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Time for the Court to Become "Intimate" with Surveillance Technology

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TIME FOR THE COURT TO BECOME “INTIMATE” WITH SURVEILLANCE TECHNOLOGY

Abstract: The Fourth Amendment protects people’s reasonable expectations of privacy when there is an actual, subjective expectation of privacy and when society recognizes that expectation as reasonable. Therefore, Fourth Amendment protections should evolve over time according to society’s beliefs about which areas of an individual’s life should be protected. Law enforcement has seized on the rapid growth in technology over the past two decades to expand its surveillance capabilities. Fourth Amendment protections, however, have not kept pace with technology. Consequently, federal courts have used outdated precedent that addresses archaic forms of surveillance technology when analyzing the constitutionality of law enforcement’s use of significantly more sophisticated surveillance technology. Some states have expressed dissatisfaction with this outdated precedent and have relied on their own state constitutions to provide citizens with increased protection. Acknowledging a change in what society recognizes as a reasonable expectation of privacy, the U.S. Court of Appeals for the D.C. Circuit, in *United States v. Maynard*, ruled that prolonged use of Global Positioning System (GPS) surveillance technology deserves Fourth Amendment protections because GPS creates an “intimate picture.” The D.C. Circuit’s “intimate picture” test ought to be used by other courts to appropriately protect individuals from ever-changing forms of surveillance technology.

INTRODUCTION

The growth of technology has surged in recent years.¹ As a result, technology has become integrated into our everyday lives and has made us more willing to provide strangers with private information in exchange for their promise to make our interactions “broader, more intimate, more efficient, and more productive.”² Nevertheless, there is

¹ Ric Simmons, *From Katz to Kyllo: A Blueprint for Adapting the Fourth Amendment to Twenty-First Century Technologies*, 53 HASTINGS L.J. 1303, 1306 (2002).

² *In re Application of the U.S. for an Order Authorizing the Release of Historical Cell-Site Info. (Cell-Site Info.)*, 736 F. Supp. 2d 578, 595–96 (E.D.N.Y. 2010). Although Judge James Orenstein, a federal magistrate judge, denied the government’s application for access to cell-site data, U.S. District Court Judge Roslynn Mauskopf reversed the decision on November 29, 2010. *In re Application of the U.S. For an Order Authorizing the Release of Historical Cell-Site Info.*, No. 10-MC-0897, 2010 WL 5437209, at *1 (E.D.N.Y. Dec. 23,

a downside to this increased interconnectedness.³ The incorporation of technology into our lives comes with a price.⁴ The same technology that connects us to those around us allows the government to piggyback on to these connections without any additional action on our part.⁵ The government's ability to more easily peer into our lives, however, is subject to protections provided by the Fourth Amendment to the United States Constitution.⁶

The Fourth Amendment honors "every man's liberty and privacy . . ." ⁷ It provides each individual with the right to be "secure in their persons, houses, papers, and effects against unreasonable searches and seizures."⁸ At its core, the Fourth Amendment protects people from unreasonable government intrusion.⁹ Although what constitutes a "search" and a "seizure" has been the subject of much jurisprudential debate, courts have agreed that searches or seizures conducted without warrants are unreasonable.¹⁰ A warrant may only be issued by an impartial judicial officer that stands between the citizen and the police upon an unquestionable showing of probable cause.¹¹ Through these barriers

2010). While an opinion from Judge Mauskopf is still forthcoming, Judge Orenstein denied another government application for cell-site data on December 23, 2010, arguing that Judge Mauskopf's decision is not controlling authority. *Id.* at *1, *4. In denying the government's request for 113 days of historical cell-site data, Judge Orenstein relied on his rationale in *Cell-Site Info.* and recent developments in the case law. *Id.* at *1-4. This Note relies on *Cell-Site Info.* for its language and arguments, not for its authority. *Cell-Site Info.*, 736 F. Supp. 2d 578.

³ James Tomkovicz, *Technology and the Threshold of the Fourth Amendment: A Tale of Two Futures*, 72 Miss. L.J. 317, 318-20 (2002) (describing the enhancement of human capabilities afforded by technological innovations as a "sword with two very sharp edges," where one edge can preserve national security, while the other endangers its fundamental existence); see *United States v. Maynard*, 615 F.3d 544, 562 (D.C. Cir. 2010), cert. granted sub nom. *United States v. Jones*, 131 S. Ct. 3064 (2011). The Court is scheduled to hear oral arguments in *Jones* on November 7, 2011. Supreme Court of the United States October 2011-For the Session Beginning October 31, 2011 (Aug. 8, 2011), http://www.supremecourt.gov/oral_arguments/argument_calendars/MonthlyArgumentCalNov2011.pdf. The Court is expected to rule on whether prolonged use of GPS surveillance without a warrant offends Fourth Amendment protections against unreasonable searches and seizures. *Jones*, 131 S. Ct. 3064 (granting U.S. petition on June 27, 2011).

⁴ Tomkovicz, *supra* note 3, at 320; see *Maynard*, 615 F.3d at 562; *Cell-Site Info.*, 736 F. Supp. 2d at 590.

⁵ See *Maynard*, 615 F.3d at 565; *Cell-Site Info.*, 736 F. Supp. 2d at 590.

⁶ See U.S. CONST. amend. IV.

⁷ *United States v. White*, 401 U.S. 745, 756 (1971) (Douglas, J., dissenting); see U.S. CONST. amend. IV.

⁸ U.S. CONST. amend. IV.

⁹ *Kyllo v. United States*, 533 U.S. 27, 31 (2001); see U.S. CONST. amend. IV.

¹⁰ Renée M. Hutchins, *Tied up in Knotts? GPS Technology and the Fourth Amendment*, 55 UCLA L. REV. 409, 421 (2007); see *Katz v. United States*, 389 U.S. 347, 357 (1967).

¹¹ *Katz*, 389 U.S. at 357.

ers, the Constitution fortifies the right to privacy and ensures the protection of the citizenry from government intrusion.¹²

The government's warrantless use of surveillance technology has challenged Fourth Amendment jurisprudence.¹³ Original, crude surveillance technology was limited in its usefulness.¹⁴ Such early forms of surveillance were not particularly accurate, required law enforcement to remain in close contact with the suspect, and had no way of automatically storing collected information.¹⁵ Over time, however, surveillance technology has advanced to a point such that earlier forms are almost unrecognizable.¹⁶ Current surveillance technology allows law enforcement to monitor an individual's movements both in a car and on foot, unbeknownst to the individual being monitored.¹⁷ For example, the Global Positioning System (GPS) allows law enforcement to track a vehicle's movements through a computer, unhindered by the physical limitations of police-conducted visual surveillance.¹⁸ In addition, cell-site data, a signal that every cell phone emits, has expanded surveillance outside the vehicle and provides law enforcement with accurate information about an individual's whereabouts.¹⁹

These advancements in surveillance technology have far outpaced the evolution of Fourth Amendment jurisprudence.²⁰ Many scholars have argued that the current state of Fourth Amendment jurisprudence lacks a genuine understanding of privacy given the realities of modern technology.²¹ These scholars argue that because there has been widespread development in forms of technology that are capable of impinging on a person's privacy, courts must interpret the Fourth

¹² See U.S. CONST. amend. IV; Tomkovicz, *supra* note 3, at 325.

¹³ Simmons, *supra* note 1, at 1322; see *United States v. Knotts*, 460 U.S. 276, 282–84 (1983); *Maynard*, 615 F.3d at 557–58.

¹⁴ See *Knotts*, 460 U.S. at 278 (involving a beeper placed in a vehicle that emitted a signal that could be picked up by police when they were close enough to receive it).

¹⁵ See *id.*

¹⁶ See *Maynard*, 615 F.3d at 565 (involving the monitoring of vehicular movement twenty-four hours a day); *Cell-Site Info.*, 736 F. Supp. 2d at 578–79 (involving the monitoring of an individual's movements through their cell phone).

¹⁷ See *Maynard*, 615 F.3d at 565; *Cell-Site Info.*, 736 F. Supp. 2d at 578–79.

¹⁸ *GPS Devices Do the Work of Law Enforcement Agents*, NPR.ORG (Oct. 27, 2010), <http://www.npr.org/templates/story/story.php?storyId=130851849>.

¹⁹ Patrick T. Chamberlain, Note, *Court Ordered Disclosure of Historical Cell Site Location Information: The Argument for a Probable Cause Standard*, 66 WASH. & LEE L. REV. 1745, 1747 (2009); Kevin McLaughlin, *The Fourth Amendment and Cell Phone Location Tracking: Where Are We?*, 29 HASTINGS COMM. & ENT. L.J. 421, 422 (2007).

²⁰ See *Maynard*, 615 F.3d at 558; *Cell-Site Info.*, 736 F. Supp. 2d at 582.

²¹ Daniel J. Solove, *Fourth Amendment Pragmatism*, 51 B.C. L. REV. 1511, 1512 (2010).

Amendment broadly to adequately protect individual liberty.²² This Note proposes a means by which courts might do so.²³ It argues that the U.S. Court of Appeals for the D.C. Circuit, in the 2010 case of *United States v. Maynard*, developed an analysis that should be applied to modern forms of surveillance technology.²⁴ This “intimate picture” analysis balances the inherently competing goals of effectively fighting crime and upholding individual rights and freedom.²⁵

Part I of this Note introduces the development of the U.S. Supreme Court’s Fourth Amendment jurisprudence and explores the influence that technology has had on Fourth Amendment protections.²⁶ Part II addresses the technology behind GPS and examines how it is used by law enforcement to aid in surveillance.²⁷ It then discusses how courts have addressed the issue of whether GPS surveillance constitutes a search under the Fourth Amendment.²⁸ Part III introduces cell-site technology to illustrate the effects that the D.C. Circuit Court’s ruling in *Maynard* had on the constitutionality of surveillance technology.²⁹ Part IV argues that current Supreme Court precedent regarding technological surveillance and one’s reasonable expectation of privacy does not reflect current societal norms and does not provide sufficient Fourth Amendment protections.³⁰ It then demonstrates why *Maynard*’s “intimate picture” approach is a proper way to address prolonged surveillance technology and should be adopted by the courts.³¹

I. FOURTH AMENDMENT PROTECTIONS

The Supreme Court’s interpretation of a Fourth Amendment “search” has changed over time in an effort to evolve with society’s changing notions of what constitutes a reasonable expectation of privacy.³² Section A addresses the Supreme Court’s expansion of Fourth

²² Orin Kerr, *The Fourth Amendment and New Technologies: Constitutional Myths and the Case for Caution*, 102 MICH. L. REV. 801, 804 (2004) (referring to this majority approach as “the popular view of the Fourth Amendment and new technologies”).

²³ See *infra* notes 298–327 and accompanying text.

²⁴ See *Maynard*, 615 F.3d at 563; *In re Application of the U.S. for Historical Cell Site Data (Cell Site Data)*, 747 F. Supp. 2d 827, 840 (S.D. Tex. 2010); *Cell-Site Info.*, 736 F. Supp. 2d at 584.

²⁵ See *Cell Site Data*, 747 F. Supp. 2d at 840; *Cell-Site Info.*, 736 F. Supp. 2d at 584.

²⁶ See *infra* notes 32–86 and accompanying text.

²⁷ See *infra* notes 87–107 and accompanying text.

²⁸ See *infra* notes 108–191 and accompanying text.

²⁹ See *infra* notes 192–224 and accompanying text.

³⁰ See *infra* notes 225–278 and accompanying text.

³¹ See *infra* notes 279–327 and accompanying text.

³² See Hutchins, *supra* note 10, at 427.

Amendment protection, from protecting only against trespass to protecting one's reasonable expectation of privacy.³³ Section B then discusses how the Supreme Court has incorporated technology into its Fourth Amendment precedent.³⁴

A. *Shift Away from Common-Law Trespass*

Prior to 1967, the Supreme Court defined a "search" as a *physical* invasion by the government.³⁵ A physical invasion only occurred when law enforcement officials physically trespassed on a person's property.³⁶ In 1967, however, the Supreme Court in *Katz v. United States* broadened the definition of a "search."³⁷ In *Katz*, the Court rejected the "trespass doctrine" and declared that the Fourth Amendment protects people, not places.³⁸ Expanding on this new idea, the Court explained that Fourth Amendment protections extend to those areas that a person seeks to preserve as private, but do not reach those areas that a person knowingly exposes to the public.³⁹

In *Katz*, Federal Bureau of Investigation (FBI) agents attached an electronic listening and recording device to the outside of the public telephone booth that petitioner used to make illegal gambling wagers.⁴⁰ The Court concluded that, despite entering a phone booth that was partly constructed of glass, the petitioner intended to exclude others from listening in on his conversation.⁴¹ This intent to exclude made the government's surveillance a search.⁴² Thus, even though there was no physical trespass by the government on the phone booth, the government's actions violated the petitioner's reasonable expectation of privacy.⁴³

³³ See *infra* notes 35–51 and accompanying text.

³⁴ See *infra* notes 52–86 and accompanying text.

³⁵ Hutchins, *supra* note 10, at 423; see *Katz*, 389 U.S. at 351.

³⁶ April A. Otterberg, Note, *GPS Tracking Technology: The Case for Revisiting Knotts and Shifting the Supreme Court's Theory of the Public Space Under the Fourth Amendment*, 46 B.C. L. REV. 661, 672 (2005).

³⁷ Simmons, *supra* note 1, at 1303; see *Katz*, 389 U.S. at 351.

³⁸ See *Katz*, 389 U.S. at 351, 353.

³⁹ *Id.* at 351–52.

⁴⁰ *Id.* at 348.

⁴¹ *Id.* at 352.

⁴² See *id.*

⁴³ See *id.* at 353.

Justice John Marshall Harlan II, in his concurring opinion, delineated a two-part test to clarify the Court's ruling that the Fourth Amendment protects one's reasonable expectation of privacy.⁴⁴ First, to obtain Fourth Amendment protections, a person must have exhibited an actual, subjective expectation of privacy.⁴⁵ Second, that expectation must be one that society is prepared to recognize as "reasonable."⁴⁶ This test was intended to allow the Fourth Amendment to address changes in technology.⁴⁷ By expanding the Fourth Amendment's reach beyond physical trespass and focusing it instead on protecting individual privacy, the *Katz* test broadened the scope of Fourth Amendment protections.⁴⁸ The Court acknowledged that what a person seeks to preserve as private, even in an area that is publically accessible, may still be constitutionally protected.⁴⁹ By focusing on a "legitimate expectation of privacy," the test concerns itself with the type of information that can be acquired as a result of a search and disregards law enforcement's methods in conducting the surveillance.⁵⁰ Courts have subsequently adopted this test when conducting Fourth Amendment analyses to determine whether a particular intrusion by the government constitutes a search.⁵¹

B. *The Fourth Amendment's Adoption of Technology*

Advances in surveillance technology have increased police efficiency, enabling law enforcement to expend fewer resources while conducting surveillance at a level that would be otherwise unattainable given the limitations of human sensory faculties.⁵² As technology has advanced and provided law enforcement with extra-human capabilities, courts have struggled to ensure that the Fourth Amendment continues to protect against unreasonable searches and seizures.⁵³

⁴⁴ *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

⁴⁵ *Id.* Demonstrating a subjective expectation of privacy requires the exhibition of intention to keep objects, activities, or statements to oneself. *Id.*

⁴⁶ *Id.*

⁴⁷ Simmons, *supra* note 1, at 1304; Solove, *supra* note 21, at 1519.

⁴⁸ Hutchins, *supra* note 10, at 427; see *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

⁴⁹ *Katz*, 389 U.S. at 351–52; Hutchins, *supra* note 10, at 453.

⁵⁰ Simmons, *supra* note 1, at 1305–06.

⁵¹ See *Kyllo*, 533 U.S. at 32; *Knotts*, 460 U.S. at 280–81; *Maynard*, 615 F.3d at 563.

⁵² See *Knotts*, 460 U.S. at 282.

⁵³ See *Kyllo*, 533 U.S. at 33–34; *Maynard*, 615 F.3d at 558; Christopher Slobogin, *Technologically-Assisted Physical Surveillance: The American Bar Association's Tentative Draft Standards*, 10 HARV. J.L. & TECH. 383, 386 (1997).

1. *Knotts*: A Standard for Archaic Technology

In 1983, the Supreme Court, in *Knotts*, held that monitoring the movements of a vehicle by using a beeper acting as a tracking device did not constitute a search under the Fourth Amendment.⁵⁴ In *Knotts*, police planted a battery-operated beeper containing a radio transmitter in the trunk of the defendant's vehicle.⁵⁵ The beeper emitted a signal from the trunk.⁵⁶ The officers were able to monitor the beeper through a receiver that could pick up the signal when within physical range of the vehicle.⁵⁷ This tracking helped law enforcement agents maintain intermittent visual surveillance of the respondent's vehicle.⁵⁸ The beeper ultimately enabled the officers to track the vehicle to the respondent's lake cabin, at which point they secured a search warrant for the cabin.⁵⁹

In concluding that the use of the beeper did not constitute a search, the Court applied the two-part *Katz* test to analyze the government's conduct.⁶⁰ The Court analogized the government surveillance through use of the beeper to police following an automobile on public streets.⁶¹ Because the respondent traveled on public streets, the Court reasoned, he voluntarily conveyed to anyone who wanted to look where he was traveling and what stops he was making.⁶² The Court concluded that there was no indication that the beeper was used in any way to reveal information that could not otherwise be viewed by the naked eye.⁶³ Thus, the Court found that the use of the beeper to track the respondent's car did not invade any legitimate expectation of privacy.⁶⁴ The Court limited its holding, however, by acknowledging that if police should use technology to conduct "dragnet"-type law enforcement, different constitutional principles might apply.⁶⁵ While the Court failed to

⁵⁴ *Knotts*, 460 U.S. at 285.

⁵⁵ *Id.* at 277.

⁵⁶ *Id.* at 278.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.* at 278–79.

⁶⁰ *Knotts*, 460 U.S. at 280–81; see *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

⁶¹ *Knotts*, 460 U.S. at 281.

⁶² *Id.* at 281–82.

⁶³ *Id.* at 285.

⁶⁴ *Id.*

⁶⁵ See *id.* at 284. In response to the respondent's argument that not requiring proper search warrants for use of this form of surveillance could lead to "twenty-four hour surveillance of any citizen of this country . . . without judicial knowledge or supervision," the Court reserved the issue of whether constant surveillance twenty-four hours a day, seven days a week would constitute a search because those facts were not presented. See *id.* at 283–84. Instead, the Court acknowledged that if or when law enforcement uses technology

expound much further on those different constitutional principles, the Court did acknowledge that, depending on the volume and detail of information revealed by sense-enhancing surveillance, additional constitutional protections may be required.⁶⁶

The Court in *Knotts* centered its reasoning on the fact that the beeper merely enhanced the police's natural-born sensory capabilities.⁶⁷ Since unaided visual tracking of the respondent's vehicle would not have constituted a search, then, by merely augmenting their sense of sight through the use of technology, the police did not perform a search under the Fourth Amendment.⁶⁸ Scholars, however, have found this rationale problematic because, in reality, the beeper did not merely enhance law enforcement's visual capacity, but replaced it.⁶⁹ It allowed the police to follow the respondent's movements remotely, which they otherwise would have been physically unable to do.⁷⁰ Notwithstanding scholarly criticism, the same line of reasoning that the Court used in *Knotts* has been subsequently used by courts when analyzing far more advanced forms of surveillance technology.⁷¹

2. Preventing Technology from Eroding Privacy

The Supreme Court has recognized the power of technology to shrink the realm of guaranteed privacy under the Fourth Amendment.⁷² In areas where surveillance technology allows for extra-sensory perception by law enforcement—which, at its core, exceeds human capability—the Court has determined that the use of such technology is a search.⁷³

For example, in 2001, in *Kyllo v. United States*, the Supreme Court held that the use of a thermal-imaging device aimed at a private home to detect the amount of heat emitted was an unlawful search and thus

that is capable of conducting surveillance twenty-four hours a day, seven days a week, a constitutional analysis would be appropriate. *See id.*

⁶⁶ Hutchins, *supra* note 10, at 440; *see Knotts*, 460 U.S. at 284.

⁶⁷ *See Knotts*, 460 U.S. at 282.

⁶⁸ *See id.*; Hutchins *supra* note 10, at 435–36.

⁶⁹ Slobogin, *supra* note 53, at 400; *see Tomkovicz, supra* note 3, at 365.

⁷⁰ Slobogin, *supra* note 53, at 400.

⁷¹ *See Knotts*, 460 U.S. at 285; *United States v. Pineda-Moreno*, 591 F.3d 1212, 1216 (9th Cir. 2010); *United States v. Garcia*, 474 F.3d 994, 997 (7th Cir. 2007).

⁷² *See Kyllo*, 533 U.S. at 33–34; Hutchins, *supra* note 10, at 436; Otterberg, *supra* note 36, at 691.

⁷³ *See Kyllo*, 533 U.S. at 40; *Dow Chem. Co. v. United States*, 476 U.S. 227, 238 (1985) (finding that flying over a chemical manufacturing facility merely enhanced human capability and thus was not a search); *Maynard*, 615 F.3d at 565.

violated the Fourth Amendment.⁷⁴ The petitioner in *Kyllo* was suspected of growing marijuana in his home with the aid of high-intensity lamps.⁷⁵ An agent for the U.S. Department of the Interior used a thermal imaging device aimed at the exterior of the petitioner's home.⁷⁶ The thermal imager detected infrared radiation—which is not visible to the naked eye—and displayed images based on each object's relative warmth.⁷⁷ With the thermal images, the police could identify the high intensity lamps under which the marijuana grew.⁷⁸

The majority recognized that the rule they adopted in *Kyllo* must deal directly with the use of technology and must take into account more sophisticated forms of technology than the thermal imaging technology present in the particular case.⁷⁹ The Court focused its analysis on the fact that the technology allowed authorities to gain information about the inside of a home that could not otherwise have been obtained through more traditional and less invasive forms of surveillance.⁸⁰ Because thermal imaging was extra-sensory, the Court concluded that its use to reveal details pertaining to the interior of the home was a search.⁸¹

The dissenting justices argued that the same information regarding the heat levels of the interior of the home could have been obtained by any member of the public who might notice that one part of the house was warmer than another.⁸² For example, any observer would notice if "rainwater evaporates or snow melts at different rates across its surfaces."⁸³ In addition, heat waves enter the public domain if and when they leave a building, so a subjective expectation that they would remain private is not "one that society is prepared to recognize as reasonable."⁸⁴ The majority, however, dismissed these arguments, refusing to accept such a "mechanical interpretation of the Fourth Amendment . . ."⁸⁵ Thus, while the dissent opted for a more formalistic approach to Fourth Amendment protections, *Kyllo* shows the

⁷⁴ *Kyllo*, 533 U.S. at 40.

⁷⁵ *Id.* at 29.

⁷⁶ *Id.*

⁷⁷ *Id.* at 29–30.

⁷⁸ *Id.* at 30.

⁷⁹ *Id.* at 36.

⁸⁰ *See Kyllo*, 533 U.S. at 34.

⁸¹ *Id.* at 40.

⁸² *Id.* at 43 (Stevens, J., dissenting).

⁸³ *Id.*

⁸⁴ *Id.* at 43–44 (quoting *Katz*, 389 U.S. at 361 (Harlan, J., concurring)).

⁸⁵ *See id.* at 35 (majority opinion).

Court's reluctance to apply a bright-line test to surveillance technology.⁸⁶

II. GLOBAL POSITIONING SYSTEM

Law enforcement's use of GPS technology has challenged courts' ability to use existing precedent to effectively protect individual liberties.⁸⁷ Section A presents the science behind GPS technology and introduces how law enforcement has used GPS technology to conduct surveillance.⁸⁸ Section B examines how federal courts have analyzed the constitutionality of warrantless GPS tracking by drawing parallels between older forms of technology for which the Supreme Court has established precedent.⁸⁹ Section C addresses how state courts, employing "new federalism," have conducted their own constitutional analyses over the use of GPS technology.⁹⁰ Finally, Section D examines the D.C. Circuit's reliance on the "intimate picture" doctrine in the 2010 case of *United States v. Maynard* to hold that prolonged use of GPS surveillance constitutes a search under the Fourth Amendment.⁹¹

A. GPS and Its Application for Law Enforcement

GPS is a space-based global navigation system that reveals information about the location, speed, and direction of a subject.⁹² Originally developed by the U.S. Department of Defense in the 1970's for use in warfare, GPS technology has taken on several civilian applications since its inception.⁹³ GPS satellites—there are currently over thirty—circle the Earth and broadcast a transmission which is picked up by a receiver on Earth.⁹⁴ Part of the transmission is the satellites' almanac data, which tells GPS receivers the locations of all GPS satellites at any given time.⁹⁵ A GPS receiver obtains information from at least four satellites

⁸⁶ See Hutchins, *supra* note 10, at 437; Otterberg, *supra* note 36, at 693; Simmons, *supra* note 1, at 1321.

⁸⁷ See Hutchins, *supra* note 10, at 444.

⁸⁸ See *infra* notes 92–107 and accompanying text.

⁸⁹ See *infra* notes 108–122 and accompanying text.

⁹⁰ See *infra* notes 123–156 and accompanying text.

⁹¹ See *infra* notes 157–191 and accompanying text.

⁹² Ron White & Tim Downs, *How Global Positioning Systems Work*, PCMAG.COM (July 8, 2008), <http://www.pcmag.com/article2/0,2817,2316534,00.asp>.

⁹³ Otterberg, *supra* note 36, at 666.

⁹⁴ Ken Kramer, *Delta 4 Blast Off with Advanced New GPS Satellite Marks 50th Anniversary of Delta Program*, SPACEREF (May 28, 2010), <http://www.spaceref.com/news/viewnews.html?id=1397>.

⁹⁵ White & Downs, *supra* note 92.

and uses this information to determine how far it is from each satellite and, thus, its own precise location on earth.⁹⁶

Civilian access to GPS technology has improved over time.⁹⁷ Before 2000, the government scrambled GPS signals to intentionally degrade GPS precision levels to hinder civilian GPS use.⁹⁸ In 2000, the Clinton Administration made military level GPS technology available to the civilian public.⁹⁹ Civilian use of GPS was further expanded in May 2010 when the first of twelve GPS-IIF-1 satellites was placed into orbit, joining the thirty GPS satellites already in orbit.¹⁰⁰ The GPS-IIF-1 improves existing GPS capabilities; it includes a jam-resistant military signal and a new civil signal to enhance civilian capabilities, and it significantly improves signal accuracy.¹⁰¹ Currently, some GPS receivers can pinpoint their location within meters or even centimeters.¹⁰²

Because of its accuracy and wide-scale availability, GPS has proven to be a more cost-effective and precise way for law enforcement to monitor the movements of individuals than traditional forms of surveillance, which rely heavily on human capabilities.¹⁰³ Police can simply place a small GPS device on an individual's vehicle and continuously monitor the vehicle's movement remotely from a computer, without losing sight of the individual.¹⁰⁴ As a result, law enforcement officials have begun using GPS surveillance with increasing frequency.¹⁰⁵

People convicted of crimes on the basis of evidence obtained through GPS surveillance have brought suits claiming that GPS monitoring without a warrant based on probable cause constitutes a search and thus violates the Fourth Amendment.¹⁰⁶ Courts have divided into two camps on this issue.¹⁰⁷

⁹⁶ *Id.*

⁹⁷ Otterberg, *supra* note 36, at 666.

⁹⁸ White & Downs, *supra* note 92.

⁹⁹ Statement on the Decision to Stop Degrading Global Positioning Systems Signals, 36 WEEKLY COMP. PRES. DOC. 959 (May 1, 2000).

¹⁰⁰ John McHale, *Boeing GPS IIF-1 Satellite Sends First Signals from Space*, MILITARY & AEROSPACE ELECTRONICS (May 29, 2010), http://www.militaryaerospace.com/index/display/articledisplay/3614463201/articles/military-aerospace-electronics/online-news-2/2010/5/boeing-gps_iif-1_satellite.html.

¹⁰¹ *Id.*

¹⁰² *How Does GPS Work?*, GPSSYSTEMS (Jan. 27, 2010, 7:36 PM), <http://gpssystem.net/how-does-gps-work/>.

¹⁰³ Ben Hubbard, *Police Turn to Secret Weapon: GPS Device*, WASH. POST, Aug. 13, 2008, at A1.

¹⁰⁴ *GPS Devices Do the Work of Law Enforcement Agents*, *supra* note 18.

¹⁰⁵ Hubbard, *supra* note 103, at A1.

¹⁰⁶ See *United States v. Maynard*, 615 F.3d 544, 555 (D.C. Cir. 2010), *cert. granted sub nom.* *United States v. Jones*, 131 S. Ct. 3064 (2011); *United States v. Marquez*, 605 F.3d 604,

B. GPS and Federal Courts

Three federal circuit courts of appeals have ruled that the use of GPS surveillance is not a search under the Fourth Amendment.¹⁰⁸ In denying that the use of GPS tracking constitutes a search, these courts have relied on the reasoning in *United States v. Knotts* that nobody has a reasonable expectation of privacy when they knowingly expose themselves to the public by traveling on a public road.¹⁰⁹ These courts have concluded that GPS surveillance, much like the beeper in *Knotts*, substitutes physically following a car on a public street because it captures qualitatively the same information.¹¹⁰

In 2010, the U.S. Court of Appeals for the Ninth Circuit in *United States v. Pineda-Moreno* found that police did not unlawfully “search” the petitioner’s car by monitoring its location with the use of tracking devices attached to the underside of the vehicle.¹¹¹ Police, without a warrant, monitored the vehicle for four months by installing various types of mobile tracking devices that recorded and logged its movements.¹¹² Information from these mobile tracking devices led police to a suspected marijuana grow site.¹¹³ The court concluded that *Kyllo v. United States* did not control because the information obtained through the tracking devices only substituted for information that agents could have otherwise obtained by following the car.¹¹⁴ Because the technology was

609 (8th Cir. 2010); *United States v. Pineda-Moreno*, 591 F.3d 1212, 1216 (9th Cir. 2010); *United States v. Garcia*, 474 F.3d 994, 995 (7th Cir. 2007).

¹⁰⁷ See *infra* notes 109–191 and accompanying text for a discussion of these two camps.

¹⁰⁸ See *Marquez*, 605 F.3d at 610 (finding that a person who travels on a public street has no reasonable expectation of privacy such that using a GPS to track the petitioner’s trips between Des Moines and Denver did not constitute a search); *Pineda-Moreno*, 591 F.3d at 1215 (finding that a GPS tracking device placed on the underside of the petitioner’s vehicle while it was parked in his driveway in order to monitor the vehicle’s movement was not a search); *Garcia*, 474 F.3d at 997 (finding that GPS tracking is merely a substitute for following a car and is thus not a search within the meaning of the Fourth Amendment); *United States v. McIver*, 186 F.3d 1119, 1126–27 (9th Cir. 1999) (finding that the placement of a GPS tracking device on the petitioner’s car while it was parked in his driveway was neither a search nor a seizure).

¹⁰⁹ See *United States v. Knotts*, 460 U.S. 276, 281–82 (1983); *Pineda-Moreno*, 591 F.3d at 1216; *Garcia*, 474 F.3d at 997.

¹¹⁰ See *Pineda-Moreno*, 591 F.3d at 1216; *Garcia*, 474 F.3d at 997.

¹¹¹ *Pineda-Moreno*, 591 F.3d at 1217.

¹¹² *Id.* at 1213.

¹¹³ *Id.* at 1214.

¹¹⁴ *Id.* at 1216; see *Kyllo v. United States*, 533 U.S. 27, 35 n.2 (2001).

similar to the beeper used in *Knotts*, the Ninth Circuit invoked *Knotts* and declined to pursue the issue further.¹¹⁵

Similarly, in *United States v. Garcia*, the Seventh Circuit Court of Appeals held that GPS tracking was analogous technology to surveillance cameras and satellite imaging.¹¹⁶ Because law enforcement's use of surveillance cameras and satellite imaging does not constitute a search, neither does warrantless use of GPS to track individuals.¹¹⁷ In *Garcia*, police installed a GPS "memory tracking unit" under the rear bumper of the petitioner's car.¹¹⁸ The information the police later retrieved from the GPS unit led them to evidence linking the petitioner to methamphetamine manufacturing.¹¹⁹

The Seventh Circuit did not find the police's behavior inconsistent with the Fourth Amendment.¹²⁰ The court ruled that the police had not seized the petitioner's vehicle by attaching the GPS device because the device had no effect on the car's appearance or functionality.¹²¹ Additionally, like in *Pineda-Moreno*, the court in *Garcia* found that GPS surveillance acts as a substitute for visually following a car, and is thus not a search within the meaning of the Fourth Amendment.¹²²

C. State Courts and Warrantless GPS Surveillance

Although no federal court that had directly addressed the constitutionality of GPS tracking prior to *Maynard* had found that such tracking constitutes a search, several states' highest courts have found that GPS monitoring is a search requiring state constitutional protection.¹²³

¹¹⁵ See *Pineda-Moreno*, 591 F.3d at 1216; Adam Koppel, Note, *Warranting a Warrant: Fourth Amendment Concerns Raised by Law Enforcement's Warrantless Use of GPS and Cellular Phone Tracking*, 64 U. MIAMI L. REV. 1061, 1079 (2010).

¹¹⁶ *Garcia*, 474 F.3d at 997.

¹¹⁷ *Id.*

¹¹⁸ *Id.* at 995.

¹¹⁹ *Id.* at 995–96.

¹²⁰ See *id.* at 997.

¹²¹ See *id.* at 996.

¹²² *Garcia*, 474 F.3d at 997–98. The court, however, indicated that new technologies allow for wholesale surveillance, and that one could imagine law enforcement instituting a program of mass surveillance that would be the equivalent of hiring ten million police officers to tail every vehicle on the nation's roads. *Id.* at 998. If such a program of mass surveillance was instituted, then the time would be ripe to consider whether the Fourth Amendment should treat such surveillance as a search. *Id.*

¹²³ See *Commonwealth v. Connolly*, 913 N.E.2d 356, 370 (Mass. 2009); *People v. Weaver*, 909 N.E.2d 1195, 1203 (N.Y. 2009); *State v. Jackson*, 76 P.3d 217, 224 (Wash. 2003); see also *United States v. Berry*, 300 F. Supp. 2d 366, 368 (D. Md. 2004). The U.S. District Court for the District of Maryland, though declining to determine whether GPS requires a court order, indicated that the technology used in GPS surveillance is so much more intrusive

In doing so, these states have invoked the idea of “new federalism.”¹²⁴ This philosophy, which has developed in the last forty years, recognizes that the U.S. Constitution acts a floor, providing the minimum guarantee of individual rights.¹²⁵ In turn, states are free to independently determine, according to their own state constitutions, the balance they strike between individual rights and the interests of state government.¹²⁶ Particularly in the area of criminal law, state courts have provided greater protections to individuals than their federal counterparts.¹²⁷ In addition, “new federalism” can help clarify the Supreme Court’s understanding of the proper extent of protections afforded by the U.S. Constitution.¹²⁸ It allows for debate and legal change in areas in which the Supreme Court has been unwilling to evolve.¹²⁹ Therefore, “new federalism” allows states to be progressive in developing legal rules that reflect a rapidly changing society.¹³⁰

In 2003, the Washington Supreme Court, in *State v. Jackson*, was the first state court to address whether a warrant is required for police to use GPS tracking to monitor an individual’s vehicle.¹³¹ In *Jackson*, police obtained a warrant to attach a GPS tracking device to each of the defendant’s two cars based on suspicion that he was involved in the disappearance of his nine-year-old daughter.¹³² For several weeks, the police monitored Jackson’s vehicle, obtaining information about where he traveled and how long he spent at each location.¹³³ Ultimately, the information the police received from the GPS tracking device led to the

than the beeper used in *Knotts* that courts could find that its installation requires a court order. *Id.*

¹²⁴ See Shirley S. Abrahamson, *Criminal Law and State Constitutions: The Emergence of State Constitutional Law*, 63 TEX. L. REV. 1141, 1153 (1985); Stephen E. Henderson, *Learning from All Fifty States: How to Apply the Fourth Amendment and Its State Analogs to Protect Third Party Information from Unreasonable Search*, 55 CATH. U. L. REV. 373, 393 (2006). This philosophy has also been referred to as “new judicial federalism.” See Jame N.G. Cauthen, *Horizontal Federalism in the New Judicial Federalism: A Preliminary Look at Citations*, 66 ALB. L. REV. 783, 785 (2003).

¹²⁵ Abrahamson, *supra* note 124, at 1153.

¹²⁶ *Id.*

¹²⁷ See Stanley H. Friedelbaum, *Advances and Departures in the Criminal Law of the States: A Selective Critique*, 69 ALB. L. REV. 489, 491–92 (2006).

¹²⁸ See Robert K. Fitzpatrick, Note, *Neither Icarus Nor Ostrich: State Constitutions as an Independent Source of Individual Rights*, 79 N.Y.U. L. REV. 1833, 1855–56, 1872 (2004) (highlighting same-sex marriage as that which state courts have been more willing to accept than the Supreme Court).

¹²⁹ *Id.* at 1855–56.

¹³⁰ *Id.* at 1872.

¹³¹ See 76 P.3d at 220.

¹³² *Id.* at 220–21.

¹³³ See *id.* at 221.

discovery of Jackson's daughter's body and Jackson's conviction for her murder.¹³⁴

The Washington Supreme Court upheld a warrant requirement under the Washington State Constitution for the installation of a GPS device on an individual's vehicle after the Washington Court of Appeals concluded that warrants authorizing GPS devices were unnecessary.¹³⁵ GPS devices, the Washington Supreme Court noted, do not just augment the officers' senses used in traditional visual tracking, as would binoculars or flashlights, but instead act as a technological substitute for traditional visual tracking.¹³⁶ The court was influenced by the fact that the GPS tracking at issue allowed for uninterrupted, twenty-four hour a day monitoring for two and a half weeks, a level of monitoring that an officer would otherwise not have been able to maintain through mere visual contact.¹³⁷ Furthermore, the court noted that GPS monitoring is quite intrusive into an individual's private affairs.¹³⁸ Given that vehicular transportation is so frequent and that a person typically visits a variety of places, uninterrupted surveillance of travels paints a detailed picture of a person's life.¹³⁹ In focusing on the intrusiveness of the technology and the amount of information revealed, the *Jackson* court relied on the Supreme Court's precedent from *Katz v. United States*.¹⁴⁰

In 2009, the Court of Appeals of New York, the state's highest court, addressed the constitutionality of warrantless GPS tracking in *People v. Weaver* and found that warrantless GPS tracking violated the

¹³⁴ *See id.*

¹³⁵ *Id.* at 221, 224. The court noted that Article I, Section 7 of the Washington State Constitution, which governs searches and seizures, provides greater protection than the Fourth Amendment of the U.S. Constitution. *Id.* at 222; *see* U.S. CONST. amend. IV; WASH. CONST. art. I, § 7.

¹³⁶ *Jackson*, 76 P.3d at 223.

¹³⁷ *Id.*; Otterberg, *supra* note 36, at 681.

¹³⁸ *Jackson*, 76 P.3d at 223.

¹³⁹ *Id.* In illustrating the extent of personal information that GPS monitoring can reveal, the court provided, as an example, a detailed record of:

[T]ravel to doctors' offices, banks, gambling casinos, tanning salons, places of worship, political party meetings, bars, grocery stores, exercise gyms, places where children are dropped off for school, play, or day care, the upper scale restaurant and the fast food restaurant, the strip club, the opera, the baseball game, the "wrong" side of town, the family planning clinic, the labor rally.

Id.

¹⁴⁰ *Hutchins*, *supra* note 10, at 448; *see* *Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring) (extending constitutional protections to areas people seek to preserve as private); *Jackson*, 76 P.3d at 223–24.

New York State Constitution.¹⁴¹ In *Weaver*, authorities used GPS to continuously monitor the location of the defendant's van for sixty-five days.¹⁴² The location information of the van was remotely downloaded by investigators.¹⁴³ The information obtained through GPS monitoring led to the defendant's conviction on two burglary counts.¹⁴⁴

The Court of Appeals of New York distinguished the GPS monitoring technology in *Weaver* from the beeper in *Knotts*.¹⁴⁵ It held that GPS is a "vastly different and exponentially more sophisticated and powerful technology" than the "very primitive tracking device" used in *Knotts*.¹⁴⁶ GPS tracking, the court concluded, provides a "new technological perception" of the world where any object can be followed almost indefinitely with its every move recorded.¹⁴⁷ As in *Jackson*, the court in *Weaver* emphasized that GPS tracking over a lengthy period can create a detailed profile of an individual's life.¹⁴⁸ The court invoked the reservation from *Knotts* regarding forms of technology that would allow for "twenty-four hour surveillance of any citizen of this country" and indicated that, just twenty-six years after *Knotts*, the ability of government to conduct twenty-four hour "dragnet-type" surveillance had arrived.¹⁴⁹ Since there is unsettled federal law on this issue, the court found that GPS surveillance requires a warrant under the New York State Constitution.¹⁵⁰

Although GPS technology has gained such popularity and taken on so many uses, the court in *Weaver* concluded that GPS's prevalence in society does not automatically lead to a wide-spread concession of personal privacy to law enforcement authorities that may use this tech-

¹⁴¹ See 909 N.E.2d at 1203 (finding that the installation and use of a GPS device to monitor an individual requires a warrant supported by probable cause). Similarly, in 2009, in *Commonwealth v. Connolly*, the Massachusetts Supreme Judicial Court found that the installation and use of a GPS device to monitor the defendant's minivan was a seizure that required a warrant under the Fourth Amendment of the U.S. Constitution and Article 14 of the Massachusetts Declaration of Rights. 913 N.E.2d at 370. In a concurrence, three justices found that the use of GPS monitoring invaded defendant's reasonable expectation of privacy and therefore should be characterized as a search. *Id.* at 376 (Gants, J., concurring).

¹⁴² *Weaver*, 909 N.E.2d at 1195–96.

¹⁴³ *Id.* at 1196.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.* at 1199.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ *Weaver*, 909 N.E.2d at 1199; see *Jackson*, 76 P.3d at 223; Koppel, *supra* note 115, at 1074–75.

¹⁴⁹ See *Weaver*, 909 N.E.2d at 1200; see also *Knotts*, 460 U.S. at 284.

¹⁵⁰ *Weaver*, 909 N.E.2d at 1202–03.

nology.¹⁵¹ Invoking the *Katz* test, the court found that popular use of GPS-based devices has not led to a drastic decrease in the reasonable expectation that certain personal information will remain private.¹⁵² Especially where GPS is not voluntarily used and is instead covertly installed, a reasonable expectation of privacy still exists.¹⁵³ Constitutional protections help realize this expectation.¹⁵⁴ Although there is a diminished expectation of privacy on public roads, an individual does not consent to "unsupervised disclosure to law enforcement authorities of all that GPS can and will reveal."¹⁵⁵ Such a massive invasion of privacy from prolonged GPS surveillance, the court concluded, is "inconsistent with even the *slightest* reasonable expectation of privacy."¹⁵⁶

D. *The Maynard Approach*

In 2010, the D.C. Circuit split with the Ninth and Seventh Circuits by holding in *Maynard* that prolonged GPS monitoring constituted a search because it defeated petitioner's reasonable expectation of privacy.¹⁵⁷ In *Maynard*, police, without a warrant, installed a GPS tracking device on the Jeep of one of the defendants and used it to monitor his movements twenty-four hours a day for four weeks as part of a drug distribution investigation.¹⁵⁸ Then, the government did not merely use the information obtained through the GPS to identify the location of defendant's "stash houses" or to demonstrate his movements on an isolated trip.¹⁵⁹ Instead, the government relied cumulatively on the information obtained through the GPS to present a complete record of the defendant's movements over the course of an entire month.¹⁶⁰ The jury convicted both defendants for conspiracy to distribute and posses-

¹⁵¹ *Id.* at 1200.

¹⁵² See *Katz*, 389 U.S. at 361 (Harlan, J., concurring); *Weaver*, 909 N.E.2d at 1200.

¹⁵³ *Weaver*, 909 N.E.2d at 1200.

¹⁵⁴ See *id.*

¹⁵⁵ *Id.*

¹⁵⁶ *Id.* at 1201 (emphasis added).

¹⁵⁷ Compare 615 F.3d at 555–56 (holding that *Knotts* does not govern because the use of GPS defeated appellant's reasonable expectation of privacy), with *Pineda-Moreno*, 591 F.3d at 1216 (holding that *Knotts* governs because GPS revealed the same information police could have obtained by following the vehicle), and *Garcia*, 474 F.3d at 997 (holding that GPS is merely a substitute for following a car on a public street and therefore no Fourth Amendment search occurred).

¹⁵⁸ *Maynard*, 615 F.3d at 549, 555.

¹⁵⁹ *Id.* at 562.

¹⁶⁰ *Id.*

sion with intent to distribute, five kilograms or more of cocaine and fifty grams of cocaine base.¹⁶¹ The defendants appealed.¹⁶²

The D.C. Circuit reversed the conviction of the defendant whose Jeep the police tracked using GPS, concluding that it was based in part on evidence obtained through an unconstitutional search.¹⁶³ Finding the use of GPS a Fourth Amendment search, the court distinguished *Maynard* from *Knotts*.¹⁶⁴ It concluded that *Knotts* was limited to its holding that a person traveling on a public road has no reasonable expectation of privacy in his movements *from one place to another*, “not that such a person has no reasonable expectation of privacy in his movements whatsoever, world without end”¹⁶⁵ Additionally, the court addressed the circuit courts that had relied on *Knotts* in concluding that GPS monitoring does not constitute a search.¹⁶⁶ According to the *Maynard* court, those circuit courts wrongly concluded that the Supreme Court in *Knotts* reserved the question of whether “wholesale” or “mass” electronic surveillance of *many* individuals requires a warrant.¹⁶⁷ Instead, the D.C. Circuit reasoned that the Supreme Court had actually reserved the issue of whether prolonged electronic surveillance required a warrant.¹⁶⁸

According to the *Maynard* Court, the prolonged nature of the GPS use was the principal reason that the surveillance in *Maynard* was a search.¹⁶⁹ In so holding, the court distinguished GPS technology from mere visual surveillance.¹⁷⁰ Visual surveillance is limited for practical reasons (e.g., time and expense) from lasting very long, whereas GPS surveillance is not so limited.¹⁷¹ Based on the extended period of time over which the government tracked the petitioner, the totality of the information that the police obtained through the GPS was not exposed

¹⁶¹ *Id.* at 549.

¹⁶² *Id.*

¹⁶³ *Id.* at 568.

¹⁶⁴ *See Maynard*, 615 F.3d at 556–58.

¹⁶⁵ *Id.* at 557 (emphasis added); *see Knotts*, 460 U.S. at 281. The Court in *Knotts* specifically avoided the question of whether prolonged and sustained monitoring over a period of time would constitute a search under the Fourth Amendment. 460 U.S. at 284; *Maynard*, 615 F.3d at 556–57; *see Hutchins*, *supra* note 10, at 453.

¹⁶⁶ *See Maynard*, 615 U.S. at 557–58; *Pineda-Moreno*, 591 F.3d at 1216; *Garcia*, 474 F.3d at 997.

¹⁶⁷ *Maynard*, 615 U.S. at 558 (emphasis added).

¹⁶⁸ *Id.*

¹⁶⁹ *See id.* at 563.

¹⁷⁰ *See id.* at 565.

¹⁷¹ *See id.*

to the public.¹⁷² Thus, unlike in *Pineda-Moreno* and *Garcia*, the information acquired in *Maynard* was fundamentally different from the type of evidence that the police could have otherwise obtained by following a car.¹⁷³ Instead, the evidence in *Maynard* was neither actually nor constructively exposed.¹⁷⁴

First, regarding whether the defendant was actually exposed to the public, the court noted that using GPS evidence to prove several movements over the course of many weeks was fundamentally different from using GPS evidence to prove one movement.¹⁷⁵ Unlike an individual’s movement on a single trip, “the whole of one’s movements over the course of a month is not *actually* exposed to the public because the likelihood anyone will observe all those movements is effectively nil.”¹⁷⁶ Second, the *Maynard* Court held that the information that the police discovered using GPS surveillance was not *constructively* exposed.¹⁷⁷ The court reasoned that even though each individual movement may be exposed to the public when one travels on public roads, the whole of one’s movements is not *constructively* exposed because “that whole reveals more—sometimes a great deal more—than does the sum of its parts.”¹⁷⁸ Sustained surveillance over a long period of time reveals information not obtainable through short-term surveillance, and may reveal an “intimate picture” of an individual’s life.¹⁷⁹ The reasonable person does not expect anyone to monitor and retain a record each time that person drives a car.¹⁸⁰ Instead, the reasonable person expects each movement to remain “disconnected and anonymous.”¹⁸¹ Thus, prolonged GPS surveillance reveals more information about an individual than that individual expects anyone to know.¹⁸²

¹⁷² *Id.* at 558.

¹⁷³ See *Maynard*, 615 U.S. at 562–63; *Pineda-Moreno*, 591 F.3d at 1216; *Garcia*, 474 F.3d at 997; see also Otterberg, *supra* note 36, at 697.

¹⁷⁴ *Maynard*, 615 F.3d at 558.

¹⁷⁵ *Id.* at 560.

¹⁷⁶ *Id.*

¹⁷⁷ *Id.* at 561 (emphasis added).

¹⁷⁸ *Id.* at 558.

¹⁷⁹ *Id.* at 563. The court analogized “mosaic theory,” typically used by the government in cases involving national security information, to the intimate picture prolonged GPS surveillance paints—what may not be useful in small, disparate pieces can provide significant information in total. *Id.* at 562.

¹⁸⁰ *Maynard*, 615 F.3d at 563.

¹⁸¹ *Id.* (quoting *Nader v. Gen. Motors Corp.*, 255 N.E.2d 765, 772 (1970) (Breitel, J., concurring)).

¹⁸² *Id.*; see Hutchins, *supra* note 10, at 455–56; Otterberg, *supra* note 36, at 698.

Having decided that the GPS surveillance in *Maynard* was a “search,” the D.C. Circuit next applied the two-part *Katz* test to determine if the search violated the Fourth Amendment.¹⁸³ The court found that the defendant had a reasonable expectation of privacy in his movements over the course of a month, and that GPS surveillance of these movements defeated this reasonable expectation.¹⁸⁴ Furthermore, the intrusion into one’s life made by prolonged GPS surveillance exceeds the intrusion of other police practices that the Supreme Court has found constitute a search under *Katz*.¹⁸⁵ The *Maynard* court also noted that several States had enacted legislation penalizing warrantless use of electronic tracking devices and requiring the exclusion of evidence obtained in such a manner.¹⁸⁶ This legislation, the court reasoned, bolstered its conclusion that GPS monitoring defeats an expectation of privacy that American society believes is reasonable.¹⁸⁷ The court, however, was careful to limit its decision to the facts at hand, recognizing that the Supreme Court requires “Fourth Amendment cases [to] be decided on the facts of each case, not by extravagant generalizations.”¹⁸⁸

Thus, according to *Maynard*, one has a reasonable expectation of privacy when the information obtained through surveillance technology creates an “intimate picture” of everyday life.¹⁸⁹ An “intimate picture” is created when surveillance provides prolonged, continuous, detailed information about an individual that is neither actually nor constructively exposed to the public.¹⁹⁰ Therefore, when law enforcement’s use of GPS technology paints an “intimate” picture of a person’s life, the invasion into that individual’s private life violates his reasonable expectation of privacy and warrants Fourth Amendment protections.¹⁹¹

¹⁸³ *Maynard*, 615 F.3d at 563; see *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

¹⁸⁴ *Maynard*, 615 F.3d at 563; see *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

¹⁸⁵ *Maynard*, 615 F.3d at 563. The intrusion of GPS exceeds that of a urine test, an electronic listening device used to tap a payphone, inspection of carry-on luggage, thermal imaging used to determine the temperature inside a home—all of which the Supreme Court has ruled amount to a search under the *Katz* test. *Id.* at 563–64; see *Katz*, 389 U.S. at 361; see also *Kyllo*, 533 U.S. at 40; *Bond v. United States*, 529 U.S. 334, 339 (2000).

¹⁸⁶ *Maynard*, 615 F.3d at 564. (citing legislation passed in Utah, Minnesota, Florida, Oklahoma, Hawaii, and Pennsylvania).

¹⁸⁷ *Id.*

¹⁸⁸ *Id.* at 566 (quoting *Dow Chem. Co. v. United States*, 476 U.S. 227, 238 n.5 (1986)).

¹⁸⁹ *Id.* at 564; see *In re Application of the U.S. for an Order Authorizing the Release of Historical Cell-Site Info. (Cell-Site Info.)*, 736 F. Supp. 2d 578, 584 (E.D.N.Y. 2010) (adopting the reasoning in *Maynard*).

¹⁹⁰ See *Maynard*, 615 F.3d at 562–63; *Cell-Site Info.*, 736 F. Supp. 2d at 584.

¹⁹¹ See *Maynard*, 615 F.3d at 563; Hutchins, *supra* note 10, at 457; Otterberg, *supra* note 36, at 701.

III. MAYNARD'S EFFECT ON GOVERNMENT REQUESTS FOR HISTORICAL CELL-SITE DATA

The reaction to the D.C. Circuit's ruling in *Maynard* was swift.¹⁹² Although some courts rejected the ruling, preferring to rely on *United States v. Knotts*, others adopted *Maynard*'s approach as the modern standard for analyzing whether certain forms of surveillance impinge on an individual's privacy right.¹⁹³ The *Maynard* analysis implicates cases involving technologies that allow for prolonged surveillance otherwise unavailable to humans.¹⁹⁴ *Maynard* has had an immediate impact, for example, in cases in which the Government seeks cellular phone site data to determine an individual's whereabouts.¹⁹⁵ Section A introduces cell-site technology and explores the standards courts have used to evaluate whether police use of cell-site data constitutes a "search."¹⁹⁶ Section B then addresses how courts, in light of *Maynard*, have reconsidered the standard they should use to grant law enforcement requests for access to cell-site data.¹⁹⁷

A. Cell-Site Technology

Like installing a GPS on a car, law enforcement also uses cell site information ("CSI") emitted from cell phones to monitor an individual's movements.¹⁹⁸ Whenever a cell phone is turned on, it communicates with nearby cellular towers roughly every seven seconds to ensure that incoming calls can be received.¹⁹⁹ By analyzing the signal strength's time and angle of arrival at nearby cell towers, the location of the

¹⁹² See *United States v. Maynard*, 615 F.3d 544, 568 (D.C. Cir. 2010), cert. granted sub nom. *United States v. Jones*, 131 S. Ct. 3064 (2011); see also *United States v. Pineda-Moreno*, 617 F.3d 1120, 1124 (9th Cir. 2010) (Kozinski, J., dissenting) (invoking *Maynard* to note that GPS devices record electronic information from which law enforcement can deduce a variety of private information about individuals); *United States v. Sparks*, 750 F. Supp. 2d 384, 396 (D. Mass. 2010) (rejecting *Maynard* in finding that the defendant had no reasonable expectation of privacy in the movement of his vehicle on public streets); *In re Application of the U.S. for Historical Cell Site Data (Cell Site Data)*, 747 F. Supp. 2d 827, 840 (S.D. Tex. 2010) (adopting *Maynard*); *Cell-Site Info.*, 736 F. Supp. 2d at 596 (denying the Government's application for historical cell-site data over a period of fifty-eight days by relying on *Maynard*'s "intimate picture" rationale).

¹⁹³ See *Sparks*, 750 F. Supp. 2d at 391; *Cell Site Data*, 747 F. Supp. 2d at 846; *Cell-Site Info.*, 736 F. Supp. 2d at 596.

¹⁹⁴ See *Cell Site Data*, 747 F. Supp. 2d at 846; *Cell-Site Info.*, 736 F. Supp. 2d at 596.

¹⁹⁵ See *Cell Site Data*, 747 F. Supp. 2d at 846; *Cell-Site Info.*, 736 F. Supp. 2d at 596.

¹⁹⁶ See *infra* notes 198–211 and accompanying text.

¹⁹⁷ See *infra* notes 212–224 and accompanying text.

¹⁹⁸ See *Cell Site Data*, 747 F. Supp. 2d at 829; *Cell-Site Info.*, 736 F. Supp. 2d at 579.

¹⁹⁹ Chamberlain, *supra* note 19, at 1752; McLaughlin, *supra* note 19, at 426.

phone's signal can be determined.²⁰⁰ These measurements are known as Time of Difference of Arrival ("TDOA") and Angle of Arrival ("AOA") respectively.²⁰¹ When TDOA and AOA are available from three cellular towers, the location information (also called triangulation) is at its most accurate.²⁰² For this reason, CSI tracking in cities is more accurate than in rural areas with fewer cellular towers.²⁰³ Depending on the number of towers in a given area, it is possible to pinpoint a person's location via their cell phone to within a few meters.²⁰⁴ Additionally, over ninety percent of cell phones currently have built-in GPS capabilities which are used to locate those needing help in emergencies.²⁰⁵

Because cell phone service providers store CSI, law enforcement agencies who want access to this information must request a court order.²⁰⁶ The Electronic Communications Privacy Act ("ECPA") governs CSI.²⁰⁷ Requests for a prospective court order to obtain *real-time* cell phone location information are generally not granted absent a government showing of probable cause.²⁰⁸ Requests for *historical* CSI, on the other hand, have been assessed under the Stored Communications Act ("SCA"), part of the ECPA.²⁰⁹ Because the SCA regulates access to records that exist and that cell phone providers store, courts had generally treated requests for historical CSI as less of an invasion of privacy than requests for real-time data.²¹⁰ Thus, courts typically granted access to historical CSI on a less exacting basis than probable cause.²¹¹

²⁰⁰ Ian J. Samuel, Note, *Warrantless Location Tracking*, 83 N.Y.U. L. REV. 1324, 1327 (2008).

²⁰¹ Chamberlain, *supra* note 19, at 1753.

²⁰² *Id.*

²⁰³ Koppel, *supra* note 115, at 1067.

²⁰⁴ Samuel, *supra* note 200, at 1327.

²⁰⁵ McLaughlin, *supra* note 19, at 427.

²⁰⁶ Koppel, *supra* note 115, at 1068.

²⁰⁷ See 18 U.S.C. § 2510 (2006); *Cell Site Data*, 747 F. Supp. 2d at 829. The ECPA, which Congress added to Title III of the Wiretap Act in 1986, extended some wiretapping protections to electronic communications. Electronic Communications Privacy Act of 1986, Pub. L. No. 99-508, § 101(a), 100 Stat. 1848, 1848 (codified at 18 U.S.C. § 2510 (2006)); Susan Freiwald, *Online Surveillance: Remembering the Lessons of the Wiretap Act*, 56 ALA. L. REV. 9, 41 (2004).

²⁰⁸ See Chamberlain, *supra* note 19, at 1748; see also *In re Application of the U.S. for an Order (1) Authorizing the Use of a Pen Register & a Trap & Trace Device, & (2) Authorizing Release of Subscriber Info. and/or Cell Site Info. (Trap & Trace Device)*, 396 F. Supp. 2d 294, 327 (E.D.N.Y. 2005).

²⁰⁹ See 18 U.S.C. § 2701; *Cell Site Data*, 747 F. Supp. 2d at 829–30.

²¹⁰ See *Cell Site Data*, 747 F. Supp. 2d at 829–30; *Trap & Trace Device*, 396 F. Supp. 2d at 327.

²¹¹ See *Cell Site Data*, 747 F. Supp. 2d at 829–30; *Trap & Trace Device*, 396 F. Supp. 2d at 327.

B. Post-Maynard: Historical CSI and Probable Cause

In the wake of *Maynard*, magistrate judges have reevaluated the standard under which they order disclosure of historical CSI.²¹² In 2010, in *Application of the U.S. for an Order Authorizing Release of Historical Cell-Site Information*, Magistrate Judge James Orenstein of the U.S. District Court for the Eastern District of New York relied heavily on *Maynard* in denying the government's request for warrantless access to fifty-eight days of historical cell-site location records.²¹³ The government sought a court order directing the provider to disclose all "recorded information identifying the base station towers and sectors that received transmission" with respect to all calls and text messages from an individual's cell phone.²¹⁴ Although the court noted several factual differences between the real-time GPS technology used in *Maynard* and the historical data sought in the instant case, the court sided with *Maynard*.²¹⁵ Judge Orenstein agreed that *United States v. Knotts* is not controlling on the issue of prolonged location tracking.²¹⁶ He also agreed with *Maynard's* approach of protecting one's privacy when technology allows for prolonged, detailed tracking that would otherwise be impossible.²¹⁷

The court found that the information that the government sought to obtain painted no less intimate a picture "simply because it ha[d] already been painted."²¹⁸ Furthermore, a cell phone user has an objectively reasonable expectation of privacy in call location because that information is a "special class of customer information" and may only be used or disclosed in an emergency situation.²¹⁹ Additionally, any growing awareness about the possibility of location tracking through cell phones has resulted in society's increased expectation in controlling this

²¹²See *Cell Site Data*, 747 F. Supp. 2d at 829; *Cell-Site Info.*, 736 F. Supp. 2d at 581. The U.S. Court of Appeals for the Third Circuit reversed a magistrate judge's finding that disclosure of cell-site data can only be provided pursuant to a warrant based on probable cause. *In re Application of the U.S. for an Order Directing a Provider of Elec. Comm'n Serv. to Disclose Records to the Gov't*, 620 F.3d 304, 313 (3d Cir. 2010). The Third Circuit determined that a warrant based on a probable cause showing was not required to obtain cell-site data from a wireless provider. *Id.* Instead, the court concluded that only an "intermediate standard"—less than probable cause—was required. *Id.* In doing so, the court relied on the holding in *Knotts*, that privacy interests are confined to the interior of the home. See *id.* at 312; see also *Knotts*, 460 U.S. at 281–82.

²¹³ See *Cell-Site Info.*, 736 F. Supp. 2d at 596.

²¹⁴ *Id.* at 578.

²¹⁵ See *id.* at 584.

²¹⁶ *Id.*

²¹⁷ *Id.*

²¹⁸ *Id.* at 585.

²¹⁹ *Cell-Site Info.*, 736 F. Supp. 2d at 588.

monitoring.²²⁰ Advances in technology do not come with the expectation that society has lost its right to privacy.²²¹ In fact, they produce an increased awareness of the importance of privacy.²²² In concluding that government access to historical cell site data requires a showing of probable cause, Judge Orenstein noted that society's reasonable expectations of privacy are continually changing as technology plays an increasingly prevalent role in everyday lives.²²³ What constitutes an unreasonable invasion into one's privacy must "evolve along with the myriad ways in which humans contrive to interact with one another."²²⁴

IV. SQUARING PRECEDENT WITH TECHNOLOGY

There is inherent tension in the Fourth Amendment's ability to properly protect a reasonable expectation of privacy.²²⁵ On the one hand, the State has a societal interest in waging the never-ending fight against crime.²²⁶ On the other hand, as members of a free and democratic society, Americans place significant importance on protecting individual rights.²²⁷ The Supreme Court has struggled for some time to referee this tension when analyzing the constitutional implications of law enforcement's use of technology to conduct surveillance at a level exceeding human capabilities.²²⁸ The Court, however, has acknowledged the risks that technology places on Fourth Amendment protections.²²⁹ In 1971, Justice Harlan, in his dissent in the Supreme Court case of *United States v. White*, cautioned that technological devices could become an "Orwellian Big Brother."²³⁰ Justice William O. Douglas, also dissenting in *White*, similarly warned that:

²²⁰ *Id.* at 594.

²²¹ *Id.*

²²² *Id.*

²²³ *Id.* at 595–96.

²²⁴ *Id.* at 595.

²²⁵ See *Kyllo v. United States*, 533 U.S. 27, 33–34 (2001); *United States v. Knotts*, 460 U.S. 276, 282–84 (1983); *Katz v. United States*, 389 U.S. 347, 351–53 (1967).

²²⁶ See *Knotts*, 460 U.S. at 284.

²²⁷ See *Kyllo*, 533 U.S. at 34.

²²⁸ See Hutchins, *supra* note 10, at 411–12; Stephen A. Saltzburg, *The Fourth Amendment: Internal Revenue Code or Body of Principles?*, 74 GEO. WASH. L. REV. 956, 1018 (2006); Simmons, *supra* note 1, at 1321.

²²⁹ See *Kyllo*, 533 U.S. at 34; *United States v. White*, 401 U.S. 745, 770 (1971) (Harlan, J., dissenting).

²³⁰ *White*, 401 U.S. at 770 (Harlan, J., dissenting). The phrase "Orwellian Big Brother" comes from George Orwell's novel *1984*, where Big Brother, the dictator of the totalitarian state of Oceania, continuously monitors Oceania's inhabitants. Otterberg, *supra* note 36, at 661–62.

[T]he concepts of privacy which the Founders enshrined in the Fourth Amendment vanish completely when we slavishly allow an all powerful government, proclaiming law and order, efficiency, and other benign purposes, to penetrate all the walls and doors which men need to shield them from the pressures of a turbulent life around them and give them the health and strength to carry on.²³¹

Three decades later, in 2001, Justice Antonin Scalia, writing for the Supreme Court majority in *United States v. Kyllo*, considered the risk of technology eroding Fourth Amendment privacy protections.²³² As technology grows ever-more powerful, the Court’s Fourth Amendment precedent regarding technological surveillance becomes outdated.²³³

This Part addresses these Fourth Amendment tensions and the need for Fourth Amendment analysis to keep pace with changing technology.²³⁴ Section A argues that current Supreme Court precedent regarding surveillance technology and the Fourth Amendment is outdated and incapable of protecting individual liberties given the current state of technology.²³⁵ Section B argues that the D.C. Circuit’s “intimate picture” analysis, adopted in *United States v. Maynard*, would strike a more appropriate balance between individual liberties and the ability of law enforcement to use surveillance technology for investigations.²³⁶ Finally, Section C argues that courts should apply *Maynard*’s approach to any surveillance technology capable of painting an “intimate picture” and considers how courts might go about applying this standard.²³⁷

A. Outdated Technology, Outdated Precedent

The two prong reasonable expectation of privacy test dictated Justice Harlan’s concurrence in *United States v. Katz* attempts to draw a line between law enforcement’s interest in the effective use of technology

²³¹ *White*, 401 U.S. at 756 (Douglas, J., dissenting).

²³² *See Kyllo*, 533 U.S. at 34.

²³³ *See Knotts*, 460 U.S. at 285; *United States v. Maynard*, 615 F.3d 544, 563 (D.C. Cir. 2010), *cert. granted sub nom. United States v. Jones*, 131 S. Ct. 3064 (2011); *see also* *United States v. Warshak*, 631 F.3d 266, 287 (6th Cir. 2010) (finding that the defendant enjoyed a reasonable expectation of privacy in emails stored with a commercial internet service provider). “[T]he Fourth Amendment must keep pace with the inexorable march of technological progress, or its guarantees will wither and perish.” *Warshak*, 631 F.3d at 285.

²³⁴ *See infra* notes 238–327 and accompanying text.

²³⁵ *See infra* notes 238–278 and accompanying text.

²³⁶ *See infra* notes 279–297 and accompanying text.

²³⁷ *See infra* notes 298–327 and accompanying text.

and the public interest in protecting civil liberties.²³⁸ First, the test asks whether an individual manifests a subjective expectation of privacy.²³⁹ This prong examines whether the individual “acted in such a way that it would be reasonable for him to expect that he would not be observed.”²⁴⁰ The test then examines whether the individual’s expectation is one that society is prepared to recognize as reasonable.²⁴¹ In this way, the *Katz* test acts as a dividing line between forms of government intrusion that are permissible on their face, without being subjected to constitutional protections, and those more invasive forms of intrusion that warrant Fourth Amendment protections.²⁴² In practice though, the Supreme Court has failed to provide consistent interpretations of what constitutes a “reasonable” expectation of privacy.²⁴³ In effect, what is “reasonable” has come to mean whatever a majority of Supreme Court justices says it means.²⁴⁴ As a result, the Court’s conception of privacy has become, as several commentators have observed, “deleterious to liberty, and totally out of touch with society.”²⁴⁵

Although the Fourth Amendment can be properly applied in a high-tech society, the Supreme Court’s Fourth Amendment analysis thus far has been arbitrary, relying on subjective rules that are applied inconsistently.²⁴⁶ In addition, what society considers a reasonable expectation of privacy has evolved with advances in technology and shifts

²³⁸ See *Knotts*, 460 U.S. at 280–81; *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

²³⁹ *Knotts*, 460 U.S. at 281; *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

²⁴⁰ Hutchins, *supra* note 10, at 455 (quoting *United States v. Taborda*, 635 F.2d 131, 137 (2d Cir. 1980)).

²⁴¹ *Knotts*, 460 U.S. at 281; *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

²⁴² See *Knotts*, 460 U.S. at 280–81; *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

²⁴³ Orin S. Kerr, *Four Models of Fourth Amendment Protection*, 60 STAN. L. REV. 503, 504 (2007). Kerr explains that the Court has taken four coexisting approaches in determining what makes an expectation of privacy “reasonable.” *Id.* at 508.

²⁴⁴ Solove, *supra* note 21, at 1521.

²⁴⁵ *Id.* at 1519; see Lewis R. Katz, *In Search of a Fourth Amendment for the Twenty-First Century*, 65 IND. L.J. 549, 554–55 (1990); George C. Thomas III, *Time Travel, Hovercrafts, and the Framers: James Madison Sees the Future and Rewrites the Fourth Amendment*, 80 NOTRE DAME L. REV. 1451, 1500 (2005).

²⁴⁶ See Hutchins, *supra* note 10, at 411; Kerr, *supra* note 243, at 505. “The Court’s handiwork has been condemned as ‘distressingly unmanageable,’ ‘unstable,’ and ‘a series of inconsistent and bizarre results that the Court has left entirely undefended.’” Kerr, *supra* note 243, at 505 (quoting Sherry F. Colb, *What Is a Search? Two Conceptual Flaws in Fourth Amendment Doctrine and Some Hints of a Remedy*, 55 STAN. L. REV. 119, 122 (2002); Silas J. Wasserstrom & Louis M. Seidman, *The Fourth Amendment as Constitutional Theory*, 77 GEO. L.J. 19, 29 (1988); Richard G. Wilkins, *Defining the “Reasonable Expectation of Privacy”: An Emerging Tripartite Analysis*, 40 VAND. L. REV. 1077, 1107 (1987)).

in societal norms.²⁴⁷ The framers could have never predicted the kinds of devices that law enforcement now use to conduct surveillance.²⁴⁸ Because society has changed, and because technology that law enforcement uses to conduct surveillance has become publically available, society's expectations about the kind of information that is publically available has changed.²⁴⁹

The Supreme Court in *United States v. Knotts* seems to have recognized this very point when it reserved the issue of whether twenty-four hour dragnet surveillance might one day violate one's reasonable expectation of privacy.²⁵⁰ In so doing, the Court noted its concern for law enforcement abuse of surveillance technology and the potential for that technology to threaten Fourth Amendment principles.²⁵¹ When *Knotts* was decided in 1983, twenty-four hour surveillance of citizens was technologically impossible.²⁵² Furthermore, tracking devices were not widely available to the public.²⁵³ Although the Court was attuned to the fact that government's use of technology must square with Fourth Amendment protections, the Court failed to further address the issue.²⁵⁴

Without addressing prolonged surveillance directly, the Court in *Knotts* ruled that an individual has no reasonable expectation of privacy in movements from one place to another on public thoroughfares.²⁵⁵ This is because a driver traveling from one place to another publically displays any stops and the location of the final destination.²⁵⁶ This rule has subsequently been upheld by federal courts, however, as an absolute rule barring a reasonable expectation of privacy while on public thoroughfares.²⁵⁷ This is not how the Supreme Court intended *Knotts*

²⁴⁷ See *Knotts*, 460 U.S. at 283–84; *Maynard*, 615 F.3d at 563; *In re Application of the U.S. for an Order Authorizing the Release of Historical Cell-Site Info. (Cell-Site Info.)*, 736 F. Supp. 2d 578, 595–96 (E.D.N.Y. 2010); Simmons, *supra* note 1, at 1332.

²⁴⁸ Simmons, *supra* note 1, at 1331–32.

²⁴⁹ *Id.* at 1332.

²⁵⁰ See *Knotts*, 460 U.S. at 284.

²⁵¹ *Id.*

²⁵² See *id.* at 283–84.

²⁵³ See *Knotts*, 460 U.S. at 277; Simmons, *supra* note 1, at 1334 (noting that the Court finds a search in cases involving surveillance technology that is not in general public use).

²⁵⁴ See *Knotts*, 460 U.S. at 284.

²⁵⁵ See *id.* at 281; see also *United States v. Pineda-Moreno*, 591 F.3d 1212, 1216 (9th Cir. 2010); *United States v. Garcia*, 474 F.3d 994, 997 (7th Cir. 2007).

²⁵⁶ *Knotts*, 460 U.S. at 281–82.

²⁵⁷ See *Pineda-Moreno*, 591 F.3d at 1216; *Garcia*, 474 F.3d at 997; *United States v. Sparks*, 750 F. Supp. 2d 384, 396 (D. Mass. 2010). In *Garcia*, the Seventh Circuit raised the issue of technology one day allowing for wholesale surveillance, but concluded it was premature to rule on that issue. 474 F.3d at 998.

to be interpreted.²⁵⁸ In fact, in 1979, the Supreme Court in *Delaware v. Prouse* emphasized that an individual does not lose a reasonable expectation of privacy when travelling on public roads:

An individual operating or traveling in an automobile does not lose all reasonable expectation of privacy Automobile travel is a basic, persuasive, and often necessary mode of transportation to and from one's home, workplace, and leisure activities. Many people spend more hours each day traveling in cars than walking the streets. . . . Were the individual subject to unfettered governmental intrusion every time he entered an automobile, the security guaranteed by the Fourth Amendment would be seriously circumscribed. . . . [P]eople are not shorn of all Fourth Amendment protection when they step from their homes onto the sidewalks [or] . . . when they step from the sidewalks into their automobiles.²⁵⁹

Thus, while an automobile may be less private than a home, an individual does not completely shed an expectation of privacy upon leaving the home, entering a vehicle, and embarking on daily life.²⁶⁰

The use of current technological surveillance methods requires stronger constitutional protections.²⁶¹ Current surveillance technology allows for surveillance over a prolonged period of time and has reached a point beyond which the Court's current precedent in *Knotts* can properly address.²⁶² Courts forced to analyze the constitutionality of law enforcement's prolonged use of surveillance technology without a warrant should not apply *Knotts* broadly.²⁶³ Such a broad application would substantially invade personal privacy and was not the intent of the *Knotts* Court.²⁶⁴ Furthermore, for courts to equate short-term, intermittent surveillance, like the beeper used in *Knotts*, with prolonged, advanced

²⁵⁸ See *Maynard*, 615 F.3d at 557; see also *Delaware v. Prouse*, 440 U.S. 648, 662–63 (1979). In *Prouse*, the Court held that stopping an automobile and detaining a driver in order to check the driver's license and vehicle registration without articulable and reasonable suspicion is unreasonable under the Fourth Amendment. 440 U.S. at 663.

²⁵⁹ *Prouse*, 440 U.S. at 662–63.

²⁶⁰ See *Katz*, 389 U.S. at 351; *Maynard*, 615 F.3d at 563.

²⁶¹ See *Maynard*, 615 F.3d at 563; *In re Application of the U.S. for Historical Cell Site Data (Cell-Site Data)*, 747 F. Supp. 2d 827, 846 (S.D. Tex. 2010); *Cell-Site Info.*, 736 F. Supp. 2d at 595–96; Hutchins, *supra* note 10, at 452; Otterberg, *supra* note 36, at 704.

²⁶² See *Maynard*, 615 F.3d at 557–58.

²⁶³ See *Knotts*, 460 U.S. at 281, 284; *Maynard*, 615 F.3d at 557; Hutchins, *supra* note 10, at 454.

²⁶⁴ See *Knotts*, 460 U.S. at 281, 284; *Maynard*, 615 F.3d at 558; Hutchins, *supra* note 10, at 454.

monitoring would defy societal norms.²⁶⁵ Advanced surveillance technology intrudes upon what has historically been considered a "private enclave," and has increased awareness of the importance of privacy.²⁶⁶ Surveillance technology no longer merely supplants or enhances human capabilities.²⁶⁷ Instead, technological development has given rise to completely new methods of surveillance that far exceeds human capabilities.²⁶⁸ These enhanced forms of surveillance track an individual's daily life for as long as they are used by law enforcement.²⁶⁹ Additionally, because devices are monitored remotely, sometimes from offices worldwide, law enforcement agents no longer need to be nearby receiving a signal through a transmitter.²⁷⁰ This allows law enforcement to conduct indefinite surveillance.²⁷¹ The information law enforcement is able to obtain as a result provides a full and detailed account of an individual's life.²⁷² In this way, technology has provided the government the means to enact the once mythical Orwellian State, and current Supreme Court Fourth Amendment jurisprudence allows this to go unchecked.²⁷³

State courts on the other hand have been more attuned to the pace at which surveillance technology has and continues to progress.²⁷⁴ Through "new federalism," these courts have provided greater protection to individual liberties than federal courts.²⁷⁵ Where they saw Supreme Court precedent lacking, States have turned to their own state constitutions.²⁷⁶ Unwilling to analogize current forms of surveillance technology with the beeper in *Knotts*, States have adopted their own, more modern standards which more effectively protect a person's reasonable expectation of privacy.²⁷⁷ In so doing, state court decisions and

²⁶⁵ See *Maynard*, 615 F.3d at 564; *People v. Weaver*, 909 N.E.2d 1195, 1203 (N.Y. 2009) (finding the warrantless use of tracking devices inconsistent with the protection afforded by their state constitutions); see also *infra* notes 274–278 and accompanying text.

²⁶⁶ See *Maynard*, 615 F.3d at 565; *Cell-Site Info.*, 736 F. Supp. 2d at 594.

²⁶⁷ See *Maynard*, 615 F.3d at 565; Koppel, *supra* note 115, at 1085.

²⁶⁸ See *Maynard*, 615 F.3d at 565; *Cell-Site Info.*, 736 F. Supp. 2d at 583–84.

²⁶⁹ See *Maynard*, 615 F.3d at 563; *Weaver*, 909 N.E.2d at 1199.

²⁷⁰ See *Maynard*, 615 F.3d at 565; *Weaver*, 909 N.E.2d at 1199.

²⁷¹ See *Maynard*, 615 F.3d at 565; *Weaver*, 909 N.E.2d at 1199.

²⁷² See *Maynard*, 615 F.3d at 562; *Cell-Site Info.*, 736 F. Supp. 2d at 590; *Weaver*, 909 N.E.2d at 1199.

²⁷³ See *White*, 401 U.S. at 770 (Harlan, J., dissenting); *Maynard*, 615 F.3d at 563; *Weaver*, 909 N.E.2d at 1200.

²⁷⁴ See *Weaver*, 909 N.E.2d at 1203; *State v. Jackson*, 76 P.3d 217, 230–31 (Wash. 2003).

²⁷⁵ See *Weaver*, 909 N.E.2d at 1203; *Jackson*, 76 P.3d at 230–31; Abrahamson, *supra* note 124, at 1153.

²⁷⁶ See *Commonwealth v. Connolly*, 913 N.E.2d 356, 369 (Mass. 2009); *Weaver*, 909 N.E.2d at 1202; Abrahamson, *supra* note 124, at 1153.

²⁷⁷ See *Weaver*, 909 N.E.2d at 1202; Friedelbaum, *supra* note 127, at 491–92.

subsequent state legislation have been responsive to what society is prepared to recognize as a reasonable expectation of privacy.²⁷⁸

B. *The Maynard "Intimate Picture" Approach*

For the Fourth Amendment to effectively protect against unreasonable searches and seizures, there must be a limit to the amount of information that the State, without demonstrating probable cause, can obtain regarding the long-term whereabouts of an individual while in public.²⁷⁹ *Maynard's* "intimate picture" approach identifies and addresses an appropriate limit on warrantless technological surveillance.²⁸⁰ This analysis properly departs from the Supreme Court's focus on whether a specific surveillance technology merely enhances law enforcement's physical capability to conduct a similar form of surveillance.²⁸¹ Focusing on this issue, the Court has generally concluded that where technology merely enhanced law enforcement's physical capability, like the beeper used in *Knotts*, there is no search under the Fourth Amendment.²⁸² This focus, however, does not adequately protect an individual's reasonable expectation of privacy because almost all technological surveillance methods "enhance" law enforcement's ability to conduct surveillance in one way or another.²⁸³

In contrast, the "intimate picture" doctrine, by focusing on actual and constructive exposure to the public, can protect one's reasonable expectation of privacy in movements over a prolonged period of time.²⁸⁴ One has a reasonable expectation of privacy when the information obtained through surveillance technology creates an "intimate picture" of everyday life.²⁸⁵ An "intimate picture" is created when surveillance provides prolonged, continuous, detailed information about an individual that is neither actually nor constructively exposed to the public.²⁸⁶ The whole of a person's movements over a prolonged period

²⁷⁸ See *Maynard*, 615 F.3d at 564; *Weaver*, 909 N.E.2d at 1203; *Jackson*, 76 P.3d at 230–31.

²⁷⁹ See *White*, 401 U.S. at 756 (Douglas, J., dissenting); *Maynard*, 615 F.3d at 568; *Cell-Site Info.*, 736 F. Supp. 2d at 596.

²⁸⁰ See *Maynard*, 615 F.3d at 563; *Cell Site Data*, 747 F. Supp. 2d at 840; *Cell-Site Info.*, 736 F. Supp. 2d at 584.

²⁸¹ See *Knotts*, 460 U.S. at 282; *Maynard*, 615 F.3d at 565.

²⁸² See *Knotts*, 460 U.S. at 282; *Maynard*, 615 F.3d at 565.

²⁸³ See *Kyllo*, 533 U.S. at 33–34; *Knotts*, 460 U.S. at 282.

²⁸⁴ See *Maynard*, 615 F.3d at 563.

²⁸⁵ *Id.*; see *Cell-Site Info.*, 736 F. Supp. 2d at 590; Hutchins, *supra* note 10, at 455–56; Otterberg, *supra* note 36, at 697.

²⁸⁶ See *Maynard*, 615 F.3d at 562–63; *Cell-Site Info.*, 736 F. Supp. 2d at 584; Hutchins, *supra* note 10, at 455–56; Otterberg, *supra* note 36, at 697.

is "not actually exposed to the public because the chance that a stranger would observe all of these movements is not just remote, it is essentially nil."²⁸⁷ Additionally, these movements are not constructively exposed because surveillance of the whole of one's movements over time reveals a different kind of information than would short-term surveillance of any isolated movement.²⁸⁸ Prolonged surveillance creates a mosaic of location-based data points that, when pieced together and analyzed, provides a detailed window into one's private life.²⁸⁹

Maynard recognized that Fourth Amendment protections must square themselves with technology and cannot be thwarted by mere technicalities.²⁹⁰ The fact that someone leaves the privacy of the home and enters the public arena does not automatically strip that individual of a constitutionally protected right to privacy.²⁹¹ Privacy still exists in public.²⁹² The distinction between short-term surveillance and long-term surveillance is crucial.²⁹³ For example, an individual in public might reasonably expect someone to monitor movements from point A to point B and any stops in between, and thereby lacks a reasonable expectation of privacy in that movement.²⁹⁴ That same individual, however, would have a reasonable expectation of privacy over a prolonged period because it is not reasonably expected that someone could monitor movements twenty-four hours a day for weeks or months.²⁹⁵ In fact, prolonged use of surveillance technology is inconsistent with even the *slightest* reasonable expectation of privacy.²⁹⁶ Surveillance that provides an "intimate picture" of one's life should constitute a search under the Fourth Amendment and thus should require probable cause and a search warrant, in keeping with constitutional principles.²⁹⁷

C. *New Precedent for the Twenty-First Century*

Because it properly addresses privacy concerns over prolonged government surveillance, courts should apply a *Maynard* analysis to

²⁸⁷ *Maynard*, 615 F.3d at 560.

²⁸⁸ *Id.* at 562.

²⁸⁹ *Id.*; see *Cell-Site Info.*, 736 F. Supp. 2d at 590.

²⁹⁰ See 615 F.3d at 565; *Cell-Site Info.*, 736 F. Supp. 2d at 584.

²⁹¹ Otterberg, *supra* note 36, at 686–87; Tomkovicz, *supra* note 3, at 432; see *Prouse*, 440 U.S. at 662; *Katz*, 389 U.S. at 351.

²⁹² Tomkovicz, *supra* note 3, at 432; see *Prouse*, 440 U.S. at 662; *Katz*, 389 U.S. at 351–52.

²⁹³ See *Knotts*, 460 U.S. at 283–84; *Maynard*, 615 F.3d at 556–57.

²⁹⁴ See *Knotts*, 460 U.S. at 281.

²⁹⁵ See *Maynard*, 615 F.3d at 563.

²⁹⁶ *Weaver*, 909 N.E.2d at 1201.

²⁹⁷ See *Maynard*, 615 F.3d at 568; *Cell-Site Info.*, 736 F. Supp. 2d at 596.

other forms of prolonged surveillance technology that enable law enforcement to paint an “intimate picture” of an individual’s life.²⁹⁸ For example, government requests for prolonged cell-site data should undergo an “intimate picture” analysis in deciding whether such requests should be subject to a required probable cause showing.²⁹⁹ As *Application of the U.S. for an Order Authorizing Release of Historical Cell-Site Information* shows, the development of law enforcement’s use of cell-site data to track individuals has far surpassed Supreme Court precedent.³⁰⁰ Prolonged use of cell-site data, both prospective and historical, creates an even more intimate picture of an individual’s everyday life than GPS automobile surveillance.³⁰¹ Because cell phones are generally carried on or near the person, they enable law enforcement to obtain comprehensive locational information about an individual, not merely the whereabouts of a vehicle.³⁰² Cell-site data collected over a long period of time and showing the precise locational information allows law enforcement to paint a detailed picture, which includes not only where an individual walks and drives, but also what stores and even doctors are visited, as well as other personal information about which people have reasonable expectations of privacy.³⁰³

A cell phone user has a reasonable expectation of privacy in cell-site location information because the user does not voluntarily convey cell-site data to the cellular service provider in any meaningful way.³⁰⁴ Instead, cell-site data is automatically conveyed to the cellular service provider before then being provided to the government.³⁰⁵ When a cell phone user carries a phone all day, every day, that user has a reasonable expectation that precise location is not being monitored.³⁰⁶ To find otherwise would force consumers to pay a higher price for using cell phones—the additional cost of sacrificing their locational privacy.³⁰⁷

²⁹⁸ See *Maynard*, 615 F.3d at 563; *Cell Site Data*, 747 F. Supp. 2d at 846; *Cell-Site Info.*, 736 F. Supp. 2d at 590.

²⁹⁹ See *Cell Site Data*, 747 F. Supp. 2d at 846; *Cell-Site Info.*, 736 F. Supp. 2d at 590.

³⁰⁰ See 736 F. Supp. 2d at 581.

³⁰¹ *Cell Site Data*, 747 F. Supp. 2d at 840; *Cell-Site Info.*, 736 F. Supp. 2d at 590; see Samuel, *supra* note 200, at 1344.

³⁰² See *Knotts*, 460 U.S. at 285; *Cell Site Data*, 747 F. Supp. 2d at 840; *Cell-Site Info.*, 736 F. Supp. 2d at 590; Samuel, *supra* note 200, at 1344.

³⁰³ See *Cell Site Data*, 747 F. Supp. 2d at 839; *Cell-Site Info.*, 736 F. Supp. 2d at 590.

³⁰⁴ *Cell Site Data*, 747 F. Supp. 2d at 844; *Cell-Site Info.*, 736 F. Supp. 2d at 588–89; see also Chamberlain, *supra* note 19, at 1786.

³⁰⁵ *Cell Site Data*, 747 F. Supp. 2d at 844; *Cell-Site Info.*, 736 F. Supp. 2d at 588.

³⁰⁶ See *Cell Site Data*, 747 F. Supp. 2d at 844; *Cell-Site Info.*, 736 F. Supp. 2d at 594.

³⁰⁷ See *Cell Site Data*, 747 F. Supp. 2d at 844; McLaughlin, *supra* note 19, at 442.

This is not to say, however, that any use of surveillance technology constitutes a search under the Fourth Amendment.³⁰⁸ Law enforcement has a legitimate need to investigate and prevent crime, and surveillance should be used by police to allow them to do so.³⁰⁹ Yet, courts have a responsibility to keep "certain items, locations, and/or pieces of information beyond the reach of [the] government . . ."³¹⁰ To do so, courts need to fully examine the facts presented in each case to determine whether the use of surveillance technology paints an "intimate picture."³¹¹ For example, surveillance used intermittently to locate or to monitor an individual's movements does not provide law enforcement with the kind of data necessary to paint an "intimate picture" of one's private affairs.³¹² Neither does short-term, continuous surveillance.³¹³ But, prolonged use of surveillance that allows law enforcement to piece together enough information about an individual's public movements to paint an "intimate picture" defeats a reasonable expectation of privacy.³¹⁴ Although each individual movement may itself have been in public view, taken together, the totality of these movements is neither actually nor constructively exposed to the public and thus requires constitutional protection.³¹⁵ Therefore, the continuous and prolonged use of invasive forms of surveillance should only be allowed on a sufficient showing of probable cause.³¹⁶

Adopting an "intimate picture" approach to Fourth Amendment jurisprudence will be a challenge.³¹⁷ "Intimate picture" jurisprudence will have to evolve over time.³¹⁸ Determining whether or not the government's use of surveillance technology creates an "intimate picture" could result in wide-spread litigation in the early stages of the test's

³⁰⁸ See *Sparks*, 750 F. Supp. 2d at 395 (finding that the information received over eleven days of continuous GPS tracking was used to initiate visual surveillance of the defendant's vehicle and not to paint a picture of the defendant's behavior as did law enforcement in *Maynard*).

³⁰⁹ See *Simmons*, *supra* note 1, at 1323.

³¹⁰ *Id.*

³¹¹ See *Maynard*, 615 F.3d at 566; *Sparks*, 750 F. Supp. 2d at 395.

³¹² See *Knotts*, 460 U.S. at 285; *Maynard*, 615 F.3d at 563; *Sparks*, 750 F. Supp. 2d at 395.

³¹³ See *Knotts*, 460 U.S. at 285; *Maynard*, 615 F.3d at 563; *Hutchins*, *supra* note 10, at 455.

³¹⁴ See *Maynard*, 615 F.3d at 563.

³¹⁵ *Id.* at 558; *Cell Site Data*, 747 F. Supp. 2d at 846; *Cell-Site Info.*, 736 F. Supp. 2d at 596.

³¹⁶ See *Maynard*, 615 F.3d at 568; *Cell Site Data*, 747 F. Supp. 2d at 846; *Cell-Site Info.*, 736 F. Supp. 2d at 596.

³¹⁷ *Kerr*, *supra* note 22, at 868–69 (noting the hurdles courts face in resolving how the Fourth Amendment applies to new technologies).

³¹⁸ See *Maynard*, 615 F.3d at 566; *Kerr*, *supra* note 22, at 868–69.

use.³¹⁹ Courts will be required to identify, based on the facts of each case, whether law enforcement's use of surveillance was so comprehensive and invasive as to reveal an "intimate picture" of an individual defendant's life.³²⁰ This, however, will not drastically change the way courts conduct Fourth Amendment analysis.³²¹ Each case that raises a Fourth Amendment issue is decided on its own facts and "not by extravagant generalizations."³²² Initially, courts will be challenged to ensure that their decisions do not amount to unguided discretionary rulings, but sound Fourth Amendment jurisprudence.³²³ Defendants seeking to suppress evidence by raising claims that the use of surveillance against them amounted to a Fourth Amendment search will bear the burden of showing that the information revealed by the surveillance was constitutionally protected.³²⁴ Over time, however, courts will refine the definition of an "intimate picture" and be able to provide clear guidance regarding constitutionally protected information.³²⁵ In turn, this will provide law enforcement with clear guidelines as to the conditions and length of time they can permissibly use surveillance technology to monitor an individual's whereabouts without a warrant.³²⁶ Law enforcement officers who seek prolonged surveillance should be required to document their reasons for doing so in a warrant application and submit the application for judicial review.³²⁷

CONCLUSION

Law enforcement's ability to conduct investigations and individuals' liberty are often competing interests. When technology provides law enforcement the ability to perform surveillance at a level that otherwise would be physically impossible, individual liberties generally suffer. Although law enforcement should not be forced to turn a blind eye to emerging technologies, it is important that law enforcement's interests do not swallow individual liberty interests. Surveillance technology

³¹⁹ See *Dow Chem. Co. v. United States*, 476 U.S. 227, 238 n.5 (1986); *Maynard*, 615 F.3d at 566; *Sparks*, 747 F. Supp. 2d at 395.

³²⁰ See *Maynard*, 615 F.3d at 566; *Hutchins*, *supra* note 10, at 455.

³²¹ See *Dow Chem. Co.*, 476 U.S. at 238 n.5; *Knotts*, 460 U.S. at 284–85; *Maynard*, 615 F.3d at 566.

³²² See *Dow Chem. Co.*, 476 U.S. at 238 n.5.

³²³ See *Maynard*, 615 F.3d at 566; *Kerr*, *supra* note 22, at 883.

³²⁴ See *Hutchins*, *supra* note 10, at 455, 457.

³²⁵ See *Kerr*, *supra* note 22, at 883.

³²⁶ See *Maynard*, 615 F.3d at 566; *Sparks*, 750 F. Supp. 2d at 395; *Kerr*, *supra* note 22, at 883–84.

³²⁷ See *Slobogin*, *supra* note 53, at 436.

has outpaced corresponding Supreme Court Fourth Amendment precedent. As a result, the precedent that exists to deal with surveillance technology's infringement on personal privacy is inadequate. Now that the D.C. Circuit, in *Maynard*, has split with other circuit courts regarding the constitutionality of warrantless GPS surveillance, and other courts have followed suit, it is crucial that the Supreme Court establish clear precedent that properly addresses what society deems a reasonable expectation of privacy. Failing to address this growing concern now will permit more frequent and larger scale invasions of privacy to go unchecked. An individual has a reasonable expectation of privacy in his whereabouts over a prolonged period of time since such information is neither actually nor constructively exposed. Therefore, the government should be required to obtain a warrant before employing technology to obtain this information.

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