IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
NORFOLK DIVISION

LEE SCHMIDT and CRYSTAL ARRINGTON, Plaintiffs, v. CITY OF NORFOLK and MARK TALBOT, in his official capacity as the Norfolk Chief of Police, Defendants.	Civil Case No. 2:24-cv-00621-MSD-LRL

PLAINTIFFS' REPLY IN SUPPORT OF THEIR MOTION FOR PARTIAL SUMMARY JUDGMENT

TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES

Page(s)

Cases

Other Authorities

INTRODUCTION

When the Fourth Amendment was adopted, "a central aim of the Framers was 'to place obstacles in the way of a too permeating police surveillance.'" *Carpenter v. United States*, 585 U.S. 296, 305 (2018) (citation omitted). In Norfolk today, ordinary people live under a suffocating atmosphere of surveillance. Day in and day out, for weeks on end, Norfolk's network of 176 Flock Cameras tracks and stores data on nearly every trip people take, creating a trove that can be mined for insights into patterns and routines. Plaintiffs have shown through expert analysis, deposition testimony, and abundant documentary evidence that the Flock Cameras enable NPD[1] to make deductions that reveal people's private routines. But Norfolk says that is not enough. In its view, only an *all* permeating police surveillance runs afoul of the Fourth Amendment.

No precedent sets the bar at that impossible height. Even surveillance technology with substantial gaps—like CSLI and aerial surveillance—can create a "too permeating police surveillance" by enabling police to draw deductions from otherwise unavailable records of people's movements. Norfolk's rhetoric breezes past the details of on-point precedents, and, in doing so, rehashes arguments higher courts have rejected. After correcting all of Norfolk's legal errors, one thing is clear: its warrantless use of the Flock Cameras is precisely the type of "too permeating police surveillance" the Fourth Amendment proscribes.

Surveillance that captures less than the literal "whole" of people's movements can violate the Fourth Amendment. Norfolk's contrary argument confuses two separate questions: (i) whether people have an expectation of privacy in the whole of their movements, and (ii) when surveillance *contravenes* that expectation of privacy. In *Carpenter*, for instance, the government argued that the surveillance placed the defendant only in a large area with myriad "establishments"—just like

[1] This brief uses the same defined terms used in Plaintiffs' opening brief.

Norfolk does here. But the Supreme Court rejected that argument because the "Government could, in combination with other information, deduce a detailed log of [the defendant's] movements." *Id.* at 312. In *Leaders of a Beautiful Struggle v. Baltimore Police Department*, aerial surveillance captured people as only "blurred dots," which were lost inside buildings and during twelve-hour blackouts every night. *See* 2 F. 4th 330, 334, 342 (4th Cir. 2021) (en banc). None of that mattered because people's movements are "so unique and habitual" that police could easily identify the "dots," and, from there, use "some deductive reasoning" and other surveillance tools to fill in the gaps. *Id.* at 343–44. Neither of these precedents requires the type of *all* permeating surveillance Norfolk demands. Instead, they draw a "line between short-term tracking of public movements—akin to what law enforcement could do prior to the digital age—and prolonged tracking that can reveal intimate details through habits and patterns." *Id.* at 341 (cleaned up).

With the proper framing, it is clear the Flock Cameras cross that line. Undisputed evidence proves they have the capacity to capture the vast majority of routes within the city and can "at least sometimes" enable police to reconstruct routes almost entirely. *Cf. id.* at 343. Aggregated over days and weeks, Flock data enable NPD to deduce people's routine, habitual movements. In response, Norfolk offers only a series of irrelevant statistics from its labor economics expert that say nothing about the Flock Cameras' surveillance capacity. It also complains that Plaintiffs have not shown that the Flock Cameras revealed every private detail of their lives. Again, the undisputed record shows it has the *capacity* to do so: Plaintiffs' expert was able to use the Flock data to identify when [redacted] Norfolk may not find these details exciting, but they are the types of "places, people, amusements, and chores that make up" most ordinary people's "private routine[s]." *Id.* at 345 (citation omitted).

Still, Norfolk dismisses all of this as speculation because Flock data do not follow people

literally everywhere they go. But that argument just invites the Court to "do[] exactly what the Supreme Court has admonished against" and "allow[] inference to insulate a search." *Id.* at 345. Indeed, Norfolk's arguments and demonstratives are virtually indistinguishable from those that failed to persuade the Supreme Court in *Carpenter*. *Compare* PX40 at 25–26, *with* DX9 at exs. 12, 14, 21 (PDF pp.70, 72, 79).[2] And its refrain that NPD has no way to know where people go after being photographed by a Flock Camera is the same argument *Beautiful Struggle* rejected. No less than the Baltimore Police Department, NPD can glean insights by combining Flock data with deductive reasoning, police information systems, and other surveillance tools. Despite Norfolk's insistence that the Flock data do not enable those insights, the undisputed record shows that NPD *has* used Flock data to reconstruct routes and infer suspects' destinations.

Norfolk is recycling the same arguments *Carpenter* and *Beautiful Struggle* rejected, and it should achieve the same result. The Court should grant Plaintiffs' motion.

ARGUMENT

I. Plaintiffs' subjective expectation of privacy is undisputed.

By failing to address it, Norfolk has conceded Plaintiffs' subjective expectation of privacy. *See Chhabra v. ACW N.J., Inc.*, 2024 WL 4101797, at *1 (E.D. Va. July 25, 2024). The Court should treat Plaintiffs' evidence as undisputed, Mot. 14–15, 20–22,[3] and enter summary judgment on this element, *see Nw. Mut. Life Ins. v. Atl. Rsch. Corp.*, 847 F. Supp. 389, 394 (E.D. Va. 1994). Thus, the only issue for the Court is whether Norfolk's operation of the Flock Cameras violates an objectively reasonable expectation of privacy, which Plaintiffs address below.

[2] "**PX**" refers to Plaintiffs' summary judgment exhibits, and "**DX**" to Norfolk's exhibits.

[3] "**Mot.**" refers to Plaintiffs' memorandum in support of their motion for summary judgment, Docs. 108, 111-1, 118; "**Def. Opp.**" to Norfolk's opposition to Plaintiffs' motion, Docs. 145, 149; and "**Pls. Opp.**" to Plaintiffs' opposition to Norfolk's motion for summary judgment, Docs. 140, 144.

II. There is no genuine dispute of material fact that Norfolk's use of the Flock Cameras contravenes a reasonable expectation of privacy in the whole of people's movements.

Norfolk's argument depends on a mistaken legal premise: that dragnet surveillance does not violate a reasonable expectation of privacy unless it tracks the literal "whole" of someone's movements. *Carpenter* and *Beautiful Struggle* both rejected that argument. Instead, those cases draw a line between short-term tracking and prolonged surveillance that reveals patterns and habits. With the right frame, it is clear that the Flock Cameras cross that line. Undisputed evidence shows they have the capacity to reveal patterns and habits through prolonged tracking. Norfolk latches onto gaps in the Flock Cameras' coverage, but, in doing so, it simply recycles arguments the Supreme Court and Fourth Circuit rejected. As a last ditch effort, it invites the Court to interpret non-binding rulings on motions to suppress as categorically holding that ALPR surveillance can never violate the Fourth Amendment, but the cases it cites do not support that aggressive argument.

A. Dragnet surveillance need not capture the literal "whole" of people's movements to invade a reasonable expectation of privacy.

Plaintiffs explained in their opening brief that surveillance technology invades a reasonable expectation of privacy when it reveals patterns and habits through prolonged tracking. *See* Mot. 16–19. Norfolk, by contrast, insists nothing short of directly capturing the literal "whole" of people's movements will do. Def. Opp. 12–15. That argument conflates two questions: (i) whether people have a reasonable expectation of privacy in the whole of their movements, with (ii) when government conduct *contravenes* that expectation of privacy. *See United States v. Moore-Bush*, 36 F.4th 320, 340 (1st Cir. 2022) (en banc) (Barron, C.J., concurring). Collapsing those two inquiries, as Norfolk does, would mean no surveillance technology short of an ankle monitor contravenes this expectation of privacy. That is not the law.

Beginning with *Kyllo v. United States*, the Supreme Court refused to allow the government to use technology to diminish traditional expectations of privacy. 533 U.S. 27 (2001). Applying

the *Katz* test, *see id.* at 34, it held that using thermal imaging to "capture[] only heat emanating from a house" was a Fourth Amendment search. *See id.* at 34–35. Obviously, that did not literally invade the home. *See id.* at 35–36. Nor did it directly reveal anything that went on inside the home, like "an 8-by-10 Kodak glossy." *See id.* at 36. Instead, the information required further "analysis (*i.e.*, the making of inferences)" to reveal anything meaningful. *Id.* Yet by enabling inferences about the inside of the home, thermal imaging had the potential to reduce the "degree of privacy against government that existed when the Fourth Amendment was adopted." *Id.* at 34–36; *see also id.* at 39 (rejecting dissent's proposed requirement that technology "offer[] the 'functional equivalent of actual presence in the area being searched'"). Put differently, using technology with the capacity to enable previously unavailable *inferences* about the inside of the home contravened an expectation of privacy, even though the technology did not *directly* reveal anything that went on inside the home.

Later, in *Carpenter*, the Supreme Court recognized "a reasonable expectation of privacy in the whole of [people's] physical movements," even if "those movements were disclosed to the public at large." 585 U.S. at 307, 310. The Court went on to hold that "[a]llowing government access to cell-site records *contravenes* that expectation." *Id.* at 311 (emphasis added). Like other troves of location information, "the time-stamped data provides an intimate window into a person's life." *Id.* Compared to traditional methods of location tracking, "cell phone tracking is remarkably easy, cheap, and efficient." *Id.* And, unlike those methods, "this newfound tracking capacity runs against everyone." *Id.* at 312. Still, the government insisted that CSLI was "actually as much as 12,500 times less accurate than GPS," only placed the defendant in "a 3.5 million square-foot to 100 million square-foot area," and required police to "rely on reasonable inferences or additional evidence . . . to develop proof of a defendant's movements." PX40 at 24 (cleaned up). Just like

Norfolk, the government emphasized that the cell-tower sector covering the crime scene "contain[ed] about 1000 buildings," including scores of "establishments." *Id.* at 25–26 & fig.2. Acknowledging as much, the Court held that those facts were immaterial because inference does not insulate a search. *Carpenter*, 585 U.S. at 312. With CSLI, "the Government could, in combination with other information, deduce a detailed log of [the defendant's] movements, including when he was at the site of the robberies." *Id.* Requiring a warrant to access this information, despite its shortcomings, thus fulfilled "a central aim of the Framers . . . 'to place obstacles in the way of a too permeating police surveillance.'" *Id.* at 305 (citation omitted).

"Three years later, [the Fourth Circuit] clarified the scope of *Carpenter*'s holding." *United States v. Chatrie*, 136 F.4th 100, 138 (4th Cir. 2025) (en banc) (Richardson, J., concurring). In *Beautiful Struggle*, it clarified that surveillance can contravene an expectation of privacy even when it falls short of the literal "whole" of people's movements. 2 F.4th at 341–46. Norfolk claims the aerial surveillance in that case "effectively covered an entire city" and "follow[ed]" people "beyond public thoroughfares and into private residences, doctor's offices, political headquarters, and other potentially revealing locales." Def. Opp. 16–17, 25–26 (citations omitted). But none of that is remotely true. Sure, the aerial surveillance captured "around 90% of the city each day, weather permitting." *Beautiful Struggle*, 2 F.4th at 334. There was no dispute, though, that it could not follow people into buildings or other covered areas. *Compare id.* at 341, *with id.* at 360 (Wilkinson, J., dissenting). Or that it left 12-hour, overnight gaps. *Compare id.* at 334, 342 (maj. op.), *with id.* at 360 (Wilkinson, J., dissenting). Or that it typically captured "shorter snippets of several hours or less" with longs gaps between. *Id.* at 342 (maj. op). Or that it depicted people and cars "only as blurred dots or blobs" that had to be tracked through a "labor-intensive process." *Id.* at 334, 345.

The Fourth Circuit's analysis belies Norfolk's claim that this surveillance was all-encompassing: most of the court's analysis focused on gaps in coverage. *Id.* at 342–45. As in *Carpenter*, those gaps did not matter because the court "consider[ed] not only the raw data, but what that data can reveal." *Id.* at 344. "[T]he insight provided by locational data into individuals' private lives is profound." *Id.* at 344 n.11 (cleaned up). People's movements "follow[] a relatively habitual pattern," so police can use "context clues" and inferences to identify people and fill in gaps. *Id.* at 343–44. And, "even more valuably," they can use their other surveillance tools to pick up the trail. *Id.* at 344. Piecing this information together and drawing inferences may have been "labor intensive." *See id.* at 345. But "the surveillance still surpassed ordinary expectations of law enforcement's capacity and provided *enough* information to deduce details from the whole of individuals' movements." *Id.* at 343 (emphasis added).

Norfolk is wrong that *Carpenter* and *Beautiful Struggle* require an "all-encompassing" or "encyclopedic" record that shows the literal "whole" of a person's movements. These cases instead draw a "line between short-term tracking of public movements—akin to what law enforcement could do prior to the digital age—and prolonged tracking that can reveal intimate details through habits and patterns." *Id.* at 341 (cleaned up). "The latter form of surveillance *invades* the reasonable expectation of privacy that individuals have in the whole of their movements and therefore requires a warrant." *Id.* (emphasis added).

B. Undisputed evidence shows the Flock Cameras have the capacity to enable inferences from the whole of people's public movements.

Using the right legal standard, the Flock Cameras enable Norfolk to deduce patterns and habits through prolonged tracking. Although Norfolk points to asserted gaps in the Flock Cameras' coverage, those are the same arguments *Carpenter* and *Beautiful Struggle* rejected because

inference does not insulate a search. Norfolk's host of purported factual disputes either misstate the record or the legal standard. In other words, there is no genuine dispute of material fact.

1. Undisputed evidence shows the Flock Cameras can reveal habits and patterns through prolonged tracking of public movements.

As Plaintiffs' opening brief explained, Mot. 20, the relevant question is "what [the] technology had the *capacity* to reveal, not what it *actually* revealed in the search at issue." *Chatrie*, 136 F.4th at 150 (Berner, J., concurring); *accord id.* at 123 n.8 (Wynn, J., concurring); *United States v. Smith*, 110 F.4th 817, 834 (5th Cir. 2024). Norfolk ignores this argument and, as a result, fails to identify any material evidence about the Flock Cameras' surveillance capacity. Instead, it wrongly claims Plaintiffs have not shown that the Flock cameras revealed specific "private" information about them and tries to rebut undisputed evidence of the Flock Cameras' capabilities with a series of irrelevant summary statistics. Def. Opp. 15–24. These efforts not only misunderstand the governing legal standard, they fail on their own terms.

Even if focusing on Plaintiffs were the proper frame, there is no genuine dispute that the Flock Cameras have the capacity to reveal Lee's and Crystal's habits and patterns. Each was captured *hundreds* of times in a few months, and Lee is likely to be captured even more since he just finished a brief retirement. PX29 ¶¶ 4–6. Norfolk complains these numbers include consecutive captures on the same camera, Def. Opp. 17, but even its own expert agreed that such captures could provide useful information (for instance, they stopped or were in traffic), PX34 at 116:19–119:2; PX36 at 14–15. And even he calculated that, on days Plaintiffs were captured, Lee was captured three or more times on 74 percent of days and Crystal on 72 percent of days. DX9, tbl.4 (PDF p.90). [redacted]

[redacted] In other words, he identified "patterns of movement and association."[4]

Norfolk complains these analyses did not exhaust every conceivable habit or routine that Plaintiffs might have. *See* Def. Opp. 15–16, 19–20, 23–24. But no precedent requires that. What matters is the Flock Cameras' surveillance *capacity*,[5] not whether they happened to turn up every shred of "private" or "intimate" information about a given person. "A search is a search, even if it happens to disclose nothing" private. *Arizona v. Hicks*, 480 U.S. 321, 325 (1987). Requiring a plaintiff—especially one seeking prospective relief—to show that surveillance picked up "intimate details" would be "wrong in principle" and "impractical in application" because no one can ever "know in advance whether" surveillance will pick up "intimate details." *Kyllo*, 533 U.S. at 38–39. Binding precedent already holds that "prolonged tracking . . . can reveal intimate details through habits and patterns." *Beautiful Struggle*, 2 F.4th at 341. Since "the source of the underlying location data is entirely irrelevant," *id.* at 343–44, that is not a proposition that must be reestablished in every successive case. As a matter of law, "the insight provided by locational data into individuals' private lives is profound." *Id.* at 344 n.11 (cleaned up). At bottom, Norfolk just disagrees with this precedent.[6] That aside, there is no dispute that the surveillance *did* reveal private details. Norfolk

[4] *Cf. HOA Perimeter Security*, Flock Safety (Aug. 22, 2025), http://bit.ly/4mJLKJ6 (Flock "data can help identify patterns of movement and association between vehicles").

[5] In *Beautiful Struggle*, for instance, there was just one example of multi-day tracking, but that was enough because it proved "the program's capabilities." 2 F.4th at 343 n.9.

[6] *Compare Beautiful Struggle*, 2 F.4th at 344 ("[I]dentity is easy to deduce from just a few random points of an individual's movements."), *with* PX34 at 126:19–127:2 (Norfolk's labor

may not find [redacted] exciting, but they are the same types of "places, people, amusements, and chores that make up" most ordinary people's "private routine[s]." *Beautiful Struggle*, 2 F.4th at 345 (citation omitted).

On the central issue in this case—the Flock Cameras' overall surveillance capacity—Norfolk identifies no material evidence. Instead, as Plaintiffs explained in their opening brief, the only record evidence shows that the Flock Cameras enable extensive surveillance across Norfolk. Mot. 22–26. To evaluate their capacity, Plaintiffs' expert, Dr. Higdon-Topaz, simulated over 15,000 routes within Norfolk. PX24 at 16–17, 26. For that, he used Hampton Roads Transportation Planning Organization data, Federal Highway Administration data, Norfolk's own zoning data, and a widely used commercial routing application. *Id.* at 8–10, 14–17. These data allowed him to create realistic routes with known starting and ending points modeled on real-world data and empirically validated assumptions. *Id.* He then assessed whether the routes passed a camera facing in the same direction of travel. *Id.* at 18–19.[7] About 79 percent of routes passed at least one camera and about 55 percent were "binary reconstructible," meaning they passed at least two cameras. *Id.* at 25, 27. Some routes could be reconstructed almost entirely. *Id.* at 30 (over 25% of routes were at least 70% reconstructible). In some areas of Norfolk, virtually the entirety of the average route was reconstructible. *Id.* at 31. This portion of Dr. Higdon-Topaz's analysis considered routes in isolation, but he also quantified the Flock Cameras' ability to track routine trips. People make 24 to 28 car trips per week on average, many of which are repeated and habitual. *Id.* at 34; *cf. Beautiful Struggle*, 2 F.4th at 343. The median cumulative probability that one or more of these unique routes

economist: "Q . . . Do you agree that identity is easy to deduce from just a few random points of location data? . . . A . . . [A]s a general proposition, I'll say no.").

[7] This was a conservative assumption because the Flock Cameras often capture cars from the front, as well. PX2 at 123:4–11, 124:8–17.

will be reconstructible is 99.4% across areas within the city. PX24 at 34–35.

Norfolk's criticisms of this analysis either ring hollow or else ignore the legal standard:

- Norfolk faults Plaintiffs' experts for not "address[ing] the *Carpenter* standard." Def. Opp. 20. Norfolk gets the standard wrong, though. *See* Section II(A) above. And whether the Flock Cameras contravene Plaintiffs' reasonable expectation of privacy in the whole of their movements is a legal conclusion on which Dr. Higdon-Topaz appropriately expresses no opinion. *See United States v. McIver*, 470 F.3d 550, 561–62 (4th Cir. 2006); PX36 at 2.
- Norfolk faults Dr. Higdon-Topaz for analyzing simulated routes with fixed starting and ending points. Def. Opp. 21. But simulation analysis is a "standard and widely utilized scientific practice." PX36 at 3. Simulation "uses a target with known features so the [Flock Cameras'] capability can be measured precisely." *Id.* at 4 (comparing this to using a known sample to assess the precision of a microscope). His simulation lets him limit his analysis to trips starting and ending in the City of Norfolk (where the Flock Cameras are), *id.* at 5, 16–17,[8] and assess the extent to which vehicles are *photographed*, not just the extent to which the Flock Cameras managed to read a full license plate.[9] This analysis simply quantifies the types of thought experiments courts routinely use to analyze the capabilities of surveillance technology. *Cf., e.g.*, *Beautiful Struggle*, 2 F.4th at 343 (hypothetical of tracking a person from a crime scene to a home); *Kyllo*, 533 U.S. at 38 (hypothetical lady of the house taking her daily bath).

[8] *Cf.* PX34 at 135:12–18, 136:12–22 (conceding that Norfolk's Flock data include trips that originated outside of Norfolk, ended outside of Norfolk, or both).

[9] By contrast, Norfolk's labor economics expert admitted (i) that he ignored "a large fraction"—"about half"—of Norfolk's Flock data because the entries did not include a license plate with four or more characters and (ii) that he did not try to match partial plates. PX34 at 43:16–44:6, 44:22–45:10, 122:3–125:13. One of Flock's key selling points is the ability to match captures of cars that are missing all or part of the license plate using Flock's Vehicle Fingerprint fields. PX2 at 71:13–20, 74:4–18; PX33 at -2998.

- Norfolk argues that Dr. Higdon-Topaz's analysis proves the Flock Cameras cannot track the whole of people's movements because some routes are not reconstructible or only partially reconstructible. Def. Opp. 21–22. But that glass-half-empty framing turns the analysis on its head. *Beautiful Struggle* focused on the capacity of the surveillance to "at least sometimes" track people over multiple days, 2 F.4th at 343 & n.9, even though it typically captured only daytime "snippets of several hours or less" (if that), *see id.* at 342.
- Norfolk claims "Dr. Higdon-Topaz's analysis does not show that Flock data reveal[] any private information" because a single route is not private. Def. Opp. 22. But his analysis was not limited to isolated routes: he showed that large percentages of trips to or from many parts of the city are reconstructible. PX24 at 28, 31. He also accounted for the fact that people drive a set of habitual routes many times per week. *Id.* at 34; *cf. Beautiful Struggle*, 2 F.4th at 343. Across the city, the likelihood that one or more of these habitual routes will be reconstructible is extremely high. PX24 at 35. Although people may not expect privacy in a single route, they do in repeated observations of habitual routes over time. *See* Pls. Opp. 15–17.

For its part, Norfolk's only effort to address the Flock Cameras' surveillance *capacity* is a series of irrelevant summary statistics. It tries to compress the 176 Flock Cameras to 75 "clusters." Def. Opp. 16. But clustering cameras allows NPD to collect additional information beyond cars' locations at specific moments in time—it shows which direction drivers traveled after moving through an intersection. *See* PX7 at 41:7–15, 100:8–101:5, 180:19–181:8, 190:22–191:8; 277:15–278:4; PX34 at 57:4–14, 59:17–60:9, 160:12–161:2. Norfolk then claims the Flock Cameras "cover" only a small fraction of the city's area and roads. Def. Opp. 16. These raw statistics say nothing about surveillance capabilities. *See* PX36 at 15–16. Flock Cameras on every street corner would still "cover" only a tiny fraction of Norfolk's area and roads, yet track drivers' movements

precisely. Although Norfolk compares these statistics to the 90% of Baltimore captured in *Beautiful Struggle*, Def. Opp. 17, that comparison elides that the aerial surveillance could not see through buildings or other coverings, *see* Section II(A) above. And people do not choose roads randomly. The Flock Cameras are in high-traffic areas where "most people do most of their [dri]ving," *cf. Beautiful Struggle*, 2 F.4th at 343, but the raw statistic of linear roadway "covered" does not account for traffic patterns, PX36 at 16.

In short, it is undisputed that the Flock Cameras have the capacity to reveal habits and patterns through prolonged tracking.

2. The gaps in the Flock Cameras' coverage do not matter because the Flock Cameras enable inferences from people's movements.

Because inference does not insulate a search, the Court must "consider not only the raw [Flock] data, but what that data can reveal." Mot. 26 (quoting *Beautiful Struggle*, 2 F.4th at 344). Norfolk insists that gaps in the Flock Cameras' coverage distinguish this case from *Carpenter* and *Beautiful Struggle*, since the cameras do not follow people or show their exact locations between captures. *See* Def. Opp. 16–20, 22–24. But those gaps are immaterial, and Norfolk's contrary argument seeks to relitigate *Carpenter* and *Beautiful Struggle*.

The gaps in the Flock Cameras' coverage are immaterial because the cameras still provide enough information to deduce a detailed log of people's movements. *See* Mot. 26–29. The technologies in *Carpenter* and *Beautiful Struggle* had "gaps in their coverage, too." *Beautiful Struggle*, 2 F.4th at 342. Compared to aerial surveillance, identity is much easier to "deduce" from Flock data. *See United States v. Sturdivant*, 786 F. Supp. 3d 1098, 1113 (N.D. Ohio 2025). From there, police can typically determine a driver's home address, PX6 at 24:4–22; PX7 at 199:8–15; PX35 at 65:5–17, where "many people start and end most days," *Beautiful Struggle*, 2 F.4th at 343; *cf.* PX7 at 196:1–6, 199:1–15 (NPD officers used Flock captures and registration information to

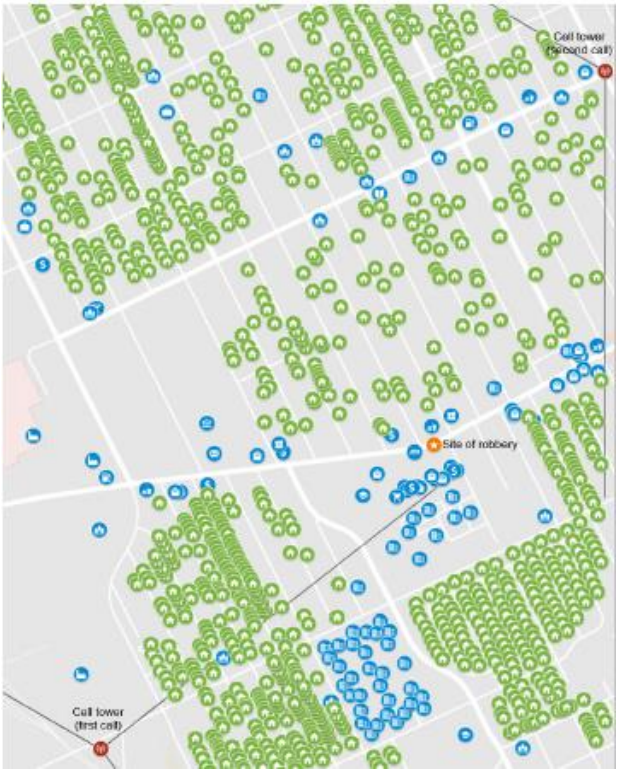
intercept a suspect at his home). They can look up relatives, family members, and known associates, as well as those people's addresses. *See* PX35 at 65:18–66:15, 157:7–14. "[I]f the tracking of a car is interrupted," then Norfolk's myriad other surveillance tools "could help relocate it." *Cf. Beautiful Struggle*, 2 F.4th at 344; *see also* PX7 at 306:9–307:11 (NPD officers used live-view cameras in conjunction with Flock Cameras to track a person to a residence).

Although the Flock Cameras do not literally follow people between captures, they enable Norfolk to reconstruct routes. Contrary to its litigation position, Def. Opp. 22–23, undisputed evidence shows Norfolk and Flock both use Flock data to infer routes. An NPD detective testified he could "determine" or "outline" a defendant's "path" based on a series of Flock captures. *See* PX27 at 6:13–10:11, 28:22–29:8, 49:9–13. In a webinar, Flock demonstrated how to reconstruct a route based on "sequential hit[s]" that show "where [Flock cameras] saw a [car] and in what way" and, "[f]rom that, . . . predict the [car's future] route."[10] Even without Flock's software, "an officer . . . having worked in that particular community, would probably -- be better at knowing where vehicles would normally go." PX2 at 100:18–21. Likewise, Norfolk's labor economics expert conceded that consecutive captures show a car "basically went from A to B." PX34 at 140:13–22. And despite Norfolk's claim that the Flock Cameras "do not enable NPD to 'track a person's movements from a crime scene to, eventually, a residential location,'" Def. Opp. 18, ***it is undisputed that NPD has done exactly that***. *See* PX7 at 196:1–6 ("A Flock camera showed us a picture of the vehicle leaving the scene. Based on running the information of that vehicle, officers were in the driveway of the suspect as they pulled in . . . ."). People may not expect privacy during a single journey, *see* Def. Opp. 18, 23, but "this case is not about . . . a person's movement at a

[10] Flock Safety, *Expand Your LPR Coverage: Introducing Falcon for every roadway and use case*, at 29:45–30:27 (Aug. 30, 2023), http://bit.ly/4mlHyQv.

particular time," *Carpenter*, 585 U.S. at 315. Plaintiffs have shown that the Flock Cameras enable NPD to reconstruct not just one route, but *many* habitual routes. *See* PX24 at 35.[11]

Still, Norfolk repeatedly argues that the Flock Cameras do not show the precise locations people ultimately visited. Def. Opp. 6, 8, 19. Neither did CSLI when Carpenter was decided. *See, e.g.*, *United States v. Morgan*, 292 F. Supp. 3d 475, 486 (D.D.C. 2018) (permitting Norfolk's CSLI expert to "testif[y] only to defendant's and the alleged victim's possible location within a general area of coverage, as opposed to an exact location"). Indeed, Norfolk's arguments and demonstratives are virtually indistinguishable from those the government used in *Carpenter*:



Carpenter *Demonstrative (PX40 at 26)*

Norfolk's Demonstrative (DX9, ex. 12, p.70)

[11] Ignoring Flock's and its own concessions, Norfolk cites Dr. Higdon-Topaz's deposition testimony to assert that inferring routes is speculative. Def. Opp. 23. As with many of Norfolk's characterizations of deposition testimony, these descriptions are inaccurate and lack context. Dr. Higdon-Topaz testified that whether a "person" could reconstruct a route between two specific, real-world Flock captures was not within the scope of his assignment, but his "speculation" was that someone could "infer" it. *See* DX19 at 165:6–168:22; 189:3–20.

Inferring that [redacted] in the figure on the right is no more speculative than inferring that the defendant was at the crime scene in the figure on the left. If anything, it is less speculative because "[r]ather than placing a vehicle somewhere in a sector up to several square miles large, each ALPR data point can pinpoint the vehicle's precise location at a specific time." *Sturdivant*, 786 F. Supp. 3d at 1113; *see* PX30 at 7. [redacted]

Despite Norfolk's refrain that Plaintiffs "have no evidence," Def. Opp. 15, 18, 23, 28, 30, the undisputed record proves that Norfolk can *and does* use context clues and other information to make deductions from Flock data. Dr. Higdon-Topaz created a program that maps out the areas someone could have reached by walking, driving, or both during a gap. *See* PX24 at 38. A large gap would yield a large area, but it would also reduce where a person could have driven without getting photographed again. *Id.* at 37. To be sure, this analysis does not show the exact location a person visited, *see* Def. Opp. 22, but, as explained above, neither does CSLI.[12] Although Flock may not have made such a capability available to Norfolk yet, an officer could crudely approximate the same analysis, *see* DX9, ex. 14 (PDF p.72), and would "probably be better at knowing where vehicles would normally go," PX2 at 100:18–21 (cleaned up).[13] Even without local knowledge, Dr. Wheeler was able to follow [redacted]. *See* PX25 at 3–4, 16, 19; PX30

[12] The aerial surveillance in *Beautiful Struggle* provided even less information about where people went during gaps, since, unlike here, the "absence of detections," PX24 at 37, would not necessarily constrain the area a person could have reached during a gap.

[13] *Cf.* DX14 at 138:2–21, 142:13–21 (Lee pointing out to defense counsel that counsel's demonstratives included locations that had closed or that Lee would not visit).

at 5–6. Norfolk complains Dr. Wheeler knew where [redacted],[14] but an investigating NPD officer (with local knowledge) could have the same information, if not more. *See Beautiful Struggle*, 2 F.4th at 344–45; DX13 at 171:18–172:6. After all, NPD officers do not make inferences in a vacuum, "like in a research study," but in "the context of specific investigations." *Cf. Beautiful Struggle*, 2 F.4th at 344. And Norfolk's Rule 30(b)(6) designee testified that officers have used Flock captures in combination with other surveillance tools and registration information to track suspects to residences. PX7 at 196:1–6, 199:1–15, 306:9–11.

At best, Norfolk shows that Flock data can support a range of inferences. But that does not convert inference into speculation. *See United States v. Cortez*, 449 U.S. 411, 418 (1981). Drawing inferences from Flock data is no more speculative than inferring when "the lady of the house takes her daily sauna and bath" from thermal readings. *See Kyllo*, 533 U.S. at 38.[15] Or inferring a person was robbing a Radio Shack rather than visiting countless other homes and establishments in a cell-tower sector. *See* PX40 at 24–26. No court has ever required "hard certainties" to credit officers' "inferences and deductions." *Cortez*, 449 U.S. at 418. "From these data, a trained officer draws inferences and makes deductions—inferences and deductions that might well elude an untrained person." *Id.* When the shoe is on the other foot, NPD is only too ready to offer up the types of inferences that Norfolk dismisses. *See* PX27 at 6:13–10:11, 28:22–29:8, 49:9–13 (NPD detective testifying that he determined suspect's route and proved the suspect's statements about his route were false based on Flock data). Now, though, Norfolk asserts that all inference is "speculation

[14] Plaintiffs provided this information, along with other frequently visited locations, to Norfolk in interrogatory responses. Doc. 91-2, PageID# 1333–35; Doc. 91-3, PageID# 1354.

[15] Norfolk insists without further explanation that this is "wrong." Def. Opp. 22–23. It suggests that there is some qualitative difference between the expectations of privacy in the home and the whole of people's movements, but never explains why that somehow raises the certainty threshold for surveillance to qualify as a search. Neither *Carpenter*, 585 U.S. at 312, nor *Beautiful Struggle*, 2 F.4th at 345, drew any such distinction, despite both relying on *Kyllo*.

purely." PX35 at 158:11–159:8. Neither precedent nor the factual record supports that argument.

C. Past cases rejecting motions to suppress ALPR images do not support a categorical bar against challenges to dragnet ALPR surveillance.

Norfolk invokes "nearly two dozen" non-binding cases that, it says, held that "using LPRs is not a search because LPRs do not track 'the whole' of people's movements or reveal private information." Def. Opp. 24. But none of these cases held that the use of ALPRs can *never* be a search. *See, e.g.*, *Sturdivant*, 786 F. Supp. 3d at 1113–14. And virtually all of them were criminal cases with limited discovery, where defendants framed their motions to suppress around a small number of captures of their cars. *See* Pls. Opp. 29–30 & n.21. Norfolk asserts (without citing anything) that these defendants "did have evidence of the LPRs' capabilities." Def. Opp. 26. Whatever it means by that, none of the cases had evidence of the surveillance capacity of the relevant ALPR camera *systems*. The two civil cases Norfolk cites were dismissed on the pleadings and are distinguishable, anyway. *See Zambrano v. Sylvester*, 2025 WL 2682691, at *18 (S.D.N.Y. Sept. 19, 2025) ("111 searches over two-and-a-half years"); *Scholl v. Ill. State Police*, 776 F. Supp. 3d 701, 706–07, 720 (N.D. Ill. 2025) (344 cameras on "expressways" across Cook County).[16]

Norfolk relies heavily on *United States v. Martin*, but that case is distinguishable for the same reasons. 753 F. Supp. 3d 454 (E.D. Va. 2024). There were just 66 cameras[17] in Richmond at the time and 122 more in the surrounding cities and counties. *See id.* at 458. By Norfolk's own (irrelevant) metric of "coverage" per mile of linear road, the Flock Cameras have at least 83% more coverage than in Richmond. *See* DX9 at 12 (fig. 2).[18] The evidence at the *Martin* suppression

[16] Cook County is over 900 square miles. *See Geographic Information Systems*, Cook Cnty. Gov't, http://bit.ly/486P8Kv.

[17] Norfolk compares this number to its 75 "clusters," Def. Opp. 24, but that assumes that Richmond had no interest in seeing which way cars went through intersections.

[18] Norfolk's figures understate the difference. Its expert claimed Norfolk's land area is larger than Richmond's, DX9 at 12, but that is wrong, *compare* U.S. Census Bureau, *Norfolk city,*

hearing amounted to "three individual snapshots of [the defendant's] brief location at specific times" over 30 days. *Id.* at 473. Unlike here, there was no evidence about the overall capacity of the Flock camera system in the Richmond area. *See id.* at 472–75. Although the *Martin* court denied the motion to suppress, it was careful not to make any broader pronouncement: "Today's ruling is limited to the facts of this case as they are at the time of this ruling, including the limited number of Flock cameras in the Richmond area and the limited number of pictures taken of the exterior of Martin's vehicle." *Id.* at 476. This is a different case with a different record.

III. Amici's arguments are either irrelevant or merely echo Norfolk's arguments.

Three parties have weighed in on Norfolk's side: Safe House Project LLC, the Virginia Association of Chiefs of Police ("**VACP**"), and the federal government.[19]

Safe House and VACP make the same "appeal to necessity," *United States v. Di Re*, 332 U.S. 581, 595 (1948), that courts have repeatedly rejected, *see Carpenter*, 585 U.S. at 320; *Beautiful Struggle*, 2 F.4th at 347–48. The federal government does the same, Doc. 139, PageID# 3093–96, and otherwise echoes Norfolk's arguments, *id.*, PageID# 3096–106. Although the federal government claims no "interest in opining" on whether the "search" is the data collection or access, it effectively asks the Court to dismiss Plaintiffs' claims because NPD has supposedly never accessed Plaintiffs' data. *Id.*, PageID# 3104–06. Plaintiffs should face this additional hurdle, it insists, because they seek "an order '[p]ermanently enjoining' the City 'from operating' its ALPR technology, full stop." *Id.*, PageID# 3106. But that is not true. Plaintiffs sought

Va., http://bit.ly/4pPZBAl (53.3 square miles), *with* U.S. Census Bureau, *Richmond city, Va.*, http://bit.ly/3KmRHOR (59.9 square miles). He provided no source for his calculation of miles of road in Richmond. And he used the number of cameras in Richmond at the time of the suppression hearing in *Martin* (100), rather than the search (66). *See Martin*, 753 F. Supp. 3d at 458 & n.4.

[19] Flock, whose counsel now represents Norfolk, did not file an amicus brief, even though the Court and Plaintiffs invited it to do so. *See* Doc. 66, PageID# 844; Doc. 51, PageID# 470.

(among other alternatives) an injunction against the Flock Cameras' "operat[ion]" *as described in their complaint*.[20] They asked to brief the appropriate scope of injunctive relief, *see* Doc. 108, because more limited operation of the Flock Cameras may not violate the Fourth Amendment.[21]

The point of this case is not to stifle "innovation in policing or the use of technology to advance public safety," *Beautiful Struggle*, 2 F.4th at 347, but to prevent a "too permeating police surveillance" from stifling a "free people," *Di Re*, 332 U.S. at 595. ALPR cameras are "a powerful new tool" that "risks Government encroachment of the sort the Framers, 'after consulting the lessons of history,' drafted the Fourth Amendment to prevent." *Carpenter*, 585 U.S. at 320 (citation omitted). The Court should "emphasize" once again that the Fourth Amendment's role "remains unchanged as new search capabilities arise." *Beautiful Struggle*, 2 F.4th at 347.

IV. The Court need not address Norfolk's caricature of Plaintiffs' proposed Fourth Amendment standard.

For decades, justices, judges, and scholars have called on the Supreme Court to replace the *Katz* test with something rooted in the Fourth Amendment's text and original understanding. Mot. 29–30. Norfolk ridicules this standard as a ban on any search that is "inconsistent with 'the common law search rules of 1791.'" Def. Opp. 3. Suffice it to say, that is not even close to what Plaintiffs argued. Mot. 29–30. Because Plaintiffs should prevail under existing precedent, they are raising this argument only to preserve it for appellate review, and this Court need not address it.

CONCLUSION

For these reasons, the Court should grant Plaintiffs' motion for partial summary judgment.

[20] Regardless, Plaintiffs are not required at summary judgment to ask for the exact relief requested in the complaint. *Pitrolo v. Cnty. of Buncombe*, 589 F. App'x 619, 626 (4th Cir. 2014).

[21] For instance, Plaintiffs do not object to using the cameras to track a stolen car with the consent of the owner or for prolonged tracking with a warrant.

DATED: October 6, 2025

Respectfully submitted,

/s/ Robert Frommer

Robert Frommer
(VA Bar No. 70086)
Joshua Windham
(NC Bar No. 51071)*
Michael B. Soyfer
(NY Bar No. 5488580; DC Bar No. 230366)*
James T. Knight II
(DC Bar No. 1671382)*
Tahmineh Dehbozorgi
(DC Bar No. 90030252)*

Institute for Justice
901 N. Glebe Rd., Suite 900
Arlington, VA 22203
Tel: (703) 682-9320
Fax: (703) 682-9321
rfrommer@ij.org
jwindham@ij.org
msoyfer@ij.org
jknight@ij.org
tdehbozorgi@ij.org

Attorneys for Plaintiffs

*pro hac vice

Jessica Bigbie
(TX Bar No. 24134429)*

Institute for Justice
816 Congress Ave, Suite 970
Austin, TX 78701
Tel: (512) 480-5936
Fax: (512) 480-5937
jbigbie@ij.org

CERTIFICATE OF SERVICE

I hereby certify that on October 6, 2025, I caused a copy of the foregoing document to be served on all counsel of record for Defendants.

/s/ Robert Frommer
Robert Frommer