Thomas G. Ruocco

Chief Criminal Investigations, Texas Department of Public Safety

Mr. Ruocco is Chief of the Criminal Investigations Division at the Texas Department of Public Safety. He oversees 832 employees statewide that conduct criminal enterprise investigations targeting those organized criminal groups that constitute the greatest threat to Texas. This includes programs focused on drug trafficking, human trafficking, gang activity and other specialized investigations such as fraud, cargo theft, human smuggling, vehicle theft and illegal gambling. CID works closely with local, state, and federal agencies to identify and arrest high threat criminals such as sex offenders and other violent fugitives. CID also provides technical investigative support both within the Department and to other law enforcement agencies.

Mr. Ruocco is a member of the International Association of the Chiefs of Police, where he serves as the chairperson of the Police Investigative Operations Committee; Association of State Criminal Investigative Agencies, where he served as chairperson of the Human Trafficking Committee; Criminal Intelligence Coordination Council, where he serves as the vice chairperson; National Domestic Communications Assistance Center, where he serves on the executive advisory board; and the National Association of Missing and Exploited Children, where he serves on the advisory board.

Mr. Ruocco is the former FBI Assistant Special Agent in Charge of the San Antonio Division, Austin Resident Agency. In this capacity, his duties included management and oversight of the Austin Resident Agency, Waco Resident Agency, and the Counterterrorism Program.

He is a native of New York and a graduate of St. John's University in Queens, New York, where he earned a Bachelor of Science Degree in Criminal Justice in 1980.

Mr. Ruocco began his career with the FBI at New York in a support capacity in September 1979. In September 1984 he was appointed as a Special Agent and served in the Atlanta, Georgia, Field Division and Brooklyn/Queens Metropolitan Resident Agency of the New York Field Division.

In May 1995 Mr. Ruocco was transferred to the San Antonio Field Office where he served as a field supervisor for a Violent Crimes squad, two White Collar Crime squads, and the Joint Terrorism Task Force. During this time, he served as the Program Coordinator for the Violent Crimes and Major Offenders Program, White Collar Crime Program and the Counterterrorism Program, and formulated the establishment of a Public Corruption squad.

In April 2003 Mr. Ruocco was assigned to FBI Headquarters in Washington, D.C., where he served over two years with the Office of Intelligence and the Inspection Division.

In January 2006 Mr. Ruocco was named the Assistant Special Agent in Charge of the San Antonio Division, Austin Resident Agency.

In July 2008 Mr. Ruocco retired from the FBI.

In February 2009 Mr. Ruocco began his employment with the Texas Department of Public Safety, when he was appointed chief of the Criminal Law Enforcement Division.

Thomas Ruocco
Division Chief – Criminal Investigations Division
Texas Department of Public Safety
Austin, Texas

Reduction of Crime Hearing: Strategies and Practices for Law Enforcement and Technology Use in Crime Reduction.

April 16, 2020

I would like to thank the Commission for affording me the opportunity to speak today. My name is Thomas Ruocco and I am the Chief of the Texas Department of Public Safety's Criminal Investigations Division. I am also the Co-Chair of the US Department of Justice's Technology Working Group, and my testimony will include some of the work and recommendations of that working group.

My division has more than 800 employees and conducts statewide investigations against criminal organizations that constitute the greatest threat to Texas. This includes investigations focused on drug trafficking, human trafficking, illegal gang activity, and other specialized investigations, such as fraud, cargo theft, human smuggling, vehicle theft, and illegal gambling. Our efforts are facilitated by the use of sophisticated technology and software-driven analytics to identify criminals and criminal activity. However, the technological ecosystem is rapidly evolving, and the expansion of communications technology makes collecting evidence much more complex than ever before. To succeed, law enforcement executives need to understand the complexities of this new digital environment when considering a multitude of factors, including:

- What new technologies to adopt and implement;

- How to utilize new data sources, including the aggregation and sophisticated analysis of existing data sources;

- What policy changes may need to be adopted; and

- How to work with both local communities and policy makers to ensure they fully understand the challenges and concerns each of these issues pose.

In addition, it is important that law enforcement agencies realize that the collection, analysis, utilization, and preservation of digital evidence must be managed under the same standards as other types of evidence. Therefore, law enforcement agencies need to adapt to manage the appropriate handling and use of digital evidence available from a multitude of resources.

After a review and discussion of these issues with the Technology Working Group, I have formulated two recommendations regarding how law enforcement should respond to the changing technological environment.

Recommendation #1

The first recommendation is for law enforcement agencies to employ a consistent and comprehensive framework when considering the adoption and implementation of new technologies.

Such a framework should be general enough to be applicable across a broad range of technologies, yet specific enough to ensure that agencies consider, at a minimum, the predictable significant costs and risks associated with a particular technology. Not all parts of the framework may be needed to address each technology, but the framework must be refreshed from time to time to accommodate new risks from emerging technologies.

Under this framework, agencies would first review the nature of a new technology to determine whether or not to adopt it; and then, secondly, determine how that technology would be prudently implemented within their organization. The transition point between these two phases will differ depending on the particular technology being studied. In addition, there will likely be information discovered during the adoption review phase that will drive and enhance elements of the implementation phase.

Framework questions asked during the adoption consideration phase may include:

- What are the initial and recurring costs associated with the technology?

- What are the legal or policy implications?

- What might be the public's reaction? and,

- To what additional risks might the agency be exposed should they choose to adopt the new technology?

Once an agency determines a particular technology should be adopted, the framework questions will naturally narrow and become more specific. For instance, framework questions asked during the implementation phase may include:

- How will the officers' work routines change as a result of the use of the new technology?

- What training is appropriate and how often must it be conducted? and,

- How will the use of the new technology be audited to ensure sensitive data is protected and the public confidence is maintained?

Recommendation #2

The second recommendation is for law enforcement agencies to employ a consistent and comprehensive framework when considering the creation or use of new data sets.

Some data sets may originate exclusively within an agency, such as officer productivity data or crime statistics, while other data sets may be obtained from sources outside an agency, such as commercial advertising data showing anticipated pedestrian flows for a given area or event. New

data sets can also be an amalgamation of both internal and external data, such as combining officer work schedules with actuarial data to better manage the risk of automobile or physical accidents.

Even in the case of well-defined, discreet data sets, it may be difficult for agencies to predict the full extent of consequences and benefits that may be associated with a new data set. New and much more sophisticated data aggregation and analysis techniques, such as Artificial Intelligence, may imbue new attributes or value to data not anticipated when it was first collected or obtained. A particularly poignant example is the Golden State Killer Case, in which forensic genealogy data that was originally collected to trace people's ancestry was effectively leveraged by law enforcement to identify a suspect in a cold case.

Framework questions associated with the creation or use of new data sets will flow along similar lines as those seen in dealing with new technologies. However, more care may be needed in setting up processes and putting in place safeguards to ensure agencies return to the framework when new potential uses for data sets are discovered that have already undergone a previous framework review. In addition, since the vast majority of the data that may be subjected to a framework review will be stored, accessed, and analyzed in the digital world, it is important that well-established cybersecurity frameworks and data-handling best practices are utilized to ensure the security of the new data sets.

Conclusion

Law enforcement agencies at all levels of government -- local, state, and federal -- strive to do their best to protect our citizens, their wellbeing and their property, from all manners of threats and criminal activities. We can best succeed in meeting this objective by ensuring that the tools at our disposal continue to meet our needs and serve the best interests of the community. I believe the recommendations I have outlined above cover two key issues that must be addressed by law enforcement in order to successfully identify and integrate new technologies and methodologies into our procedures and work flows.

Chief Bill Partridge

City of Oxford, Alabama

Bill Partridge has served the citizens of Oxford since 1989. Prior to becoming the Chief of Police, Bill served as Operations Captain for the police department, supervising the uniform division and special operations. He has held every rank in the police department with the exception of Assistant Chief. He is a Crash Reconstructionist and instructor in media relations, law enforcement technology, crash investigations and special event planning to mention a few. He also served as Calhoun County Coroner from 2001-2006.

Chief Partridge serves on numerous boards in the field of law enforcement and public safety, to include Alabama Peace Officers Standards and Training Commission as vice-chairman. He is currently President of the Alabama Association of Chiefs of Police, and is the board chairman for the Center for Best Practices in Law Enforcement at Jacksonville State University.

Chief Partridge holds a graduate certificate in Criminal Justice from the University of Virginia and has attended the University of North Florida's Institute of Police Technology and Management. He is also a graduate of the 225th Session of the FBI Academy in Quantico, Virginia. He is a Certified Law Enforcement Executive by the Alabama Peace Officers Standards and Training Commission, and a Certified Chief of Police.

Bill Partridge
Chief of Police
City of Oxford, Alabama

Crime Centers for smaller agencies and regions to fight crime

The East Metro Area Crime Center (EMACC) Explained.

In short, the Crime Center provides vital technology and intel to the region, thus saving time and manpower to solve and prevent crime. The Center consists of twenty-eight local, state and federal agencies from across the region, all working together under one roof, to accomplish this mission.

The East Metro Area Crime Center (EMACC) uses and shares advanced technology with its regional partners, including, but not limited to: pole cameras, camera trailers, license plate readers (LPR), crime tracing software, phone and computer forensics (Cyber Crimes Lab) facial recognition software. The Center uses a large video wall inside the video center to monitor cameras which are placed throughout the region on poles and camera trailers; on-site gunshot detection and shell casing analysis help to further reduce gun crimes in the region. Child crimes are also investigated through the cyber-crimes unit located within the Crime Center.

The Center not only monitors cameras in the region, but also utilizes cameras located at financial institutions and school systems throughout the area. Pulling live feed from these cameras into the video center at the EMACC allows for the immediate relay of real-time information to school SRO's and police officers responding to emergency calls. This real-time information saves time and gives the officers much needed live information to stop active shooters or other crimes that are in progress. Cameras located at financial institutions allow the video

center to deliver instantaneous information when robbery alarms are activated, and provide descriptions and weapons information to responding officers.

Since its creation in May of 2019, the East Metro Area Crime Center has celebrated much success throughout the region. This includes solving Bank Robberies within minutes of the robbery; numerous homicides, and cold case homicides; home invasions, burglaries over a five county region, and car theft rings; also violent crimes, including gun crimes which were linked by shell casings to multiple shootings and homicides.

By having twenty-eight agencies actively involved in the Crime Center, we have seen significant crime reductions; some as much as double digit crime reductions. The Center's greatest success is the sharing of information across the region with other law enforcement agencies. This is something that wasn't practiced very well prior to the implementation of The Center.
The success of the EMACC in Oxford, Alabama has led to the creation of others within the state. We are linking these centers together as they come on-line.

Often, you only think of large urban cities implementing Real-Time Crime Centers; in which case, one single agency utilizes the technology. By building Crime Centers in smaller areas and having multiple departments utilize the center's technology, law enforcement has found we can multiply the man power and solve crimes on a larger scale, thus keeping the communities safer with less man power. Larger cities, with more populous areas, have abundant technology to help solve and prevent crime. This is an advantage smaller, more rural areas don't have. Most small police departments and sheriff's departments do not have the allocated funding required to utilize technology the way the EMACC does to prevent and solve crime. Our Center doesn't charge participating agencies for taking part. We only ask that they provide manpower if possible.

This cohesive concept can provide significant technology to rural areas and much smaller agencies. The Oxford Police Department is fortunate to have a mayor and city council willing to implement this center and fund it. With that being said, the use of federal grant dollars on a regional scale as opposed to individual agency use, would allow for the creation of crime centers across the county and help multiple agencies in solving and preventing crime.

The East Metro Area Crime Center serves a multiple county region consisting of twenty-eight agencies which serve approximately 300,000 citizens.   I invite any member of the commission, or the commission as a whole, to visit the EMACC and see how we are implementing technology on a regional scale to fight and solve crime.

Christopher Amon

Chief, Firearms Operations Division Bureau of Alcohol, Tobacco, Firearms and Explosives

Christopher Amon has been the Chief of the Bureau of Alcohol, Tobacco, Firearms and Explosives' (ATF) Firearms Operations Division since February of 2019. In this role, Special Agent Amon oversees the National Integrated Ballistics Information Network (NIBIN), the NIBIN National Correlation and Training Center (NNCTC), and ATF's Crime Gun Intelligence Programs. He is also the Chairman of the National Crime Gun Intelligence Governing Board, which consists of Chiefs of Police, United States Attorneys, District Attorneys, and Laboratory Directors from Major Cities who advise ATF on policies related to Crime Gun Intelligence.

Chief Amon began his career as an ATF Special Agent in the Denver Field Division in 2005. He worked on violent crime investigations and firearms trafficking by criminal organizations. He also was a part-time member of ATF's Los Angeles Special Response Team, where he served as a crisis negotiator.

In 2012, he moved to ATF Headquarters in Washington, D.C., where he worked in Public and Governmental Affairs. In this role, Special Agent Amon regularly briefed members of Congress and provided technical assistance in drafting legislation.

In 2015, Special Agent Amon returned to the field as the Group Supervisor in the Denver Field Division's Crime Gun Intelligence Center (CGIC) –a task force using NIBIN technology and a dedicated investigative team to identify shooters and crime gun sources.

Prior to his role at ATF, Special Agent Amon served as a congressional aide on Capitol Hill. He holds a Bachelor's Degree from Fordham University in the Bronx, New York, and a Master's Degree in Professional Studies from George Washington University in Washington, D.C. He is a native of Brooklyn, N.Y.

Testimony of Special Agent Christopher C. Amon
Chief, Firearms Operations Division
Bureau of Alcohol, Tobacco, Firearms and Explosives
For the Presidential Commission on Law Enforcement and the Administration of Justice
April 16, 2020

Good afternoon, it is my distinct honor and privilege to address the Commission. My name is Christopher Amon, and I serve as the Chief of the ATF Firearms Operations Division. In this role, I oversee the National Integrated Ballistic Information Network (NIBIN), NIBIN National Correlation and Training Center (NNCTC), and Crime Gun Intelligence (CGI) programs. Prior to this role, I served as the Group Supervisor of the Denver Crime Gun Intelligence Center (CGIC) where I oversaw investigations of violent crimes using CGI.

Of the more than 390 million firearms in America, most will never fall into criminal hands. Law enforcement must use our limited resources to focus on the fraction of firearms used in crimes. CGI is the collection and analysis of all available information related to the unlawful use, possession and/or transfer of these firearms. These details help investigators identify individuals or groups committing acts of firearm violence, illegally diverting firearms, or both.

The foundation of a CGI program is technology. Participation from stakeholders in both NIBIN and E-Trace allows investigators to identify crime guns using cutting edge technology and trace their origin quickly. Processing crime gun evidence starts at the scene with comprehensive collection and continues when evidence arrives at a laboratory or NIBIN site. Timely analysis of ballistic evidence is critical for providing leads to solve shootings and stop future ones.

As law enforcement, we must prioritize shootings and sources of crime guns. Academic studies of shooting events linked by NIBIN show there is a high likelihood for reoccurring gun violence within a short period of time. NIBIN results also illustrate a progression of violence in which an unlawful discharge of a firearm progresses to a shooting into a residence, and later an aggravated assault or homicide.

Law enforcement officers must race against time to identify and prosecute shooters before they can reoffend. Technology is proving to be our best match for the speed of repeat gun violence. By entering evidence quickly into the NIBIN system, investigators can catalogue events in near real time, accruing a wealth of investigative leads.

NIBIN Technology

The NIBIN network is a collection of digital ballistic images of ammunition components recovered from crime scenes and recovered crime gun test fires. Like fingerprints, every firearm produces unique identifying characteristics when fired. The barrel of a weapon leaves distinct markings on a bullet or projectile, and the breech, firing pin and ejector mechanisms leave distinct markings on the cartridge case. When analyzing bullets and cartridge cases, firearm examiners and technicians

use these markings to determine if ballistic evidence was expelled from the same firearm. For the purposes of this testimony, I will discuss the capabilities related to cartridge cases, not projectiles.

NIBIN was established in 1997 as the merger between two ballistic imaging/identification programs: the FBI's Drugfire and ATF's Ceasefire. In 1999, a single technology—the Integrated Ballistic Identification System (IBIS) under Ceasefire—was selected to provide nationwide support for the NIBIN network and has served this role ever since. In 2003, ATF took sole responsibility over the administration of the NIBIN, both the technology and network infrastructure.

At the start, investigators principally used NIBIN as a back-end forensic tool to confirm a link they knew existed between two or more violent crimes. Success was sporadic. In 2012, technology upgrades from 2D images to High Definition 3D spurred investigators to use NIBIN as a front-end, lead-generating tool. The technological advancement allowed NIBIN technicians and Firearms Examiners to better view similarities on the "Regions of Interest"—the areas where firearms leave unique markings on cartridge cases. Now, technicians could confidently establish an unconfirmed NIBIN "lead" and allow investigators to generate solid connections without waiting for microscopic confirmation. Additionally, some NIBIN sites who did not put out investigative leads had their examiners conduct microscopic analysis within days, giving investigators a confirmed hit in a short period of time. Cities like Denver also saw success by collecting and entering all cartridge cases, including for victimless crimes not normally prioritized. This is where the principle of "comprehensive collection" was born.

ATF recognized NIBIN's enormous potential. Following an analysis of best practices during this time period, ATF created the four critical steps of NIBIN: **Comprehensive Collection, Timely Turnaround, Follow-up, and Feedback**.

Comprehensive collection is the foundation of NIBIN. Partner agencies must collect and submit all evidence suitable for entry into NIBIN, regardless of the severity of a crime. Evidence includes cartridge cases recovered from crime scenes and test fires from recovered crime guns. Shooting events tend to escalate, so it is imperative to institute agency policies to recover all suitable ballistic evidence from crime scenes and process it through NIBIN. Low priority shooting events routinely link with higher priority events. Law enforcement should prioritize a victimless shots fired call with the same urgency and attention as a homicide case.

Timely turnaround is crucial, as violent crime investigations turn cold fast. As a result, timely intelligence gained through NIBIN is critical to solving violent crimes and stopping violent offenders before they can reoffend. Quick turnaround during all phases of NIBIN analysis, including the entry and acquisition into NIBIN, correlation reviews, and the dissemination of NIBIN leads, is vital.

ATF developed the NNCTC in 2016 to assist with timeliness. Located in Huntsville, Alabama, the NNCTC provides ballistic image correlation review, the most time-consuming step within NIBIN, to more than 75 NIBIN sites throughout the country. The NNCTC develops leads and returns them within 48 hours. Since March of 2016, the NNCTC has conducted approximately 263,000 reviews and provided more than 67,000 investigative leads to partner sites.

In addition, ATF also created the NIBIN Minimum Required Operating Standards (MROS) to improve timeliness and consistency across the network. The MROS require all sites who participate in NIBIN to enter eligible evidence within 2 business days of receipt, conduct a correlation review within 2 business days (does not apply if an NNCTC site), and distribute leads to investigators within 24 hours.

Best Practices Lead to Increased Participation and Outputs

Ensuring comprehensive collection and creating policies to improve the NIBIN program have yielded exponential growth:

FY	2014	2015	2016	2017	2018	2019	2020
Leads	800+	6,300+	19,600+	41,000+	47,000+	67,000+	85,000+*

*Projected

During this same time period, acquisitions increased from 205,000 in FY15 to more than 384,000 in FY19. In FY14 there were 170 NIBIN sites. In FY20 we project finishing with 240 sites.

This is a significant move forward for the program. Leads represent new investigative avenues for law enforcement to focus efforts and take active shooters off the street. With only 800 leads nationwide in FY2014, there was limited need for organizations to change course. That has now changed.

Investigative Efforts-Crime Gun Intelligence Centers/Enforcement Teams

In 2016, recognizing the overall increase in valuable CGI and NIBIN leads, ATF established 25 CGICs, strategically located across the nation to provide investigative leads and support to CGI initiatives. These CGICs collect, analyze, and triage the multitude of intelligence from NIBIN, e-Trace, and other sources to produce actionable intelligence for investigators.

In 2017, the Bureau of Justice Assistance (BJA) adopted the ATF CGIC concept as an avenue for State/Local law enforcement to pursue funding and promote the CGIC initiative. The guiding principle of these strategies is to provide focused investigative efforts on the hundreds or thousands of crime gun leads generated within a given Area of Responsibility (AOR).

In 2017, The MITRE Corporation studied ATF's CGICs and the CGIC concept. One of their key findings suggests dedicated investigative teams only pursuing NIBIN leads have the greatest return on investment and achieve more frequent successes. ATF agreed with this finding and established Crime Gun Enforcement Teams (CGETs) dedicated solely to leads developed by the CGIC.

CGICs partner with CGETs to provide dedicated intelligence-driven targeting of violent offenders and timely follow-up of CGI leads through well-established protocols. These teams devote efforts to immediate follow-up of NIBIN/CGI leads and the interdiction of shooters, yielding impactful results.

Results

Through commitment and partnerships, the steps described above have already yielded impressive results. Since March of 2018, ATF has cataloged more than 1,000 success stories across the country where NIBIN produced better investigative outcomes. Here are a few examples:

- In Baltimore, MD, the CGIC, working with the Baltimore Police Department, identified an individual responsible for two attempted murders occurring within a 30-day timeframe. In the first incident, the individual shot someone he believed followed him in his vehicle. In the second incident, he shot someone at his former workplace. Cartridge cases recovered from both scenes were placed into NIBIN and immediately linked, which allowed investigators to obtain a search warrant for the suspect and recover the firearm tracked through NIBIN. This individual pled guilty to numerous Federal firearms violations. **The key takeaway** in this case is the importance of a timely NIBIN process to disrupt shooters. A delay in discovering the link could have resulted in more shooting events.

- In Newport News, VA, ATF and its partners used NIBIN to link multiple shooting events tied to two feuding local street gangs. These shootings left a 13-year-old dead at a birthday party and resulted in another gang-related homicide. During an 8-week trial, the Government presented NIBIN-related evidence linking these shootings. The NIBIN links persuaded several defendants to cooperate and corroborated statements from witnesses. **The key takeaway** is the importance of using NIBIN and CGI to establish a pattern of violence perpetrated by criminal organizations to ensure prosecutions capture the totality of their violence.

- In Detroit, MI, the ATF/DPD CGET, acting on leads generated by the CGIC, reviewed three victimless "shots fired" calls linked by NIBIN. Investigators used CGI to identify a potential suspect as an individual known to shoot at rival gang members. The CGET team executed a search warrant at the suspect's girlfriend's home and recovered the firearm used in the shootings. The NIBIN links were presented during the detention hearing and the suspect was held without bond. **The key takeaway** is the importance of a team dedicated to investigating NIBIN links. Without a dedicated team, these three different "shots fired" incidents may not have been prioritized. The Detroit CGET focused solely on these links and employed CGI techniques to identify a suspect. As a result, a judge denied bond in a firearm possession case.

Other Technologies/Forensic DNA

Acoustic Gunfire Detection Systems are a force multiplier for NIBIN/CGI programs. Among other benefits, an acoustic gunshot detection system helps cities increase evidence submission into NIBIN, allowing CGICs to receive new NIBIN leads. By detecting gunfire –especially in the absence of a 9-1-1 call –officers can respond and recover cartridge cases quickly.

Automatic Evidence Analysis software helps investigators manage a mountain of probative evidence. Social media search warrant returns, cell phone records, and other digital evidence often require analysts to spend hours generating connections. There are several promising private sector solutions that automate this laborious process so results can be analyzed and visualized within minutes.

New Techniques to recover DNA from Fired Cartridge Cases: Recently, the ATF National Laboratory developed a process to preserve and recover DNA profiles from fired cartridge cases (FCC) while also meeting the 2-day requirement for NIBIN entry. This in-lab extraction procedure can be easily implemented into any laboratory's current workflow. While previous studies indicated low success rates extracting usable DNA profiles, our DNA section implemented innovative methods that have yielded promising results. In one case in San Francisco, DNA recovered from 18 fired cartridge cases led to the identification and arrest of two murder suspects connected by NIBIN to additional shootings. Extracting DNA in every case is not feasible, but when the only evidence is fired cartridge cases, the investment in high-quality processes secures an indisputable way to identify a suspect in crime gun investigations. Currently, ATF's DNA success rate is as follows:

- Approximately 30% of the time a usable and identifiable DNA profile is recovered from a fired cartridge case,
- Approximately 75% of the time a usable and identifiable DNA profile is recovered from at least one of the FCCs within a group assumed to have originated from the same firearm.

Recommendations:

- All U.S. law enforcement agencies should participate in NIBIN. Law enforcement executives should work with elected officials to mandate NIBIN participation via state law in a manner resembling rape kit testing laws.
- Law enforcement agencies should mandate collection of all fired cartridge cases and test fires from all recovered firearms.
- ATF and law enforcement agencies should work together to establish dedicated investigative assets to target shooters using CGI. Shooters know no jurisdictional bounds, neither should law enforcement.
- When NIBIN sites join the network, lead agencies should establish a plan to implement NIBIN Minimum Required Operating Standards prior to launching the technology.
- Utilize ATF's DNA tool to help solve violent crime through grants to state and local laboratories designed to add more scientists, grow the facilities' footprint, and fund additional instruments. Additionally, we need to expand our federal laboratories to meet the need for the federal caseload.
- Law Enforcement agencies should establish regional stakeholder meetings to ensure all participating agencies utilize CGI best practices.
- Invest in software for investigators to aggregate and analyze different CGI sources (ex: NIBIN, ShotSpotter, Social Media, cell tower analysis).

In summary, the investigative results from dedicated NIBIN efforts prove this technology has revolutionized crime gun investigations and prosecutions. Rather than following a trail of bloodshed, investigators can track gun crime in real time and intervene before lives are lost.

Assistant Chief David LeValley

Detroit Police Department

Assistant Chief David LeValley is a 25 year veteran of the Detroit Police Department. Throughout his career, he has held a variety of assignments within the department, including patrol, administration, and detective functions. He was appointed to his current rank of Assistant Chief in 2018. Assistant Chief LeValley currently oversees the Office of Neighborhood Policing, which includes operations at all of the city's eleven police precincts, Downtown Services, Metropolitan Division, Gaming, and the Detective Bureau. Assistant Chief LeValley holds a bachelor's degree in Public Safety Administration from Eastern Michigan University and a Master's of Business Administration from Wayne State University. He is a graduate of the 240th session of the FBI National Academy.
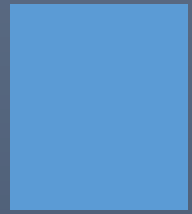
Leveraging Technology
to Reduce Crime

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April 16, 2020

David LeValley, Assistant Chief of Police
Detroit, Michigan Police Department

Leveraging Technology to Reduce Crime

The city of Detroit has historically experienced crime rates much higher than the national average. While studying crime in Detroit, and in particular the high number of robberies and carjackings that were occurring, we found that there was a significant problem at gas stations and liquor stores throughout the city. Much of the crime was occurring after dark in the parking lots of those businesses. We also discovered that many of these predatory crimes of robbery and carjacking went unsolved. The Detroit Police Department had tried a variety of unsuccessful projects in the past to deter crime. Most of these projects involved police officers conducting street enforcement operations, in which we used forfeiture funds to pay officers overtime to make arrests in high crime areas. However, we found our reactionary efforts had no significant impact on reducing overall crime or changing behavior.

We began to look for a proactive way to create what we believed would be safe places for our citizens to visit and conduct business. We also wanted to ensure that when a crime did occur at one of those locations, there was a greater likelihood that we would be able to solve the crime. We looked toward available technology, along with community partnerships to create a multi-faceted approach to address violent crime at targeted locations. In early 2016, we implemented Project Green Light Detroit, coupled with comprehensive License Plate Reader and Facial Recognition programs to address the issue. As a result, violent crime in Detroit has dropped 16% comparing 2015 to 2019. There were 35% fewer robberies and 53% fewer carjackings in Detroit during 2019 than in 2015. Robberies dropped from 3,648 in 2015 to 2,377 in 2019 and carjackings dropped from 523 in 2015 to 244 in 2019.

Project Green Light Detroit

As the city was beginning to see growth and development in areas it had not seen for years, the Detroit Police Department knew it was critical to create innovative ways to strategically combat crime at our most high-risk locations. Internal analysis showed a significant amount of violent crime was occurring at or near city gas stations and liquor stores. Therefore, it became clear that the department needed to target their crime-fighting efforts toward these areas. From this, the idea resulted in the development of a unique program called Project Green Light Detroit, a new and innovative program, enlisting local business owner's assistance to combat the disproportionate amount of crime occurring in and around their businesses. The program, which is managed by the Detroit Police Department, is the first-ever public-private community partnership of its kind, blending a mix of real-time crime-fighting and community policing aimed at improving neighborhood safety, promoting the revitalization and growth of local businesses, and strengthening our efforts to deter, identify, and solve crime. As part of the program, Detroit business owners volunteer to install high definition camera systems at their businesses and allow video feeds to be viewed in real-time, at the Detroit Police Department's Real-Time Crime Center. This allows officers the ability to provide an immediate virtual response to issues at their business, as well as review camera footage to assist in criminal investigations.

In January of 2016, the Detroit Police Department piloted the program by partnering with eight gas station owners who volunteered, at their own expense, to install high definition cameras in strategic areas of their business, capturing areas that are accessible to the public. These video feeds are sent in real-time to the Detroit Police Department's Real-Time Crime Center, where they are monitored by crime analysts and police officers. Feeds are also available to be viewed, after the fact, to assist with criminal

investigations. In addition to allowing the Detroit Police Department access to the camera feeds, businesses are required to maintain 30 days of video storage, along with posting signage in and around their building indicating the business is monitored by police. Owners must also install a green flashing light outside of the business as a beacon to customers and criminals, informing them that the business participates in Project Green Light. Combined, they act as a deterrent to those who may consider committing a crime at the location and identify the business as a partner of the Detroit Police Department.

Since the pilot, the project has experienced significant growth. Today 699 businesses are participating in the program, giving department members access to over 2,800 live camera feeds throughout the city. There are also a significant number of businesses in the pipeline waiting to join the program. Efforts to bring these businesses and more into the program are fueled by the belief that the more businesses in the program, the higher the reduction in crime will be.

With camera feeds being monitored at the Real-Time Crime Center, as well as at all precincts, members can proactively patrol the business virtually to identify issues requiring additional police response. Department members also perform a virtual response to all calls for service at any Project Green Light location. This means that any 911 call initiated from a participating business will automatically have personnel at the Real-Time Crime Center monitor the video feeds. Personnel are required to view and appropriately respond to any issues at the location, thus providing actionable intelligence gathered from the video to responding officers on the street. This has enhanced officer safety and improved our response to citizens in distress.

The program also requires officers on the street to make extra patrol visits to participating businesses during their normal tour of duty.   Officers spend time inside and in the parking lot of the business being more visible to the public, creating a safer environment at the location. This helps to build relationships with the community and the owners themselves when they see and interact with officers on a more recurring basis. The frequency of officer presence at these businesses is increased, which not only acts as a crime deterrent, but has also been reported to increase their customer traffic.

Detectives throughout the department are using Project Green Light video feeds to assist in case closure as well. There have been hundreds of cases solved through the use of this video footage. Efforts are now underway to statistically understand the effects of Project Green Light on case closure, but case after case has proven that having immediate access to business video feeds has been essential to our ability to react quickly to violent incidents and taking offenders into custody.

According to a recent analysis conducted by the Project Green Light team, the original eight participating businesses have experienced an overall reduction of violent crime of 44.9% when comparing 2015 (before Project Green Light) to 2019. All participating gas stations and liquor stores have seen a reduction of 25.3% and 18.2%, respectively, in the same time frame. Michigan State University is the research partner for Project Green Light. It is expected that the results of their research will be concluded by the end of this year.

License Plate Readers

Part of the technology package that the Detroit Police Department invested in includes a network of license plate readers throughout the city.   The License Plate Reader (LPR) provides automated detection of license plates by deploying a high-speed camera, mounted either at a fixed location or on a

mobile patrol vehicle.   A computer then compares data from electronic images of vehicle license plates against specified databases of license plates.   The system captures data about the image, such as camera identification, date, time, and GPS coordinates, as well as data about the vehicle, including the vehicle's make and model, the vehicle's driver and passenger(s), distinguishing features (e.g., bumper stickers, damage); and state of registration.

The license plate readers compare against two databases of license plates, otherwise known as "hot lists." One is maintained by the FBI's National Crime Information Center (NCIC), which contains information about wanted vehicles and persons nationwide.   DPD also maintains a "local hot list," which consists of vehicle plate information entered by members of DPD. This is used for vehicles that are known to be used in violent crimes.   License plates entered into the local hot list are automatically purged within 24 hours and must be re-entered if needed.   When the system registers a match with one of the hot lists, department members are alerted and able to quickly locate wanted vehicles and people.

Additionally important is the investigative value in the data that is collected by the license plate readers.   After a crime has occurred, department members are able to access the system to verify the location of a vehicle that has passed one of the many stationary or mobile license plate readers located throughout the city.   This information is valuable in proving that a vehicle was either present or in close proximity to a crime scene.

Facial Recognition

One of the most controversial, but tremendously valuable pieces of technology that the Detroit Police Department uses in combating violent crime is Facial Recognition software.   In 2017, the department began using facial recognition software in our Crime Intelligence Unit.   Since that time, we have developed positive investigative leads in 276 instances, or 41% of the time facial recognition is used.

When a violent, part one crime (Homicide, Aggravated Assault, Robbery, or Rape) occurs that is captured on video or an image of a suspect is available, analysts trained by the FBI evaluate the probe image for use in the facial recognition system.   The analyst then enters that image into the facial recognition system, which compares the image to a database of local mug shots for a potential match. The system returns numerous mug shots of possible candidates and ranks them in the likelihood of matching the probe image.   Once the analyst identifies who they believe to be a probable match, it is reviewed by another trained analyst and a supervisor must then concur before an investigative lead is sent out.   It is important to note that in addition to the automated system match, the analysts use other available resources to verify the investigative lead, such as reviewing social media pages for recent photographs revealing vehicles and clothing, or conducting a review of prior police reports involving the individual.   Also, this information only provides an investigative lead for detectives to use and does not constitute probable cause to make an arrest.   Detectives must still establish probable cause with other independent evidence before an arrest can be made.

We initially received a considerable amount of public protest regarding our use of facial recognition technology. There were many misconceptions surrounding the way this technology was used by the Detroit Police Department. The department does not use facial recognition on live video feeds to identify individuals, for any kind of predictive analytics, nor for the purpose of conducting surveillance on any individuals, and we do not rely solely on the software's algorithm to make an identification. We have a diverse group of trained analysts who conduct facial recognition searches.   We have found that it is

important to have a comprehensive and strict policy on the use of the technology to ensure that no citizen is wrongly identified or convicted of a crime based on the improper use of the technology.   To date, we have no such instances on record.

Success Stories

In May 2019, police responded to a home in which three individuals were shot and killed by a masked gunman.   There were two other individuals present, but they were unable to identify the suspect. In re-tracing the steps of the homicide victims prior to their death, detectives were able to determine that all three were at a Project Green Light Detroit gas station earlier in the evening.   The victims met up with a fourth individual, later identified as the suspect, on camera and then left the location together.   After an altercation at the crime scene, the suspect left the location upset and embarrassed, later returning to shoot them.   Analysts were able to use the high definition footage to enter the person's image into our facial recognition software.   They ultimately produced an investigative lead and a canvass of the area surrounding the suspect's home produced video footage of the suspect running home in a mask after the murders had occurred.   The suspect was arrested and was ultimately convicted of the murders.   Without the use of this technology, detectives never would have known to canvass for video near the suspect's home and he may have never been identified.

In September 2019, an analyst from the Detroit Police Department was reviewing a live Project Green Light camera feed from a local gas station when the analyst observed an armed robbery and non-fatal shooting take place in the parking lot.   The analyst alerted patrol units who responded to the scene, but the suspect had fled by the time they arrived.   The analyst was able to quickly obtain a photograph of the suspect's face and his vehicle from the high definition Project Green Light cameras.   The analyst entered the suspect's image into our facial recognition system and produced a potential lead.   The analyst was then able to determine that the suspect had a vehicle registered to him, which matched the vehicle that fled the crime scene.   The analyst used our License Plate Readers to determine that vehicle was in the close proximity of the crime scene.   The lead was passed on to detectives and the suspect was ultimately identified by the victim, later arrested, and has been convicted of Armed Robbery and Assault with Intent to Murder.   Without the use of these three pieces of technology, the suspect may have very well gone unidentified and remained on the streets to victimize other citizens.

These are just two examples of the successful use of this technology, but these stories repeat themselves over and over throughout the city of Detroit.

Recommendation

The Detroit Police Department has been successful in reducing and solving crime through the use of these three strategies and are now implementing a considerable technology expansion plan.   The city of Detroit is currently in the process of significantly expanding our camera assets, adding almost 1,000 traffic cameras at intersections that the police department will have access to.   We are also installing additional cameras and License Plate Readers along the highest crime corridors throughout the city that will be monitored at precinct level intelligence centers, which are currently being built inside of the department's busiest precincts.

Based on our experience and the lessons learned, I am making the following recommendations to the panel with regard to the use of technology to reduce or solve crime:

- **Invest in technology infrastructure** – Investment in a robust technology infrastructure is critical to the success of any large scale deployment. It is also important to continue to evaluate for necessary improvements to create a sustainable program. We were fortunate to have a good team in place that was willing to take risks on unconventional projects which paid off. Funding must be identified to support the growth and expansion in any departmental technologies as well. This can obviously be difficult for many agencies, but it is critical for success.
- **Encourage transparency** – Having complete transparency in the planning and development of our programming has been key. We publicly discuss our successes, challenges, and failures in an effort to show our own growth. We have opened the department for tours to public officials, media, and key stakeholders in the community to ensure we keep them informed. As any department contemplates these efforts, it is highly advised to take this approach. It is easier to be open and straight forward at the beginning of any undertaking like this.
- **Mandate training and certifications** – Regardless of all the technology that can be purchased, there will always be a requirement for human intervention to ensure their safe and efficient use. We have learned how valuable this has been in defending our facial recognition program. Mandating universal certifications and training will protect both law enforcement agencies and the public from misuse.
- **Increase technical assistance** – When we began exploring the idea of making a considerable investment in technology to combat crime, we toured several police agencies throughout the country in an effort to collect as many of the "best practices" on the topic that we could. Facilitating technical assistance and peer exchanges with other law enforcement agencies to understand their "best practices" and lessons learned would be useful.
- **Keep CJIS up to date with current technology** – One of our largest and continuing challenges is keeping within Criminal Justice Information Systems (CJIS) guidelines with new technologies and projects. It is recommended to identify personnel dedicated to investigating the impact of any technological upgrades to CJIS compliance. Without this, police agencies will have difficulty maintaining compliance when purchasing new technology, much of which has advanced beyond the limitations of CJIS.
- **Be willing to take risks and test proofs of concept** – Buy in from government officials and support from community leaders has been valuable to us as our project needs have grown. This support has allowed us to focus on and meet our overall goals for improving crime rates and the quality of life for those in the city. Buy in from all levels in the police department has been challenging, but was accomplished through a cultural shift and by providing front line officers with much improved technologies as well.