

IN THE SUPERIOR COURT OF THE STATE OF DELAWARE

STATE OF DELAWARE,)
)
 v.) I.D. No. 1610003829
)
 STEVEN PIERCE,)
)
 Defendant.)

Submitted: February 8, 2019
Decided: March 6, 2019

Upon Defendant's Motion in Limine to Exclude Expert Testimony
DENIED

OPINION

Annemarie H. Puit, Esquire, Matthew B. Frawley, Esquire, Jenna R. Milecki, Esquire (argued), Department of Justice, Wilmington, Delaware, Attorneys for the State.

Eugene J. Maurer, Jr., Esquire, Elise K. Wolpert, Esquire (argued), Wilmington, Delaware, Attorneys for Defendant.

Rocanelli, J.

This is a murder case. The State alleges that Defendant, Steven Pierce, shot and killed his girlfriend, Heather Stamper, on July 9, 2016 in her Delaware City home. The State proposes to introduce evidence tracking Defendant's movements for the 23-hour period before and after the approximate time of death. Defendant seeks to exclude the Google Wi-Fi Location Data¹ used to "geolocate" Defendant's cell phone on the grounds that the proposed evidence is not sufficiently reliable under the *Daubert* standard and would mislead and confuse the jury. The State argues that the technology at issue is reliable and would be helpful to the finder of fact. The reliability of Google's Wi-Fi Location Data is an issue of first impression in Delaware.

PROCEDURAL HISTORY

Defendant was indicted by the Grand Jury on December 5, 2016, and charged with Murder in the First Degree and Possession of a Deadly Weapon During the Commission of a Felony for the intentional murder of Heather Stamper. The case was specially assigned to this Trial Judge. The trial was initially scheduled for January 2018 but was rescheduled when Defendant retained new counsel who was unavailable for that trial date.² A new trial date was set for August 2018.

¹ *See infra* p. 3.

² The State did not oppose rescheduling the trial date. Defendant's new counsel did not enter his appearance until obtaining a new trial date.

On June 5, 2018, Defendant sought permission of the Court to file two motions after the deadline imposed by the Court for pre-trial motions: a motion to suppress certain evidence and a *Daubert* motion. The Court did not address the motion to suppress because the parties reached an agreement that the State would not use the challenged evidence in the State's case-in-chief. Regarding the *Daubert* motion, the Court conducted an office conference on June 28, 2018, at which time it became clear that resolution of the novel issue involved would require that the trial date be rescheduled again. Accordingly, the Court conducted a hearing on July 6, 2018 to address Defendant personally regarding his right to a speedy trial.

The Court found that Defendant's waiver of his speedy trial rights was knowing, intelligent, and voluntary. By Order dated July 6, 2018, the Court granted Defendant's Motion to File a *Daubert* Motion Out-Of-Time, over the State's objection. A new Trial Scheduling Order was issued, setting the date for trial as April 2, 2019, and setting forth deadlines for discovery and briefing in connection with Defendant's *Daubert* motion.

The Court conducted a *Daubert* hearing on November 27, 2018. In support of the reliability of the State's proposed evidence, the State presented the testimony of Andrew Rist, an engineer, and Anthony Vega, a law enforcement officer. The State's two witnesses were subject to cross-examination by Defendant. The parties submitted post-hearing briefs.

THE TECHNOLOGY AT ISSUE³

According to the United States Supreme Court, in 2018, there were 396 million cell phone service accounts in the United States.⁴ The High Court emphasized that there are more cell phone accounts in the United States than there are people.⁵ The most popular mobile devices have one of two operating systems that control the functioning of the phone. For Apple phones, it is iPhone Operating System (“iOS”) and for Google phones and many other phone manufacturers, it is Android.

Defendant’s phone was a MetroPCS phone with the Android operating system. While there are similarities between Apple’s iOS and Google’s Android as it relates to capturing user data, the technology at issue in this case involves location data derived from communications between an Android mobile device and Google. (The data is referenced herein as “Google Wi-Fi Location Data”). Specifically, the subject of the *Daubert* motion in this case was the Wi-Fi-sourced geolocation information associated with a unique Google account transmitted from the Android operating system on Defendant’s mobile device and stored by Google.

³ Unless noted otherwise, the Court’s discussion of the technology at issue is based on the testimony and expert report of Andrew Rist. *Daubert* Hearing Tr. 5:21—170:5 (J.A. 3); Andrew Rist Expert Rep. (J.A. 6).

⁴ *Carpenter v. United States*, 138 S.Ct. 2206, 2211 (2018).

⁵ *Id.*

A cell phone using the Android operating system serves as a data collection device as it continuously collects and sends information to Google as “events” approximately every 10-20 minutes. Meanwhile, other programs on the phone are running, either actively by the cell phone user, or idly in the background. These applications often rely upon Google Wi-Fi Location Data to customize information sent by Google to the user.⁶ With each event, there are various categories of information sent back to Google, including the device’s location history which is comprised of GPS, cellular data, and recognized Wi-Fi signals. Google collects and retains fairly detailed location information, including time-stamped barometer readings to determine the device’s altitude, such as the floor within a building, and Wi-Fi scans recorded with a time stamp for each location, noting latitude, longitude, and estimated accuracy.

Google Wi-Fi Location Data is not considered first-generation technology for geolocation. Global Positioning System (“GPS”), a utility owned by the United States government, uses satellites for positioning, navigation, and timing (“PNT”) services.⁷ GPS receiver equipment is found in many mobile devices, including cell

⁶ Countless applications rely upon the location of devices to provide cell phone users with accurate local weather forecasts, driving directions, nearby restaurant recommendations and reviews, the location of a lost device, news headlines, and a myriad of other information.

⁷ The Global Positioning System: GPS Overview, GPS. GOV, <https://www.gps.gov/systems/gps/>.

phones and vehicle navigation systems. Mobile devices exchange signals with GPS satellites and use the transmitted information to calculate the user's position.⁸ Under open skies, "GPS-enabled smartphones are typically accurate to within a 4.9 meter radius."⁹ The accuracy of GPS can be compromised by many factors, including satellite signal blockage due to tall buildings or trees, indoor or underground use, and poor atmospheric conditions.¹⁰ Nevertheless, the reliability of GPS is well established.¹¹

Another method for geolocation is Cell-Site Location Information ("CSLI"), which refers to the information collected as a cell phone connects to nearby cell towers.¹² Although cell site records are generated by cell phone service providers for commercial purposes, law enforcement agencies routinely request and use historical CSLI for criminal investigatory purposes.¹³ With information from multiple cell towers, a technique called "triangulation" is used to identify the location of a cell

⁸ *Id.*

⁹ GPS Accuracy, GPS.GOV, <https://www.gps.gov/systems/gps/performance/accuracy/>.

¹⁰ *Id.*

¹¹ *See, e.g., United States v. Brooks*, 715 F.3d 1069, 1078 (8th Cir. 2013); *United States v. Maynard*, 615 F.3d 544, 562 (D.C. Cir. 2010).

¹² *Carpenter*, 138 S.Ct. at 2211.

¹³ *See Id.* at 2223.

phone, and by extension, the cell phone user's approximate location within 50 meters.¹⁴ Like GPS, the reliability of CSLI is well established.¹⁵

The underlying premise of Google Wi-Fi Location Data is the same as GPS and CSLI. A Wi-Fi positioning system relies upon Wi-Fi signals to determine the distance between the device and the signal access point ("AP"). Wi-Fi Access Points are the devices that create a wireless local area network, such as a router in an office, business, or home, by projecting a Wi-Fi signal to a designated area. Included in the location data sent to Google by Android devices are Wi-Fi scans, which include a list of the Wi-Fi APs the device could "see" at that particular time and location.¹⁶ Generally, in order for a device to see a Wi-Fi AP, the device will be within 150 feet of a signal, much closer than with cell tower positioning. Google collects and stores the locations and strength of Wi-Fi APs, identified by their Media Access Control ("MAC") address, in order to locate mobile devices. When multiple signals are in range, Google Location Services uses multilateration to identify the device location, with more signals providing a more accurate location.

¹⁴ *See Id.* at 2219.

¹⁵ *Taylor v. State*, 23 A.3d 851, 856 (Del. 2011) (finding no abuse of discretion where, after a *Daubert* hearing, the trial court allowed expert testimony on cell phone data mapping, a recognized process deemed reliable by the law enforcement community); *State v. Thompson*, I.D. No. 1602016732 (Del. Super. May 30, 2017) (TRANSCRIPT) (admitting historical cell site evidence and denying Defendant's *Daubert* Motion without a hearing).

¹⁶ Andrew Rist explains that when cell phones "see" access points, this means that the phone is in the presence of one or more Wi-Fi signals.

Wi-Fi APs were first mapped by Google as part of its Street View program using vehicles which physically drove around with Wi-Fi receivers to collect street level pictures and record Wi-Fi signals, a process known as “wardriving.” This mapping method was the subject of the Zandbergen paper published in 2004.¹⁷ Since that time, Wi-Fi AP locations have been mapped and maintained by Google through a process called “crowdsourcing,” whereby information sent back to Google by individual cell phones is used to identify the location of Wi-Fi APs.¹⁸ Crowdsourcing allows more data to be collected more frequently and provides for greater accuracy as more users contribute to data regarding the location of Wi-Fi APs.

PROPOSED EVIDENCE
PLACING DEFENDANT AT OR NEAR MURDER SCENE¹⁹

Defendant’s cell phone (“Target Device”) was seized on July 9, 2016, the day Heather Stamper was found dead in her home in Delaware City, Delaware. The

¹⁷ Paul A. Zandbergen, *Accuracy of iPhone Locations: A Comparison of Assisted GPS, WiFi and Cellular Positioning* (2009).

¹⁸ An example of crowd-sourcing technology is a navigational system that uses real-time information collected from individual drivers to notify other local drivers of traffic, motor vehicle accidents, potholes, and law enforcement speed monitoring and to re-route a driver to a more efficient route using the crowd-sourced information. Parmy Olson, *What Waze Adds to Google: A View from Waze’s CEO* (June 13, 2013).

¹⁹ Unless noted otherwise, the Court’s discussion of the proposed evidence placing Defendant at or near the murder scene is based on the testimony and report of Anthony Vega. *Daubert* Hearing Tr. 170:12—223:15 (J.A. 3); Anthony Vega Rep. (J.A. 11).

phone number for the Target Device matches the phone number that Defendant identified as his own phone number during his July 9, 2016 interview with the police.

Through a search warrant,²⁰ Detective Csapo of the Delaware State Police obtained Google location data for the Target Device, International Mobile Equipment Identity (“IMEI”) number 359696076323056 (“Target IMEI”).²¹ Google responded to the search warrant in accordance with the Federal Electronic Communications Privacy Act²² and provided the following information for each time-stamped event for the time period from 6:53 p.m. on July 8, 2016, through 5:49 p.m. on July 9, 2016: identity of account as piercesteve91@gmail.com; date; Universal Time Coordinated (UTC); date and time in Eastern Daylight Time (EDT) using military time; latitude; longitude; map display radius in meters; map display radius in miles; source (GPS or Wi-Fi); and device tag.

Agent Vega analyzed the data associated with the Target IMEI and mapped the geolocation of the Target Device by plotting the latitude, longitude, and estimated radius of GPS and Wi-Fi coordinates, showing those locations using

²⁰ To satisfy the Fourth Amendment, a search warrant is required based on a finding of probable cause for a government search of a cell phone. *Carpenter*, 138 S.Ct. at 2221. There is no challenge in this case to the search warrants by which the surveillance video, Defendant’s cell phone data, or Google Wi-Fi Location Data was acquired by the State.

²¹ An IMEI is a unique identifier for a cell phone made of numerical digits that identify the make, model, and serial number for each mobile device.

²² 18 U.S.C. § 2703.

Google Earth. In addition to the Google Wi-Fi and GPS location data, Agent Vega used surveillance video to prepare a PowerPoint presentation tracking Defendant. Time-stamped photographs taken from video surveillance correspond to the Google Wi-Fi Location Data and GPS data to show Defendant and/or the Target Device travelling throughout this time period: in Heather Stamper's vehicle; driving on the streets of Delaware City and heading towards New Castle; at a check-out counter in a New Castle liquor store; driving towards Delaware City; in the vicinity of Heather Stamper's home; travelling towards and in the vicinity of Defendant's mother's home; with Defendant's mother entering a convenience store; and in various other locations nearby during the next day.

STANDARD FOR ADMISSIBILITY OF EXPERT TESTIMONY

The Delaware Supreme Court has adopted the *Daubert* standard to determine the admissibility of expert testimony.²³ Under this standard, the Court asks whether: (i) the witness is “qualified as an expert by knowledge, skill, experience, training or education;” (ii) the evidence is relevant and reliable; (iii) the expert's opinion is based upon information “reasonably relied upon by experts in the particular field;” (iv) the expert testimony will “assist the trier of fact to understand the evidence or

²³ See *Eskin v. Carden*, 842 A.2d 1222, 1231 (Del. 2004) (citing *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993)).

to determine a fact in issue;” and (v) the expert testimony will not create unfair prejudice or confuse or mislead the jury.²⁴

When assessing the second factor of the *Daubert* standard—the reliability of the expert’s opinion—trial courts consult a non-exclusive list of four more questions: (1) whether the opinion at issue is susceptible to testing and has been subjected to such testing; (2) whether the opinion has been subjected to peer review; (3) whether there is a known or potential rate of error associated with the methodology used and whether there are standards controlling the technique’s operation; and (4) whether the theory has been accepted in the scientific community.²⁵

**THE TECHNOLOGY IS RELIABLE
AND WILL ASSIST THE FACT-FINDER**

As the gatekeeper, the trial judge’s role “is to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.”²⁶ Neither the parties nor the Court has identified a reported decision applying the *Daubert* standard involving testimony by a computer

²⁴ *Id.* at 1227 (quoting *Cunningham v. McDonald*, 689 A.2d 1190, 1193 (Del.1997)).

²⁵ *Sturgis v. Bayside Health Ass’n Chartered*, 942 A.2d 579, 584 (Del. 2007).

²⁶ *Rodriguez v. State*, 30 A.3d 764, 769 (Del. 2011) (quoting *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999)).

scientist or engineer addressing reliability of Google Wi-Fi Location Data.²⁷

Accordingly, this Court's reasoned analysis regarding the reliability of Google Wi-Fi Location Data is not informed by rulings of other trial courts.

(i) The State's expert witnesses are qualified as experts by knowledge, skill, experience, training and education.

Defendant does not challenge Andrew Rist as an expert in the computer science field. Rist has an undergraduate degree in mechanical engineering and a master's degree in manufacturing engineering, and has worked as an engineer for

²⁷ The State has identified state courts in Virginia, California, and Colorado, and a federal court in New York, that have permitted FBI Agents to offer testimony based on Google Wi-Fi Location Data, including where admissibility of the evidence was not challenged by the defendant, and one instance where a trial court in New York disallowed such evidence using the *Frye* standard. *United States v. Pizarro*, 17-CR-151, at 1319, 1337 (S.D.N.Y.) (TRANSCRIPT) (finding FBI CAST agent to be qualified as an expert in historical cell site analysis and admitting Google Wi-Fi Location Data without challenge); *Commonwealth of Virginia v. Rolland Ellsworth Anderson*, Cases No. CR17-4909, 4910, 4911, 4913-00F (Va. Cir. Ct. Jan. 8, 2019) (ORDER) (denying the defendant's motion *in limine* to preclude the commonwealth from presenting data reports and testimony concerning Google location services); *People of the State of Colorado v. Glen Law Galloway*, Case No. 16CR2749, at 2 (Colo. Dist. Ct. Mar. 6, 2018) (ORDER) (denying motion to preclude expert opinion testimony concerning Google Wi-Fi Location Data because the defendant's objections go to the weight of the evidence and not its admissibility); *The People of the State of New York v. Johnny Oquendo*, Indictment No. 16-1154, Index No. 254831, at 2 (N.Y. Sup. Ct. Oct. 26, 2017) (*citing Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923)) (precluding evidence of Google Wi-Fi Location Data where the testifying witness was neither a scientist nor an engineer); *Commonwealth of Virginia v. Nathaniel Howard Moone III*, CR-16000297-00, CR-16000298, at 11 (Va. Cir. Ct. June 8, 2016) (TRANSCRIPT) (admitting Google Wi-Fi Location Data without objection).

Oracle Corporation for more than 20 years.²⁸ Since 2008, Rist has been an Interoperability Architect reporting to Oracle's Chief Technology Officer, and his recent professional focus has been collection and interpretation of communications data, particularly data sent back to Google by cell phones.

Defendant also does not challenge Anthony Vega as an expert witness. Agent Vega is a Detective with the Philadelphia Police Department's Major Crimes Unit, Task Force Officer with the Federal Bureau of Investigation ("FBI"), and member of FBI's Cellular Analysis Survey Team ("CAST"). Agent Vega testified regarding his training as a law enforcement officer generally and with respect to cell phone technology.

Andrew Rist has the knowledge, skill, experience, training and education to be qualified as an expert in the field of computer technology and specifically with respect to Google Wi-Fi Location Data. Anthony Vega has the knowledge, skill, experience, training, and education to be qualified as an expert in the use of computer technology for criminal investigations. Thus, the first factor of the *Daubert* standard is satisfied.

²⁸ The Court rejects Defendant's argument that a long-running feud between Google and Oracle undermines Rist's credibility. To the contrary, as an employee of Oracle, Rist has no incentive to inflate the reliability or exaggerate the accuracy of Google's technology.

(ii) Google’s Wi-Fi Location Data is relevant and reliable.²⁹

The relevance of the evidence is not challenged. However, Defendant challenges the reliability of the methodology underlying Google Wi-Fi Location Data.

(1) The use of Google’s Wi-Fi Location Data to geolocate an individual based on signals sent to Google by that individual’s cell phone is susceptible to testing and has been subjected to such testing by the State’s expert, Andrew Rist.

By employing an industry standard testing method, Rist and his team at Oracle constructed a device, referred to as a “test rig,” to understand the communications sent back and forth between Google and the Android operating system. The device consists of a bag containing 20 cell phones, each with an associated Google account, which operates as a “man-in-the-middle” exploit to observe the signals sent by the devices to Google.³⁰ For a period of approximately two years, Rist has tested and confirmed the accuracy of the Google Wi-Fi Location Data and other communications data by analyzing communications between the phones in the test rig and Google Application Programming Interface (“API”) locations and various Google-owned domains. Over the two years of testing, Oracle has collected

²⁹ Unless noted otherwise, the Court’s discussion of the technology at issue is based on the testimony and expert report of Andrew Rist. *Daubert* Hearing Tr. 5:21—170:5 (J.A. 3); Andrew Rist Expert Rep. (J.A. 6).

³⁰ The test rig includes both Android and Apple phones. The Oracle team has also studied the information that is sent back to Apple from iPhones.

approximately 70,00 location data points from the devices in the test rig. Rist testified that the Google Wi-Fi Location Data is accurate and reliable.

In addition to Oracle's general testing of Google Wi-Fi Location Data collection through the use of the test rig, Rist deployed the test rig specifically in the vicinity of Heather Stamper's home to determine the strength of Wi-Fi signals in that area.³¹ Rist concluded that the density of Wi-Fi signals for the Google Wi-Fi Location Data produced by Google in response to the search warrant in this case is reliable to identify the location of the Target Device within approximately 100 feet.³² Rist also reviewed the report prepared by Agent Vega and concluded that the location information for the Target Device located in Agent Vega's PowerPoint presentation are consistent both generally with the data revealed by Rist's general testing and also consistent with Rist's specific findings using the test rig in the area around Heather Stamper's home.

³¹ Defendant's challenge to the two-year gap between the data produced by Google for the Target Device and the data collected by Rist's test rig can be addressed by cross-examination. These challenges go to the weight of the evidence and not the admissibility. *Daubert*, 509 U.S. at 596 ("Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.").

³² Rist was not provided with the raw data produced by Google in response to the search warrant for the Target Device. Rather, the data collected and relied upon by Rist was gathered independently of the data produced by Google and utilized in Agent Vega's Powerpoint presentation.

Accordingly, the accuracy of the Google Wi-Fi Location Data has been tested. The Court is satisfied with the testing generally regarding the reliability of the Google Wi-Fi Location Data and specifically as determinative of the reliability of Google Wi-Fi Location Data for the Target Device.

(2) Google Wi-Fi Location Data has been subjected to peer review in the relevant scientific community.

The accuracy of Wi-Fi location data is the subject of computer science publications and blogs. For example, a 2015 publication from the Technical Information Center of Denmark found that “APs can be very efficiently geolocated in a way that covers a large majority of individuals’ mobility patterns.”³³ The reliability of Wi-Fi positioning systems is supported by this study which finds “Wi-Fi scans containing at least one visible AP can be used for discovering the location of the user, with a typical spatial resolution on the order of the tens of meters.”³⁴ The Court is satisfied that the relevant scientific community is in agreement regarding the reliability of Google Wi-Fi Location Data. Accordingly, the accuracy of Google Wi-Fi Location Data has been subjected to peer review in the relevant scientific community.³⁵

³³ Piotr Sapiezynski, et al., *Tracking Human Mobility Using WiFi Signals* 9 (2015).

³⁴ *Id.* at 3.

³⁵ The pace of technology advances within the computer science field results in peer review different from the peer review process in other sciences, such as life sciences.

(3) Google Wi-Fi Location Data is verified by other mechanisms of determining geolocation of the Target Device.

A mobile device will switch between GPS and Wi-Fi based on the strength of available signals to improve the accuracy of a location reading.³⁶ The mobile device prefers Wi-Fi because it uses less power and is available in settings where GPS signals are more limited, such as indoors, but GPS is used to supplement the available Wi-Fi signals. Data for GPS and Wi-Fi APs are both included in the Google location data provided in response to the search warrant for the Target Device. Importantly, Google Wi-Fi Location Data is consistent with the fixed GPS location data.³⁷ Where fixed GPS location data is not available, time stamps from video surveillance footage substantiate the reliability of the Wi-Fi-sourced readings. Accordingly, the accuracy of Google Wi-Fi Location Data is verified by other mechanisms of determining the geolocation of the Target Device.

(4) The reliability of Google Wi-Fi Location Data has been accepted in the marketplace and has also been accepted in the community as a whole.

Accurate geolocation of a mobile device is an important part of Google's business plan for the Android operating system.³⁸ Users of Google's applications

³⁶ Any questions regarding the strength of each Wi-Fi signal goes to the weight and not the admissibility of the evidence. *Daubert*, 509 U.S. at 596.

³⁷ Defendant is not challenging the accuracy of the GPS data and concedes its accuracy.

³⁸ The Carpenter Court noted the business purposes of collecting accurate CSLI data in its discussion of the reliability of that data. *Carpenter*, 138 S.Ct. at 2212.

do not pay a fee; Google's applications are free of charge to the user. Individuals everywhere rely upon this technology every day in myriad ways to access a variety of information based on their own location.³⁹ Merchants pay fees to Google for access to information collected by Google about users of Google applications, including user location. Merchants use this location information provided by Google to promote products, often targeting advertisements to specific geographical locations. For example, Google can send advertisements to users who are near a certain restaurant. Accordingly, the reliability of Google Wi-Fi Location Data is accepted by the community as a whole, and in the marketplace.

Therefore, the Court has assessed the second factor of the *Daubert* standard: the reliability of the Google W-Fi Location data has been tested; it has been subject to peer review in the relevant scientific community; it is substantiated by other mechanisms of geolocation; and it is accepted by the community as a whole. The Court finds that the methodology underlying Google Wi-Fi Location Data is reliable. Thus, the second factor of the *Daubert* standard is satisfied.

³⁹ The information collected by Google for any given device with a Google account is accessible at maps.google.com/timeline, although the information available at this site is less detailed than the information produced by Google in response to the search warrant in this case. *Daubert* Hearing Tr. 27:11—28:5 (J.A. 3).

(iii) Google Wi-Fi Location Data is widely accepted in the computer science industry and reasonably relied upon by law enforcement.

It is acceptance by the scientific community, rather than by the courts, that is identified under *Daubert* as an indicator of a technique's reliability.⁴⁰ Google Wi-Fi Location Data is widely accepted as reliable in the computer science community. In addition, Google Wi-Fi Location Data is generated for commercial purposes, which was recognized by *Carpenter* as an indicia of reliability.⁴¹ Furthermore, law enforcement relies upon GPS, historical cell site analysis,⁴² and, more recently, Google Wi-Fi Location Data to place an individual at a specific location at a specific time. Thus, the third factor of *Daubert* is satisfied.

(iv) Expert testimony based on the Google Wi-Fi Location Data will assist the jury to understand the evidence and to determine a fact in issue.

Expert testimony must help the fact finder understand the evidence or determine a fact in issue.⁴³ The jury in this case will be charged with determining whether the State has established beyond a reasonable doubt that Defendant murdered Heather Stamper. Google Wi-Fi Location Data associated with Defendant's own cell phone will assist the jury in understanding Defendant's

⁴⁰ *United States v. Reynolds*, 626 Fed.Appx. 610, 616 (6th Cir. 2015) (citing *Daubert*, 509 U.S. at 593-94).

⁴¹ As recognized by the United States Supreme Court in *Carpenter*, cell-site records are generated for commercial purposes. *Carpenter*, 138 S.Ct. at 2217.

⁴² *See Id.* at 2218.

⁴³ *Cunningham*, 689 A.2d at 1193.

approximate location before, during, and after the murder. Thus, the fourth factor of *Daubert* is satisfied.

(v) The expert testimony will not create unfair prejudice or confuse or mislead the jury.

The technology at issue will not confuse or mislead the jury. Indeed, “cell phones and the services they provide are ‘such a pervasive and insistent part of daily life’ that carrying one is indispensable to participation in modern society.”⁴⁴ The technology, once explained, will be well within the jury’s capability to comprehend and weigh. According to Defendant, the State has sufficient evidence, referencing GPS and surveillance footage specifically, without also using Google Wi-Fi Location Data, which according to Defendant, is duplicative and will mislead and confuse the jury. The Court is satisfied that the probative value of the Google Wi-Fi Location Data substantially outweighs the danger of unfair prejudice, confusion of the issues, misleading the jury, or needlessly presenting cumulative evidence.⁴⁵ Thus, the fifth factor of *Daubert* is satisfied.

⁴⁴ *Carpenter*, 138 S.Ct. at 2220 (citing *Riley v. California*, 573 U.S. 373, 385 (2014)).

⁴⁵ D.R.E. 403.

CONCLUSION

The evidence is relevant and the experts presented by the State are qualified by knowledge, skill, training and education. The State has established by a preponderance of the evidence that the Google Wi-Fi Location Data is reliable: the Google Wi-Fi Location Data at issue is susceptible to testing and has been subjected to such testing; it has been subjected to peer review in the relevant scientific community; it is verified by other mechanisms of determining geolocation of the Target Device; it is accepted in the computer science/high tech community; and it is widely relied upon in the marketplace and by the community as a whole. Moreover, Google Wi-Fi Location Data will assist the trier of fact to understand the evidence and to determine a factual issue. Finally, the evidence will not create unfair prejudice or confusion.

NOW, THEREFORE, the Defendant's Motion *in Limine* to Exclude Expert Testimony is hereby DENIED.

IT IS SO ORDERED.

Andrea L. Rocanelli

The Honorable Andrea L. Rocanelli