Notes

Pole Cameras: Applying Fourth Amendment Protections to Emerging Surveillance Technology

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Evolving surveillance technologies present unique challenges for the judiciary to maintain robust Fourth Amendment privacy protections. New surveillance tools such as pole cameras raise significant questions regarding the current scope of the Fourth Amendment and the steps the Supreme Court must take to prevent the erosion of a foundational constitutional right.

This Note lays out the current debate among scholars and courts regarding the impact of the Supreme Court's decision in Carpenter v. United States*. It demonstrates the challenge that new technology presents by providing an overview of the split between state and federal circuit courts in applying* Carpenter *to warrantless pole camera surveillance. The Note provides a detailed analysis of the legal reasoning of both perspectives, with a particular focus on the overlapping considerations that courts have focused on in their decisionmaking. Finally, this Note offers a new framework, adapting the* Katz v. United States *test by utilizing these overlapping considerations, to ensure that Fourth Amendment privacy protections remain stanch against the advancement of surveillance technology.*

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INTRODUCTION

In recent cases, the Supreme Court has expanded Fourth Amendment protections to include the whole of an individual's movement in public places. However, the Court's narrow holdings have not restricted a common practice among law enforcement agencies—namely, conducting unwarranted surveillance of private homes using pole cameras placed in public places. The underlying rationale of the Court's decisions protecting citizens from unwarranted surveillance applies to many other forms of rapidly developing technologies, naturally begetting important questions regarding Fourth Amendment protections. Building on its recent decisions, the Supreme Court should expand Fourth Amendment rights to protect citizens from unreasonable and unwarranted surveillance of homes by cameras placed in the public sphere. Specifically, courts should analyze three factors to determine whether society is willing to recognize an expectation of privacy as reasonable: (1) the area surveilled, (2) the scope of information gathered, and (3) the retrospective quality of the information.

The Supreme Court's decision in *Carpenter v. United States* has led to conflicting decisions among federal and state courts concerning its application to the government's use of pole cameras under the Fourth Amendment. In *Carpenter*, the Supreme Court held that law enforcement needed to obtain a search warrant supported by probable cause to acquire cell site location information (CSLI) from a wireless carrier.[1] Circuit courts have interpreted *Carpenter* narrowly, limiting the privacy interests of information exposed to third parties or the public to comprehensive surveillance methods such as global positioning systems (GPS) and CSLI.[2] Alternatively, some state courts have applied *Carpenter* more expansively to conventional surveillance tools like pole cameras, arguing that the vast information about an individual's life that is collected through long-term surveillance of the home is consistent with the protections established in *Carpenter*.[3]

The unwarranted use of pole cameras by law enforcement to conduct long-term surveillance of private homes presents seminal Fourth Amendment issues that courts must grapple with as surveillance technology evolves and becomes increasingly ubiquitous in routine police investigations. *Carpenter* marked the Supreme Court's first step in considering the Fourth Amendment's protections in a case involving the pervasive reach of technology. However, the Court has yet to address how it will protect the area considered most sacred in Fourth Amendment jurisprudence: the home.

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1. Carpenter v. United States, 138 S. Ct. 2206, 2221 (2018).

2. *See, e.g.*, United States v. Tuggle, 4 F.4th 505, 525 (7th Cir. 2021), *cert. denied*, 142 S. Ct. 1107 (2022); United States v. Trice, 966 F.3d 506, 518 (6th Cir. 2020), *cert. denied*, 141 S. Ct. 1395 (2021).

3. *See, e.g.*, State v. Jones, 903 N.W.2d 101, 112 (S.D. 2017); People v. Tafoya, 494 P.3d 613, 620–21 (Colo. 2021).

This Note proceeds as follows. Part I provides a background of recent jurisprudence regarding Fourth Amendment "searches" and their application to modern surveillance technology. Part II presents a case study of court decisions concerning the constitutionality of law enforcement's use of pole cameras to conduct long-term warrantless surveillance of homes. Finally, Part III presents a new framework, adapting the test set forth by the Supreme Court in *Katz v. United States*, that would strengthen the Fourth Amendment's protection of citizens' privacy rights in their homes from evolving surveillance technology.

I. BACKGROUND

A. THE FOURTH AMENDMENT

The Fourth Amendment protects "[t]he right of the people to be secure in their persons, houses, papers and effects, against unreasonable searches and seizures."[4] The current consensus is that a search occurs when the government intrudes on an area where a person has a constitutionally protected "reasonable expectation of privacy."[5] Initially, the Fourth Amendment protected citizens from the government obtaining "information by physically intruding on a constitutionally protected area."[6] However, in *Katz*, the Supreme Court established that "the Fourth Amendment protects people, not places," and expanded the conception of the Fourth Amendment to include certain expectations of privacy. *Katz* introduced a two-part test.[7] The first part considers whether the individual has manifested a subjective expectation of privacy in the area searched.[8] The second part evaluates whether society is willing to recognize that expectation of privacy as reasonable.[9] The Supreme Court has highlighted the importance of the Fourth Amendment's role in protecting an individual's privacy in the home.[10] This protection extends to curtilage, the area "immediately surrounding and associated with the home."[11] In *Katz*, the Court noted that a person can have no reasonable expectation of privacy in what he knowingly exposes to the public.[12] However, the Court also indicated that things an individual may seek to preserve as private may be protected, even if those things are in an area accessible to the public.[13]

4. U.S. CONST. amend. IV.
5. Katz v. United States, 389 U.S. 347, 361 (1967) (Harlan, J., concurring).
6. United States v. Jones, 565 U.S. 400, 406 n.3 (2012).
7. 389 U.S. at 361 (Harlan, J., concurring).
8. *Id.*
9. *Id.*
10. *See, e.g.*, Florida v. Jardines, 569 U.S. 1, 6 (2013) ("[W]hen it comes to the Fourth Amendment, the home is first among equals.").
11. *Id.*
12. 389 U.S. at 351.
13. *See* Carpenter v. United States, 138 S. Ct. 2206, 2209 (2018).

B. THE FOURTH AMENDMENT & MODERN SURVEILLANCE TECHNOLOGY

Rapidly developing technologies have posed a significant challenge for courts in determining whether a search has taken place within the meaning of the Fourth Amendment. In *Katz*, the Supreme Court held that the petitioner had an expectation of privacy while using a public telephone booth, and that the police's use of an electronic listening and recording device violated the petitioner's Fourth Amendment rights.[14] This decision widely expanded Fourth Amendment protections and famously noted that the Fourth Amendment "protects people, not places," a significant step toward protecting citizens from surveillance technologies in areas where they demonstrate a reasonable expectation of privacy.[15] The Court then applied the reasonable expectation of privacy test in *California v. Ciraolo*, holding that the use of a private plane to search a suspect's backyard did not violate the Fourth Amendment.[16] The Court distinguished *Katz*—where technology made it possible to listen to a conversation that would otherwise remain private—from the officer in *Ciraolo*, who viewed a backyard with his naked eye while flying over the property in a plane.[17]

The Supreme Court's landmark decision in *Kyllo v. United States* also provided important safeguards against increasingly pervasive surveillance technology.[18] Unlike the Court's decision in *Katz*, the *Kyllo* Court grappled with the impact of developing technologies on law enforcement's ability to surveil the home.[19] The case involved a Drug Enforcement Agency officer's use of thermal imaging equipment to scan the petitioner's home.[20] The agent used the device to determine whether the amount of heat emanating from the petitioner's home indicated the presence of high-intensity heat lamps used to grow marijuana indoors.[21] In ruling that the warrantless search violated the Fourth Amendment, the Court stressed that thermal imaging equipment could reveal information about lawful activity conducted within the home, and that the equipment used by the police was not generally available to the public.[22] *Kyllo* established a clear standard for courts to apply regarding the use of technology to search a person's home—specifically, that any searches with a device not in general public use revealing previously unknowable details about the home are beyond the scope of the Fourth Amendment.[23]

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14. 389 U.S. at 359.
15. *Id.* at 351.
16. 476 U.S. 207, 225 (1986).
17. *Id.* at 215.
18. 533 U.S. 27, 29 (2001).
19. *Id.* at 29–30.
20. *Id.* at 29.
21. *Id.* at 30.
22. *Id.* at 40.
23. Alayna Holmstrom, *Big Brother Isn't Watching: How* State v. Jones *Transformed What One Can See with a Naked Eye into a Fourth Amendment Search*, 63 S.D. L. REV. 450, 463 (2018).

However, the *Kyllo* Court did not consider how quickly technological advancements would become available for general public use. For example, given that high-powered thermal imaging devices are now sold and available for public use, the Court could arrive at a different decision if confronted with the facts of *Kyllo* today. The emergence of drones poses a similar challenge. Drones can record photos and videos and are now widely used by both the police and the public. Law enforcement could potentially use these devices to observe the curtilage, backyard, or rooftops of private homes with relative ease, and with far less planning than hiring a private plane, as in *Ciraolo*. While *Kyllo* took a necessary step in the right direction to protect the home, its holding only provides limited safeguards against the threat of advancing technology to privacy rights.

Then, in *United States v. Jones*, the Court ruled that the warrantless tracking of a person's movement utilizing a GPS tracking device violated the Fourth Amendment.[24] The Court's opinion, authored by Justice Scalia, applied a property-based approach, noting that the government's actions constituted a search because the police trespassed and physically occupied the defendant's private property in order to obtain the information.[25] However, the concurring opinions of Justice Sotomayor and Justice Alito provide key insights into how the Court might adapt Fourth Amendment protections to new technology. Justice Sotomayor's concurrence criticized the majority opinion for being too narrow, arguing that the government's warrantless use of a GPS device violated a person's expectation of privacy.[26] Justice Sotomayor focused on the retrospective quality and wealth of information collected by the government, emphasizing that the technology made available information that was previously unknowable.[27] Justice Alito's concurrence similarly criticized the majority opinion's narrow holding, but focused instead on the important societal expectations set by the Court's precedent in *Katz*.[28] His concurrence further noted that "[t]raditional surveillance for any extended period of time was difficult and costly and therefore rarely undertaken."[29] Justice Alito then reasoned that recording every single movement of an individual's vehicle for a long period of time violated modern society's expectation of privacy.[30]

The Court's decision in *Carpenter* provides insights into its evolving view of Fourth Amendment protections. There, the Court's majority opinion incorporated the reasoning of Justice Alito and Sotomayor's respective concurrences in *Jones*, formulating a new test: namely, that individuals have a

24. 565 U.S. 400, 402, 413 (2012).
25. *Id.* at 404–05.
26. *Id.* at 414 (Sotomayor, J., concurring).
27. *Id.* at 415.
28. *Id.* at 419 (Alito, J., concurring).
29. *Id.* at 429.
30. *Id.* at 430.

legitimate expectation of privacy in the whole of their movements.[31] Applying the same underlying rationale in *Jones*, the Court held that law enforcement's use of CSLI records from the defendant's wireless carriers over a four-month period violated the Fourth Amendment.[32] First, the Court declined to extend its existing precedents, holding that a person does not have a legitimate expectation of privacy in any information turned over to a third-party through new technologies such as the generation of CLSI.[33] Second, the Court evoked its reasoning in *Jones* when it emphasized that "a person does not surrender all Fourth Amendment protection by venturing into the public sphere."[34] By invoking the reasoning of the concurrences in *Jones* and making clear that prior precedent would not always apply to evolving technology, *Carpenter* set an important benchmark for future Fourth Amendment cases involving novel technologies. Most notably, it created a clear distinction between short-term surveillance and traditional law enforcement techniques prior to the digital age, and extensive tracking that would not be possible for law enforcement without recently developed, invasive technological instruments.[35]

C. FOURTH AMENDMENT PROTECTIONS AFTER *CARPENTER*

Diverging views have emerged over *Carpenter*'s scope and its application to other surveillance technology. Narrower interpretations have focused on the specific type of technology at issue in *Carpenter* and *Jones*, location tracking, which provides a wealth of data regarding a subject's geolocation. These decisions generally highlight that *Carpenter* was a "narrow" decision that did not call into question "conventional surveillance techniques and tools, such as security cameras."[36] Alternatively, courts adopting a broader interpretation of *Carpenter* have focused on the decision's expansion of the Fourth Amendment's protection of citizens' locational information and privacy from novel technologies, "regardless whether those movements were disclosed to the public at large."[37] In holding that the government needed a warrant to obtain information about an individual's location from a third party, the Court directly cited Justice Alito's concurrence in *Jones*, which expressed that long-term monitoring of a person's physical movements impinges on an expectation of privacy.[38] Some courts have highlighted this language to suggest that *Carpenter*

31. Carpenter v. United States, 138 S. Ct. 2206, 2217 (2018).

32. *Id.* at 2223.

33. *Id.* at 2220.

34. *Id.* at 2217.

35. *Id.*

36. *Id.* at 2220. *See* United States v. Tuggle, 4 F.4th 505, 526 (7th Cir. 2021), *cert. denied*, 142 S. Ct. 1107 (2022); *see also* United States v. Trice, 966 F.3d 506, 516 (6th Cir. 2020), *cert. denied*, 141 S. Ct. 1395 (2021); United States v. Moore-Bush, 36 F.4th 320, 344–45 (1st Cir.) (Barron, Thompson & Kayatta, JJ., concurring), *petition for cert. filed sub nom.*, Moore v. United States, No. 22-481 (Nov. 18, 2022).

37. *Carpenter*, 138 S. Ct. at 2215.

38. United States v. Jones, 565 U.S. 400, 418–19 (Alito, J., concurring).

is in fact a broader decision than initially thought and marked a sea change in Fourth Amendment jurisprudence and new, invasive technology.[39]

On the other hand, some scholars have argued that both of the concurrences in *Jones* reflect the mosaic theory and signal that the Court may be ready to adopt some form of it.[40] The mosaic theory seeks to expand the protections of the Fourth Amendment by considering whether the collective sequence of government activity as an aggregated whole—even though each act may be individually lawful—can still amount to a search.[41] The theory directly implicates situations such as the one in *Jones*, where the government's GPS tracking was a concern in both concurrences because the tracking was conducted over twenty-eight days. While neither concurrence explicitly mentions nor adopts the mosaic theory, their consideration of the entirety of the government's actions over twenty-eight days certainly evokes the underlying principle of that theory.

The Supreme Court has yet to address the broader issue of how the Fourth Amendment should be applied in cases involving surveillance technology and its potential abuses by law enforcement. In this absence, lower courts have grappled with the use of new surveillance instruments, or even conventional surveillance tools that have been fundamentally transformed through technological advancements. Such advancements present a threat to privacy rights.[42]

D. THE IMPACT OF SURVEILLANCE TECHNOLOGY ON POLICING AND PRIVACY

The technological revolution has permeated most industries in the twenty-first century, and law enforcement is no exception. The rapid development of surveillance technology has fundamentally altered policing and law enforcement's capability to conduct detailed and in-depth investigations before acquiring a warrant.[43] In the past, police made important capacity decisions in employing surveillance resources because it required great manpower to surveil an individual or area.[44] However, the development of new tools like cameras, GPS, social media tracking, and other technologies has virtually removed these constraints and created a cheap and efficient way for officers to comprehensively track the activities and movements of individuals.[45] Moreover, the incorporation of artificial intelligence into existing and new surveillance tools has only further enhanced law enforcement's ability to conduct widespread investigations and

39. *See Tuggle*, 4 F.4th at 519; *Trice*, 966 F.3d at 518; *Moore-Bush*, 36 F.4th at 357.

40. *See, e.g.*, Robert Fairbanks, *Masterpiece or Mess: The Mosaic Theory of the Fourth Amendment Post-*Carpenter, 26 BERKELEY J. CRIM. L. 71, 100 (2021).

41. Orin S. Kerr, *The Mosaic Theory of the Fourth Amendment*, 111 MICH. L. REV. 311, 320 (2012).

42. *See Tuggle*, 4 F.4th at 510; *see also Trice*, 966 F.3d at 514; *Moore-Bush*, 36 F.4th at 360.

43. Elizabeth E. Joh, *Artificial Intelligence and Policing: Hints in the* Carpenter *Decision*, 16 OHIO ST. J. CRIM. L. 281, 285 (2018).

44. *Id.* at 284–85.

45. *Id.* at 285.

collect a wealth of citizen data.[46] For example, police departments have recently started using automatic license plate readers (ALPRs) that transform any camera, such as security cameras or police body-worn cameras, into an analytical tool that can scan and identify vehicle license plates.[47] The license plates can then be matched against "hot lists" of license plates for parking violations and even delinquent property taxes.[48] Because this data is collected in public places, it does not trigger any Fourth Amendment protections under existing doctrine.

Moreover, the technology at issue in *Carpenter*, CSLI, also incorporates aspects of artificial intelligence.[49] *Carpenter*'s recognition that the tracking was inexpensive, easy, and efficient was a central consideration in the Court's decision to extend Fourth Amendment protection to geolocation data, even when it is acquired from a third party.[50] But the Court stopped short of addressing broader privacy issues that have emerged from technological innovation, meaning that Fourth Amendment rights are still scarce once a citizen enters the public sphere or exposes any personal information to the public.

II. A CASE STUDY: POLE CAMERAS AND THE FOURTH AMENDMENT

Pole cameras provide a fascinating case study of the impact of *Jones* and *Carpenter* on the application of Fourth Amendment doctrine to new technologies. Surveillance cameras have become increasingly affordable, and therefore an invaluable investigative instrument for police departments across the United States.[51] Over time, these cameras have developed more sophisticated features such as zooming, panning, recording, and conducting long-term surveillance of suspects.[52] The use of pole cameras placed on public property to observe homes has been the subject of litigation for many years, and has often provided important insight into the application of constitutional protections from law enforcement.[53] Pole cameras provide a particularly interesting case study for analyzing the current state of Fourth Amendment protections. Law enforcement routinely uses pole cameras to observe private homes, a practice that has triggered a series of state and federal cases regarding the constitutionality of their long-term warrantless use. This is particularly pertinent as the technological

46. Elizabeth E. Joh, *The New Surveillance Discretion: Automated Suspicion, Big Data, and Policing*, 10 HARV. L. & POL'Y REV. 15, 25 (2016).

47. *Id.* at 22.

48. *Id.*

49. Joh, *supra* note 43, at 288.

50. *Id.* at 287 ("*Carpenter* recognizes, perhaps more so than any other Supreme Court decision, that dramatic technological changes will rewrite the Fourth Amendment's constraints on the government's powers.").

51. Joh, *supra* note 46, at 22.

52. Joh, *supra* note 43, at 283.

53. United States v. Bucci, 582 F.3d 108, 116 (1st Cir. 2009); United States v. Houston, 813 F.3d 282, 288 (6th Cir. 2016); United States v. Vankesteren, 553 F.3d 286, 291 (4th Cir. 2009); United States v. Gonzalez, 328 F.3d 543, 548 (9th Cir. 2003).

revolution has resulted in the ubiquitous use of surveillance cameras by police departments across the country.[54] Artificial intelligence has enhanced the utility of cameras, with the use of facial recognition and other invasive features becoming increasingly common.[55] An analysis of federal and state cases on this issue both pre- and post-*Carpenter* demonstrates the challenge that new technologies present while also highlighting the critical need for clarity to guide lower courts.

A. POLE CAMERA JURISPRUDENCE PRIOR TO *CARPENTER*

Prior to the Court's decision in *Carpenter*, courts generally approved the warrantless use of pole cameras to surveil an individual's home, consistent with the precedent set in *Kyllo*.[56] Circuit courts have generally held that this type of surveillance does not require a warrant and is protected under *Katz*'s holding that there is no reasonable expectation of privacy in anything an individual knowingly exposes to the public.[57]

The First and Sixth Circuits upheld the warrantless use of pole cameras to surveil homes in *United States v. Bucci* and *United States v. Houston*, respectively.[58] In *Bucci*, the police placed a camera in a fixed location and monitored a suspect's driveway and garage door for eight months.[59] The First Circuit applied the *Katz* test and ruled that Bucci had failed to establish either a subjective or objective expectation of privacy, focusing on the fact that Bucci had knowingly exposed his front yard to the public and taken no steps to shield it from the public gaze.[60] Similarly, the Sixth Circuit ruled in *Houston* that the government's use of a pole camera to record movements within the curtilage of a home for ten weeks did not violate the suspect's Fourth Amendment rights.[61] Decided just prior to *Carpenter*, *Houston* emphasized that the length of the surveillance did not affect whether the use of the pole camera was unconstitutional because it is possible for law enforcement to conduct long-term

54. *See generally* Note, *In the Face of Danger: Facial Recognition and the Limits of Privacy Law*, 120 HARV. L. REV. 1870 (2007); *see also* David Davies, *Surveillance and Local Police: How Technology Is Evolving Faster Than Regulation*, NPR (Jan. 27, 2021, 12:51 PM), https://www.npr.org/2021/01/27/961103187/surveillance-and-local-police-how-technology-is-evolving-faster-than-regulation; NANCY G. LA VIGNE, SAMANTHA S. LOWRY, JOSHUA A. MARKMAN & ALLISON M. DWYER, EVALUATING THE USE OF PUBLIC SURVEILLANCE CAMERAS FOR CRIME CONTROL AND PREVENTION (2011), https://cops.usdoj.gov/RIC/Publications/cops-w0614-pub.pdf.

55. Davies, *supra* note 54.

56. Kyllo v. United States, 533 U.S. 27, 40 (2001) ("Where, as here, the Government uses a device that is not in general public use, to explore details of the home that would previously have been unknowable without physical intrusion, the surveillance is a 'search' and is presumptively unreasonable without a warrant.").

57. *Bucci*, 582 F.3d at 116; *Houston*, 813 F.3d at 288; *Vankesteren*, 553 F.3d at 291; *Gonzalez*, 328 F.3d at 548.

58. *Bucci*, 582 F.3d at 116; *Houston*, 813 F.3d at 288.

59. *Bucci*, 582 F.3d at 116.

60. *Id.*

61. *Houston*, 813 F.3d at 289.

live surveillance.[62] It is important to note that this rationale lies squarely in conflict with Justice Sotomayor and Justice Alito's concurrences in *Jones*, whose reasoning was woven into *Carpenter*.[63] The length of police surveillance was a key factor in both concurrences.[64] Moreover, both concurrences rejected the notion that law enforcement could replicate the comprehensive surveillance made possible by technology, noting that police officers were subject to limitations like fatigue and imprecise memory.[65]

In contrast, the Fifth Circuit in *United States v. Cuevas-Sanchez* held that a two-month warrantless surveillance of a suspect using a pole camera ran afoul of the Fourth Amendment.[66] *Cuevas-Sanchez* differed slightly from *Bucci* and *Houston* in that the homeowner there had erected a ten-foot fence to prevent the public from peering into their backyard.[67] The court rejected the government's argument that because a power company worker on top of the pole or a police officer on top of a truck could look into the suspect's backyard, the respondent did not have a reasonable expectation of privacy in their backyard.[68] This is directly in contrast with the Sixth Circuit's reasoning in *Houston*, which emphasized the possibility that police could replicate pole camera surveillance with traditional surveillance methods.[69] The Fifth Circuit also squarely rejected the idea that pole camera surveillance was similar to the observations from an overhead flight upheld in *Ciraolo*.[70] The court distinguished a minimally intrusive, one-time overhead flight from a camera that recorded twenty-four hours a day for two months.[71] The court noted that this type of warrantless surveillance by the government provoked "an immediate negative visceral reaction" that raised the "spectre of the Orwellian state."[72] While the *Cuevas-Sanchez* decision was a minority position prior to *Carpenter*, the Fifth Circuit's consideration of societal expectations and practical take on the limits of live police surveillance was astute, and something that would be mirrored in *Jones* and *Carpenter* decades later.

B. POLE CAMERA JURISPRUDENCE POST-*CARPENTER*

The Supreme Court's decisions in *Jones* and *Carpenter* have led to an interesting divergence of Fourth Amendment case law among circuit, district, and state courts.

62. *Id.*
63. Carpenter v. United States, 138 S. Ct. 2206, 2215 (2018).
64. United States v. Jones, 565 U.S. 400, 415 (2012) (Sotomayor, J., concurring); *id.* at 419 (Alito, J., concurring).
65. *Id.* at 415 (Sotomayor, J., concurring); *id.* at 429 (Alito, J., concurring).
66. United States v. Cuevas-Sanchez, 821 F.2d 248, 251 (5th Cir. 1987).
67. *Id.*
68. *Id.*
69. United States v. Houston, 813 F.3d 282, 288 (6th Cir. 2016).
70. *Cuevas-Sanchez*, 821 F.2d at 250–51.
71. *Id.*
72. *Id.* at 251.

The Colorado and South Dakota Supreme Courts, and a district court within the First Circuit, have all suppressed pole camera surveillance evidence by applying a broader view of the Supreme Court's decisions in *Jones* and *Carpenter*.[73] In *State v. Jones*, the South Dakota Supreme Court upheld the suppression of evidence where law enforcement used a pole camera to record the defendant's activities outside their home for two months.[74] Similar to the Fifth Circuit in *Cuevas-Sanchez*, the court rejected the government's argument that an officer or detective could have observed the defendant's home and collected the same information.[75] Instead, the court highlighted that the camera was able to capture something not exposed to the public or observed by officers—namely, the aggregated information of all of the defendant's coming and goings from the home, which included visitors, vehicles, deliveries, and other personal habits.[76] The court likened the level of information collected by long-term camera surveillance to the wealth of information collected by GPS that could reveal political, professional, religious, and familial associations that raised concern in the U.S. Supreme Court's decision in *Jones*.[77] Accordingly, the South Dakota Supreme Court held that the defendant had both a subjective and objective expectation of privacy from the long-term surveillance of their home, and that the warrantless search violated the Fourth Amendment.[78]

Similarly, in *People v. Tafoya*, the Colorado Supreme Court upheld the suppression of evidence gathered from three months of pole camera surveillance.[79] The court's opinion stressed that the ability to zoom, pan, and tilt the camera enhanced the police's surveillance and was central in gathering evidence that the defendant was involved in the distribution of illegal narcotics.[80] The court also considered the vantage point on the defendant's backyard, and the police's ability to record and review the footage.[81] The backyard was only slightly visible from the stairway in a neighboring property through small gaps in the fence protecting it.[82] Applying *Carpenter*, the court reasoned that because Tafoya sought to preserve his backyard as private, any minor exposure to the public did not diminish his expectation of privacy.[83]

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73. People v. Tafoya, 494 P.3d 613, 622–24 (Colo. 2021); State v. Jones, 903 N.W.2d 101, 111–12 (S.D. 2017); United States v. Moore-Bush, 381 F. Supp. 3d 139, 150 (D. Mass. 2019), *rev'd*, 963 F.3d 29 (1st Cir. 2020), *and vacated and reh'g granted*, 982 F.3d 50 (1st Cir. 2020), *and rev'd per curiam*, 36 F.4th 320 (1st Cir. 2022), *petition for cert. filed sub nom.*, Moore v. United States, No. 22-481 (Nov. 18, 2022).

74. *Jones*, 903 N.W.2d at 113.

75. *Id.* at 110.

76. *Id.* at 111.

77. *Id.* at 112.

78. *Id.* at 111, 113.

79. People v. Tafoya, 494 P.3d 613, 623–24 (Colo. 2021).

80. *Id.* at 622.

81. *Id.*

82. *Id.* at 615.

83. *Id.* at 619–22.

Three federal circuit courts have considered whether cameras placed in a public location implicate Fourth Amendment protections post-*Carpenter*.[84] In *United States v. Trice*, the Sixth Circuit held that the warrantless surveillance of a suspect's apartment door in a publicly accessible hallway did not implicate the Fourth Amendment.[85] The camera recorded two to three minutes of footage whenever anyone entered or exited the apartment and captured footage inside the suspect's apartment when the door was left open.[86] The Sixth Circuit held that the suspect had no reasonable expectation of privacy because the camera only captured images visible from a "public vantage point" that was accessible to police officers.[87]

While *Trice* was a relatively conventional application of *Katz*, other circuits have provided more nuanced views. In *United States v. Tuggle*, the Seventh Circuit determined that the government's warrantless surveillance of a suspect's home for nineteen months using three pole cameras was lawful.[88] The cameras captured only the exterior of the suspect's home, and agents had the ability to remotely zoom, pan, and tilt the camera while viewing the footage in real time.[89] The footage was also stored so that agents could review it at any time.[90] The Seventh Circuit held that the use of pole cameras, even with their advanced capabilities, was distinguishable from the invasive technologies the Supreme Court ruled against in *Carpenter* and *Jones*.[91] The court interpreted *Carpenter* and *Jones* narrowly, reading those holdings as limited to comprehensive location-tracking technology such as GPS and the generation of CSLI.[92] Interestingly, the Seventh Circuit based its reasoning on Tuggle not having a reasonable expectation of privacy against pole camera surveillance because his front yard was visible and exposed to the public.[93] The court went out of its way to emphasize that its reasoning was not based on the theory that the government could have obtained the same information by stationing an agent outside Tuggle's home, a rationale applied by the other courts upholding pole camera surveillance discussed earlier. The Seventh Circuit did note, however, that the eighteen-month investigation was "concerning, even if permissible," but

84. *See* United States v. Tuggle, 4 F.4th 505 (7th Cir. 2021), *cert. denied*, 142 S. Ct. 1107 (2022); United States v. Trice, 966 F.3d 506 (6th Cir. 2020), *cert. denied*, 141 S. Ct. 1395 (2021); United States v. Moore-Bush, 963 F.3d 29 (1st Cir.), *vacated and reh'g en banc granted*, 982 F.3d 50 (1st Cir. 2020), *and rev'd per curiam*, 36 F.4th 320 (1st Cir. 2022), *petition for cert. filed sub nom.*, Moore v. United States, No. 22-481 (Nov. 18, 2022).

85. *Trice*, 966 F.3d at 520.

86. *Id.* at 510.

87. *Id.* at 516.

88. *Tuggle*, 4 F.4th at 529.

89. *Id.* at 511.

90. *Id.*

91. *Id.* at 524.

92. *Id.* at 525.

93. *Id.* at 514.

concluded that drawing its own line risked "violating Supreme Court precedent and interfering with Congress's policy-making function."[94]

Perhaps the most intriguing Fourth Amendment case post-*Carpenter* is one from the First Circuit. In *United States v. Moore-Bush*, a federal district court in the First Circuit suppressed pole camera evidence, holding that *Carpenter* had expanded Fourth Amendment protections and that the respondents "had an objectively reasonable expectation of privacy in their and their guests' activities around the front of the house for a continuous eight-month period."[95] The case involved the surveillance of defendant Nia Moore-Bush, who was investigated for the illegal sale of firearms by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF).[96] The ATF placed a camera on top of a utility pole and observed Moore-Bush's residence for approximately eight months.[97] The pole camera was operational twenty-four hours a day and only recorded what surveillance officers could see from the street.[98] In its decision, the district court focused on four factors: "(1) continuous video recording for approximately eight months; (2) focus on the driveway and front of the house; (3) the ability to zoom and read license plate numbers; and (4) the creation of a digitally searchable log."[99] Moreover, the court read *Carpenter* as incorporating the *Jones* concurrences, and reasoned that the protection of individuals from long-term surveillance in public spaces recognized in those concurrences applied with equal force in the home, which is afforded special status in Fourth Amendment jurisprudence.[100] Therefore, the court held that the government's use of pole cameras at issue violated the Fourth Amendment.[101]

Reversing the district court's decision, the First Circuit ruled that the suppression of evidence based on the district court's reading of *Carpenter* was unsubstantiated and violated stare decisis.[102] The court's decision stated that the Supreme Court's ruling in *Carpenter* was "narrow" and did not change "any part of the Court's existing Fourth Amendment framework involving the lack of Fourth Amendment protection for places a defendant knowingly exposes to public view" recognized and applied in *Ciraolo* and *Katz*.[103]

94. *Id.* at 526.

95. United States v. Moore-Bush, 381 F. Supp. 3d 139, 146 (D. Mass. 2019), *rev'd*, 963 F.3d 29 (1st Cir. 2020), *and vacated and reh'g en banc granted*, 982 F.3d 50 (1st Cir. 2020), *and rev'd per curiam*, 36 F.4th 320 (1st Cir. 2022), *petition for cert. filed sub nom.*, Moore v. United States, No. 22-481 (Nov. 18, 2022).

96. United States v. Moore-Bush, 963 F.3d 29, 32 (1st Cir.), *vacated and reh'g en banc granted*, 982 F.3d 50 (1st Cir. 2020), *and rev'd per curiam*, 36 F.4th 320 (1st Cir. 2022), *petition for cert. filed sub nom.*, Moore v. United States, No. 22-481 (Nov. 18, 2022).

97. *Id.* at 32–34.

98. *Id.* at 33.

99. *Id.* at 36.

100. *Moore-Bush*, 381 F. Supp. 3d at 147–49.

101. *Id.* at 150.

102. *Moore-Bush*, 963 F.3d at 31.

103. *Id.* at 41; *see also* Carpenter v. United States, 138 S. Ct. 2206, 2220 (2018).

However, the First Circuit's reversal was vacated for rehearing en banc.[104] In a per curiam decision, the First Circuit reversed the district court's decision and granted the motion to suppress pole camera evidence.[105] However, the two concurring opinions were sharply split and capture the burgeoning divide on this issue. Chief Judge Barron authored a concurrence joined by two other judges concluding that the government's actions failed the *Katz* test and constituted a search under the Fourth Amendment.[106] Importantly, Chief Judge Barron rejected the government's analogy to *Ciraolo* and analyzed the defendants' expectation of privacy in the totality of their movements and activities within the curtilage of their home.[107] The Chief Judge relied on the Supreme Court's reasoning in *Carpenter* and reasoned that "the exposure of the aggregate of all visible activities occurring over a substantial period in front of one's home may disclose—by revealing patterns of movements and visits over time—what the exposure of each discrete activity in and of itself cannot."[108] On the other hand, the joint concurrence by Judges Lynch, Howard, and Gelpi criticized the Chief Judge's broad reading of *Carpenter*, and emphasized that the Supreme Court's decision in *Carpenter* did not address "conventional technologies like pole cameras."[109]

C. ADDRESSING THE DIVIDE: DID *CARPENTER* EXPAND FOURTH AMENDMENT PROTECTIONS TO VIDEO SURVEILLANCE?

Diverging court decisions regarding pole cameras after *Carpenter* raise important questions about the decision's scope. As noted earlier, various courts have highlighted different aspects of the decision to justify both broad and narrow readings, with a striking divergence between state and federal circuit courts in interpreting *Carpenter* in the context of warrantless pole camera surveillance. However, it is very unlikely that the Supreme Court intended *Carpenter* to create a watershed change in Fourth Amendment jurisprudence. The Court was careful to tailor its language to the specific concerns present with CSLI and noted that its holding does not call into question other conventional surveillance tools.[110]

104. United States v. Moore-Bush, 982 F.3d 50 (1st Cir. 2020), *rev'd per curiam*, 36 F.4th 320 (1st Cir. 2022), *petition for cert. filed sub nom.*, Moore v. United States, No. 22-481 (Nov. 18, 2022).

105. United States v. Moore-Bush, 36 F.4th 320 (1st Cir. 2022) (per curiam), *rev'g* 381 F. Supp. 3d 139 (D. Mass. 2019), *petition for cert. filed sub nom.*, Moore v. United States, No. 22-481 (Nov. 18, 2022).

106. *Id.* at 321–22 (Barron, J., concurring).

107. *Id.* at 332.

108. *Id.* at 336.

109. *Id.* at 363 (Lynch, J., concurring).

110. Carpenter v. United States, 138 S. Ct. 2206, 2220 (2018).

1. The Supreme Court's Decision in Carpenter *Did Not Expand Fourth Amendment Protection to Pole Cameras.*

While the underlying principles of *Carpenter* may provide grounds for the Court to expand Fourth Amendment protections in the future, *Carpenter*, as written, is a narrow decision that did not undermine any other of the Court's precedents used by lower courts to uphold the constitutionality of warrantless pole camera surveillance from public places.[111] The Court's holding highlighted that a reasonable expectation of privacy in CSLI in the hands of a third party did not apply to "conventional surveillance techniques and tools, such as security cameras."[112] The issue of whether "pole cameras are the same as security cameras is irrelevant because the cameras [in *Carpenter*] would clearly qualify as a conventional surveillance technique."[113] This may leave open the possibility that courts could deny an application for the use of a pole camera upon determining that the camera does not constitute a conventional surveillance technique. Given the rapid developments in surveillance technology, courts will need to carefully consider if future cameras equipped with more invasive features can still be considered a conventional surveillance technique. However, as it stands, the Court's holding in *Carpenter* remains narrow, with only a minor carveout for CSLI data, and does not displace other established Fourth Amendment principles.[114]

2. The Technologies at Issue in Jones *and* Carpenter *Are Distinguishable.*

Additionally, *Carpenter* did not expand a reasonable expectation of privacy in the type of movements captured by pole camera surveillance. There, the Court stressed that "individuals have a reasonable expectation of privacy in the whole of their physical movements."[115] This has been the foundation for state court decisions post-*Carpenter*, holding that the warrantless use of a pole camera to surveil a suspect's activities violates the Fourth Amendment.[116] However, there are some important distinctions between the type of surveillance the Supreme Court grappled with in both *Jones* and *Carpenter*. In both cases, the Justices expressed concern over surveillance that captures a "precise, comprehensive record of a person's public movements that reflects a wealth of detail about [their] familial, political, professional, religious and sexual associations."[117] While long-term surveillance of a person's home indeed reveals information

111. *See id.*

112. *Id.*

113. United States v. Tuggle, 4 F.4th 505, 526 (7th Cir. 2021), *cert. denied*, 142 S. Ct. 1107 (2022).

114. *Carpenter*, 138 S. Ct. at 2210.

115. *Id.* at 2217.

116. *See* State v. Jones, 903 N.W.2d 101, 115 (S.D. 2017); People v. Tafoya, 494 P.3d 613, 622–24 (Colo. 2021).

117. *See* United States v. Jones, 565 U.S. 400, 415 (2012) (Sotomayor, J., concurring); *Carpenter*, 138 S. Ct. at 2217.

about a person's familial, political, religious, professional, and sexual associations, it does not offer the kind of comprehensive record that can be obtained from either GPS or CSLI data.[118] It is important to note that the special protections conferred upon the home do not apply in the context of pole cameras, because pole cameras do not generally capture information from within the home and focus on the limited movements of individuals entering and exiting their homes.[119] Moreover, pole cameras are placed in a singular location and capture only the details of a person's life that occur within the area immediately surrounding their home.[120] On the other hand, GPS or CSLI surveillance tracks, with near exactness, all movements of a suspect.[121] Given that the technologies the Court was concerned with in *Carpenter* and *Jones* were primarily about comprehensive geolocation tracking, it would be dubious to argue that the Court intended to expand Fourth Amendment protections to other types of surveillance technologies without broad tracking capacity. The reasonable expectation of privacy in an individual's movements does not extend to pole camera surveillance because of the clear distinction that can be drawn between the significantly different levels of information offered by pole camera surveillance and the type of surveillance considered in *Carpenter*.

III. MODERNIZING FOURTH AMENDMENT PROTECTION: LEARNING FROM POLE CAMERA JURISPRUDENCE

The Supreme Court's decision in *Carpenter* has left Fourth Amendment jurisprudence in a curious position, as lower courts grapple with the scope of its broader implications on other technology. While *Carpenter* may be a narrow decision that does not alter the state of broader Fourth Amendment doctrine, its underlying rationale of providing protections to certain types of information that are revealed to the public has naturally led to questions regarding its applicability to other types of technological surveillance. As it stands, there are a few potential routes for the Supreme Court to address such questions.

First, the Court could simply maintain the status quo, leaving the current *Katz* and *Kyllo* standards intact with very narrow exceptions carved out in *Jones* and *Carpenter*. The technologies at issue in *Jones* and *Carpenter*—GPS and the generation of CSLI—are unique enough that the exceptions may be justified as necessary exemptions to an otherwise consistent standard.

Second, the Court may look to the numerous decisions considering warrantless pole camera surveillance both pre- and post-*Carpenter* for a framework for adapting Fourth Amendment protections to the twenty-first century. Cases about the warrantless surveillance of homes have highlighted several overlapping considerations that were also discussed in both *Jones* and

118. *See Jones*, 565 U.S. at 415 (Sotomayor, J., concurring); *Carpenter*, 138 S. Ct. at 2217.
119. United States v. Tuggle, 4 F.4th 505, 524 (7th Cir. 2021), *cert. denied*, 142 S. Ct. 1107 (2022).
120. *Id.*
121. *Carpenter*, 138 S. Ct. at 2218.

Carpenter. For example, while the *Cuevas-Sanchez* decision was certainly a small, minority position prior to *Carpenter*, the Fifth Circuit's consideration of societal expectations and practical take on the limits of live police surveillance was astute, and would be mirrored in *Jones* and *Carpenter* decades later. On the other hand, the Sixth Circuit in *Trice*, decided just prior to *Carpenter*, emphasized that the length of the surveillance did not affect whether the use of a pole camera was unconstitutional because it is possible for law enforcement to conduct long-term live surveillance.[122] Justice Sotomayor and Justice Alito's concurrences in *Jones* squarely rejected this rationale, and certain themes from those concurrences were then adopted in *Carpenter*.[123] The length of police surveillance was a key factor in both concurrences in *Jones*, rejecting the notion that law enforcement could replicate the comprehensive surveillance made possible by technology under the reasoning that police officers are subject to limitations such as fatigue and imprecise memory.[124] The Court could amend the second prong of the *Katz* test to consider factors identified in *Moore-Bush*, such as the area surveilled, the scope of the information gathered, and the retrospective quality of the information,[125] to provide clear guidance to lower courts that will strengthen Fourth Amendment protections from warrantless surveillance.

Lastly, some scholars have offered the mosaic theory as a potential solution addressing society's growing concern over law enforcement's surveillance power.[126] The mosaic theory expands Fourth Amendment protections by considering whether the collective sequence of government activity as an aggregated whole—even if isolated acts in the sequence are individually lawful—may still amount to a search.[127] While this would address situations such as the long-term use of a pole camera to surveil a home, it presents other key issues that seriously undermine its applicability as a feasible solution. The malleable nature of the theory that enables it to provide broad protections also has the potential to lead to wildly inconsistent results, providing different levels of protection to citizens and in some cases thwarting law enforcement's ability to conduct otherwise constitutional investigations of criminal activity.[128]

122. United States v. Trice, 966 F.3d 506, 519–20 (6th Cir. 2020), *cert. denied*, 141 S. Ct. 1395 (2021).

123. *Carpenter*, 138 S. Ct. at 2206.

124. United States v. Jones, 565 U.S. 400, 416 (2012) (Sotomayor, J., concurring); *id.* at 420 (Alito, J., concurring).

125. United States v. Moore-Bush, 963 F.3d 29, 36 (1st Cir.), *vacated and reh'g en banc granted*, 982 F.3d 50 (1st Cir. 2020), *and rev'd per curiam*, 36 F.4th 320 (1st Cir. 2022), *petition for cert. filed sub nom.*, Moore v. United States, No. 22-481 (Nov. 18, 2022).

126. Kerr, *supra* note 41, at 313–14.

127. *Id.* at 311.

128. See Part III.C for further discussion on the mosaic theory.

A. THE CASE FOR THE CURRENT STANDARD: A CLEAR AND OBJECTIVE STANDARD

The best argument in favor of the current standard established in *Katz* and *Ciraolo* is that it provides a consistent standard that protects Fourth Amendment privacy rights. Those holdings provide that there are privacy rights in information knowingly exposed to the public except as noted in *Jones* and *Carpenter*. Therefore, current precedent provides that if the camera is placed in a public place, there are no restrictions on the length of law enforcement surveillance.[129] This provides clarity for citizens, putting them on notice of the risk of exposing their private lives to the public, and can also thus ease the jobs of law enforcement. While the Seventh Circuit recently expressed concern over the protectiveness of the current standard and the implications of long-term pole camera surveillance, it ultimately concluded that it is up to the Supreme Court to draw the line on surveillance.[130] However, the Supreme Court recently denied certiorari in *Tuggle*,[131] suggesting that the Court may not be ready to move on from *Katz* and *Kyllo*. *Tuggle* involved long-term warrantless surveillance of a home and offered the Court an opportunity to clarify that *Carpenter* also applies to other forms of surveillance technology.[132] This inference from the Court's denial of certiorari is also supported by the narrow reading of *Carpenter* discussed above.[133]

B. A LONG-TERM SOLUTION TO ADDRESSING FOURTH AMENDMENT ISSUES WITH EMERGING TECHNOLOGY

The conflicting decisions among state and federal courts point to a clear problem with the current state of Fourth Amendment protections against technology-driven surveillance mechanisms. The current doctrine outlined in *Kyllo* provides hollow protections that will only be rendered more ineffective with time. *Kyllo*'s general public use rationale is flawed, because it does not account for the fact that rapid technological advancement will make surveillance tools inexpensive and ubiquitous.[134] As noted by the Seventh Circuit in *Tuggle*, once a type of technology becomes prevalent and society's expectations change to match the new reality, the Fourth Amendment no longer provides citizens any meaningful protection.[135] The development of cameras provides the perfect example of this phenomenon. Before their invention, citizens did not expect that their movements would be captured in a still or moving image. However, as

129. United States v. Tuggle, 4 F.4th 505, 526 (7th Cir. 2021), *cert. denied*, 142 S. Ct. 1107 (2022).

130. *Id.* ("Drawing our own line, however, risks violating Supreme Court precedent and interfering with Congress's policy-making function, which would exceed our mandate to apply the law.").

131. Tuggle v. United States, 142 S. Ct. 1107 (2022), *denying cert. to* 4 F.4th 505 (7th Cir. 2021).

132. *Tuggle*, 4 F.4th at 528–29.

133. *See* Carpenter v. United States, 138 S. Ct. 2206, 2220 (2018).

134. David Alan Sklansky, *Too Much Information: How Not To Think About Privacy and the Fourth Amendment*, 102 CALIF. L. REV. 1069, 1085 (2014).

135. *Tuggle*, 4 F.4th at 527.

cameras have become more sophisticated and inexpensive, the judicial view on society's expectations has shifted in response to technological developments that have given "the government . . . license under current Fourth Amendment jurisprudence to act with greater constitutional impunity."[136]

Fortunately, the circuit and state cases as well as the Supreme Court's own rulings already provide a remedy. The first prong of the *Katz* test, a subjective expectation of privacy, has generally not been contentious for most courts, which have found that citizens usually demonstrate a subjective expectation of privacy in their private property, particularly the home. However, it is the legal analysis of the second prong, whether society is willing to recognize that expectation as reasonable, on which the Supreme Court must provide more guidance to lower courts to ensure that Fourth Amendment protections do not erode in the face of technological advancement.

Building on its decisions in *Jones* and *Carpenter*, the Supreme Court should set out three factors for courts to consider when applying the *Katz* test to new surveillance technologies: (1) the location surveilled, (2) the scope of the information gathered, and (3) the retrospective quality of the information. All three factors supply important considerations that will protect privacy rights from the growing threat of surveillance technology.

The first factor, the area surveilled, will enable courts to extend protected areas that an individual seeks to "preserve as private," such as their home or the inside of a public phonebooth.[137] The rationale behind the first factor stems directly from the Court's decisions *Carpenter* and *Katz*, which stressed that law enforcement's actions constitute a search under the Fourth Amendment if the location from which information was gathered is one an individual regards as private.[138] Importantly, considering the area searched will ensure that conventional surveillance tools such as security cameras that capture individuals in public areas are not called into question, while more private areas such as the curtilage of the home are given greater protections even when they are exposed to the public. It is also important that the location of the information can be both physical or virtual, giving future courts the flexibility to apply Fourth Amendment protections in internet and data privacy contexts.

The second factor, analyzing the information gathered by the search, enables courts to evaluate the scope of the surveillance conducted to determine whether the Fourth Amendment is implicated. The consideration stems directly from Justice Sotomayor's concurrence in *Jones*, where she highlighted the importance of the "familial, political, professional, religious, and sexual associations" that can be revealed by long-term surveillance.[139] Other courts

136. *Id.*; *see also* Kerr, *supra* note 41, at 345.

137. *See Carpenter*, 138 S. Ct. at 2217. *See generally* Kyllo v. United States, 533 U.S. 27 (2001) (home); Katz v. United States, 389 U.S. 347 (1967) (phonebooth).

138. *Carpenter*, 138 S. Ct. at 2209; *Katz*, 389 U.S. at 351–52.

139. United States v. Jones, 565 U.S. 400, 415 (2012).

have also highlighted this aspect of Justice Sotomayor's concurrence as a key consideration in their Fourth Amendment analyses.[140] This factor could also involve considering the length of the search, which generally would directly impact the level of information collected. But length itself cannot be the benchmark, because the test needs to be flexible to adapt to the type of surveillance tool used. For example, consider two identical pole camera surveillance investigations that record all movements for a month, except that one camera is set to record only limited hours of the day and a few seconds at a time. While the length of both surveillance periods is the same, it would be illogical to equate them in a Fourth Amendment analysis, because they gather vastly different levels of information. While some may criticize this factor as overly broad, the judicial discretion here is justified because of the capabilities of ever-changing technology, which can be tailored to collect varying levels of information from the same type of investigation.

Finally, courts should also consider the retrospective quality of the information gathered by an investigation to determine whether a Fourth Amendment search has taken place. This consideration was key to the concurrences in *Jones* and the majority in *Carpenter*, because it greatly enhances law enforcement's investigative power.[141] The retrospective quality of GPS and CSLI tracking was central in the Supreme Court's decisions invalidating their warrantless use because it gave the government "access to a category of information otherwise unknowable."[142] Other courts that have suppressed long-term pole camera searches have similarly stressed law enforcement's ability to record, store, catalog, and revisit at any time all of the information collected as an important factor transforming an investigative process into a Fourth Amendment search.[143] Considering the retrospective nature of the information also allows courts to make a clear distinction between the limitations of a human officer conducting an investigation and the near limitless ability of technological surveillance.

The three factors combined will safeguard Fourth Amendment protections and provide lower courts with clear guidance in approaching novel surveillance technologies used by law enforcement. The test provides a standard that relies on factors that will be clearly ascertainable from the facts of each case. Moreover, it will provide constitutional safeguards against new forms of technology and address the gaping flaw left in the current standard set by *Kyllo*. Finally, it will also enable law enforcement to continue the vital service they

140. *See, e.g.*, People v. Tafoya, 494 P.3d 613, 620–23 (Colo. 2021); State v. Jones, 903 N.W.2d 101, 111–12 (S.D. 2017).

141. *Jones*, 565 U.S. at 415, 431; *Carpenter*, 138 S. Ct. at 2209.

142. *Jones*, 565 U.S. at 415.

143. *Tafoya*, 494 P.3d at 622; United States v. Moore-Bush, 381 F. Supp. 3d 139, 150 (D. Mass. 2019), *rev'd*, 963 F.3d 29 (1st Cir. 2020), *and vacated and reh'g en banc granted*, 982 F.3d 50 (1st Cir. 2020), *and rev'd per curiam*, 36 F.4th 320 (1st Cir. 2022), *petition for cert. filed sub nom.*, Moore v. United States, No. 22-481 (Nov. 18, 2022).

provide for their communities by only limiting their use of technology, rather than setting a strict standard that rules out such use altogether.

C. AN ALTERNATIVE PROPOSAL: THE MOSAIC THEORY

The mosaic theory offers another potential solution to addressing the emergence of pervasive surveillance technology. However, while it would address situations such as warrantless pole camera or drone surveillance, the theory has gaping flaws that are yet to be concretely addressed.[144] By considering collective sequences of government activity as an aggregated whole, the mosaic theory would enable courts to classify a series of uses of otherwise constitutional investigative tools as a "search" for the purposes of the Fourth Amendment.

The theory also presents other foundational issues that make its application by courts impractical. The theory's ambiguity presents the greatest challenge, as there is no clear indication or bright-line rule that can be adopted to understand at which point a series of surveillance becomes enough to violate the Fourth Amendment.[145] While this is a criticism that can be leveled at any totality of circumstances test, it is particularly an issue in the Fourth Amendment context because it could theoretically be applied to several different types of surveillance—some of which may be unquestionably constitutional. This is in contrast with the three-factor test proposed by this Note, which looks at each specific type of surveillance, creating clear parameters for courts to perform a balanced analysis. Additionally, the adoption of the mosaic theory would be a fundamental shift from decades of Fourth Amendment jurisprudence. The lack of a clear standard could also have a chilling effect on law enforcement's ability to investigate criminal activity and protect the public if it is unclear at what point an otherwise constitutional investigation turns into a search.[146] On the other hand, the three-factor test proposed by this Note could easily be adapted into the current *Katz* framework, creating only a minor shift for both courts and law enforcement. For example, under the proposed test, law enforcement would be on notice that if their surveillance included a combination of the collection of vast information, a search of a protected area, and retroactive data, then it would likely trigger a Fourth Amendment search.

Therefore, while the mosaic theory's underlying foundation of broadening how courts should analyze the constitutionality of investigations is correct in its spirit, the theory itself does not present a practicable standard for courts to apply.

144. Jace C. Gatewood, *District of Columbia* Jones *and the Mosaic Theory—in Search of a Public Right of Privacy: The Equilibrium Effect of the Mosaic Theory*, 92 NEB. L. REV. 504, 528 (2014).

145. *Id.*

146. *Id.* at 529.

CONCLUSION

The emergence of advanced surveillance technology that is increasingly inexpensive and efficient presents fundamental Fourth Amendment issues that have yet to be addressed by the Supreme Court. While the Court's decision in *Carpenter* was novel in extending protections to geolocation information shared with third parties, its holding left Fourth Amendment protections with regard to other technology largely unaddressed. As artificial intelligence transforms even conventional surveillance techniques like cameras into sophisticated tools, constitutional protections must be adapted to meet these advancements. The current privacy framework set forth in *Katz* can be amended to ensure that investigations like the long-term warrantless surveillance of private homes are analyzed as searches subject to the protections of the Fourth Amendment. An analysis of state, federal circuit, and Supreme Court case law reveals three factors that have consistently triggered Fourth Amendment protections: (1) the area surveilled, (2) the scope of the information gathered, and (3) the retrospective quality of the information. Considering these factors as part of the second prong of the *Katz* test—whether society is willing to recognize an expectation of privacy as reasonable—will provide a clear, relatively consistent, but flexible standard for courts to apply that can adapt to the privacy concerns associated with new surveillance technology. The alternative, the status quo, leaves society vulnerable to law enforcement's growing surveillance discretion, which will only amplify as artificial intelligence and investigative technology become increasingly universal.

* * *