
IN THE COURT OF COMMON PLEAS OF PHILADELPHIA COUNTY
CRIMINAL SECTION TRIAL DIVISION

COMMONWEALTH OF PENNSYLVANIA :
v. : CP-51-CR-0001160-2011
INDIA SPELLMAN : CP-51-CR-0001161-2011

**RESPONDENT COMMONWEALTH'S SUPPLEMENTAL ANSWER TO PCRA
PETITION**

TO THE HONORABLE SCOTT DICLAUDIO:

On June 25, 2022, the Commonwealth filed a *Joint Statement of Facts and Stipulations of Respondent Commonwealth of Pennsylvania and Petitioner India Spellman*, and *Respondent Commonwealth's Answer to PCRA Petition*, in which the Commonwealth explains the factual record, undisputed facts, and offers legal argument as to why the defendant-petitioner is legally entitled to a new trial. The Court need not conduct an evidentiary hearing to resolve the *Brady* claims and the new evidence claim because the stipulations establish the facts, and because there are no material facts in dispute. This Court should independently apply the law to those facts and evidence, taking into account the persuasive value of the Commonwealth's argument that a new trial is warranted.¹

¹ The Commonwealth's *Answer* provides the legal basis for the Court to accept the stipulations, *see* Respondent Commonwealth's Answer to PCRA Petition, ¶ 25-28, explains why under the PCRA an evidentiary hearing is only authorized when there are material facts in dispute, *see Id.* ¶ 29, and recognizes that the Commonwealth's legal argument about those facts do not bind the court, but may be considered for their persuasive value, *see* ¶ 22-24. However, the stipulations are part of the evidentiary record. *See Id.* ¶ 25-28

After considering the Commonwealth's filings the Court made several inquiries, to which the Commonwealth now responds. First, the *Joint Statement* contains many facts which are already part of the record (deriving primarily from the trial and preliminary hearing record in this case). At the request of the Court, copies of that record evidence has been provided. Second, the Court inquired about the Mathis Note. Third, the Court inquired about the timing of Pitts' history of police misconduct that was suppressed. Fourth, the Court inquired about Spellman's cell phone records. Each will be addressed.

The Mathis Note

The Court asked the Commonwealth to provide additional information concerning a handwritten note contained within the DAO trial file for this case. Specifically, the Court inquired about whether there are indicia that Mathis was the person whose phone call to the DAO resulted in a note containing the information: "Got my letter. Never saw faces. Didn't see the face. Did not see a picture." The Court proposed a hypothetical that someone other than Mathis placed the call, presumably with the intent to obstruct justice.

The Commonwealth agrees that the Mathis note memorializes information provided by Mathis. The following facts support the stipulation that the call was made by Mathis, as the note contains specific information that would not have been known to others at the time the note was written. The Mathis-note is dated "9-13-10." This was before discovery, including Mathis's 75-483, had been passed to the defense. Additionally, Mathis's name is not included in the PARS, nor is her phone number. In fact, the PARS does not even reference her existence as an unnamed witness.

First, the Mathis-note is *not a recantation*, it preceded her *surprise* in-court identification.

Second, the Mathis-note contains a phone number that matches the phone number Mathis provided on her form 75-483.²

Third, the Mathis-note states that she “[g]ot my letter,” which refers to a letter dated September 10, 2010 that ADA Jacqueline Coelho (“ADA Coehlo”), sent to Mathis providing instruction for attending the lineup. *See* Exhibit A. Individuals outside of Mathis’ home would be unlikely to know that the DAO communicated the fact that a lineup had been ordered by sending a letter.

Fourth, the back of the note contains additional information about Matthis’s account of the incident, which was not publicly known. The back of the note reads “his pants were falling,” which mirrors the statement/75-483 in which Mathis says, “his pants were drooping down.”

Fifth, the note memorializes that the caller provided Mathis’s full name Kathy Mathis, as well as her maiden name, “Lindsay.” The maiden name does not appear on the lineup order, or 75-483 (that hadn’t been passed to the defense). Mathis’s maiden name is something that others would be unlikely to have known.

Sixth, there is no indication that ADA Coelho did anything at the time that suggested she believed this phone call was made by someone pretending to be Mathis. Nothing indicates ADA Coelho initiated an obstruction of justice investigation.

For these reasons, there is a firm factual and logical basis for the Commonwealth’s stipulation that Mathis made this call rather than a person purporting to be Mathis. This well-founded factual stipulation should be considered as evidence.

² For reasons of privacy that number has been redacted from publicly filed documents but unredacted copies can be made available to the Court.

Regardless, the Mathis-note is *Brady* information, the suppression of which undermines confidence in the verdict. The information in the note was consistent with Mathis's 75-483, the written statement made to police shortly after the crime. However, at trial almost two-and-a-half years after the murder, Mathis made an in-court identification. When she was impeached with her written statement to police that she didn't see the perpetrator's faces, she testified that the police memorialized what she told them incorrectly. The existence of a second statement in the DAO file that she didn't see the perpetrator's face would have further impeached her trial testimony.

Information in law-enforcement files that have "internal markers of credibility" are subject to *Brady* because they can be used to impeach. *Dennis v. Penn. Dept. Corr.*, 834 F.3d 263, 279 (3d Cir. 2016). *Brady* information extends to evidence that could be used to "attack . . . the thoroughness and even the good faith of the investigation." *Kyles v. Whitley*, 514 U.S. 419, 445 (1995). "Pennsylvania law is clear that "admissibility at trial is not a prerequisite to a determination of materiality under *Brady*." *Commonwealth v. Willis*, 616 Pa. 48, 84 (2012). Rather, nondisclosed evidence is material where it "adversely affect[s] the presentation of the defense at trial . . . such that the result of the proceeding would have been different." *Id.* Put another way, inadmissible evidence may lead "to concrete, derivative evidence" that is "both admissible and outcome-changing" and therefore material under *Brady*. *Willis*, 616 Pa. at 91 (Castille, C.J., concurring). For the reasons stated above, the Mathis-note contained internal markers of credibility. Therefore, assuming *arguendo* the Mathis-note was inadmissible, it is nonetheless *Brady* material because a reasonable defense attorney would have utilized it when cross-examining Mathis about her claim that the police incorrectly memorialized her written 75-483.

Pitts' Misconduct Predates Spellman's Trial

The Court inquired about the timing of various misconduct related to Detective Pitts that was not disclosed prior to trial. The joint stipulations discuss this misconduct in detail from ¶ 104 to ¶ 161. Three significant pieces of evidence related to Detective Pitts' misconduct were not disclosed to the defense prior to **Spellman's trial which occurred between February 13, 2013 and February 20, 2013.**

The Criminally Charged, 2010 Misconduct, CP-51-CR-0004729-2022

On **November 8, 2010**, Pitts obstructed justice by physically assaulting an innocent man into confessing to a robbery-murder he did not commit. On **May 22, 2013** and on **May 29, 2013**, Pitts lied under oath at a motion to suppress and jury trial about his obstructive and physically assaultive acts. Pitts has been held for court at CP-51-CR-0004729-2022 for charges related to this misconduct. This is supported by Presentment Number 2, of the Thirty-First County Investigating Grand Jury.

The 2012 Misconduct, CAP #12-041

On **September 3, 2012**, Internal Affairs ("IA") sustained a finding of **Abuse of Authority** and **Damage to Private Property** for detaining a witness's 84-year-old grandfather, holding him for six hours without cause, and damaging the door to grandfather's home. This related to a **January 17, 2012** incident. It is supported by CAP #12-041

The 2002 Misconduct, IAD 02-1009

On **January 18, 2002**, Pitts struck his then-wife PPD Officer Michelle Dotson in an act of domestic violence. When police arrived on the scene, Pitts "kept going into the bathroom and his room" despite the fact that responding the responding officer "told James Pitts several times to sit down on the couch." Pitts fabricated an injury and a claim that his wife hit him. IA rejected Pitts's

account given during the IA investigation. This is supported by IAD 02-1009, which **was sustained by IA on January 10, 2003.**

The 2013 Misconduct, IAD 13-592

Pitts also engaged in conduct that led to sustained IAD findings for misconduct shortly after the close of Spellman's trial that nevertheless constitutes a *Brady* violation because it occurred during the pendency of the defendant's direct appeal, which began when **Spellman filed a notice of appeal on December 15, 2015.**³

On **June 1, 2013**, Pitts improperly detained an individual named Zshani Al-Rasul at Homicide for three days without legal justification. On **March 5, 2015**, **IA sustained** findings that **Pitts Abused his Authority**, engaged in **Improper Detention**, violated **Directive 82 Concerning Adult Detainees in Police Custody**, and engaged in **Improper Procedure**. The City of Philadelphia settled with Al-Rasul for \$110,000 in August of 2014. This is supported by IAD 13-592, **sustained on March 5, 2015.**

ADA Lipscolm told the Commonwealth that IA information was not provided to the defense, as the DAO did not customarily provide information about police misconduct as discovery in 2012. Further, there is no record it was passed as discovery. Regardless of whether

³ On May 30, 2013, Spellman was sentenced to a mandatory 30 years to life imprisonment. On June 10, 2013, Spellman, through attorney Seay, filed a timely post-sentence motion challenging the sentence imposed. On June 17, 2013, that motion was denied. On June 20, 2013, Attorney Seay filed an untimely post-sentence motion for a new trial. On July 19, 2013, Judge Minehart filed a "Short Certificate" order allowing Mr. Seay to withdraw as counsel, and appointing Attorney Norman Scott forthwith for post-sentence motions and future appeals. However, the time to file an appeal had already expired by the time this order was entered. Although the order appointing new counsel came 29 days after the untimely motion for new trial, that motion was a legal nullity and did not affect the time to file an appeal. *See Commonwealth v. Dreves*, 839 A.2d 1122, 1127 (Pa. Super. 2003) (*en banc*). No notice of appeal was filed. On December 15, 2015, Judge Minehart granted Spellman's PCRA request to reinstate her appellate rights nunc pro tunc, based on claims of ineffective assistance of counsel. A timely notice of appeal nunc pro tunc was filed on December 15, 2015. This came nearly 10 months after CAP 13-592 was sustained against Pitts.

the PPD disclosed this information to ADA Lipscolm, the *Brady* obligation extends to information possessed by law enforcement in the same jurisdiction as the prosecutors. *Kyles v. Whitely*, 514 U.S. 419, 434 (1995); *Commonwealth v. Burke*, 781 A.2d 1136, 1142 (2001).

It is appropriate for the Court to accept these stipulations (§§ 104 to § 161) because they are supported by judicial documents and PPD Internal Affairs records.

Sustained IA findings that a police officer engaged in misconduct must be disclosed pursuant to a prosecutor's *Brady/Giglio* obligation. *C.f. Fraternal Order of Police Lodge No. 5 v. City of Philadelphia*, 267 A.3d 531, 556 (Pa. Commw. Ct. 2021) (Ceisler, J., *concurring and dissenting, joined by Wojcik, J.*) (“Information regarding a PPD employee's alleged perpetration of misconduct may certainly be material in some instances, *even if the allegation has previously been deemed by others to have been unfounded*. This is because such an accusation goes to the heart of a PPD employee's trustworthiness and speaks to whether they have conducted themselves with fidelity and honor in fulfilling the inherently weighty duties of their job.”) (emphasis in original).

A recent case, *Goodwin v. Wetzel, et al*, No. 18-cv-5269, 2022 WL 2759047 (E.D. Pa. June 15, 2022), is highly persuasive authority that the Commonwealth cannot ignore. In *Goodwin*, U.S. District Court Judge Timothy J. Savage granted habeas relief after a “thorough and independent review of the record” and adopted the Report and Recommendation of Magistrate Judge Lynne A. Sitarski, which summarized Pitts’ misconduct for the 2002 incident (IAD 02-1009), the 2012 misconduct (CAP 12-041), and the 2013 misconduct (CAP 13-592). The District Court found there was “no question that the evidence of Detective Pitts’s misconduct was suppressed” and that it “was in the possession of the police, held in Detective Pitts’s IA file.” *Id.* at *23. In *Goodwin*, the district court also found that one IA investigation did not conclude until after the defendant’s trial

but nonetheless found its suppression a *Brady* violation because the defendant’s “direct appeal remained pending at this time” and found that “a prosecutor’s *Brady* obligations remain in full effect on direct appeal because the defendant’s conviction has not yet become final, and his right to due process continues to demand judicial fairness.” *Id.* at *22-23 (*cleaned up and quoting Fields v. Wharrie*, 672 F.3d 505, 515 (7th Cir. 2012)).⁴

Cell Phone Records

The court inquired about what information could be learned from cell phone records the Commonwealth obtained from telecommunications carriers prior to trial. These records were not introduced at trial. Therefore, any inculpatory inferences from them would be irrelevant to Spellman’s claim that her due process right to a fair trial were violated under *Brady*. See *United States v. Bagley*, 473 U.S. 667, 677 (1985) (explaining that a new trial is required only when suppressed evidence “could . . . in any reasonable likelihood have *affected the judgment of the jury*”) (emphasis added). However, the records are exculpatory.

Spellman’s T-Mobile Records

The Commonwealth did not conduct expert analysis of the carrier records for the cell phone seized by police from Spellman’s person when she was arrested. The phone records were comprised of Spellman’s T-Mobile records from 8:00 a.m. on August 17, 2010 through 10:15 p.m. on August 20, 2010, obtained from T-Mobile in response to a search and seizure warrant.

Even without expert analysis, it is clear from the face of the records that at the time of the murder, Spellman’s phone connected to T-Mobile tower 18601 for a 25-minute phone call. This

⁴ The Commonwealth also gives great weight to Judge Sarmina’s findings that Pitts’s habits constitute a distinct pattern. The judge found that when Pitts “operated under the apparent belief that an interrogation subject is being untruthful or withholding evidence” he engaged in coercive interrogation tactics, and that this habit comprised a “majority of Detective Pitts’ career in the Homicide Unit.” See *Commonwealth Answer*, ¶ 94.

is the same tower that her phone connected to minutes before she was arrested in her home on August 20, 2010 at 3:15 p.m. (1 minute call 8/20/10 15:12, tower 18601). At the very least, this data establishes that at the time of the murder Spellman's phone was capable of connecting to tower 18601 from her home. Even without expert analysis, this information is consistent with Spellman's proffered alibi.

However, the expert analysis of Gerald R. Grant, Jr. ("Grant") a qualified expert in the field of historical cell site analysis is even more probative.⁵ Grant's report is attached as Exhibit B. Grant analyzed the connecting tower for T-Mobile calls made on Spellman's phone at the time of the murder, comparing the cell tower used to connect the call to the network to Spellman's home and to the scene of the murder. Grant determined the fact that the location of the murder is just beyond 1 mile from the location of tower/sector. Grant determined that tower/sector 18601 clearly provides coverage to Spellman's home. Grant determined 18601 is the dominant tower/sector for 938 E. Slocum Street. This is based the fact that a call connected through that tower minutes before Spellman's August 20, 2010 arrest in her home, as well as over one hundred other instances of the phone connecting through that tower/sector. Grant also considered that there are multiple towers/sectors that are closer to the scene of the murder than 18601, and that the scene of the murder would more likely than not be covered by those other tower/sectors. Significantly, Grant

⁵ Grant notes that drive-test data is the best way to determine cell site coverage. No drive-test data was collected in connection with this case in 2010. The CIU contacted the Federal Bureau of Investigation ("FBI") to determine if the FBI had any historical drive-test data for that time-period. The FBI did not, as they were not routinely collecting drive-test data at that time. Grant also notes that these carrier records only show the cell tower/sector the phone connected to at the beginning of the call, but not the tower/sector for the end of the call, which can be the same or different depending on whether the network handed-off the connection during the call based on movement or network activity. Despite this, there is additional probative data. An additional call commenced on the same tower/sector beginning at 16:04 (6 minutes after the conclusion of the prior, 25-minute call).

considered the elevation change between the location of 18601 and the scene of the murder. This hill would easily affect the line-of-site between the tower/sector and the scene of the murder, and would reduce or block the ability of the signal to travel between the two locations. **Consequently, Grant concluded that “a call utilizing cell tower/sector 18601 would be consistent with a phone located at 938 E. Slocum Street and not 7901 Pickering Avenue.”**

Spellman Phone Forensic Analysis

Spellman’s phone, a Sidekick (frequently advertised as a feature-phone), was seized and subsequently analyzed on August 25, 2010. Police performed a forensic cell phone extraction, yielding a 19-page printed SIM/USIM examination report. An electronic copy of the extraction is not available, and the physical phone device cannot be located. The report contains a record of the last 10 calls, which does not include the pertinent time-period. However, 162 phone numbers were recorded in the phone’s cell phone contacts/address book feature.

Phillips’s Stolen Phone Records

On August 18, 2010, PPD also obtained a call detail record for Phillips’s stolen phone, from AT&T.⁶ In the hours after the theft, several calls were made using the stolen phone. At the time of trial, the Commonwealth conceded that none of those numbers could be connected to Spellman.

The CIU investigated whether any of the numbers dialed from Phillips stolen phone could be connected to the other records in this case. No connections were noted. In particular, the CIU compared the phone numbers stored in Spellman’s contacts on her phone (as determined by the

⁶ Phillips’s stolen phone was recovered on August 19, 2010 from Brandon Womack. He was held at Homicide for more than five hours, and provided a statement saying he found the phone. A forensic extraction of this phone was not conducted. According to the property receipt, the phone was returned to Phillips on August 31, 2010.

extraction) to the numbers dialed on Phillips' phone. None of the numbers matched. Nor were there any similar or likely misdialed numbers. The CIU also compared the numbers from the stolen phone records to Spellman's T-Mobile records, and found no matching or similar/likely misdialed numbers.

Analysis in Relation to Ineffective Assistance Alibi Claim

The Commonwealth considers this cell phone evidence in the context of Spellman's claim that her trial counsel was ineffective for failing to present alibi evidence. Alibis proved by uncorroborated witness testimony—particularly potentially biased witness testimony—are less convincing than an alibi that is bolstered with corroborating evidence. This is common sense, but has also been borne out by academic research. In research settings, academics have studied the believability of alibis proven with the testimony of witnesses who are familiar to the suspect such as family and friends (those unlikely to mistakenly identify the suspect, but also likely to be biased towards helping the suspect). This category of alibi is the least likely to be believed, (setting aside the defendant's own testimony about his/her whereabouts which fall outside Pennsylvania's alibi notice rule). However, according to one study, when the alibi is proven with witnesses familiar to the suspect, and with physical evidence that is difficult to fabricate (as opposed to easy to fabricate), the alibi is almost twice as believable. Elizabeth A. Olson, Gary L. Wells, *What Makes a Good Alibi? A Proposed Taxonomy*, 28.2 *Law and Human Behavior* 157-176 (2004). Significantly, when the alibi is bolstered with difficult to fabricate physical evidence, the believability is similar regardless of whether it is proven with witnesses familiar to the suspect, or unfamiliar strangers. *Id.*

Subsequent research has measured police perceptions of the believability of certain alibi categories. It also considered perceptions of how easy or difficult it would be for a suspect to

fabricate physical evidence of an alibi. One study involved surveys of senior law enforcement officers, and asked respondents to provide examples of physical evidence that suspects offer in criminal investigations, and for each to estimate how easy/difficult it would be for the suspect to fabricate the evidence on a scale of 1 to 10 (1 being easy to fabricate, 10 being impossible to fabricate). The survey found experienced law enforcement officers rated cell phone or landline phone records at 6.1 with a standard deviation of 2.5. The authors categorized this as “moderately” difficult to fabricate.

This case is unusual because even without expert testimony, the unique facts of this case establish that the phone records were consistent with the proffered alibi. Spellman’s phone was used for a 25-minute call during the time of the murder. That call connected Spellman’s phone through cell phone tower 18601, which was accessible from Spellman’s home. Paperwork available to the defense at the time of Spellman’s trial makes it clear to a layperson that tower “18601” was accessible to Spellman’s phone from her home: According to the 75-48A, Spellman was arrested at her home on August 20, 2010 at 3:15 p.m. Additionally, Spellman’s phone connected to the T-Mobile network through tower “18601” on August 20, 2010 at 3:12 p.m. The records obtained from T-Mobile show that Spellman’s phone was connected to that same tower at the time of the murder.

Academic research and common sense suggest that physical evidence such as this make an alibi more believable. The expert opinion concerning the historical cell site data is even more convincing, and tends to corroborate Spellman’s alibi with physical evidence.

Conclusion

The undisputed and stipulated facts establish that material exculpatory and impeaching information was suppressed from the defense in violation of *Brady* and its progeny. The

information contained in the Joint Stipulations and Answer are well-founded. At that request of the Court, the Commonwealth has provided additional analysis of information from Spellman's cell phone records and device. This is also exculpatory. The Commonwealth therefore urges the Court to grant the defendant a new trial.

Respectfully Submitted,

LAWRENCE S. KRASNER
District Attorney of Philadelphia

/s/ Michael Garmisa
Assistant District Attorney
Supervisor, Conviction Integrity Unit

/s/ Graham Sternberg
Assistant District Attorney
Conviction Integrity Unit

Date: August 23, 2022

VERIFICATION

The facts above set forth are true and correct to the best of the undersigned knowledge, information and belief. I understand the statements herein are made subject to the penalties of 18 Pa C.S. §4904 (relating to unsworn falsification to authorities).

Respectfully submitted,

/s/ Michael Garmisa

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/s/ Graham Sternberg

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CERTIFICATE OF SERVICE

I, Michael Garmisa, Assistant District Attorney, hereby certify that a true and correct copy of the foregoing Respondent Commonwealth's Answer to PCRA Petition was served on August 23, 2022, to the parties indicated below via email:

Todd M. Mosser, Esq.
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/s/ Michael Garmisa
Assistant District Attorney, Supervisor
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EXHIBIT A



DISTRICT ATTORNEY'S OFFICE
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R. SETH WILLIAMS
DISTRICT ATTORNEY

Kathy Mathis

████████████████████
Philadelphia, PA 19150

mid

September 10, 2010

RE: Commonwealth v. India Spellman
Commonwealth v. Von Combs
MC 51 CR 0036347-2010
MC 51 CR 0036348-2010
MC 51 CR 0036368-2010
MC 51 CR 0036369-2010

Dear Ms. Mathis:

The Court ordered that you attend a lineup in the above case in which you are an eyewitness. Please bring this letter and the enclosed form to the Curran Fromhold Correctional Facility, located at 7901 State Road on September 28, 2010 and September 30, 2010 at 4:30 p.m. Two separate line-ups are to be conducted for each defendant and so you must attend on both dates. Enter through the entrance marked for Administration.

If you need transportation to and from the lineup, please call me at (215) 686-8090 at least the week before so that I can arrange it. Please contact me regardless, upon receipt of this letter. Thank you for your continued cooperation in this matter and I look forward to hearing from you.

Sincerely,

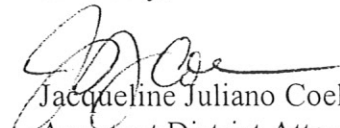
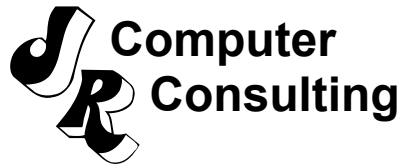

Jacqueline Juliano Coelho
Assistant District Attorney

EXHIBIT B



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August 22, 2022

Michael Garmisa
Assistant District Attorney
Supervisor - Conviction Integrity Unit
Philadelphia District Attorney's Office
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Philadelphia, PA 19107

Re: CIU 2019-774 - Historical Cell Site Analysis Report

Dear Mr. Garmisa:

Please accept this document as my Report of Findings for the review of the Historical Call Detail Records in the above case.

I am an AccessData Certified Examiner, Cellebrite Certified Operator, Cellebrite Certified Physical Analyst, Cellebrite Certified Mobile Examiner, Cellebrite Certified Advanced Smartphone Analysis Examiner, Cellebrite Certified Smartphone Extraction Examiner, Cellebrite Certified Evidence Repair Technician – Forensics, Cellebrite Iron Python Certified, systems analyst, programmer and trainer with more than 25 years of experience involving digital forensics, cell site analysis, social site investigations, eDiscovery and litigation support. I have been involved in many state and federal cases and have been qualified as an expert over fifty (50) times.

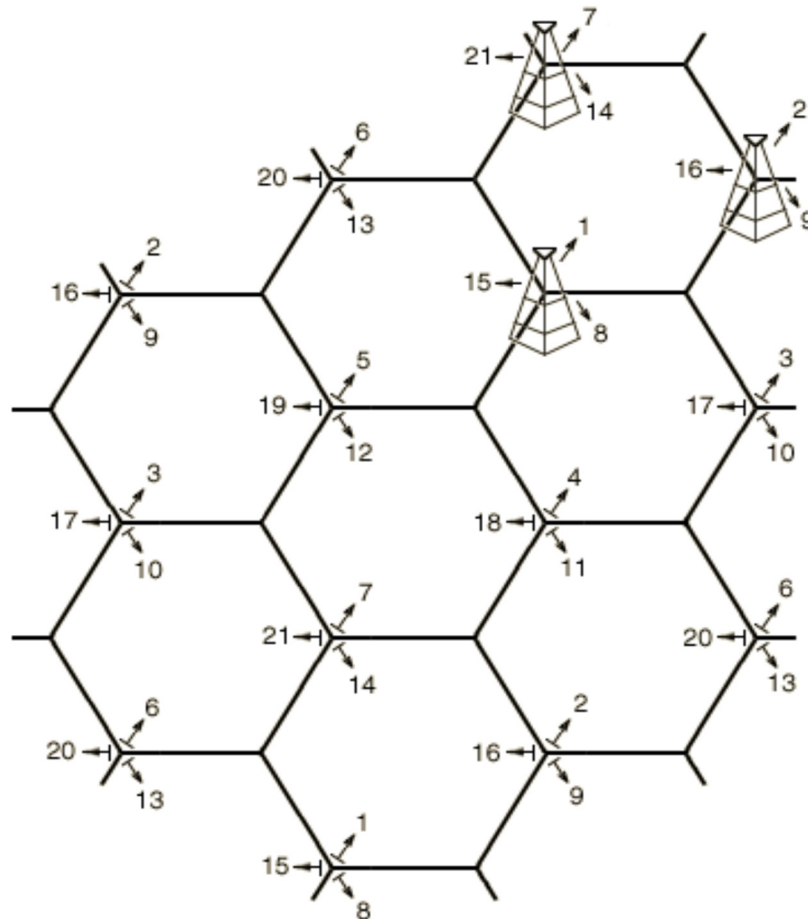
I was asked to review **Subscriber Information with Call Detail Records and Cell Sites** related to a T-Mobile phone number **215-667-1135**. Based on my review of these records, I was able to plot individual cell tower locations with sector orientations. The cell tower locations and associated sectors utilized were plotted with Google Earth. In addition to the previously mentioned records, I was also provided form **75-48a Pedestrian Investigation Report** as well as the following information for plotting and analysis:

- **938 E. Slocum Street**
- **7818 Rugby Street**
- **7901 Pickering Avenue – Crime Scene**
- **Time of crime: approximately 8/18/2010 15:48:22, or earlier**

HISTORICAL CELL SITE ANALYSIS

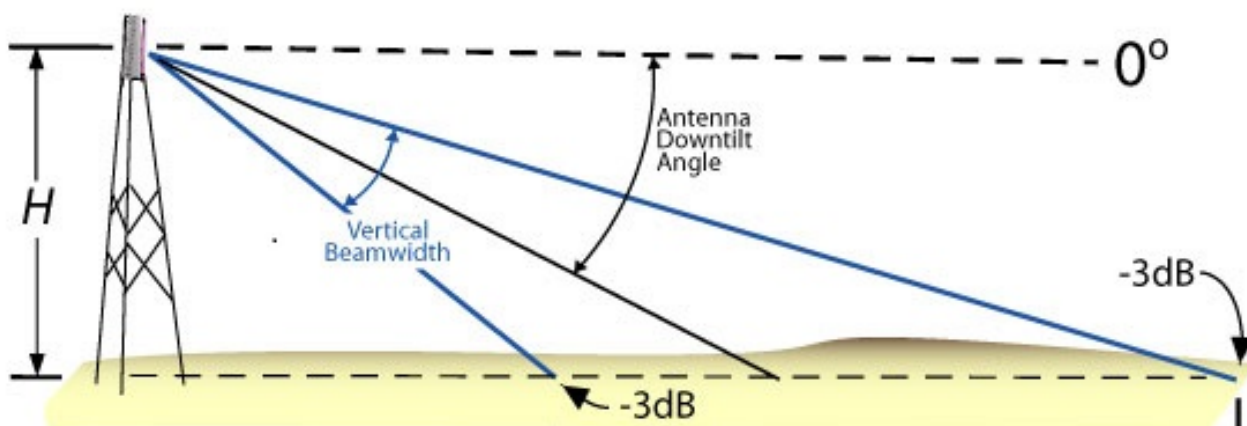
Historical Cell Site Analysis is the practice of interpreting the call detail records of a cellular provider and plotting that information on a geographical map. When a cell phone is turned on, it interacts with the local cellular towers and antennas of the current provider to register itself and maintain a connection. This is done so that the phone can make/receive calls, text messages or perform other capabilities. The cellular network is aware of the towers/antennas that the phone can connect to, and the phone is aware of the surrounding towers/antennas. This information is continuously updated in the event the phone is traveling or other events occur.

Each cell tower is typically divided into three (3) sectors, each covering an approximate 120-degree area of the 360-degree coverage of the tower. This is mainly due to the increased use of cell phones over time to handle load balancing on the cellular network. In addition, it also allows maintenance on a particular sector without taking down an entire tower. A cell (not cell tower) is an area that is ideally covered via overlapping sectors from three (3) separate towers. This design is to ensure calls are not dropped or lost in the event of network load, or failure. This overlapping also allows for calls to be handed off from one tower/sector to another in the case of movement or network load **(see illustration below)**:



The previous illustration is an ideal configuration for a cell tower network. However, due to obstructions (buildings, bridges), geography etc., the towers are not always in a specific location pattern, so adjustments need to be made.

The configurations of the individual cell towers/sectors are not all the same. Each sector can be rotated to point in a different direction. Cell towers can have antennas that cover the entire 360 degrees (omnidirectional) or multiple sets of antennas pointing in specific directions (unidirectional). There are also towers with two (2) sectors or even six (6) sectors depending on the vendor's need and technology. The distance a sector reaches can also be adjusted through the height, downtilt (angle the antenna points to the ground), wattage (power), etc. (**see illustration below**):



The cell phone service providers will periodically adjust these settings as the network grows or due to changes in the environment. Cell towers can also be removed (decommissioned), or added as needed (commissioned), to tune their network to handle customer needs.

A cell tower can reach many miles but is rarely configured for that distance. In highly populated areas, it is typical to see a configuration of 1.0 – 1.5 miles. In less populated areas, or areas without tall buildings or other obstructions, they can be configured to reach further. The restriction is not typically due to the distance capability of the tower, it is related to the number of customers utilizing cell phones in an area, topography, obstacles, etc. Cell tower/sectors have a limited number of active users they can manage at one time and need to be designed to avoid overload.

HISTORICAL CELL SITE ANALYSIS PLOTTING

A general location where a phone can be during activity is typically illustrated graphically through a mapping program. This involves reviewing and interpreting the data recorded and stored by the cellular provider. These are known as Call Detail Records (CDR), and they typically contain the associated beginning and ending cell tower/sector that is utilized during the use of a cell phone. Most cellular providers will

only capture this information on incoming or outgoing calls only. However, more are currently capturing this data during text messaging and data use as well. The retention policies for storing the cell tower/sector information vary from one cellular provider to the next, so this information needs to be requested or preserved as soon as possible.

The cell phone number (215-667-1135) associated with this case was utilizing cellular services through T-Mobile (see example below):

							T-Mobile USA Law Enforcement Relations Group 4 Sylvan Way Parsippany, New Jersey 07054 Phone (973) 292-8911 Fax (973) 292-8697	
Date Range: 08/17/2010 - 08/20/2010								
MSISDN	Date	Destination	*Time	Phone Number	Call Type	Number of Minutes	Originating Cell Site	
215-667-1135	08/17/2010	PHILA,PA	00:08:00	2675951557		1	18601 Philadelphia,PA	
215-667-1135	08/17/2010	INCOMING	00:08:00	2153035664		2	18601 Philadelphia,PA	
215-667-1135	08/17/2010	PHILA,PA	00:10:00	2153035664		1	18601 Philadelphia,PA	
215-667-1135	08/17/2010	PHILA,PA	01:28:00	2153035664		2	18601 Philadelphia,PA	
215-667-1135	08/17/2010	PHILA,PA	01:29:00	2153970180		1	18601 Philadelphia,PA	

The Call Detail Records above include the information related to the Originating Cell Site for call activity. This would indicate the cell tower/sector used when the call started but does not include information for the cell tower/sector used when it ended. The ending tower/sector can be the same or a different one depending on the general location/movement of the cell phone. Even if these towers/sectors are different, it does not always indicate the cell phone has moved. Once a call is started, the network can hand-off the connection to a different tower/sector as needed.

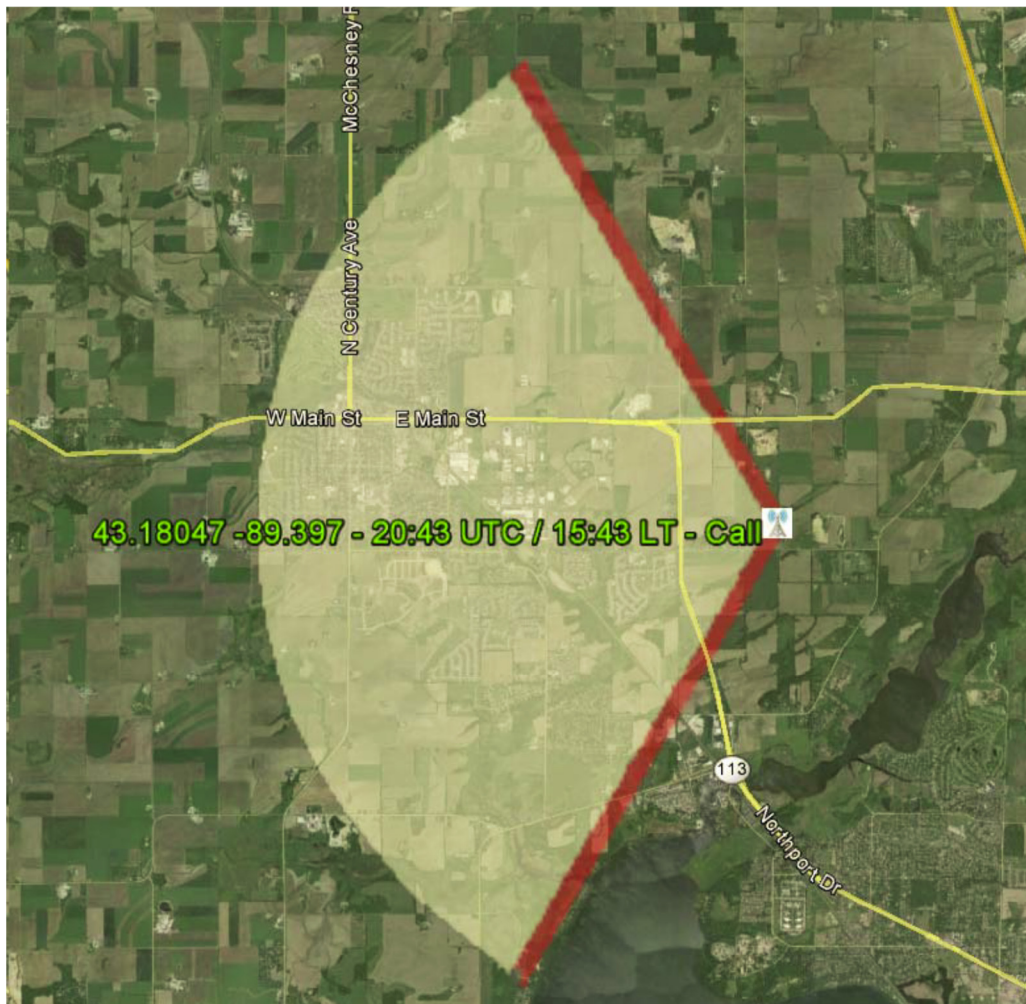
The Original Cell Site information in the previously illustrated records by itself does not allow for the plotting of the data on a mapping program. The data will need to be cross-referenced with a Cell Tower Database to determine the location of the tower (Latitude/Longitude), the sector utilized, the direction the sector is pointing (Azimuth) and other information as needed. Most cellular providers will include a separate list of cell towers along with the Call Detail Records. I was provided separate T-Mobile tower lists associated with the Call Detail Records in this case (see example below):

A	B	C	D	E	F	G	H	I	J	K	L	
spblidrom_code	Sector	MNC	LAC	Cell_id	Orientation	horiz_bw	Lat_decimal	Lon_decimal	Market	Region	Address	City
1PH1002E	11	260	34695	21	30	65	40.08277778	-74.96888889	PHILADELPHIA PA	NORTHEAST	4200-4260 Woodhaven Road	Philadelphia
1PH1002E	21	260	34695	22	150	65	40.08277778	-74.96888889	PHILADELPHIA PA	NORTHEAST	4200-4260 Woodhaven Road	Philadelphia
1PH1002E	A	26	34621	21	30	90	40.08277778	-74.96888889	PHILADELPHIA PA	NORTHEAST	4200-4260 Woodhaven Road	Philadelphia
1PH1002E	31	260	34695	23	270	65	40.08277778	-74.96888889	PHILADELPHIA PA	NORTHEAST	4200-4260 Woodhaven Road	Philadelphia
1PH1002E	B	26	34621	22	150	90	40.08277778	-74.96888889	PHILADELPHIA PA	NORTHEAST	4200-4260 Woodhaven Road	Philadelphia
1PH1002E	C	26	34621	23	270	90	40.08277778	-74.96888889	PHILADELPHIA PA	NORTHEAST	4200-4260 Woodhaven Road	Philadelphia
1PH1003B	11	260	34695	31	30	65	40.110511	-75.000552	PHILADELPHIA PA	NORTHEAST	2071 Byberry Rd.	Philadelphia
1PH1003B	21	260	34695	32	150	65	40.110511	-75.000552	PHILADELPHIA PA	NORTHEAST	2071 Byberry Rd.	Philadelphia
1PH1003B	B	26	34621	32	150	65	40.110511	-75.000552	PHILADELPHIA PA	NORTHEAST	2071 Byberry Rd.	Philadelphia
1PH1003B	31	260	34695	33	270	65	40.110511	-75.000552	PHILADELPHIA PA	NORTHEAST	2071 Byberry Rd.	Philadelphia
1PH1003B	C	26	34621	33	270	65	40.110511	-75.000552	PHILADELPHIA PA	NORTHEAST	2071 Byberry Rd.	Philadelphia
1PH1003B	A	26	34621	31	30	65	40.110511	-75.000552	PHILADELPHIA PA	NORTHEAST	2071 Byberry Rd.	Philadelphia
1PH1004C	C	26	34645	43	270	65	40.10055556	-75.02583333	PHILADELPHIA PA	NORTHEAST	1320 Red Lion Rd	Philadelphia
1PH1004C	21	260	34695	42	150	65	40.10055556	-75.02583333	PHILADELPHIA PA	NORTHEAST	1320 Red Lion Rd	Philadelphia
1PH1004C	B	26	34645	42	150	65	40.10055556	-75.02583333	PHILADELPHIA PA	NORTHEAST	1320 Red Lion Rd	Philadelphia
1PH1004C	11	260	34695	41	30	65	40.10055556	-75.02583333	PHILADELPHIA PA	NORTHEAST	1320 Red Lion Rd	Philadelphia
1PH1004C	31	260	34695	43	270	65	40.10055556	-75.02583333	PHILADELPHIA PA	NORTHEAST	1320 Red Lion Rd	Philadelphia
1PH1004C	A	26	34645	41	30	65	40.10055556	-75.02583333	PHILADELPHIA PA	NORTHEAST	1320 Red Lion Rd	Philadelphia

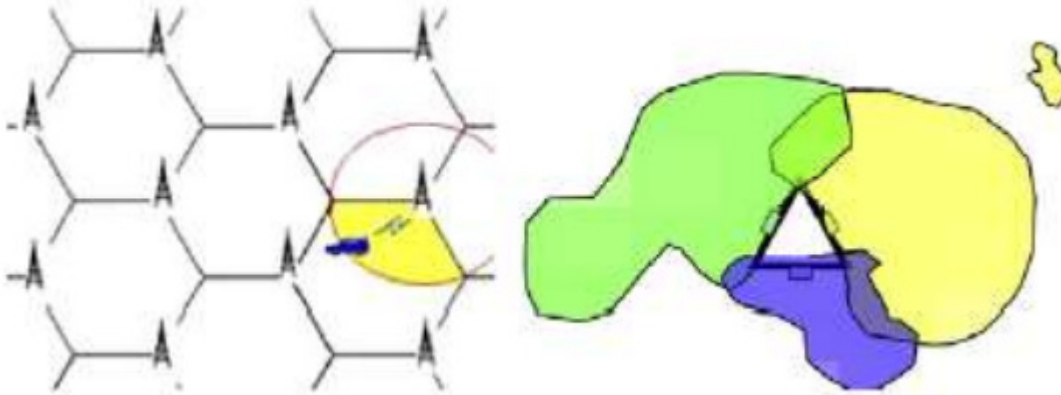
Historical cell site analysis plotting is based mostly on known information obtained from the cellular provider.

- Through the Latitude and Longitude from the cell tower list, we know where the cell tower/antennas are located that the cell phone utilized. These can be on an actual tower, a building, a water tower, etc.
- We know what sector a cell phone utilizes at the beginning and end of a call (if provided).
- We are aware that towers utilizing a 3-sector design will have each sector cover approximately 120 degrees.
- We are aware that the sectors can be rotated and have the direction (Azimuth) information to indicate what angle of degree (from North) the center of the sector points toward.

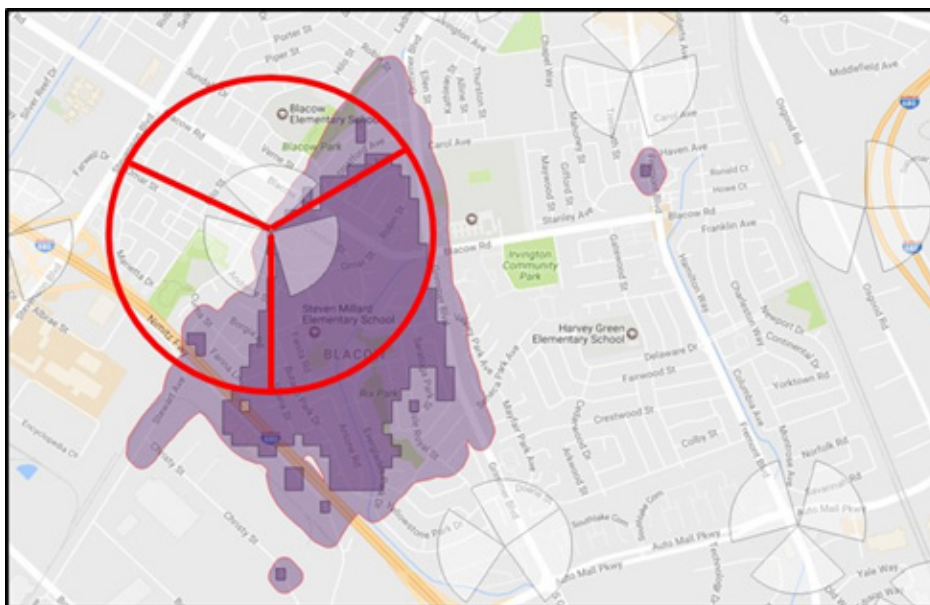
The exact coverage of any cell tower/sector combination is unknown in most historical cell site analysis reports or exhibits based on the data received from the cellular provider. The coverage is typically demonstrated utilizing some type of graphical overlay connected with the tower itself (**see illustration below**).



The previous illustration represents a 120 Degree Sector with a Direction (Azimuth) of 270 Degrees (Facing West) away from the cell tower. This illustrated cell tower would also have two (2) additional sectors, one facing 30 Degrees and the other facing 150 Degrees to blanket the full 360 Degrees of the tower coverage. However, the true coverage (Propagation) of a cell sector is not a nice clean pie wedge as illustrated. This is due to obstruction, land mass, elevation, etc. The edges are typically not a true straight line, and the sector coverage is more amoeba shaped and can cover areas outside of what is typically depicted (**see illustrations below**):



To obtain the most accurate coverage of a tower/sector combination possible, a full and complete drive test would be required. A drive test is a process performed by utilizing specialized equipment in a vehicle, backpack, etc., that will identify your location via GPS, and record the signals of the cell tower/sector combination being analyzed. Many times, a vehicle is utilized to drive as many roads as possible around the area of the cell/sector to record the data (**see illustration below**):



The records/data received did not include any drive test data that could be analyzed and plotted for more accurate sector coverage illustrations.

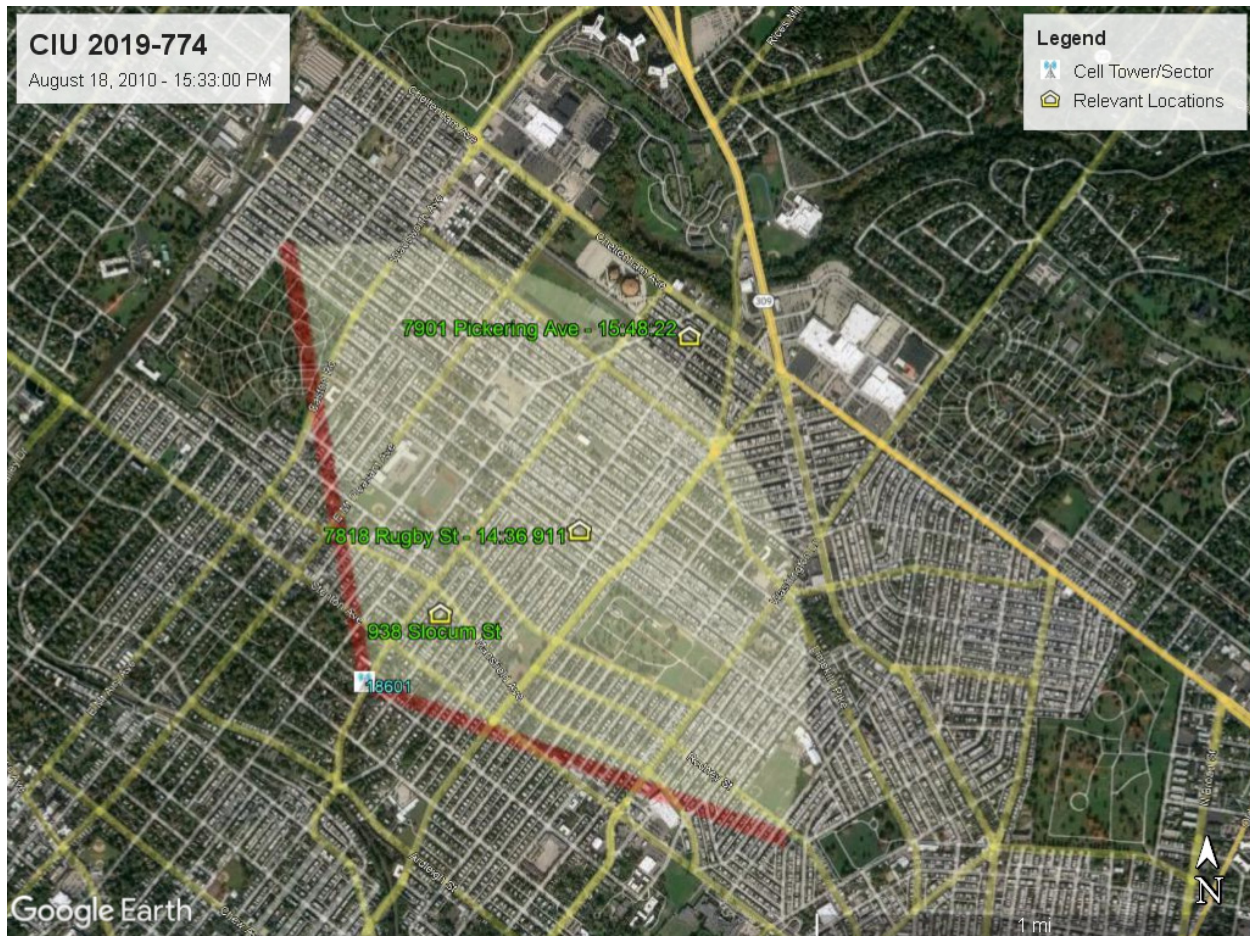
GOOGLE EARTH PLOTTING

I was asked to review the information and concentrate on a specific call related to this case from the T-Mobile Call Detail Records (**see highlighted detail below**):

215-667-1135	08/18/2010	PHILA,PA	14:51:00	2677770689	2	18601 Philadelphia,PA
215-667-1135	08/18/2010	PHILA,PA	14:52:00	2159546088	2	18601 Philadelphia,PA
215-667-1135	08/18/2010	PHILA,PA	15:10:00	2153035664	1	18601 Philadelphia,PA
215-667-1135	08/18/2010	INCOMING	15:33:00	2153970180	25	18601 Philadelphia,PA
215-667-1135	08/18/2010	PHILA,PA	16:04:00	2154355850	2	18601 Philadelphia,PA
215-667-1135	08/18/2010	PHILA,PA	16:05:00	2153035664	1	18601 Philadelphia,PA
215-667-1135	08/18/2010	PHILA,PA	16:05:00	2153035664	5	18601 Philadelphia,PA
215-667-1135	08/18/2010	PHILA,PA	16:36:00	2675951557	1	18601 Philadelphia,PA
215-667-1135	08/18/2010	WILLOW GRV,PA	16:44:00	2678180665	2	18601 Philadelphia,PA

I carefully reviewed the Call Detail Records received and matched up the call activity to cell tower locations and sector orientations. This allowed me to enter that information directly into Google Earth for illustration purposes.

In addition to plotting Tower/Sectors, I also plotted the specific addresses that were given to me on the Google Earth Map to indicate their locations relevant to the cell towers/sectors utilized during call activity (**see illustration below**):



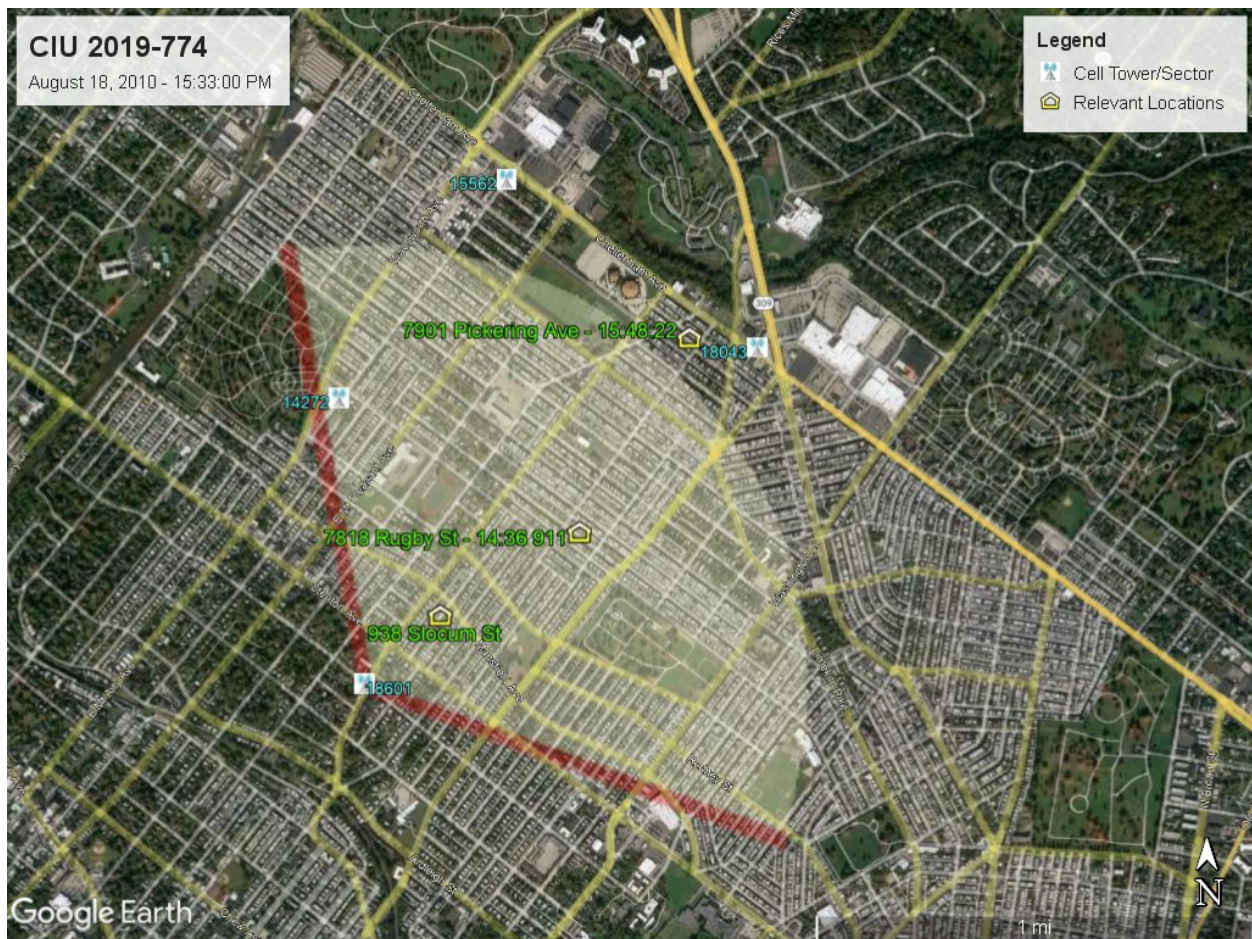
GOOGLE EARTH MAP

The Google Earth Map illustrated previously is based on the following information:

- **Cell Provider/Number:** T-Mobile - 215-667-1135
- **Period:** August 18, 2010 - 15:33:00 PM
- **Duration:** 25 Minute Incoming Call
- **Originating Cell Site:** 18601

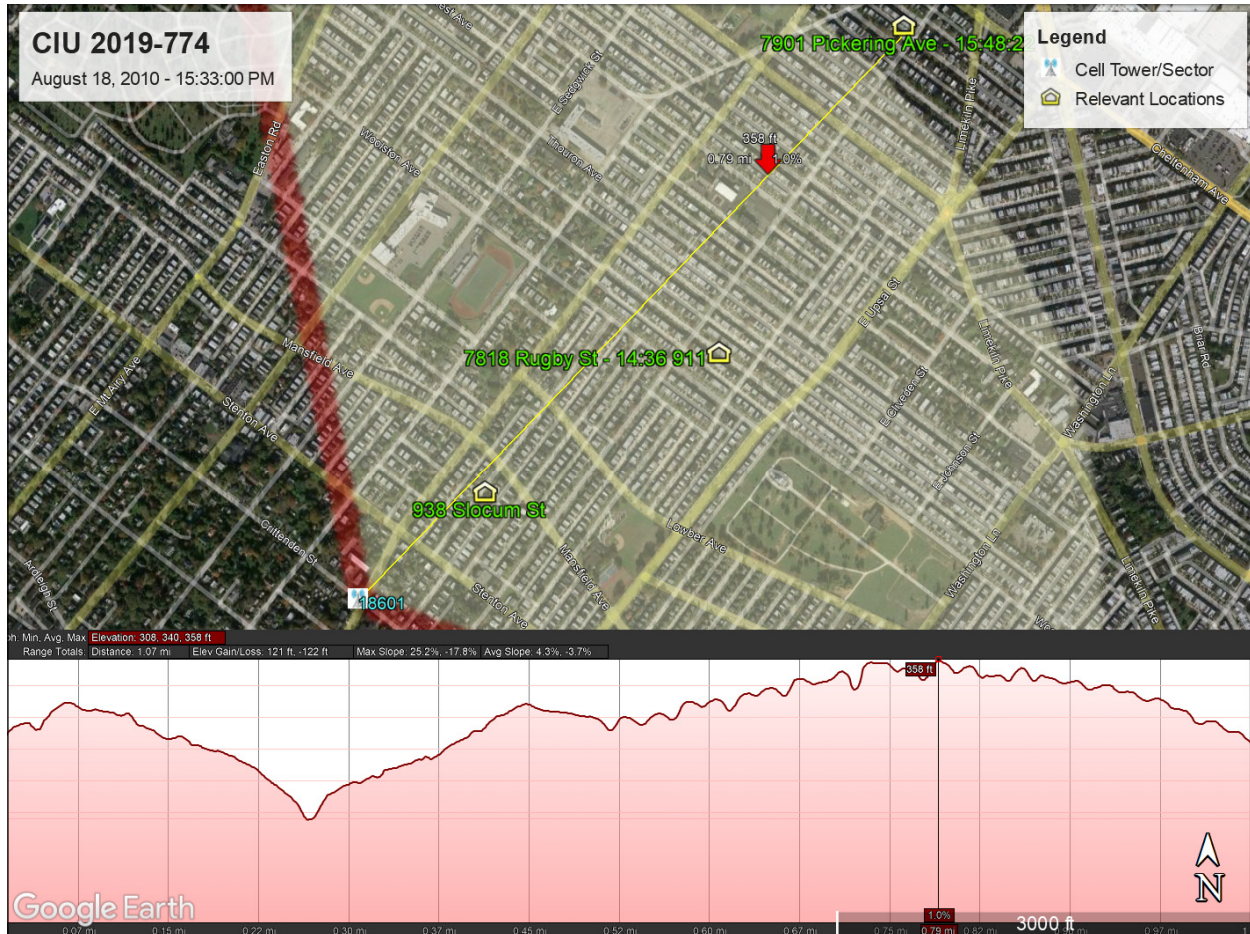
The map illustrates the beginning cell tower and sector (Approximate distance of one (1) mile) utilized during the August 18, 2010 - 15:33:00 PM call activity for the number 215-667-1135 as well as the relevant locations.

Via the cell tower database, I was able to plot all other towers/sectors in the general area. This allows me to identify and analyze towers/sectors that were not utilized based on the records. I was able to identify three (3) Cell Towers/Sectors (**14272, 15562 & 18043**) that were closer to **7901 Pickering Avenue** than the one utilized by the incoming call (**see illustration below**):



Cell phones often, but not always, utilize a cell tower/sector that is closer for calls. The phone chooses the tower/sector based on signal strength and quality (cleanest, clearest, strongest) that can vary based on obstructions, line-of-sight, etc.

I utilized a feature in Google Earth that produces an Elevation Profile between two (2) points. I selected the path between cell tower/sector 18601 and 7901 Pickering Avenue (see illustration below):



The Elevation Profile clearly shows a higher land mass between **cell tower/sector 18601** and **7901 Pickering Avenue**. This would easily affect the line-of-site between the two points even taking into consideration the height of the antennas and reduce or block the signal between the two locations.

ANALYSIS

I reviewed the **75-48a Pedestrian Investigation Report** that was provided and identified that India Spellman was arrested on **August 20, 2010 - 3:15pm** at the location of **938 E. Slocum Street**. I compared that information against the Call Detail Records and noted an incoming call on the same date at **3:12pm** identifying the Originating Cell Site as **18601**. I performed a keyword search for 18601 on the entire

Call Detail Records document and identified 146 instances. This indicates that 18601 appears to be the dominant tower/sector for 938 E. Slocum Street.

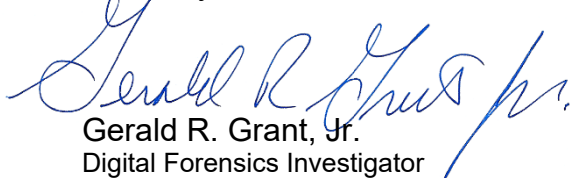
SUMMARY

As the maps illustrate, **7901 Pickering Avenue** is outside of the 1-mile radius of the plotted cell tower/sector 18601. It is also identified that cell tower/sector 18601 clearly provides coverage to 938 E. Slocum Street.

Taking into consideration the distance, multiple closer towers/sectors, land mass and research of cell tower/sector 18601, 7901 Pickering Avenue would more likely than not be covered by towers/sectors other than 18601. A call utilizing cell tower/sector 18601 would be consistent with a phone located at 938 E. Slocum Street and not 7901 Pickering Avenue.

If you have any questions about this report, or need additional information, please do not hesitate to contact me at your convenience.

Sincerely,



Gerald R. Grant, Jr.
Digital Forensics Investigator
ACE, CCO, CCPA, CCME, CASA, CASE, CERT-F, CIP