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SUPREME COURT OF NEW JERSEY
DOCKET NO. 089819
APP. DIV. NO. A-3528-21

STATE OF NEW JERSEY,	:	CRIMINAL ACTION
Plaintiff-Appellant,	:	On Certification from a Judgment of the Superior Court of New Jersey,
v.	:	Appellate Division
JULE HANNAH,	:	Indictment No. 18-03-0226-I
Defendant-Respondent.	:	Sat Below: Judges DeAlmeida, Berdote Byrne, and Bishop-Thompson, J.A.D.

SUPPLEMENTAL BRIEF ON BEHALF OF DEFENDANT-APPELLANT

JENNIFER N. SELLITTI
PUBLIC DEFENDER
31 CLINTON STREET
P.O. Box 46003
NEWARK, NEW JERSEY 07101
ATTORNEY FOR DEFENDANT-APPELLANT
973-877-1200

STEFAN VAN JURA
Atty. ID: 039952004
Assistant Deputy Public Defender
Of Counsel and on the Brief
Stefan.vanjura@opd.nj.gov

DEFENDANT IS CONFINED

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PRELIMINARY STATEMENT

The State has portrayed this case to be about whether a witness needs to be qualified as an expert to testify about cell tower locations based on phone records and to explain that cell phones generally connect to cell towers based on physical proximity. This framing is a mischaracterization of the evidence presented in this case, and more importantly, the inferences the jury was asked to draw from that evidence.

Under ideal circumstances, historical cell site location information provided through the opinion of an expert witness can be valuable to the jury to determine a cell phone's general location so long as the limitations of the methodology are thoroughly explained. The functional opposite of an expert witness urging caution is allowing a lay witness to testify about tower locations and asking a jury to draw a conclusion about a phone's location based on its connection to those towers.

This Court should require an expert to provide testimony about cell tower locations based on phone records. The records themselves are complex and require expertise to interpret reliably. Furthermore, the naked conclusion about a cell phone connecting to a particular tower – divorced from a meaningful discussion about direction and distance – is far more prejudicial than probative. And, without an expert who understands and can explain the

limits of reasonable inferences that can be drawn from such testimony, it is likely to lead a jury astray in its quest for the truth. The facts of this case illustrate the point.

Defendant was convicted for the inexplicable murder of Miguel Lopez while Lopez was driving his car in Bridgeton on January 15, 2017. There was no known motive. Indeed, there was no evidence to suggest that defendant had ever met Lopez before that day.

The evidence the State did adduce showed that defendant may have gotten a ride to Bridgeton from Lopez on that day, after crashing his own vehicle about forty minutes up the road, in Monroe Township. Through various surveillance cameras, the State was able to trace Lopez's general path from Atlantic City to Monroe Township, and then to Bridgeton. And, through a lay witness's improper and misleading testimony about defendant's cell phone records, the State attempted to show that his phone connected with towers in a manner consistent with travelling in Lopez's car from Monroe to Bridgeton. To be sure, a cigar butt with defendant's DNA was found on the floorboards of the front passenger seat, so there was certainly evidence to suggest that defendant had been in the victim's car on some occasion prior to the homicide. But nobody could say when.

However, the State elicited even more improper and prejudicial testimony from the lay witness to try to show that defendant had been in the same area as the victim at the time he was killed. Because the witness lacked the necessary expertise to permit the jury to draw reliable conclusions from evidence that defendant's cell phone connected with particular cell towers, the testimony was misleading and far less valuable than the jury was led to believe. The testimony may have fit the narrative proffered by the State, but that was precisely why the jury likely overvalued it. In this manner, the State portrayed defendant as the person who was last in Lopez's car – and was therefore probably the shooter – as opposed to the plausible alternative: that Lopez had dropped defendant off at his house, where the State itself proved Lopez had probably gone before he ended up on Spruce Street.

The Appellate Division's opinion reversing defendant's convictions should be affirmed because it correctly found that defendant's right to a fair trial was thereby violated. This Court should hold that specialized training is required to interpret complex cell phone records, and even if a lay witness could reach a reliable conclusion about a cell phone connecting to a particular cell site at a particular time and location, that testimony is more prejudicial than probative in the absence of the expertise needed to opine on a cell phone's location based on those records.

PROCEDURAL HISTORY

Cumberland County indictment number 18-03-0226 charged the defendant, Jule Hannah, with: first-degree murder, contrary to N.J.S.A. 2C:11-3a(1) and (2) (count one); second-degree possession of a weapon for an unlawful purpose, contrary to N.J.S.A. 2C:39-4a(1) (count two); second-degree unlawful possession of a weapon, contrary to N.J.S.A. 2C:39-5b(1) (count three); and second-degree possession of a weapon by a convicted person, contrary to N.J.S.A. 2C:39-7b(1) (count four). (Da 1-2)[1]

On June 22, 2021, defendant appeared before the Honorable Cristen D'Arrigo in opposition to the State's motion to admit expert testimony on historical cell site analysis. After the court expressed its hesitation in

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[1] The following abbreviations will be used:
Da – appendix to defendant's Appellate Division brief
Sb – State's brief filed May 12, 2025
Psa – appendix to the State's brief
1T – transcript of October 12, 2018
2T – transcript of October 15, 2018
3T – transcript of November 6, 2020
4T – transcript of January 13, 2021
5T – transcript of June 22, 2021
6T – transcript of June 23, 2021
7T – transcript of June 24, 2021
8T – transcript of June 25, 2021
9T – transcript of June 29, 2021
10T – transcript of June 30, 2021
11T – transcript of July 1, 2021
12T – transcript of July 2, 2021
13T – transcript of November 30, 2021

qualifying the State's proposed expert, the State agreed to limit the testimony to just the location of the cell towers that defendant's phone connected to at given times. (5T 32-10 to 37-21; 160-14 to 161-22; 6T 9-1 to 10) The court entered an order embodying that stipulation. (Da 6)

Trial on counts one through three began before Judge D'Arrigo and a jury on June 23, 2021. On July 2, 2021, the jury found defendant guilty as charged. (12T 9-15 to 25; Da 7-8) The State then moved to dismiss count four, the certain persons charge. (12T 16-1 to 9)

Defendant appeared before Judge D'Arrigo for sentencing on November 30, 2021. The court merged count two with count one. It then imposed a forty-five-year custodial sentence with a NERA[2] 85% period of parole ineligibility on count one, and a concurrent ten-year sentence with a five-year period of parole ineligibility on count three. (Da 9-12)

On July 19, 2022, a notice of appeal was filed on defendant's behalf, as within time. (Da 13-16) In an unpublished decision decided on August 9, 2024, the Appellate Division reversed the convictions, concluding that "the trial court erred when it allowed lay testimony regarding the cell site data analysis." State v. Hannah, A-3528-21, 2024 WL 3738458, at *7 (App. Div. Aug. 9, 2024). In an order dated March 28, 2025, this Court granted the State's petition

[2] No Early Release Act, N.J.S.A. 2C:43-7.2.

for certification. State v. Hannah, 260 N.J. 214 (2025). The question, as framed on the judiciary's webpage is: "Does a police officer need to be qualified as an expert to testify about cell tower locations based on phone records and explain that cell phones generally connect to cell towers based on physical proximity?" Available at: https://www.njcourts.gov/courts/supreme /appeals (last visited 5/16/25).

STATEMENT OF FACTS

Trina Acevedo, resident of 407 Spruce Street in Bridgeton, testified that on January 15, 2017, she awoke to a loud bang at about 8:30 a.m. She looked from her bedroom window directly across the street to 406 Spruce Street, where she saw a gold two-door Chrysler Sebring that had crashed into her neighbor's tree. (6T 99-9 to 106-1; 116-18 to 25) She also saw a black male walking south toward Baltimore Avenue at a fast pace. Although she could only see the side of the man's face and only observed him for a few seconds, she described him as about 5'11" tall, with short hair, possibly sporting a short beard, wearing a puffy camouflage jacket and matching pants, and walking with a "distinguished" limp. (6T 107-3 to 112-2)

Acevedo believed that she had seen the man well enough to make an identification. However, when she was later shown a photographic array of six

photos – one of which was of defendant – she was unable to identify any suspect with certainty. (6T 141-4 to 144-7) In fact, she identified one of the portrayed men, who was not defendant, with a 70% confidence level. (9T 68-70-1) Acevedo was expressly unable to identify defendant at trial. (6T 114-21 to 115-8)

When police arrived on the scene, they found that both car doors were open and that the driver, seated in driver's seat, was leaning over the center console area. (6T 74-16 to 77-4) Emergency medical technicians arrived on the scene and determined that the driver – identified as Miguel Lopez – was dead. (6T 78-18 to 80-9) A subsequent autopsy revealed that he had been shot four times on the right side of his body, in his head, chest, abdomen, and shoulder. (11T 153-18 to 154-17) Two recovered projectiles were determined to have been fired from the same .40 caliber handgun, as were four shell casings found in the front passenger side area. Given the trajectory of the bullets, the absence of any bullet damage to the exterior of the car, and the recovery of a bullet inside the interior driver-side door panel, the State theorized that the shooter must have been seated in the front passenger seat when Lopez was shot. (7T 30-17 to 32-14; 50-15 to 52-4; 9T 197-20 to 205-22)

Detective Anthony Calabrese of the Bridgeton police department testified that police recovered surveillance video from Acevedo's home. (6T

161-10 to 22) According to Calabrese, the video depicted a man with a heavy camouflage jacket and a "distinctive limp to his left leg" walking from the scene. Calabrese testified that the limp was "kind of like [a] dead foot"; "he had to throw his leg out…to lift the foot up to move it." (6T 162-15 to 163-1) The surveillance video was played for the jury. (6T 170-15) It lacked sufficient detail to see the man's face. (6T 163-25 to 164-2)

Detective Kenneth Leyman testified that he was assigned to be the lead investigator on the case. (7T 178-19 to 181-24) According to Leyman, defendant became a suspect based on the Spruce Street surveillance video. (7T 238-1 to 10) That video depicted Lopez's car clip another car and then go out of frame. About thirty seconds later, it showed a man walk south wearing a puffy jacket. Leyman testified that the man walked with a distinct limp: he had to "flick the lower part of his leg out, almost as if he had like a dead foot or a dead leg." (7T 217-25 to 219-1; 231-17 to 235-1)

During Leyman's testimony the State was permitted to play surveillance video from the Cumberland County Courthouse from February 1, 2017, about two weeks after the homicide. The jury was informed that defendant had an "appointment" at the courthouse, and they were shown video of him entering the court and walking down the hallways. Leyman explained that he obtained the video to compare his gait to the gait of the person on the Spruce Street

surveillance video footage. Leyman testified that the limps in both videos were "similar and consistent." Leyman testified that defendant "would lift his left leg and flick his lower half of his leg outward as if he had a dead leg or dead foot." (7T 219-11 to 221-5; 235-8 to 24)

Leyman also testified about other facets of his investigation. He testified that he was able to determine that Lopez had gone to Caesar's Casino in Atlantic City with a friend named Omar Ramos on the morning before the homicide. Surveillance video from the casino depicted Lopez and Ramos arrive together at the casino at 3:30 a.m. (8T 36-12 to 38-6) Based on their behavior, Leyman believed Lopez and Ramos were under the influence of drugs or alcohol. Video from the casino showed them walking around the parking garage for forty-four minutes looking for their car until they decided to split up. (8T 38-22 to 39-25) About five minutes later, at 6:02 a.m., Lopez found his car and tried to call Ramos, but his calls were not answered. (8T 40-4 to 41-2) Lopez waited in the parking spot for seventeen minutes and then drove around the garage, apparently looking for Ramos, for the next eleven minutes. Lopez left the parking garage at 6:31 a.m., leaving Ramos behind in Atlantic City. (8T 41-3 to 43-15)

Using Lopez's cell phone records and surveillance video from a variety of businesses and residences, Leyman was able to trace Lopez's general path

of travel from Atlantic City at 6:31 a.m. to Bridgeton at about 8:30 a.m. (8T 52-9 to 56-1) For example, Leyman located surveillance video from Cacia's Bakery in Williamstown depicting Lopez's car travelling towards Bridgeton at about 7:22 a.m. Leyman testified that his investigation revealed that defendant had been involved in a single-car accident at about 7:27 a.m. near the intersection of Williamstown-Franklinville and Tuckahoe Roads in Monroe Township, which was a couple of miles down the road from Cacia's Bakery. The obvious implication of this testimony was that this was how defendant and Lopez crossed paths. (8T 57-6 to 61-7)

On this score, the State introduced the testimony of James Burnett, who saw a minivan in a ditch off the side of the road in Monroe. Burnett stopped at the scene and called the police. (6T 214-15 to 218-9) According to Burnett, a black male with a bald head approached his vehicle, walking with a limp. The man offered Burnett $100 to drive him to Bridgeton, but Burnett said that he was unable to accommodate him because he was working. The man walked away, and Burnett drove from the scene. (6T 220-15 to 224-21) Burnett further testified that, about twenty-five minutes later, he returned to the scene. Police were on the scene, but the man he had seen earlier was not. Burnett was unable to identify the man when shown photos by the Bridgeton police, and he was unable to identify defendant in court. (6T 226-7 to 229-25) However, the State

introduced the testimony of Patrolman Carmen Iacovone of the Monroe Township police department. Iacovone's testimony was vague. He testified that he responded to the scene of the disabled minivan, and that the driver was not at the scene, so he issued motor vehicle summonses to defendant for leaving the scene of an accident and failure to report an accident. (6T 252-2 to 258-6)

According to Leyman, his investigation uncovered additional surveillance video further tracing Lopez's path of travel. Surveillance video from a residence at 739 Parvin Mill Road in Elmer showed Lopez's car at 7:54 a.m. And surveillance video from a business at 60 Rosenhayn Avenue in Bridgeton showed it drive by at 8:06 a.m. (8T 72-17 to 93-7)

Leyman further testified that Lopez's car was captured on surveillance video at 181 North Burlington Road at 8:09 a.m., and then again at the Quick Plus convenience store at the intersection of East Commerce Street and Burlington Road at 8:20 a.m. According to Leyman, that distance would typically be traversed in a vehicle in about one minute, but it took Lopez eleven. (8T 95-21 to 102-9) Leyman testified that between the two points where Lopez's car was observed there are four streets that Lopez could have travelled down: Casarow Drive, Timber Road, Twin Oaks Drive, and Reeves Road. (8T 102-25 to 103-5) By sheer coincidence, a Bridgeton police car was parked on Casarow at that time and a review of the video from the MVR

showed that Lopez's car did not drive on Casarow. (8T 109-5 to 112-19) Similarly, a review of surveillance video from a home on Twin Oaks showed that it had not driven there, either. (8T 105-5 to 107-11) And, Leyman testified that Timber was a dead-end street with few homes. (8T104-13 to 105-1)

That left only Reeves Road, and Leyman testified that defendant lived at 25 Reeves Road at the time. Leyman testified that the police recovered video from a home at 52 Reeves Road, which was further down Reeves from the direction of Burlington Road. A review of that video did not depict Lopez's car. (8T 113-21 to 116-17) Thus, Leyman acknowledged, Lopez may have stopped at 25 Reeves Road and dropped defendant off there. However, Leyman opined that it would have taken only two additional minutes to have simply dropped someone off at 25 Reeves Road, yet about ten minutes were unaccounted for. (8T 117-18 to 118-12)

To bolster the theory that defendant was in Lopez's car after passing the Quick Plus convenience store at 8:20 a.m., the State introduced a recorded phone call made by Ramos's father to Lopez, at 8:21 a.m., inquiring about the location of his son (who had been left in Atlantic City). According to Leyman, three voices can be heard on the recording: Lopez, Ramos's father, and an unidentified third person. (8T 124-19 to 128-1)

As noted above, Leyman testified that his investigation began to focus on defendant after the police viewed the man limping in the Spruce Street video. (8T 8-12 to 19) For that reason, the police seized defendant's cell phone and obtained records showing which cell towers his phone connected to around the time of the homicide. Leyman was not qualified as an expert in historical cell site analysis, so he was only permitted to testify about the location of the cell towers that defendant's phone connected to at a given time between 7:12 a.m. and 8:25 a.m. (8T 139-3 to 145-23)

According to Leyman, at 7:12 a.m., defendant's phone connected with a tower in Franklinville in Franklin Township, which was near the area defendant purportedly ran off the road in his minivan. (8T 146-9 to 148-15) At 7:27 a.m., his phone connected to a tower approximately 3000 feet from the crash site. (8T 148-17 to 155-9) Leyman testified that, between 7:34 a.m. and 7:53 a.m., a series of calls demonstrated a pattern of connecting to towers going south toward Bridgeton. (8T 156-11 to 165-25) Leyman noted that at 8:03 a.m., defendant's phone connected to tower on the Upper Deerfield Township water tower, which was the same time that surveillance video showed Lopez's car near Rite-Aid on North Pearl Street in Bridgeton, which

was 1.6 miles to the water tower.[3] (8T 167-18 to 169-25) And, at 8:25 a.m., defendant's phone connected to a tower at 110 East Commerce Street in downtown Bridgeton. (8T 171-20 to 173-10)

The State asserted that the general pattern of defendant's calls was consistent with him having received a ride from Lopez from crash site to crash site – that is, from defendant's disabled minivan in Monroe to Lopez's collision with a tree on Spruce Street in Bridgeton at 8:31 a.m. (11T 91-16 to 101-21) Indeed, Leyman observed that defendant's cell phone repeatedly connected with tower 37 – which was in "close proximity" to the crime scene – between 8:07 a.m. and 9:37 a.m. However, Leyman acknowledged that tower 37 is also the tower that defendant would likely connect to if he was at his home at 25 Reeves Road. (9T 144-18 to 148-17) Perhaps anticipating this ambiguity, Leyman further testified that, in between the connections with tower 37, defendant's phone connected with tower 304 at 8:50 a.m.; that the presumed shooter walked south from the crime scene, as supported by the surveillance video and a scent-tracking dog; and that tower 304 was located south of the crime scene. (9T 148-18 to 151-12)

[3] This distance was the reported street distance on Google Maps, not a straight line between the two points. (8T 170-1 to 13)

Leyman interviewed defendant on February 24, 2017, at the Bridgeton police department. Leyman showed defendant a picture of Lopez and asked him if he knew him. Defendant denied knowing him and denied being in his car. (8T 175-1 to 178-2) On that same day, police searched defendant's home. They found a gun cleaning kit in a dog pen area located at the edge of the property, abutting a forested area. (9T 106-1 to 107-2) But other than that, the police found nothing at the home to link defendant to the homicide; no camouflage jacket, no gun, and nothing else of evidential value. (9T 107-4 to 108-3; 7T 103-11 to 15)

In addition to collecting ballistics evidence from Lopez's car, the crime scene detective dusted the vehicle for fingerprints and collected items for DNA analysis. None of the prints belonged to defendant, and the only print of note was a palm print from a man named Gary Moore. (7T 106-7 to 107-17; 174-17 to 175-9) Leyman testified that there was a text message from Moore to Lopez on the day of the homicide saying, "on my way." (9T 123-20 to 126-1) Phone records also showed that there were three calls between them, which Leyman believed concerned Moore selling drugs to Lopez prior to Lopez travelling to Atlantic City. (9T 130-1 to 14) Nonetheless, Leyman testified that Moore was not suspected in the homicide because his phone records did not place him in Bridgeton at the time. Moreover, Leyman testified that Moore did not match

the physical description of the suspect, although Leyman did not know whether Moore walked with a limp. (9T 126-16 to 24)

With respect to the DNA evidence, an expert from the State testified that DNA found on a fruit punch bottle recovered from the front passenger floorboard had at least two contributors, and defendant was excluded as a major contributor. (9T 251-10 to 25) From DNA obtained from Lopez's ring and hand, defendant was excluded as a possible contributor. (9T 252-6 to 25) Conversely, defendant was determined to be the source of the DNA recovered from a cigar butt found on the passenger side floorboard. (9T 253-2 to 13) Yet, as is common with DNA evidence, the expert was unable to determine when the DNA was deposited on the items, nor whether it originated with the source or had been transferred from another item. (9T 268-14 to 269-22)

Accordingly, in summation, defense counsel reiterated that the State had not proven its case. True, counsel acknowledged, defendant may have been in Lopez's vehicle at some point. But Lopez may have had multiple passengers, and the evidence suggested that he had dropped defendant off at his home on Reeves Road before Lopez drove to, and was shot on, Spruce Street. (11T 15-18 to 23-6)

LEGAL ARGUMENT

POINT I

AN EXPERT IS NEEDED TO TESTIFY ABOUT CELL TOWER LOCATIONS BASED ON PHONE RECORDS BECAUSE: 1) EXPERTISE IS REQUIRED TO INTERPRET THE RECORDS, WHICH ARE MORE TECHNICAL AND COMPLEX THAN THE STATE SUGGESTS; AND 2) TESTIMONY ABOUT CELL TOWER LOCATIONS UNTETHERED TO INFORMATION ABOUT DISTANCE AND DIRECTION IS MISLEADING, AND INFORMATION ABOUT DISTANCE AND DIRECTION REQUIRES A DEEP LEVEL OF UNDERSTANDING ABOUT HOW CELLULAR COMMUNICATION NETWORKS OPERATE.

No juror could look at the call detail records used in this case and confidently reach a meaningful conclusion about a cell phone connecting with a cell site at a particular time and place. (Psa 1-77) Specialized training is required to interpret these complex records. Moreover, merely reaching the conclusion that a phone has connected to a given tower at a given time provides no useful information unless the intricacies of the cellular network are understood. Without knowing, for example, how far a radio signal propagates from a site – and the operation and configuration of nearby sites – a conclusion as to distance is far too speculative to warrant admission. Accordingly, this Court should affirm the decision of the Appellate Division

and hold that a witness must be qualified as an expert to testify about cell tower locations based on phone records. And, given the often-misleading nature of statements such as "cell phones generally connect to cell towers based on physical proximity," such "rules of thumb" should be condemned.

In State v. McLean, 205 N.J. 438 (2011), this Court explained that there are three distinct categories of testimony a witness can give: (1) fact testimony; (2) lay-opinion testimony; and (3) expert-opinion testimony. Id. at 456-62. The first category, fact testimony, consists of what a witness "perceived through one or more of the senses." Id. at 460. Such testimony includes a description of what the witness did or saw, but does not include an opinion, "lay or expert, and does not convey information about what the [witness] 'believed,' 'thought,' or 'suspected.'" Id. at 460.

The second category, lay-opinion testimony, is only admissible if it falls within "the narrow bounds" erected by N.J.R.E. 701. Id. at 456. Thus, a lay witness may only give an opinion when it is rationally based on his or her "personal observations and perceptions" and will assist the jury in understanding the witness's testimony or determining a fact in issue. Ibid. This Court has held that these requirements mean that a lay witness may offer opinion testimony only "on matters of common knowledge and observation." State v. Bealor, 187 N.J. 574, 586 (2006). As this Court explained, categories

of appropriate lay-opinion testimony include the speed at which a vehicle was traveling, State v. Locurto, 157 N.J. 463, 471-72 (1999); the distance of a vehicle from the intersection where an accident occurred, State v. Haskins, 131 N.J. 643, 649 (1993); and signs and behaviors indicative of an individual's intoxication, State v. Guerrido, 60 N.J. Super. 505, 509-11 (App. Div. 1960).

The third category, expert-opinion testimony, is governed by N.J.R.E. 702, 703, and 704, and allows experts to "explain the implications of observed behaviors that would otherwise fall outside the understanding of ordinary people on the jury." Id. at 460. Experts, unlike lay witnesses, use their special "knowledge, skill, experience, training, or education" to draw inferences from observed events. Id. at 449. Only those with appropriate qualifications may testify as experts, and several safeguards, including the use of careful jury instructions, must be employed by the trial court when expert opinion testimony is admitted. Id. at 455, 460. Moreover, McLean made clear that these categories are mutually exclusive when it rejected the State's argument that there are categories of opinion testimony that lie between lay and expert. Id. 461.

N.J.R.E. 702 provides: "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill,

experience, training, or education may testify thereto in the form of an opinion or otherwise." The party offering the expert testimony bears the burden of establishing its admissibility. State v. Harvey, 151 N.J. 117, 167 (1997) (citing Windmere, Inc. v. Int'l Ins. Co., 105 N.J. 373, 378 (1987)).

Although N.J.R.E. 702 is written in permissive terms, it has been held that "[e]xpert testimony is required when the issue is beyond the 'common knowledge of lay persons.'" Froom v. Perel, 377 N.J. Super. 298, 318 (App. Div. 2005) (quoting Kelly v. Berlin, 300 N.J. Super. 256, 265-66 (App. Div. 1997)). Thus, "a jury should not be allowed to speculate without the aid of expert testimony in an area where laypersons could not be expected to have sufficient knowledge or experience." Biunno, Weissbard, Zegas, Current N.J. Rules of Evidence, comment 2.3 on N.J.R.E. 702 (2024-25).

1. Expertise is Required to Interpret Call Detail Records.

The State asserts that the location of cell towers to which a phone connects is fact testimony that could be provided by "any investigator or custodian of records." (Sb 18) Examination of the Sprint records in this case contradicts that position and demonstrates that specialized knowledge is required to decipher the information.

The first four pages of the records are documents generated pursuant to Leyman's request: a certification and letter from the records custodian, and a

document providing account details, subscriber details, equipment, and features associated with the identified phone number. (Psa 1-4) The next six pages contain a "Key to Understanding CDMA[4] Call Detail Reports" ("key"), "Star Codes," "Sector Layout," and a document explaining how records in electronic format are provided by Sprint. (Psa 5-10)

The key defines the columns in the call detail records, Psa 19-23, and contains definitions for calling number, called number, dialed digits, mobile role, start date, end date, duration, call type, NEID, first call, and last call. (Psa 5) The key also explains that "routed calls come in several varieties":

> A TLDN (Temporary Local Directory Number) may be considered to be a bridge/router number to complete a call. A TLDN will be represented by a number that may range from 3 to 10 digits in length. Similar to TLDN, an IMRN (IP Multimedia Routing Number), will be used to route Apple Wifi Calls. Another scenario is when a call is not answered, but is routed to voicemail. Calls routed straight to voicemail may have an "11" before the number indicated in the "Called_Nbr" column. For handsets using visual voicemail, these numbers may replace the "11" in the called number column: (800) 877-2400, (866) 677-8204, (866) 222-2604, and (877) 836-4746. The indicator that Sprint's Visual Voicemail platform was used within the session appears as 624500000XXXXXXX.

[4] CDMA stands for "Code-division multiple access." It "is a channel access method used by various radio communication technologies" in which "several transmitters can send information simultaneously over a single communication channel." See https://en.wikipedia.org/wiki/Code-division_multiple_access (last visited 5/19/25).

[(Psa 6)]

In addition, the key advises that other communications may be listed in the call detail records:

> The CDMA call detail report may indicate the sending and receipt of text messages and e-mail. While not flagged as text messages, the line will indicate no duration, the dialed digits column will either be blank or will show an e-mail address, and the re poll column may contain one of the following numbers: 13; 291-298; 347; 506-533; 681-684; 686-688.
>
> NEIDs 191-198, 226-229, 291-294, 540-559
>
> [Ibid.]

The key provides another caveat that Sprint maintains additional networks whose use would not be recorded:

> On the CDMA network, Sprint maintains Gateway and SWAT (Soft Wireless Access Tandem) networks in areas where there are large Sprint customer populations. These provide the required extra space that helps Sprint maintain all of the calls. When a call moves through a gateway or SWAT cell site information is not retained and is not recoverable.
>
> NEIDs for Gateways 124-125, NEIDs for SWATs 96, 184-190, 263, 363-365
>
> [Ibid.]

And, with respect to text message time stamps, the key cautions:

> Please be advised that as of October 12, 2010, all CDMA CDR (Call Detail Record) text message time stamps are kept in Central time zone. Records prior to

> October 12, 2010 are either in Central or Eastern time zone. Sprint is unable to determine which time zone is reflected in records older than October 12, 2010.
>
> [Ibid.]

The Star Codes page provides a non-exhaustive list of twenty-five numeric codes that might "appear in the dialed digits column of the CDMA CDR Report." (Psa 8) These codes enable functions such as "ping the nearest tower, call delivery activate," "three way calling," and "call forward busy." Ibid. This page lists "the most common star codes," but advises that "additional star codes may exist in the market from which the call is made." Ibid.

The next prefatory document is the Sector Layout page. It explains that "cell sites can be set up in a variety of ways":

> Antennas may be placed on different structures such as buildings, towers, water tanks, etc. Also, not every cell site has three sectors. Some may have two sectors or may be omni sites. (Omni sites do not have sectors). The direction that the sector faces depends on the need for coverage in a particular area.
>
> The Sprint (CDMA) network contains towers that have one of two labeling schemas to indicate the direction that the azimuths face.
>
> I. Ericsson, Samsung and Nortel towers use the number 1 to indicate an alpha sector, number 2 to indicate the beta sector, and number 3 to indicate the gamma sector of a standard three sector mono-pole configuration.

> II. ALU (Lucent) towers use the number 2 to indicate an alpha sector, number 3 to indicate the beta sector, and number 4 to indicate the gamma sector of a standard three sector mono-pole configuration.
>
> [(Psa 9)][5]

The next seven pages are an "NEID" list; the key explains that NEID "reflects which network element handled the call." No further explanation is provided. (Psa 5; 11-17)[6] For each NEID – numbered 1-619 – the list provides a switch name, phone switch vendor, and time zone. Ibid.

Pages 19 through 23 contain call detail records from the relevant timeframe in a spreadsheet format. (Psa 19-23) The eleven column titles are defined in the key from Psa 5. There is a row for every call either to or from the target phone number, 2201. For every call, there is an NEID number and a number for "1ST_CELL" and "LAST_CELL." Ibid. The key explains that first cell is the "cell site in which the call was initiated" and the last cell is the "cell site in which the call was ended." (Psa 5) For both, "[t]he first digit reflects the sector. The last 3-4 digits represent the Cell#." Ibid.

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[5] Psa 10 explains the various file formats that Sprint uses to provide different types of records.

[6] Pages 18-87 and 146-227 have been omitted from the version of the records provided to this Court. The State explained: "For brevity, the State omitted from its appendix dozens of pages from the records introduced at trial." (Sb 21 n. 9)

Finally, pages 25-77 of the State's appendix contain "Cell Site Locations for NEID 059 Pennsauken-1 01062007." (Psa 25-77) This spreadsheet has eleven columns: "Cell#," "Cascade ID," "Switch," "NEID," "Repoll#," "Latitude," "Longitude," "BTS Manufacturer," "Sector," "Azimuth," and "CDR Status." Ibid. Most of these terms are not explained in the records.

Put simply, these records are bewildering. While anybody could look at them, believe they had identified a call at a significant time, flip through the tables, struggle with the jargon, and stumble to a conclusion about the geographic coordinates of a cell site to which the call purportedly connected, confidence in the accuracy would be vanishingly small with each successive caveat. A layperson might have a rudimentary understanding that cell phones operate like two-way radios, but making heads or tails of these records necessarily draws on specialized knowledge. Nowhere in the records is an explanation of the steps that must be taken, what information is extraneous, or which warnings in the key must be heeded.

Maryland's highest court directly addressed the question posed by this case in State v. Payne, 104 A.3d 142 (Md. 2014). There – just like here – the court rejected the State's argument that the lay witness "did not render an opinion as to the location of [the defendants'] cell phones [because] he merely read Sprint Nextel's business records and followed its directions in interpreting

the data." Id. at 154. See (Sb 18-21). Rather, "Detective Edwards engaged in a process to derive his conclusion that [the defendants'] cell phones communicated through [particular] cell towers that was beyond the ken of an average person." Ibid. The Payne court explained:

> A Call Detail Record contains a string of data unfamiliar to a layperson and is not decipherable based on "personal experience." Detective Edwards, however, apparently relied on his experience to ho[m]e in on the entries in the Call Detail Records "pertinent" to the case. To understand, furthermore, the technical language of the entries in a Call Detail Record so that he could eliminate "extraneous" data in the records, Detective Edwards had to have relied on "knowledge, skill, experience, training or education."
>
> Once Detective Edwards had culled the records, he further relied on his knowledge and experience to understand the significance of a "LAC ID" and "Cell ID" and how they related to identifying a particular cell tower amongst a cellular provider's records. Detective Edwards's testimony was that of an expert, because Call Detail Record entries are not entries typical of a cell phone bill where a juror could "rely upon his or her personal experience" to understand their meaning.
>
> [Payne, 104 A.3d at 154–55 (internal citations omitted).]

Thus, it is the complexity of the records themselves that requires the expertise, without which no meaningful conclusions can be drawn. See Wilder v. State, 991 A.2d 172, 200 (Md. Ct. Spec. App. 2010) (The lay witness's "description of the procedures he employed to plot the map of [the

defendant's] cell phone hits was not commonplace. Because his explanation of the method he employed to translate the cell phone records into locations is demonstrably based on his training and experience, we conclude that he should have been qualified as an expert."); State v. Wyman, 107 A.3d 641, 648 (Me. 2015) ("A witness who testifies to the contents of cell phone billing records should be qualified as an expert if her testimony employs some form of specialized knowledge."); Alexandra Wells, Ping! The Admissibility of Cellular Records to Track Criminal Defendants, 33 St. Louis U. Pub. L. Rev. 487, 516 (2014) (Noting that Wilder was correctly decided "for two significant reasons: first, the technology is specialized, scientific, and technical, and therefore is expert testimony; and second, lay witnesses are without sufficient information for the defense to cross-examine.")

Indeed, it is debatable how well the records are truly understood without a corresponding understanding of the underlying technology. See United States v. Natal, 849 F.3d 530, 536 (2d Cir. 2017) ("[W]e caution that the line between testimony on how cell phone towers operate, which must be offered by an expert witness, and any other testimony on cell phone towers, will frequently be difficult to draw, and so both litigants and district courts would be well advised to consider seriously the potential need for expert testimony.")

The State cites several cases to support its claim that Payne represents the "minority" rule – that even if Leyman's testimony were opinion testimony, it was permissible lay opinion testimony. (Sb 22-25) In fact, these cases are mostly distinguishable. The first group of cases are three unpublished federal Circuit Court decisions. (Sb 22-23) The second group is clearly contrary to this Court's precedents. Compare State v. Burney, 255 N.J. 1, 21-22 (2023) (Recognizing that, "[a]cross the nation, state and federal courts have accepted expert testimony about cell site analysis for the purpose of placing a cell phone within a 'general area' at a particular time."), with State v. Boothby, 951 N.W.2d 859, 876 (Iowa 2020) (Permitting lay "opinions about the generalized location of a phone within the coverage area of the pinged tower—as long as the opinion is premised on factual information from the phone company."). Compare McLean, 205 N.J. at 461 (observing that there are three distinct categories of witnesses: fact witness, lay witness, and expert witness), with Zanders v. State, 73 N.E.3d 178, 188 (Ind. 2017), cert. granted, judgment vacated, 585 U.S. 1027 (2018) (Recognizing an intermediate category of "skilled witness" as a person with "a degree of knowledge short of that sufficient to be declared an expert under [Indiana Evidence] Rule 702, but somewhat beyond that possessed by the ordinary jurors.").

And the third, larger group of cases did not meaningfully examine the complexity of call detail records, with their accompanying tables and explanatory documents. See State v. Payne, 104 A.3d at 154 n. 34 (Noting about United States v. Evans, 892 F.Supp.2d 949 (N.D. Ill. 2012), and Perez v. State, 980 So.2d 1126 (Fla. Dist. Ct. App. 2008), that "[t]hose decisions did not provide any analysis of the process or the conclusion derived and are, therefore, inapposite.") Accord United States v. Graham, 796 F.3d 332, 365-66 (4th Cir. 2015) (no discussion of complexity of call detail records); State v. Sinnard, 543 P.3d 525, 544 (Kan. 2024) (same); Torrence v. Commonwealth, 603 S.W.3d 214, 225 (Ky. 2020) (same); Collins v. State, 172 So. 3d 724, 743-44 (Miss. 2015) (same); Burnside v. State, 352 P.3d 627, 636 (Nev. 2015) (same); State v. Johnson, 110 N.E.3d 800, 808 (Ohio Ct. App. 2018) (same); State v. Morgan, 119 So. 3d 817, 827 (La. Ct. App. 2013) (same); Perez v. State, 980 So. 2d 1126, 1131-32 (Fla. Dist. Ct. App. 2008) (same); Woodward v. State, 123 So. 3d 989, 1017 (Ala. Crim. App. 2011) (Believing that "[n]either [lay witnesses'] testimony required specialized knowledge."); State v. Blurton, 484 S.W.3d 758, 771 (Mo. 2016) (Believing that "cell phone records are factual records and no special skill is required to plot these records."). Clearly, these courts were not looking at documents like those used in this case, Psa 1-77.

Merely reaching a conclusion based on these documents is not good enough. There has to be an assurance of accuracy, and that assurance is derived from specialized training and experience in interpreting these documents. "It is this special skill, knowledge or training that is essential to the expression of a meaningful and reliable opinion and therefore constitutes the justification for expert testimony." Biunno, Weissbard, Zegas, Current N.J. Rules of Evidence, comment 3.1 on N.J.R.E. 702 (2024-25). As such, this Court should hold that a witness needs to be qualified as an expert to testify about the locations of cell towers to which a phone connected based on the witness's review of phone records.

2) Expert Testimony is Required Because Testimony About Cell Tower Locations Untethered to Information About Distance and Direction is Misleading, and Information About Distance and Direction Requires a Deep Level of Understanding About How Cellular Communication Networks Operate.

Assuming for the sake of argument that any lay witness could muddle his way through call detail records and reach a conclusion that a defendant's phone connected to a particular cell site at a particular time, that testimony is as likely to mislead the jury as it is to be helpful. The direction and range of possible distances the phone was located from the tower is essential information to consider in reaching a meaningful conclusion. However, the coverage area of the site can only be determined accurately through drive-

testing[7], which is not done in most cases, and was not done here. A common alternative is to draw an artificial "pie wedge" on a map to approximate the coverage area, but that also requires expertise to do correctly. Without knowing things like antenna angle, power, obstructions (natural and manmade), and the operability of neighboring sites, it is a crude estimate. And yet, the naked conclusion that a phone connected to a particular tower is even worse, all but requiring the jury to speculate. Accordingly, this Court should hold that a witness must be qualified as an expert to testify about a phone connecting with a particular tower and that there must be some discussion of the coverage area of the tower for the proffered testimony to clear the N.J.R.E. 403 hurdle for admissibility.

"Cell phones work by communicating with cell-sites operated by cell-phone service providers. Each cell-site operates at a certain location and covers a certain range of distance." In re U.S. for an Order Authorizing the Release of Historical Cell-Site Info., 809 F. Supp. 2d 113, 115 (E.D.N.Y. 2011). "The geographic area covered by a particular tower depends upon 'the number of antennas operating on the cell site, the height of the antennas, topography of the surrounding land, and obstructions (both natural and

[7] "Drive testing" measures "the actual coverage area of a particular cell site" through use of "a scanner that scans all of the radio frequencies in a particular area." Burney, 255 N.J. at 13 n. 8.

manmade).'" Holbrook v. Commonwealth, 525 S.W.3d 73, 79 (Ky. 2017) (quoting United States v. Hill, 818 F.3d 289, 295 (7th Cir. 2016)). "When a cell phone user makes a call, the phone generally 'connect[s] to the cell site with the strongest signal,' although 'adjoining cell [towers] provide some overlap in coverage." Ibid. (alterations in original) (quoting Hill, 818 F.3d at 295). Other factors affecting which tower a cell phone connects to include the terrain, the antennae's angle, the phone itself, and environmental factors. Hill, 818 F.3d at 296. "As a cell phone user moves from place to place, the cell phone automatically switches to the tower that provides the best reception." State v. Johnson, 797 S.E.2d 557, 562 (W. Va. 2017) (quoting In re Application for an Order for Disclosure of Telecomms. Recs., 405 F. Supp. 2d 435, 436-37 (S.D.N.Y. 2005)).

"Historical cell-site analysis uses cell phone records and cell tower locations to determine, within some range of error, a cell phone's location at a particular time." Hill, 818 F.3d at 295. "Across the nation, state and federal courts have accepted expert testimony about cell site analysis for the purpose of placing a cell phone within a "general area" at a particular time." Burney, 255 N.J. at 21–22 (citing Hill, 818 F.3d at 298; United States v. Baker, 58 F.4th 1109, 1125 (9th Cir. 2023); United States v. Jones, 918 F. Supp. 2d 1, 4 (D.D.C. 2013); United States v. Medley, 312 F. Supp. 3d 493, 499-502 (D. Md.

2018), aff'd 34 F.4th 326, 337-38 (4th Cir. 2022); Holbrook, 525 S.W.3d at 80-82). "Unlike the more precise location data provided by a Global Positioning System (GPS), cell site analysis simply confirms that the phone was somewhere within the coverage radius of the cell tower during the recorded activity." Burney, 255 N.J. at 22 (citing James Beck et al., The Use of Global Positioning (GPS) and Cell Tower Evidence to Establish a Person's Location -- Part II, 49 Crim. L. Bull. 637 (2013)).

In Hill, the Seventh Circuit, concerned that a "jury may overestimate the quality of the information provided by" cell site analysis, admonished that "[t]he admission of historical cell-site evidence that overpromises on the technique's precision – or fails to account adequately for its potential flaws – may well be an abuse of discretion." 818 F.3d at 299. There, the testifying expert used cell site analysis to trace the approximate location of the defendant's phone over the span of two days, with the implication that the phone was in the general area of the Credit Union the day it was robbed. Id. at 297-98. The agent did not testify as to the cell tower's specific range, and he admitted on cross that he did not know any of the particular characteristics of the tower. Id. at 298. However, the Seventh Circuit found that because the agent "emphasized that [the defendant]'s cell phone's use of a cell site did not mean that [the defendant] was right at that tower or at any particular spot near

that tower," "[t]his disclaimer saves his testimony" that the phone was in the general area of the cell site. Ibid.

Here, the concerns expressed in Hill were realized by Leyman's testimony.[8] Leyman did not perform a contemporaneous drive test, which is the gold standard for determining the coverage area of a particular tower. See New York SMSA Ltd. v. Twp. of Mendham Zoning Bd. of Adjustment, 366 N.J. Super. 141, 150 (App. Div. 2004), aff'd sub nom. New York SMSA Ltd. P'ship v. Twp. of Mendham Zoning Bd. of Adjustment, 181 N.J. 387 (2004) ("In a drive test, a specially equipped vehicle travels throughout an area scanning and recording signal strengths over a given frequency range. The data obtained from the drive test is then processed by a computer and plotted in the form of a propagation map.") He therefore lacked crucial information: the size of the coverage area. He did not know the degree to which signals from neighboring towers overlapped. Nor did he have the expertise or knowledge to opine whether neighboring towers for any given tower were non-operational or obstructed at certain angles or elevations.

Without knowing and explaining these limitations to the jury, Leyman's testimony misled the jury on the value of the testimony. The only thing that

[8] Point II, below, discusses why Leyman's testimony was not "saved" by any "disclaimer" from either him or the trial court.

Leyman knew was that defendant's phone connected with a certain tower at a particular time. It might have connected with that tower over a vast distance, bypassing one or more closer towers that were non-operational, obstructed, or otherwise not the "strongest signal" detected by the phone. That additional knowledge was essential to any useful conclusion about the location of the phone. See State v. Earls, 214 N.J. 564, 577–78 (2013) ("The accuracy of the location information depends in part on the size of the 'sector' – the area served by the cell tower. That area can range from miles to meters.") (citations omitted). See also Blank, The Limitations and Admissibility of Using Historical Cellular Site Data to Track the Location of A Cellular Phone, 18 Rich. J.L. & Tech. 1, 3, 6-7, 20 (2011) (at least fourteen factors determine cellular site use); Cherry, Imwinkelreid, Schenk, Romano, Fetterman, Hardin, & Beckman, Cell Tower Junk Science, 95 Judicature 151, 151 (2012) ("data from a single cell phone tower" not adequate to place caller "within a mile—or five miles—or ten miles—of the tower").

Thus, testifying that a cell phone connected to a particular cell site – divorced from an informed discussion about direction and distance – conveys all of the drawbacks of historical cell-site analysis with none of the benefits. It is fact-based testimony that permits "the jury to draw inferences which it was not qualified to draw." Wyatt by Caldwell v. Wyatt, 217 N.J. Super. 580, 592

(App. Div. 1987) (disapproving of lay testimony that brake fluid was seen near one of the front wheels of a car in the absence of expert testimony to support the inference that the brakes were defective at the time of the accident).

Without expertise – which includes the ability to explain why alternative hypotheses were rejected – we have no assurance that Leyman did not cherry pick examples from the voluminous records that fit the State's theory. With enough points of data, the geographic uncertainty of "connecting to a cell tower" could support a variety of narratives. Therefore, the probative value of lay testimony about a cell phone connecting with a given site is "substantially outweighed by the risk of … misleading the jury." N.J.R.E. 403. Indeed, the State seems to concede that the testimony was somewhat lacking in probative value. In arguing that Leyman's testimony was helpful to the jury – at least inferentially – the State writes:

> [R]elying on both common sense and lived experience, the jury could have reasonably inferred that defendant's phone's sixteen sequential connections to ten different towers on the morning in question, tracking a series of towers that matched the path taken by the victim's vehicle, made it *somewhat more likely* that defendant was, in fact, moving in the same directions as the victim, in the same area of the state, at the same time…..
>
> [The testimony] supported a reasonable inference that guilt was *at least marginally more likely* than if defendant's cellphone had not connected to those precise towers at those precise times.

[(Sb 29-32) (emphasis added).]

If the best that can be said is that the testimony provided marginal probative value, even a moderate risk of misleading the jury substantially outweighs that probity. See State v. Medina, 201 N.J. Super. 565, 580 (App. Div. 1985) ("[T]he more attenuated and the less probative the evidence, the more appropriate it is for a judge to exclude it.")

For these reasons, this Court should also hold that statements like "cell phones generally connect to cell towers based on physical proximity" should be disfavored. Although physical proximity is often a significant factor influencing which cell site services the call, it is widely accepted that signal strength is the determinative factor, and signal strength is dependent on numerous variables. The shorthand of "physical proximity" may cause the jury to overestimate the quality of the information, as cautioned against in Hill, and is plagued by the same concern surrounding the "rule of thumb" in Burney: a failure to account for variables that dictate actual coverage area.

Thus, an expert should be required in any case where the State seeks to offer testimony that a cell phone connected with a particular tower at a particular time and location. The complexity of the records themselves requires an expert to ensure that only reliable information is presented to the jury. But more importantly, that proposed testimony only makes sense where the jury is

invited to draw an inference about the location of a phone. However, a valuable inference can only be drawn with an understanding of the geographic significance of connecting with that particular tower, and that geographic significance requires an expert to explain.

POINT II

THE APPELLATE DIVISION CORRECTLY DETERMINED THAT DEFENDANT WAS HARMED BY THE TESTIMONY AND THAT REVERSAL OF THE CONVICTIONS WAS REQUIRED.[9]

The Appellate Division correctly determined that reversal of defendant's convictions is required. Leyman's testimony created an inescapable inference that defendant's phone was in a particular geographic region at a given time, but the jury did not have enough quality information to draw that inference because Leyman himself lacked the requisite knowledge and expertise. Where the phone records were significant information tying defendant to the victim's vehicle at the time of the shooting, a new trial must be ordered.

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[9] Defense counsel objected to Leyman's proposed testimony on the grounds that it was confusing to the jury and would be misconstrued as expert testimony. (5T 89-5 to 90-24) Although she later agreed to the admission of the records after the court limited Leyman's proposed testimony, counsel further explained that she "wanted to preserve for the record that all my objections to those records that we previously dealt with through in limine motions and objections…I'm not waiving any of those prior arguments or objections by consenting to the admission of the records today." (7T 241-8 to 17)

Through Leyman's improper testimony, the State sought to marry defendant's changing tower connections with Lopez's known path of travel – as determined through various residential and business surveillance cameras – to prove that defendant was travelling in Lopez's car from Monroe to Bridgeton. (11T 92-17 to 24) If the jury believed that defendant was in Lopez's car on January 15, then it was unlikely to find that the cigar butt had been left in the car on a prior day. Furthermore, if the jury believed defendant was in Lopez's car at the time of the shooting, it was likely to believe defendant was the shooter, based on evidence that Lopez was shot by someone inside the car. The State attempted this connection through Leyman's testimony that defendant's phone briefly connected with a tower south of the crime scene after the time of the homicide and before it consistently connected with tower 37, which served both Spruce Street and Reeves Road. (8T 171-20 to 173-17) In this way, the State sought to identify defendant as the man who had fled south after the shooting – as demonstrated by the Spruce Street surveillance video and scent-tracking dog – and discount the defense that defendant had been at Reeves Road the entire time the phone connected with tower 37. (11T 101-5 to 21)

The fundamental problem here is that the more Leyman's testimony sought to prove, the more the jury was misled as to its accuracy. The granular

blip of defendant's phone connecting to a tower south of the crime scene was portrayed by the State as strong proof that defendant was at the scene of the crime. In fact, there are many reasons that a stationary phone could connect with different towers on subsequent calls. See, *e.g.*, Victoria Saxe, Junk Evidence: A Call to Scrutinize Historical Cell Site Location Evidence, 19 U.N.H.L. Rev. 133, 139 (2020) ("This variability means it is possible for two cellphones – subscribed to the same cellular provider and in the exact same location – to place calls at the same time and connect to two different cell towers.")

Consider two contrasting scenarios. In scenario one, the State introduces evidence that a phone connected with a tower in New Jersey on day one, Western Pennsylvania on day two, central Indiana and western Illinois on day three, and central Missouri and Oklahoma City on day four. The distances and times are so large that the uncertainties of historical cell site analysis are overwhelmed in favor of a definite conclusion: the phone was travelling from eastern United States to the center of the country over a four-day period. Scenario two is this case, where the distances were so small that defendant's phone could have been travelling east at times when the sequential connection of towers suggested westward movement; for example, when a relatively minor movement of the phone caused the eastern tower to be obscured by a

building, leading the western tower to provide a stronger signal and thereby creating the illusion of westward movement. Accord Evans, 892 F. Supp. 2d at 956 ("For example, a building could have obstructed the phone's access to the closest tower or the call could have been rerouted due to network traffic.")

Moreover, there can be little doubt that the jury used the improper evidence to reach unsupported geographic conclusions. The State's summation urged the jury to conclude that defendant must have been near the towers to which his phone connected:

> And the way we know that [a]t all points in time that the phone of the defendant was in close proximity to the towers is because you have two points of confirmation.
>
> Confirmation point number 1 is from the very first call that was highlighted to you. Again, going back to that Monroe Township call. You know the defendant was in very close proximity to that tower because you know where he was and you know where the tower was. In other words, you know he was at the Monroe Township crash site and you know he was hitting off of the tower in direct proximity to that crash site. Based on that it's fair to conclude that the defendant's phone had to hit off of the tower that he was close to at all other points in time.
>
> Confirmation point number 2 is common sense and your personal experiences. And I told you that from jump, when you go back into the deliberation room, when you sit down and talk to each other your common sense does not go out the window. Your personal experiences do not go out the window. So ask yourselves in 2021, we've all had cell phones, if you're in an area, an isolated area, where there's no towers,

> where there's limited towers, are you going to connect to a call? Or rather, is your phone going to have any service? No, because there's no towers around. There has to be a tower around in order for your phone to connect to a tower. Common experience dictates that you have to be close to a tower in order to connect to a call.
>
> Based on all of this, folks, I would say it's a fair conclusion that the defendant was in proximity to all of the towers, all of the towers that you see where he's moving, or rather – rather, where the towers are going point by point by point by point, Monroe Township, moving, moving to the City of Bridgeton. That clearly shows that he was in the car with the victim and he was picked up by the victim.
>
> [(11T 91-12 to 92-24) (emphasis added).]

The State now asserts that the following instruction from the court "cautioned the jury that it could not treat [Leyman's] testimony as dispositive" (Sb 31) because the instruction repeatedly warned that the "fact that there was a phone call received at that tower does not mean that phone was in any particular location":

> All right. Ladies and gentlemen, you've heard some testimony here about a call connecting to a cell phone tower at a particular time and a particular location. In conjunction with that the state has also shown you a location where someone was purported to be or an event was purported to have happened sometime relevant to the proceedings here. I want to make it clear to you that while they can show you those locations and how far apart they are that evidence does not establish where that phone was at any -- at that time that that call connected. Do you understand? It doesn't -- just

> because there is a cell tower somewhere proximate to something else doesn't mean that that phone was located any particular spot within any particular distance from that tower. Does everybody understand that? So that is -- you should not consider that that evidence was that phone was there or here or any other particular place, only that there was a call received at that location and that at the same time something else was happening at another location and they were so far apart. But that's for you to determine, you know, where that information might be considered in the decisions you need to make here. But that fact that there was a phone call received at that tower does not mean that phone was in any particular location. You understand? So all you know is that a call connected at a certain time at that location and there was something else that happened somewhere around there. That doesn't mean that that phone was in any particular spot at the time that that phone call was made. Okay? All right.
>
> [(8T 152-2 to 153-9)]

But this instruction likely caused confusion; it is unclear what other possible purpose the cell tower evidence could serve if it was not evidence about the location of the phone.[10]

[10] Indeed, Leyman testified about eliminating another suspect from further suspicion because connection with a particular tower provides an "approximate location as to where that phone may have been located" and the tower to which the suspect's phone connected was not "in proximity or anywhere near" the crime scene. (8T 21-12 to 19; 27-15 to 28-3) Leyman testified that tower 13 was "in proximity" and tower 54 "was in close proximity to the location of defendant's motor vehicle crash" on Franklinville-Williamstown Road. (8T 146-17 to 155-9) He testified that tower 83 was "in proximity" to Monroe Township, south of the car accident, "heading towards Bridgeton." (8T 156-14 to 157-21) And he testified that the phone connected to towers 1.5 and 1.6 miles away from where Lopez's vehicle was identified on surveillance video. (8T 166-1 to 170-6)

The court attempted to clarify in its final charge to the jury that it could use the cell tower evidence to determine location, but not standing alone:

> you can't conclude that a phone was in any particular spot simply because it connected to a tower. You can, however, utilize that information along with other information if you think it's appropriate to do so. You understand? But that information alone doesn't mean that cell phone was in any particular spot. You'd have to have other evidence to rely upon and you could use that evidence in conjunction with it. Do you understand what I'm saying? So the cell phone tower alone just cause it's hitting off that tower doesn't mean it's in any particular spot. There has to be -- you'd have to be relying on some other evidence in connection with that to make that determination. Does everybody understand this? And, again, that's if you believe it is appropriate to do so. You understand? You're the finders of fact. You decide whether or not that's relevant to what you -- what you're determining. Okay?
>
> [(11T 139-1 to 24)]

So, assuming that this instruction resolved any confusion from the prior instruction, the jury was expressly permitted to use Leyman's testimony – in conjunction with, for example, surveillance video or the path of a scent-tracking dog – to determine the location of defendant's cell phone. In other words, the jury was invited to do exactly what Leyman lacked the expertise to do: draw a conclusion on the probable location of defendant's phone at a given time. Yet the jury, much like Leyman, did not possess enough information to draw that conclusion with a reasonable degree of accuracy. Instead, they were

likely to overvalue the supporting evidence – for example, the surveillance video that *somebody* walked south from the crime scene – in reaching the conclusion the State was proposing: that that somebody was defendant.

It has been recognized that "[t]he objective of every trial is a search for the ultimate truth." State v. Clark, 381 N.J. Super. 41, 48 (App. Div. 2005, aff'd, 191 N.J. 503 (2007) (citing State v. Szemple, 135 N.J. 406, 413 (1994)). "More than in any other context, the criminal trial setting requires our most diligent effort to ensure that the truth emerges and that the right result is reached." In re Hinds, 90 N.J. 604, 617 (1982). Where seeking truth is the ultimate goal, faulty expert-opinion testimony masquerading as lay-opinion testimony on the central contention in the case undermines the promise of due process and a fair trial. The convictions should be reversed.

CONCLUSION

The Appellate Division's opinion reversing defendant's convictions should be affirmed because defendant was denied a fair trial by the introduction of improper lay testimony. Specialized training is required to interpret complex cell phone records. Moreover, even if a lay witness could reach a reliable conclusion about a cell phone connecting to a particular cell site at a particular time and location, that testimony is more prejudicial than probative in the absence of the expertise needed to opine on a cell phone's location based on those records.

Respectfully submitted,

JENNIFER N. SELLITTI
Public Defender
Attorney for Defendant-Appellant

By: /s/ Stefan Van Jura
STEFAN VAN JURA
Assistant Deputy Public Defender
ID. No. 039952004

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