles the home weighs in favor of finding that everything within the fence is in the curtilage.246 However, interior fences that separate part of the yard from the home weigh in favor of finding that area is not within the curtilage.247

Yet, despite the strong language associating the curtilage with the home, the Court has distinguished their relative protections in aerial surveillance cases: they simply are not the same. The curtilage is not entitled to the same protection as the home itself because it often is exposed to public view from the ground or from the air.248 “That the area is within the curtilage does not itself bar all police observations.”249 The Court has based that on the rationale of the often-quoted Katz statement “What a person knowingly exposes to the public, even in his home or office, is not a subject of Fourth Amendment protection.”250

In both the Ciraolo and the Riley case, the Court allowed the aerial surveillance of the curtilage of a home. Ciraolo involved the fenced-in backyard of a home and Riley involved a greenhouse located ten-to-twenty feet behind a mobile home. The Kyllo Court then reiterated that “[A]erial surveillance of private homes and surrounding areas does not constitute a search.”251 The Court has previously emphasized that there is no constitutional violation if the officer’s observations were from a “public vantage point where he has a right to be and which renders the activities clearly visible.”252 Two of the majority Justices in Riley were part of the majority Jones opinion and are currently sitting on the Court.253

The Riley decision involved a helicopter hovering over a home’s curtilage at an altitude of four hundred feet. Five Justices agreed that there was no constitutional violation by surveillance at that altitude because it was “routine” to have public and private helicopter flights at that altitude.254 Appropriately, the dissent was concerned about the failure of the plurality to define any “meaningful (altitude) limit”. From these precedents, as far as permissible drone altitudes, it seems as long as the police drone stays at an altitude that is commonly used255 by private or public planes, helicopters or drones, the Court will permit it.

The way the lower courts have applied the Ciraolo-Riley precedents may also give us some insight on how the post-Jones Court would judge drone overflights of the curtilage. In addition to

245 Breza, 308 F.3d at 435.
246 Dunn, 480 U.S. at 301-302.
247 Breza, 308 F.3d at 436.
248 See Kyllo, 533 U.S. at 33-34. (Scalia, J., majority opinion): “the technology enabling human flight has exposed to public view (and hence, we have said, to official observation) uncovered portions of the house and its curtilage that once were private.”
249 Ciraolo, 476 U.S. at 213.
252 Ciraolo, 476 U.S. at 213. (citing Knotts, 460 U.S. at 282).
253 Justices Scalia and Kennedy. Although they were on opposing sides in Kyllo, Justice Kennedy joined the dissenting opinion that would have found the monitoring of heat radiating from the home permissible.
255 In Riley, Justice O’Connor, who seemed to draw the line at 400 feet, was doing so only because the record on appeal was limited to that altitude. Her opinion should not be interpreted to signify that any surveillance at a lower altitude would not be permissible.
the routine of the public aircraft overfly factor, the lower courts have considered other relevant factors in applying the Ciraolo-Riley reasoning: the total numbers of instances of surveillance, the frequency of surveillance, the length of each surveillance, the altitude of the aircraft, the degree of disruption of legitimate activities on the ground and whether any flight regulations were violated by the surveillance.

Helicopter overflights at altitudes of 100-300 feet have been found permissible. The courts have also allowed the taking of photographs of urban backyards from an altitude of 500 feet.

It has been said that “[T]he Constitution does not require one to build an opaque bubble over himself to claim a reasonable expectation of privacy”, but “[w]here the bubble he builds allows persons in navigable airspace to view his illicit activity, his expectation of privacy is not reasonable”.

The drone altitude is not the only concern. There is an even more important factor: the invasion of the “intimacy” of the curtilage. The curtilage is an area intimately linked to the home. The Court has previously stated that all details of the home are intimate, and that there is no distinction between the different activities that a person should enjoy in his/her home. The Riley plurality court emphasized that it reached its decision, in part, because “no intimate details

---

257 Giancola, 830 F.2d at 550-551
258 See Scopino, 904 F. Supp. at 27. (violation because the overflight created excessive noise, wind, dust and disruption of human activities in the curtilage including physical injury to chattels; an altitude of forty feet was not within the so-called “safe zone” for engine failure; this lack of safety would take these flights out of navigable airspace.
259 State v. Little, 918 N.E.2d 230, 238 (Ohio App. 2d Dist. 2009). (violation because the flight over the home and curtilage at an altitude of 100 feet was within five miles of an international airport where the airspace was “tightly governed” by the FAA, and was “essentially a ‘no-fly’ zone”).
260 Giancola, 830 F.2d at 550-551. (100 feet); United States v. Young, 2010 U.S. Dist. LEXIS 15103 (300 feet); United States v. Breza, 308 F.3d 430 (2002) (200 feet); Doggett v. State, 791 So. 2d 1043, 1056 (Ala. Crim. App. 2000)(no violation when the police helicopter flew over the defendant’s double fenced yard that was immediately adjacent to the home at an altitude of 600 feet, then descended to 300 feet to verify the nature of the marijuana plants in the yard, then went back to 500 feet and hovered over the home and yard for 20 minutes while waiting for a second helicopter)
261 See Henderson v. People, 879 P. 2d 383, 385 (1994) (5-2). (the police helicopter made five passes during a period of five minutes over the defendant’s house and shed and took photographs of the plastic covered shed behind the house; the dissent would find a Fourth Amendment Violation by applying Ciraolo and Riley because 1) flying over the home and curtilage for 5 minutes posed a great degree of intrusion in a constitutionally protected area; 2) the marijuana in the shed was not in plain public view because of the multilayered plastic covering; and 3) the home was not within the path of any air traffic and had not been overflown by other helicopters or airplanes. See People v. Romo, 198 Cal. App. 3d 581, 588 (1988). (fenced-in backyard in the City of Ukiah; the court made it clear that it was ruling strictly on the facts of the case, and that it was “not sanctioning “aerial acrobatics” such as interminable hovering, a persistent overfly, a treetop observation, all accompanied by the thrashing of the rotor, the clouds of dust, and earsplitting din”).
263 Ciraolo, 476 U.S. at 212-213.
264 Kyllo, 533 U.S. at 37.
connected with the use of the home or *curtilage* were observed." (emphasis added) One could conclude that the plurality would have found a constitutional violation if "intimate details" of the curtilage had been observed. It is likely that the Court will draw the line if indeed police drone surveillance becomes an exercise in voyeurism of "intimate" activities of person(s) in their backyard. But, if the Court chooses to do so, it will have a hard time distinguishing what is an "intimate" detail from what is not, as noted by Justice Brennan in his dissent in *Riley*; it would also create a logistical nightmare for the officers in the field who will have to decide *on-the-fly* whether the observation is of an intimate detail or not. In addition, it would provide the criminal defendant with a tool to exclude any aerial surveillance of the curtilage by simply having some person sunbathing in the curtilage right next to the illegal activity. It simply would not work. The only other avenue would be to ban all warrantless drone surveillance of the curtilage, something that would run counter to the *Ciraolo-Riley* and *Kyllo* line of cases.

The technological enhancement of naked-eye perception has also been a concern for the Court. The court in *Dow* permitted photography with a "conventional, albeit precise, commercial camera commonly used in mapmaking" in the "open fields" context of an industrial complex. That majority decision did not involve surveillance of a "curtilage" and brought forth a forceful dissent that pointed out that the camera was very sophisticated and could produce photographs that could be enhanced to show objects as small as ½ inch. Some lower courts have also allowed aerial photography when applying the rule of *Ciraolo-Riley* without any discussion of the sophistication of the cameras. For example, both the *Romo* and the *Henderson* case found photography of the curtilage from an altitude of 500 feet permissible.

---

265 *Riley*, 488 U.S. at 452. The other plurality consideration that there was "no undue noise, and no wind, dust or threat of injury" is not likely to come into play with drones as they are designed to operate in stealth mode and can fly in such a manner to avoid causing any of these disturbances.

266 E.g. Consensual sexual activity, nude sunbathing, etc… It will probably very common for paparazzi to use drones to take nude or semi-nude pictures of celebrities in their own backyards.

267 *Riley*, 488 U.S. at 463. (Brennan, J., dissenting); See also Oliver v. United States, 466 U.S. 170, 181 (1984). ("Nor would a case-by-case approach provide a workable accommodation between the needs of law enforcement and the interests protected by the *Fourth Amendment*...The lawfulness of a search would turn on ""[a] highly sophisticated set of rules, qualified by all sorts of ifs, ands, and buts and requiring the drawing of subtle nuances and hairline distinctions. . . ."" (citations omitted).…. "This Court repeatedly has acknowledged the difficulties created for courts, police, and citizens by an ad hoc, case-by-case definition of *Fourth Amendment* standards to be applied in differing factual circumstances. (citations omitted) The ad hoc approach not only makes it difficult for the policeman to discern the scope of his authority (citation omitted), it also creates a danger that constitutional rights will be arbitrarily and inequitably enforced. (citation omitted)"

268 Sunbathing in the nude or some other activity that would be judged as an ‘intimate activity’.

269 That is one of the recommendations of the ACLU. See Catherine Crump and Jay Stanley, *Protecting Privacy From Aerial Surveillance: Recommendations for Government Use of Drone Aircraft*, 15 (December 2011). The Report also said that drone usage should be limited to instances in which police believe they can collect evidence on a specific crime.

270 *Kyllo*, 533 U.S. at 33.

271 *Dow Chemical Co.*, 476 U.S. at 238-239. The majority did caution that it was not opening the floodgates to all photography however sophisticated it might be: "It may well be, as the Government concedes, that surveillance of private property by using highly sophisticated surveillance equipment *not generally available to the public*, such as satellite technology, might be constitutionally proscribed absent a warrant." (emphasis added)


274 *Henderson*, 879 P. 2d at 385.
On the other hand, the *Kyllo* decision that disallowed use of technologically enhanced thermal imaging involved the home, and not the curtilage. Both *Dow* and *Kyllo* used the limiting criterion of technology “not generally available to the public”. It is difficult to project from these cases what the Court will do with photography of the curtilage. This is especially true when the technology of even commonly used smartphones allows any user to produce very detailed photographs from a distance.\(^{275}\) As the technology of today’s cameras has improved\(^{276}\), equally detailed photography can be obtained by the drone at a higher altitude than the planes in *Dow*.

Unlimited retention of photographs and videos from drone surveillance is also a major concern. Justice Sotomayor was troubled by the potential “mining” of such information by the government for years\(^{277}\). A statutory retention limitation would be the best practical solution for this legitimate concern. Congress could impose a time limitation for storage of this information if “there is no reasonable suspicion that the images contain evidence of criminal activity or are relevant to an ongoing investigation or pending criminal trial.”\(^{278}\)

In conclusion, as far as drone surveillance of the curtilage, the Court will consider the total numbers of instances of surveillance, the frequency of surveillance, the length of each surveillance, the altitude of the aircraft, the degree of disruption of legitimate activities on the ground, the commonality of public flights in that airspace and whether any flight regulations were violated by the surveillance.\(^{279}\) The Court should and is likely to allow short\(^{280}\) warrantless aerial drone surveillance from an altitude that is in navigable airspace that does not create undue noise, wind, dust or threat of injury and that does not interfere with the normal use of the curtilage. The allowable length of surveillance should be much shorter than for public places, perhaps as short as one day. The court is not likely to condone indiscriminate surveillance of the curtilage for unlimited periods of time.\(^{281}\) The Court is also likely to allow limited photography

---

\(^{275}\) See “Lucy”, *Kogeto’s* “professional-level panoramic” camera that is available for $49.95 for the iPhone. “Lucy” is easily capable of taking 360 degree photographs and videos with its high-definition auxiliary camera that is capable of capturing the “finest details.” As technology advances, Kogeto is able to upgrade “Lucy’s” software giving its users imagery that is more detailed. Kogeto, *Meet Lucy*, http://www.kogeto.com/meet-lucy (Aug. 14, 2012).

\(^{276}\) E.g. An ARGUS-IS imaging system has a 1.8 gigapixel camera that can "track people and vehicles from altitudes above 20,000 feet" from 25 miles down range. See “US Army’s A160 Hummingbird Drone-Copter to Don 1.8 Gigapixel Camera”, Andrew Munchbach, http://www.engadget.com/2011/12/27.

\(^{277}\) *Jones*, 132 S. Ct. at 957. (Sotomayor, S., concurring).

\(^{278}\) See Catherine Crump and Jay Stanley *ACLU: Protecting Privacy From Aerial Surveillance: Recommendations for Government Use of Drone Aircraft*, 11-12 (Dec. 2011). The Center for Democracy and Technology, a Washington based civil liberties group, has also called for such limits. See Somini Sengupta, *Drones May Set Off A Flurry Of Lawsuits*, N.Y. Times (Feb. 20, 2012). The ACLU report also recommends, inter alia, that the policies and procedures for use of the drones be made public and that independent audits take place to check on the use of drones by government.

\(^{279}\) See Giancola v. State of W.VA. Dept. of Public Safety (4th Cir. 1987) 830 F2d 547, 5550-551

\(^{280}\) The upper limit of “short” surveillance of the curtilage would be what the court would allow in surveillance in public places.(See discussion re. public places supra) It should be shorter than that in order to maintain what should be a greater privacy protection of the curtilage.

\(^{281}\) See United States v. Allen, 633 F.2d 1282 n. 2, 1289.
of the curtilage with a camera whose technology is commonly available to the public.\textsuperscript{282} Indiscriminate continuous video surveillance of the curtilage will not be acceptable, as it would bring us closer to the Orwellian state.\textsuperscript{283}

**Drone Aerial Surveillance of the Interior of the Home**

Time and again, the Court has taken a firm stand against warrantless governmental invasion of the home.

> At the very core of the *Fourth Amendment*, stands the right of a man to retreat into his own home and there to be free from unreasonable government intrusion. With few exceptions, the question whether a warrantless search of a home is reasonable and hence constitutional must be answered no.\textsuperscript{284}

Drones, such as the Nano Hummingbird are capable of physically stealthily entering the home and record or relay observations from within. It is necessary to look at *Kyllo*’s legacy to analyze what the Court would do in the case of aerial surveillance of the interior of a home because the *Jones* case did not involve the search of a home and was limited to surveillance on public roads. It is abundantly clear that the Court should and will continue to be very protective of the interior of homes. “The Fourth Amendment draws a “firm line at the entrance to the house” (citation omitted). That line, we think, must be not only firm but also bright which requires clear specification of those methods of surveillance that require a warrant.”\textsuperscript{285} The Court will simply not allow any drone to physically enter into the home whether it bases its decision on a theory of trespass, REP, or any other test.

But, how will the Court manage photography of the home from a drone lawfully hovering above the home in navigable airspace without making an actual physical intrusion? For example, photographs of the inside of the home through open windows or skylights? Or infrared camera photographs of the home by day or night? The *Jones* opinions did not address these issues, but the Court has previously indicated that Fourth Amendment protection may also apply to any information obtained by “sense-enhancing technology” that “could not have otherwise been obtained without physical intrusion into a constitutionally protected area.”\textsuperscript{286} The issue, as the majority put it in *Kyllo*, is “what limits there (should be) upon the power of technology to shrink the realm of guaranteed privacy of the home”.\textsuperscript{287}

\textsuperscript{282} See *Dow Chemical Co.*, 476 U.S. at 239; (or at least equivalent to what could be seen by the naked eye. If the latter was used, the trial court would have to hold a hearing to determine what could be seen by the naked eye and compare it to the photographs; this could be a rather complicated process involving expert testimony.)

\textsuperscript{283} See *United States v. Cuevas Sanchez*, 821 F.2dd 248, 251, (5th Cir. 1987). There is also a concern about the “concomitant chill” that such surveillance would have on “lawful outdoor activity”. *People v. Cook*, 41 Cal.3d 373, 377 (1985).

\textsuperscript{284} *Kyllo*, 533 U.S. at 31. (internal citations and quotations omitted)

\textsuperscript{285} *Kyllo*, 533 U.S. at 40.

\textsuperscript{286} *Kyllo*, 533 U.S. at 34.

\textsuperscript{287} *Kyllo*, 533 U.S. at 34.
The 5–4 *Kyllo* majority\(^{288}\) held that the use of a relatively crude thermal-imaging device aimed at a home from a public street in order to detect relative amounts of heat within the home is a “search”.\(^ {289}\) The imager detected that the roof of garage and a sidewall of the home were relatively hotter than the rest of the home and substantially hotter than the neighboring homes.\(^ {290}\) Despite the fact that there was no physical intrusion by the instrument into the home, that no intimate details of the home were detected, that the imager only passively captured heat escaping from the outside of the home and that there may not have been any “significant compromise of the homeowner’s privacy”, the majority declined to use those facts as the measuring tool for Fourth Amendment violations. Rather, the Court declared that “we must take the long view, from the original meaning of the *Fourth Amendment* forward.”\(^ {291}\) (emphasis added)

The majority went on to state that obtaining “any information regarding the *interior* of the home that could not otherwise have been obtained without physical intrusion into a constitutionally protected area constitutes a search, at least where (as here) the technology in question is not in general public use.” It rejected the dissent argument that no information was detected about the interior of the home except as an inference from the detected emanating heat outside the home.\(^ {292}\)

The majority also rejected a distinction between “through-the-wall surveillance” and “off-the-wall surveillance”, indicating that “off-the-wall” heat detection is analogous to other impermissible surveillances such as a powerful directional microphone picking up sound waves coming out of the house or a satellite scanning the house for visible light waves emanating from the house.\(^ {293}\) But, as the dissent pointed out, there is no difference between the police measuring the heat emanating from a house and the police detecting of aromas/suspicious odors, traces of smoke, odorless gasses, airborne particulates, or radioactive emissions from a house.\(^ {294}\) Monitoring the latter with “sense-enhancing technology” would be permissible and drawing useful conclusions from that information would seem to be “an entirely reasonable public service.”\(^ {295}\)

The Achilles heel of the *Kyllo* decision is that the majority qualified its decision on technology that was “not in general public use” at the time. The Court did not define what criteria should be used to determine when a device is in “general public use”. It would seem that if this test were

\(^{288}\) Of this 5–4 Kyllo decision, four of the majority Justices are still on the Court today and Justice Kennedy is the only dissenting Justice remaining on the Court today. The Jones decision involved all five of these justices.

\(^{289}\) *Kyllo*, 533 U.S. at 34.

\(^{290}\) *Kyllo*, 533 U.S. at 30. That information suggested that there was an unusual amount of heat within the home consistent with cultivation of marijuana. That information was used, inter alia, to obtain a search warrant for the home.

\(^{291}\) *Kyllo*, 533 U.S. at 40. The majority seemingly focused on the future advances of technology rather than the one at hand. “Although the Court is properly and commendably concerned about the threats to privacy that may flow from advances in the technology available to the law enforcement profession, it has unfortunately failed to heed the tried and true counsel of judicial restraint.” Id. at 51, Stevens, J. dissenting.

\(^{292}\) *Kyllo*, 533 U.S. at 35 n. 2. (citation omitted and emphasis added).

\(^{293}\) *Kyllo*, 533 U.S. at 35.

\(^{294}\) *Kyllo*, 533 U.S. at 51. (Stevens, J., dissenting).

\(^{295}\) *Kyllo*, 533 U.S. at 51. (Stevens, J., dissenting).
literally used as a threshold criterion, privacy would continue to be eroded as technology improves and becomes generally available to the public.\textsuperscript{296}

On the other hand, the Court did approve of aerial photographs in the \textit{Dow} case.\textsuperscript{297} But, that decision is not very helpful in the analysis of the home because the Court found that the \textit{Dow} manufacturing complex was more comparable to an “open field” than a curtilage.\textsuperscript{298} Since the home has always been entitled to greater protection than even the curtilage, it follows that one cannot infer too much from \textit{Dow} as to whether aerial photographs of the interior of the home would be permissible.

It should also be noted that the \textit{Dow} court also emphasized that the type of camera used was a “conventional, albeit precise, commercial camera commonly used in mapmaking.”\textsuperscript{299} By design and because of technological advances over the past years, a drone’s cameras (whether infrared or conventional) today would be far more technologically sophisticated than the \textit{Dow} mapping camera.

It’s been more than twenty years since \textit{Kyllo} was decided. The public now commonly uses the infrared technology of thermal imagery discussed in \textit{Kyllo} in infrared cameras\textsuperscript{300} and in night goggles.\textsuperscript{301} Does that mean that thermal imagery or observation via the equivalent of night goggles technology (infrared) of a home today would be constitutional? These infrared based cameras would likely reveal a lot more “intimate details” inside the home, even as they passively captured that information from outside the home without any intrusion into the home. It is inconceivable that the Court would allow this to happen after its appropriately forceful position of protecting the sanctity of the home based on the paramount intent of the framers of the Fourth Amendment.

The Court will simply have to retreat from its “general use” qualification and go back to “[a]ll details (in the home) are intimate details, because the entire area is held safe from prying government eyes.”\textsuperscript{302} This is predictable since the \textit{Kyllo} majority\textsuperscript{303} impliedly rejected other types of technological intrusions into the home, including a “hand-held ultrasound through-the-wall surveillance” and a “radar flashlight” that detects persons in the house technology.

\textsuperscript{296} The contours of [the majority's] new rule are uncertain because its protection apparently dissipates as soon as the relevant technology is “in general public use.” Yet how much use is general public use is not even hinted at by the Court's opinion, which makes the somewhat doubtful assumption that the thermal imager used in this case does not satisfy that criterion . . . this criterion is somewhat perverse because it seems likely that the threat to privacy will grow, rather than recede, as the use of intrusive equipment becomes more readily available. \textit{Kyllo}, 533 U.S. at 47. (Stevens, J., dissenting). (citation omitted).

\textsuperscript{297} Dow Chemical Inc. v. United States, 476 U.S. 227 (1986).

\textsuperscript{298} Dow Chemical Co., 476 U.S. at 239.

\textsuperscript{299} Dow Chemical Co., 476 U.S. at 238.

\textsuperscript{300} See Steven Penney, 97 J. Crim. L & Criminology 477, 512 indicating that “infrared cameras have become more affordable, portable, and user-friendly; they are currently used in a wide variety of law enforcement, immigration, military, and civilian applications, including construction, manufacturing, testing, and inspection; citation omitted. For example, infrared night vision cameras are available for purchase on amazon.com for as little as $50.

\textsuperscript{301} For example, night goggles are available for purchase on amazon.com for as little as $52.

\textsuperscript{302} \textit{Kyllo}, 533 U.S. at 37.

\textsuperscript{303} Four of the majority justices are still on the Court today. \textit{See} n. 288 supra.
producing a photo of the interior of the home. The majority made it abundantly clear that it would not “leave the homeowner at the mercy of advancing technology…that could discern all human activity in the home.” “[T]he rule that we adopt must take into account more sophisticated systems that are already in use or in development.” The logic of that analysis would seem to apply to all technological devices that detect information about the interior of the home.

As far as photographs of the exterior of the house, that issue would fit into the curtilage analysis above.

Conclusion

Technology has outpaced Fourth Amendment jurisprudence over the past fifty years. The judicial process is much too slow to be able to operate at technology’s speed. By the time a decision is rendered by the United States Supreme Court on a particular technological device, that device is either commonly used by everyone, has been replaced by newer technology or has become obsolete. A good example of that is the infrared technology used by police in the Kyllo case; today, it is commonly available in many cameras sold to and used by the public. As a result, that decision’s qualification criterion of “not generally available to the public” is no longer a limitation for law enforcement. The Court will have to modify its previous approach to that technology and abandon it especially as to surveillance of the interior of the home.

As a result of the inevitable lag behind technology, Fourth Amendment jurisprudence is always two steps behind, making it difficult for law enforcement and society to know what rules apply in search and seizure. The drone may be the “visceral jolt society needs to drag privacy law into the twenty-first century.” The ACLU has expressed concerns that pervasive drone surveillance would have a chilling effect on the public’s behavior and that abuses could lead to voyeurism, discriminatory targeting and institutional abuse. On the other hand, The ACLU pointed out the usefulness of drones in recording activities of officials, which can serve as a check on government power.

The use of drones by law enforcement will create unresolved issues for perhaps the next ten-plus years until the proper case reaches the United States Supreme Court. Until then, the lower courts will struggle to interpret the Court’s dicta in cases like the Jones case and apply it to drone surveillance. It would be best, as Justice Alito suggested in Jones, that Congress act and

304 Kyllo, 533 U.S. at 36 n. 3.
305 Kyllo, 533 U.S. at 35.
306 Kyllo, 533 U.S. at 36.
307 See generally 1 Wayne R. LaFave, Search and Seizure § 2.2(c), 425 (3d Ed. 1996) (analyzing the use of binoculars, telescopes, and photo enlargement equipment).
intercede by enacting appropriate legislation until such time as the Court has the opportunity to decide the Fourth Amendment limitations that apply to drone surveillance of our neighborhoods.

Another concern with such surveillance would be the accumulation or “mining” of this information by the government for years.311 Congress could provide a reasonable solution to this legitimate concern by imposing a time limitation on the storage of this data if “there is no reasonable suspicion that the images contain evidence of criminal activity or are relevant to an ongoing investigation or pending criminal trial.” Another possible solution is “minimizing the collection …of information and data unrelated to the investigation of a crime.”313 The Court could later use that statutory limitation to help identify “what society is prepared to recognize as reasonable” when applying the second prong of the REP test to drone surveillance.

However, unless or until Congress acts, the Court should be able to continue to protect the privacy of individuals from warrantless governmental drone surveillance by applying the REP test. This will set the outer boundaries of permissible conduct under the Fourth Amendment. As discussed above, the Court should prohibit surveillance of the interior of the home, limit monitoring of the curtilage to short intervals and allow longer surveillances of perhaps one week of public places. Since drone surveillance would necessarily entail photography and videotaping those should be limited to technology generally available to the public.

Drawing such bright-line rules will provide a workable and predictable balance between the needs of law enforcement and the protection of civil rights of individuals. And the REP test may indeed survive another round.

311 See Jones, 132 S. Ct. at 957. (Sotomayor, J., concurring).
312 See ACLU Recommendation at Note 278. The Center for Democracy and Technology, a Washington based civil liberties group, has also called for such limits. See Somini Sengupta, Drones May Set Off A Flurry Of Lawsuits, N.Y. Times (Feb. 20, 2012). The ACLU report also recommends, inter alia, that the policies and procedures for use of the drones be made public and that independent audits take place to check on the use of drones by government.