Technology Used to Combat Violent Crime

Vincent Boccio

Abstract

Law Enforcement needs to have tools to help combat violent crime. The old ways of doing police work is using out of date techniques and is not keeping up with the current crime trends. Technology is available for departments to utilize, to solve crime, keep an officer and a community safe. Several options of technology will be discussed in this paper and the benefits of why these options should be purchased for combating violent crime will be explained. A survey was sent to 50 Florida police and sheriff departments, to ascertain what technology options if any are being used. Technology will keep law enforcement ahead of the criminals and maintain the advantage. The use of technology is the future of how policing will continue in our society.

Introduction

Technology has improved over the last several years which is being used to combat violent crime. Violent crime is spiking and leaving law enforcement looking for ways to efficiently do their jobs. Law Enforcement has effectively come up with innovative ways to address this issue. The importance of keeping the advantage over the violent crime is the key to success. Law Enforcement needs to stay on top of technology and enlist the latest and the best of what is available. Many times, states and cities throughout the Unites States talk of a big vision to combat violent crime, but never follow up. Usually the biggest reason why most do not purchase technology is the cost. Now there are so many grants available to assist law enforcement to help off-set the cost for the technology needed. With violent crime rising, it is important for law enforcement to maintain the advantage and have the tools available to help. Several examples of the technology used to combat violent crime will be explained and allows law enforcement to come out the winner in this war. The technology provided are just some of the ways law enforcement can add to their ways of policing. It will be easy to see how beneficial the technology can be to a community and the many uses of them. Technology will be the growing expense in every law enforcement agency, but it can easily be summed up, by saying the “juice is definitely worth the squeeze”.

Literature Review

Real Time Crime Center

The Real Time Crime Center (RTCC) is the utilization of technology and data in one central place that is steered by law enforcement. The information will be provided to

law enforcement and will give the ability, to have the advantage to combat violent crime. The use of technology will allow law enforcement to be more efficient in policing. The technology will allow law enforcement to respond quicker, or even be immediately on a scene that was not yet called into 911. Law enforcement could be responding to crimes in progress or that just occurred. The technology used by the RTCC allows officers to respond more efficiently with better operational intelligence and improves the community and the officer's safety.

A negative that was found with the implementation of a RTCC, is there is an increase of information, data and intelligence, which makes it difficult to manage. With all the information that analysts are trying to verify, it makes it difficult at times to get the officers that information in a timely manner. The RTCC would be the central hub for the technology and would coordinate the resources for officers and civilians. Direction would be given to law enforcement regarding the high crime areas, crimes in progress and large-scale public events that requires a heavy law enforcement presence.

A RTCC typically operates on a 24 hour a day system. In some cities there will be down time when major events are not occurring. In these times, agencies have hired part time workers and allowed their sworn officers back to their primary jobs when the RTCC is not operational. For the larger agencies where the RTCC is already operational and is set up for a 24-hour shift, full time officers are needed to operate it. The officers assigned to the RTCC could be engaged in many support functions and duties during their downtime. Officers can provide background information, pass along vital information pertaining to active cases and provide evidence to include video. (BJA, 2017)

The Chicago Police Department is using a Real Time Crime Center in hopes to reduce crime by using technology such as remote cameras and analytic tools. These items will support law enforcement leader's strategic decision making in the field. The analysis found the strategic decision support center allowed better responses to crime incidents and problems that were not possible in the past. Police commanders that were interviewed, explained that decisions made before the centers were based on past practice and what was thought to be needed in a situation. Now the centers are structured and based on accurate data.

The Chicago Strategic Decision Support Center (Chicago's name for their RTCC) launched in 2017 and was staffed with three members and only one sworn supervisor and crime analyst. In the center there are a bank of display screens that provides information from sensors that can detect gunshots. The information that is gathered is then fed to the city surveillance cameras and areas of high risk of crimes are identified. This information is then sent to their issued cell phones and they are now provided the most up to date intelligence.

The changes in crime levels were compared to before the crime centers were established and after. The result was the centers were successful in reducing crime. The crime reductions varied from 3 percent to 17 percent for the 10 categories of crime examined. The Chicago Police Department did find that the major challenge for the Chicago strategic decision support center is the long-term sustainability. (Women's Health Weekly, 2019)

License Plate Reader (LPR)

License plate readers are a popular way for law enforcement to seek out criminal activity. The readers allow law enforcement to find stolen vehicles, people with warrants and people committing traffic violations. Usually the license plate readers are fixed to a police vehicle so the license plate of other vehicles can be captured by the device. If the reader is not on a vehicle it can be attached to utility poles or freeway overpasses.

The LPR system allows law enforcement to receive the information back in seconds compared to the old way of writing down the license plate and checking it through police data bases. This technology is not just used by law enforcement, LPRs are used to process fees on toll roads, keep track of customers in parking lots, garages and vehicles that are behind on payments that are on city streets.

A study was conducted in 2011 and the results showed 71 percent of police departments used license plate readers and 85 percent of departments planned to increase their use of the systems over the next 5 years.

A private company, Vigilant Solutions claims to maintain the largest commercially gathered LPR dataset. This dataset allows police to access private license plate scans, but law enforcement data is not shared with the private companies.

In 2015, this private company claimed to have more than 3 billion scans in their dataset and believes the scans will grow 100 million scans a month. Due to the high number of scans and the procedures on how the LPRs gather their information, there is a high amount of scrutiny.

The data about the actual use of LPRs are thin but there are two examples that address the system. Shawn Musgrave who is a reporter for the Boston Globe, conducted an investigation on the use of LPR and found that at least ten repossession companies in Massachusetts used license plate readers to do their job. With 200 to 400-dollar bounties for locating vehicles stolen or in default, those companies focused their efforts in low income neighborhoods.

Two Massachusetts companies told Musgrave that they focused on low income housing developments since it was more likely that there are vehicles that are behind on their auto payments. Besides the repossession companies, it was also discovered the law enforcement also have focused their efforts in low income areas. In 2014, The Electronic Frontier Foundation submitted a request about the Oakland Police Department's use of LPRs. The results showed that the department's efforts were disproportionately used in low income areas and in neighborhoods with high concentrations of African American and Latino residents. Police departments have limits on how long they can retain the data they capture from the LPRs. This is important because it protects innocent drivers from others using their information. Also, in the same article, it was found in a 2013 report from the American Civil Liberties Union, just 47 in a million are connected to a serious crime. (Waddell, 2016)

The American Civil Liberties Union (ACLU) released a report detailing the use of automatic license plate readers by law enforcement agencies. In the report it says there was a lack of rules surrounding how the information gathered from the readers is used and stored by law enforcement. The ACLU is concerned with the protection of driver's privacy rights. The report is based on documents from 300 departments. It was found that under the policy currently in place, the Pittsburg Police Department in California,

LPRs may be used for any “routine patrol operation or criminal investigation.” Many law enforcement agencies do not allow the personal use of LPRs, but that was the only restrictions the report found. It was found the range of retention for the data gathered was from 48 hours to indefinitely.

The ACLU found that only a small number of scans were flagged as “hits”, which means those license plates match a vehicle that may be stolen or used in a crime. The ACLU’s Staff Attorney Catherine Crump says the spread of these readers are creating government location tracking systems that record the movements of millions of innocent Americans in databases. The ACLU doesn’t mind that the LPRs are used to flag stolen vehicles or vehicles that belong to fugitives, but the documents show there is a need for rules that the government isn’t using the technology for surveillance.

The ACLU made the following recommendations for the government to use LPRs:

- Only using LPRs to investigate hits and other instances in which law enforcement authorities "reasonably believe" plate data may be relevant to an ongoing criminal investigation.
- No storage of data on innocent people for any lengthy period of time. The ACLU says this should be measured in days or weeks, not months or years.
- Giving people a way to find out if plate data of vehicles registered to them are contained in a database
- Prohibit law enforcement agencies from sharing data with third parties that do not adhere to the same policies and requiring them to be transparent about whom they do share this data with.
- Requiring any entity that uses license plate scanners to issue and annual report on their usage of the technology. (Securityinfowatch, 2013)

Although there are other special interest groups that have sued the LA. County Sheriff’s Department after they refused to turn over information that was collected using the technology and that a city council in Iowa City, Iowa voted to ban the use of LPRs except for parking violations, there are vocal proponents for their use.

NetChoice, a trade association representing eCommerce businesses, released a statement regarding the ACLU’s report. Steve DelBianco, executive director of NetChoice, says “the license plate readers are a technology that benefits us all by helping to find criminals and save lives.” (Securityinfowatch, 2013)

It was pointed out that this technology helps capture the men responsible for the failed Times Square bombing. LPRs allow us to monitor access to sensitive locations and private communities. LPRS was found to keep insurance rates and interest rates lower by helping recover vehicles that are stolen or in default of loans. LPR technology is being compared to the Caller ID and cellphone cameras and DelBianco said the private companies using the readers helped solve crimes, recover property and save lives. (Securityinfowatch, 2013)

Facial Recognition

London’s Metropolitan Police Service (MPS) announced it will start using facial recognition technology locations within the city. The police will be able to verify the identity

of individuals who are on law enforcement “watch lists.” These watchlists are people that are wanted for crimes and who have warrants for their arrest. Police state that each deployment of the system has a legitimate purpose and is legal. This announcement came after the European Commission announced their plan of banning facial recognition technology for five years.

There was an independent assessment of MPS’s facial recognition system, and it was discovered that the system only got 8 of 42 matches correct. There is a concern on how the criteria is set up to include people on the “watchlist,” There is also no rules to give direction on the criteria set up. (Media Nama 2020) In September 2019, the High Court in Cardiff, UK, ruled it was lawful for the South Wales Police to use facial recognition to search people in crowds. The ruling determined there was no breach of human rights or data protection laws.

The MPS’s Assistant Commissioner, Nick Ephgrave stated this technology should be a sense of normalization. Ephgrave said, “We are using a tried-and-tested technology and have taken a considered and transparent approach in order to arrive at this point.” (Media Nama 2020) He wanted to make clear that similar technology has been used by the private sector and that the MPS uses careful consideration on where to deploy the technology. After facial recognition is deployed, the public will be aware of this technology through a public information method. A media blitz will be done explaining the technology on social media, the local media channels and the department’s website.

The police state this is a standalone system and it is not linked to any other imaging system such as CCTV footage, body worn cameras or license plate readers. In this system, once the person is scanned and there is not a hit on the image, their biometric data is automatically deleted. If there is a positive hit on an image, it is retained for evidentiary reasons. In the case that the biometric data is being store for doesn’t lead to prosecution or there is no reason to have the data any longer, it will be retained for 31 days. The data will always be deleted once the prosecution of the case is over and there is no longer any investigative reason to retain the information any longer.

The skeptics such as Silkie Carlo, director of Big Brother watch, a UK based human rights advocacy group said that the use of facial recognition systems by the Met are an “enormous expansion of the surveillance state,” and pose a serious threat to civil liberties in the UK. (Media Nama 2020) Even in the USA, places such as San Francisco, Oakland, Cambridge, Berkley and Somerville have banned the use of facial recognition. (Media Nama, 2020)

ShotSpotter

The City of Gary Indiana and the Gary Indiana Police Department is expanding their use of its ShotSpotter Gunshot Location System. The newest expansion was funded using $630,000 in COPS Technology Grant Funds through the Department of Justice.

The system now covers an 8.5-mile area and includes a mobile software client that can be used by dispatch and the patrol officers. Since using the system, the Gary Police Department has made dozens of apprehensions, weapon confiscations and arrests using the ShotSpotter system. The system is used to detect, locate, alert and track gunfire and other explosive events and provides officers with real time information on these incidents.

Each event is logged into a database so later it can be used for tactical and strategic analysis to identify crime trends, hot spots and patterns of crimes with the jurisdiction.

ShotSpotter has been used during criminal investigations, refute eyewitness testimony and assist in setting up the timeline of the incident. Police Chief Gary Carter said, “Building on the initial success of the system will provide us actionable intelligence and more complete data on gun crime within the community.” (Professional Services Close-Up, 2010) The mayor, Rudy Clay, said, “this technology is a vital tool in our arsenal and will play a valuable role in our efforts to combat Gary’s gun crime.” (Professional Services Close-Up, 2010) ShotSpotter has given the Gary Police Department intelligence that was once unavailable to them on gun crime. Now, the police department can better analyze, monitor and respond to gun related crimes in their city. (Professional Services Close-Up, 2010)

Methods

The focus of this research was to identify technology which could be used to combat violent crime. The technology in this research is available to law enforcement and the costs can be offset by grants and other resources.

Unaware if technology is being used in departments, a survey was sent to both Police and Sheriff Departments in Florida with sworn members of 200 or more. The reason why departments of 200 or more sworn was chosen, is because an agency that size would have the budget and the manpower to utilize technology to combat violent crime. The following are the departments the survey was set to:

- Alachua County Sheriff Department
- Bay County Sheriff Department
- Boca Raton Police Department
- Broward County Sheriff Department
- Brevard County Sheriff Department
- Cape Coral Police Department
- Charlotte County Sheriff Department
- Citrus County Sheriff Department
- Clay County Sheriff Department
- Clearwater Police Department
- Collier County Sheriff Department
- Coral Gables Police Department
- Coral Springs Police Department
- Daytona Police Department
- Escambia County Sheriff Department
- Fort Lauderdale Police Department
- Fort Myers Police Department
- Gainesville Police Department
- Hernando County Sheriff Department
- Hialeah Police Department
- Hillsborough County Sheriff Department

- Hollywood Police Department
- Jacksonville Sheriff Department
- Lake County Sheriff Department
- Lakeland Police Department
- Lee County Sheriff Department
- Leon County Sheriff Department
- Manatee County Sheriff Department
- Miami Beach Police Department
- Miami Dade Police Department
- Miramar Police Department
- Okaloosa County Sheriff Department
- Orange County Sheriff Department
- Orlando Police Department
- Osceola County Sheriff Department
- Palm Beach County Sheriff Department
- Pasco County Sheriff Department
- Pembroke Pines Police Department
- Pinellas County Sheriff Department
- Polk County Sheriff Department
- Port St. Lucie Police Department
- Sarasota County Sheriff Department
- Sarasota Police Department
- Seminole County Sheriff Department
- St. Johns County Sheriff Department
- St. Lucie County Sheriff Department
- St. Petersburg Police Department
- Tampa Police Department
- Volusia County Sheriff Department
- West Palm Beach Police Department

The survey questions were to determine if these departments use such technology, and if so, which technology is being used and their satisfaction throughout the department with the results. Questions were also tailored to see if police departments and sheriff departments share any of the technology, cost and manpower to utilize the technology.

Information gathered was helpful to see if departments are using technology, what technology is being used and how. A weakness in the data collected, depending on the size of the agency, just one of the technology options listed in this research paper is being used and not all of them which hinders an accurate summary.

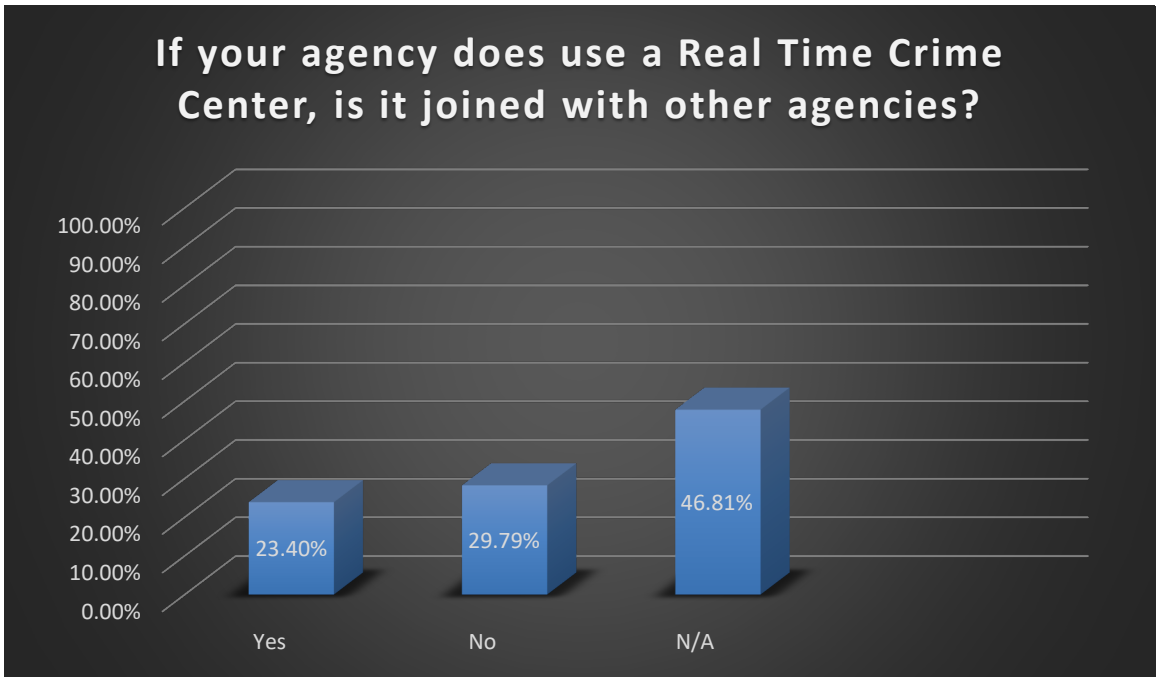
Results

The survey was sent to 50 Florida law enforcement agencies, which included police and sheriff departments. I received 47 responses, for a response rate of 94%.

The first question asked respondents to indicate if their agency used a Real Time Crime Center. This question was just a basic Yes or No answer question. Of the 47 responses, 51.06% did use a Real Time Crime Center and 48.94% did not.

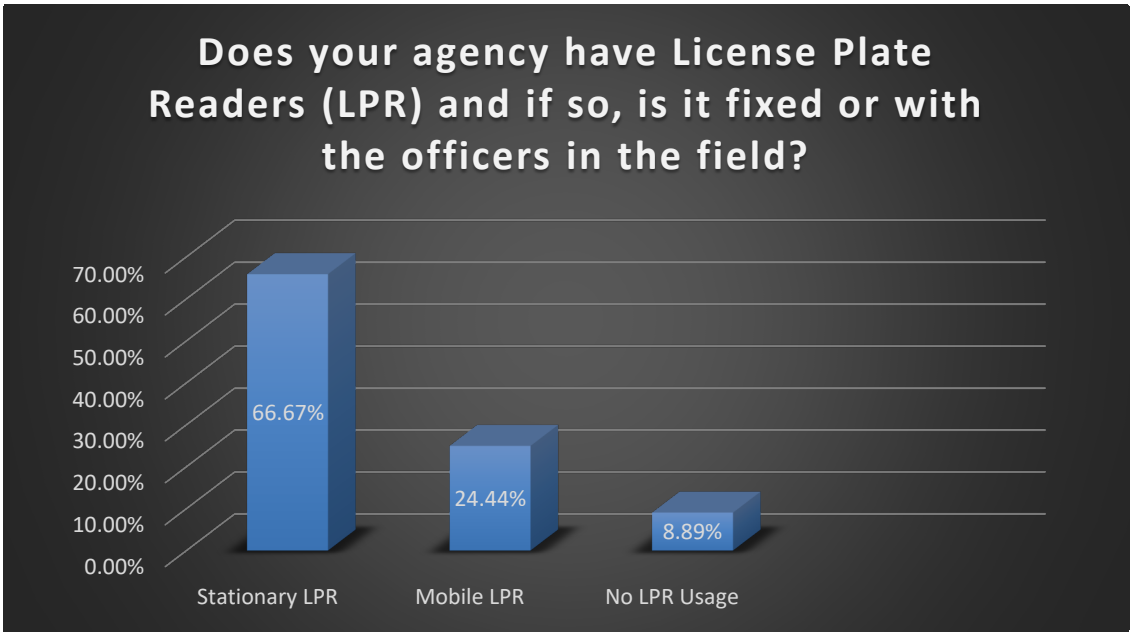
The second question asked respondents if their agency did use a Real Time Crime Center, that it was in conjunction with other agencies. 23.40% of the respondents did use a Real Time Crime Center with another agency. 29.79% did not team up with another agency operating a Real Time Crime Center. 46.81% chose the "N/A" not applicable choice.

Table 1: Real Time Crime Center



The third question asked respondents if their agencies used a License Plate Reader and whether it was fixed or mobile (with the officer). 66.67% did use LPR and it was fixed. 24.44% used LPR and it was mobile with the officer. 8.89% did not use LPR.

Table 2: LPR



The fourth question asked respondents to indicate if their agency used ShotSpotter (gunshot detection system). 6.38% agencies did use the system and 93.62% did not.

The fifth question asked respondents to indicate if ShotSpotter was used, was it successful for investigations or street crimes. 6.52% indicated the system was successful. 2.18% indicated it was not successful and 91.30% chose the "N/A" not applicable choice.

Table 3: ShotSpotter

The sixth question asked respondents to indicate if ShotSpotter was used, do the officers like the technology. 8.51% indicated the officers did like the technology. 91.49% selected “N/A” not applicable and 0.00% selected no, to indicate the officers did not like the technology.

Question seven asked respondents to indicate if their agency had camera access throughout their city or county. 55.32% of the responses were yes and 44.68 were no.

Question eight asked the respondents who have access to cameras to indicate if it was helpful for investigations or street crimes. 53.19% responded yes. 2.13% responded no and 44.68% chose the “N/A” not applicable choice.

Question nine asked respondents to indicate if their agency used facial recognition. 89.36% responded yes and 10.64% was no.

Question ten asked respondents to indicate if their agency did use facial recognition was it successful in identifying people. 85.11% answered yes. 4.25% answered no and 10.64% chose the “N/A” not applicable choice.

Discussion

The results of the survey show law enforcement is increasingly using technology to combat crime. Technology is advancing every day and it is important to see law enforcement is using such things as outlined in this paper. Real Time Crime Centers are going to be the future of law enforcement and to see that only 51.06% of the agencies that were sent the survey have them, was disappointing. The number should be higher, although it was better to see at least half the agencies do, it would be nice to have a higher number. Through the survey it was asked was technology helpful or successful in investigations or street crime events and the overwhelming number of responses indicated it was helpful. With a response rate of yes at 53.19%, that having camera access through their jurisdiction was helpful in investigations, highlights that technology is where the money and resources should be allocated.

Technology will be the key to solving most crimes and the use of facial recognition, LPR and ShotSpotter puts law enforcement ahead of the criminals. In the survey it was asked if agencies use LPR and if so, are they fixed or mobile with the officer. This question did not have the right answers to fully gage the accurate number how LPR is being used. The answers were split to either select Yes (Fixed) or Yes (With the officer). If an agency like most, have both, there was no way to indicate that. There should have been an answer of Yes (Both Fixed and with the officer). It was still uplifting to see that 88.11% did use LPR in their agency as a tool for crime.

The ShotSpotter questions highlighted an issue that affects most law enforcement agencies and that is budget. Most technology software and equipment are expensive and most smaller agencies cannot afford the cost. Like ShotSpotter, this system is extremely expensive and to cover just a few square miles of a city or county, it could cost several hundreds of thousands to outfit a community. Only 6.38% of the 47 agencies that responded use ShotSpotter at their agencies. This is a technology which can be very useful for high violent crime areas, but the cost is so much. There are grants available to help off-set the cost of this technology but based on the number that would apply for these

grants, it is not likely that every department would be successful in obtaining the money needs to purchase this system.

Advanced technology such as Facial Recognition is becoming the way of the future. 89.36% of the responding agencies to this survey use this technology. It is an easy way to identify people from surveillance cameras, social media posts and even still photographs that capture a suspect's face.

Recommendations

Law Enforcement needs to stay ahead of crime trends and have the tools to solve crime and keep a community safe. Based on the survey results, it does show that more agencies are using technology to help combat crime. Law Enforcement needs to compare the old way of doing police work to using technology and doing police work today. It will be evident that the time saved and the resources that are available using technology is a better way of doing things.

The survey showed there are many options out there for technology and any one option can be utilized to solve crime. Most of the agencies polled use the technology specified in this research paper. This is a good sign, showing law enforcement is on the same page regarding technology and can succeed from using the different options available.

The biggest issue agencies will face is the cost for the technology and the cost for the sustainability. These items can be expensive but are well worth it. It is important to keep a log of when the technology is used and if there is a success story attached to it. When dealing with budgets for an agency, it is important to highlight how the technology will benefit the community as well. During protests or community events, the ability to have cameras for real time intelligence and monitoring is crucial in some situations. When doing a presentation for whomever decides how your budget is spent, this is important to make known and show why it is a mutual beneficial investment.

There are grants available for the technology listed in this research paper. Between federal and state grants, there are opportunities available to help with the purchase of these items. Most departments and local governments have a forfeiture fund. This is another option to help off-set the cost of the technology.

Law Enforcement needs any help which is available and any technology that can be used to keep everyone safe. It is important to find ways to pay for these items and set up your department budget to have funds available to purchase technology when needed. Technology is the key and through a Real Time Crime Center everything can be funneled into one place and be an available resource for law enforcement personnel to solve crime.

Captain Vinny Boccio has 21 years of law enforcement experience. He began his career as a Patrol Officer with the Florida State University Police Department in 2000. In 2001, he started with the Tallahassee Police Department. During his 20 years at the Tallahassee Police Department, he served as a Patrol Officer, a Field Training Officer, an Investigator in VICE/Narcotics, Robbery, Homicide and was an Entry Operator on the Tactical Apprehension and Control Team. In 2012, he was promoted to the rank of Sergeant and was assigned to the Target Enforcement Squad, Robbery, Homicide and Field Training. In 2018, he was promoted to the rank of Lieutenant and was assigned to Patrol as the midnight shift Watch Commander and then served as the Section Commander for the Special Investigations Unit. On June 21, 2021, he was promoted to the rank of Captain and now is assigned to the Patrol Bureau. Captain Boccio is a graduate of the Florida Leadership Academy, Class 41. Captain Boccio completed an Associate's Degree in Criminal Justice from Suffolk County Community College and a Bachelor's Degree in Criminal Justice from Saint Leo University.

References

Bureau of Justice Assistance (BJA), U.S Department of Justice. (2017). The mission of a real time crime center- Contribution received from Charlotte-Mecklenburg police department. *Analysis Toolkit.* Retrieved from https://it.ojp.gov/AT/Resource/128

Media Nama. (2020, January 28). London police to use facial recognition systems at 'specific locations'. *Media Nama*. Retrieved from https://link.gale.com/apps/doc/A612488818/GPS?u=21260_lclcp&sid=GPS&xid=08856525

Professional Services Close-Up. (2010, July 16). City of Gary expands shotspotter gunshot location system. *Close-Up Media, Inc*. Retrieved from https://link.gale.com/apps/doc/A232693083/GPS?u=21260_lclcp&sid=GPS&xid=29798550

Securityinfowatch. (2013, July). License plate readers come under fire from ACLU. *Securityinfowatch.com*. Retrieved from https://link.gale.com/apps/doc/A337324202/GPS?u=21260_lclcp&sid=GPS&xid=f8f4d163

Waddell, K. (2016, April) How license-plate readers have helped police and lenders target the poor. *The Atlantic.com.* Retrieved from https://www.theatlantic.com/technology/archive/2016/04/how-license-plate-readers-have-helped-police-and-lenders-target-the-poor/479436/

Women's Health Weekly Staff. (2019, December 19). District-level, real-time crime centers can help police cut crime levels. *Women's Health Weekly, 428*. Retrieved from https://link.gale.com/apps/doc/A608745112/GPS?u=21260_lclcp&sid=GPS&xid=a8fd7054

Appendix A

Survey Questions

Introduction:

My name is Vinny Boccio and I am a Police Lieutenant with the Tallahassee Police Department. I am currently attending the Senior Leadership Program through FDLE. I am tasked with writing a research paper and send surveys to law enforcement agencies to obtain the data for my topic. My topic is Technology used to Combat Violent Crime. In this survey, I ask basic questions whether your agency uses certain types of technology for this topic. I am asking if you can please complete the survey and send it back to me by September 2, 2020. This is very important for the research paper and I just want to thank you in advance for your participation.

Questions:

Does your agency use a Real Time Crime Center (A centralized hub where technology is used by law enforcement)?

Yes
No

If your agency does use a Real Time Crime Center, is it joined with other agencies?
Yes
No
N/A

Does your agency have License Plate Readers (LPR) and if so, is it fixed or with the officers in the field?

Yes (Fixed)
No
Yes (With the officer)
N/A

Does your agency use ShotSpotter (A gunshot detection system)?

Yes
No

If your agency uses ShotSpotter, is it successful for investigations or street crimes?
Yes
No
N/A

If your agency uses ShotSpotter, do the officers like the technology?

- Yes
- No
- N/A

Does your agency have camera access throughout your county or city?

- Yes
- No

If your agency has camera access, is it helpful for investigations or street crimes?

- Yes
- No
- N/A

Does your agency use facial recognition software?

- Yes
- No

If your agency uses facial recognition software, has it been successful in identifying people?

- Yes
- No
- N/A