Impact of the RTCC on Investigation and Clearence of Criminal Violence in Winston-Salem, North Carolina by the Winston-Salem Police Department

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June 2024

UNC GREENSBORO | NC Network for Safe Communities

This work was supported by Grant Number 2020-WY-BX-0007 awarded to the City of Winston-Salem by the Bureau of Justice Assistance, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this publication are those of the reporting agency and not necessarily those of the Department of Justice.

Executive Summary

The Winston-Salem Police Department (WSPD) identified two goals under its 2020 "Strategies for Policing Innovation" grant relating to the establishment of its Real Time Crime Center (RTCC). The first goal was to establish a more efficient and deliberate crime prevention and intervention response by utilizing several types of in field (i.e., community-placed cameras) and base office analytic technologies (i.e., computer tracking and analytics). A second goal was to *implement* the RTCC as a state of the science crime prevention and intervention response system to improve the WSPD's capacity to achieve higher clearance rates on prioritized criminal activities. The combined achievement of these goals would ~~a~~ reduce violent crime and serious property destruction and subsequently increase citizen safety.

The RTCC was established to facilitate real-time analysis of criminal incident data and other information that would enable the WSPD to focus on high-crime areas, enabling a timelier response and more accurate decision-making. The RTCC Central Command Site was established at the WSPD's main headquarters where a team of detectives, dispatchers, and a crime analyst would routinely meet to review and analyze data and communicate observations and intelligence with detectives and officers in the field. It also serves as the response center for reports of active shooters and incidents involving attempts to flee from law enforcement or avoid arrests. The command room contains video panels to display video and audio feed obtained from public and private video cameras. The RTCC command site room serves as the central command post for operations as well as the Real-time Information-sharing Platform helping RTCC team members and deployed officers make the best-informed decisions.

This report presents a summary of the evaluation conducted by the North Carolina Network for Safe Communities (NCNSC), at the University of North Carolina at Greensboro (UNCG) of the WSPD's implementation of the Real Time Crime Center since December 2020. The purpose of the evaluation study was to determine whether violent crime cases assisted by RTCC information technologies resulted in improved case outcomes i.e., cleared by arrest (Statista Research Department, 2024). Specifically, the data analyses described in this report have sought to answer a primary question: "Did RTCC-assisted violent crime incidents have greater rates of case clearance compared to violent crime cases that did not receive RTCC support?" This framework of "case solvability" (sufficient collection of evidence for an arrest**)** was developed by WSPD RTCC leadership to help develop and guide the evaluation.

Because the RTCC was launched relatively recently and was in its initial phases of implementation throughout the study period, this evaluation was limited to examining contributions of the RTCC towards investigation of violent criminal incidents in the 24 Police Beats that comprise the city of Winston-Salem. In addition, the deployment of RTCC technologies was largely "incident-based" either during the response to specific calls for service

or during the investigation of those incidents. An additional constraint was that the data available for the evaluation was limited to crime data and outcomes of the incidents included in the WSPD database. Due to these factors, this evaluation concentrates on comparing counts and percentages of cases cleared vs. not cleared by arrest by Police Beat, by calendar years (2021, 2022, 2023, 2024 (1st Quarter)), and by use of specific RTCC technology (FUSUS camera network, ShotSpotter, ALPR) for five non-domestic violent crimes: Homicide, Aggravated Assault, Robbery, Vandalism/Property Destruction, and Weapon Violations.

In order to assess the impact of the RTCC technologies on the WSPD's ability to address, investigate, and solve violent crimes in Winston-Salem, —crime data for five types of criminal acts (as defined by the U.S. Bureau of Justice - National Incident Based Reporting System (NIBRS) were used: Aggravated Assault (NIBRS code 13A), Destruction/Damage/Vandalism of Property (NIBRS code 290), Homicide (NIBRS code 9A), Robbery (NIBRS code 120), and Weapons Law Violations [Discharging Firearm, Possession/Concealing Weapons Weapons-Other, Weapon On School/Educational Property, Weapons- Selling/Distributing] (NIBRS code 520). These criminal acts represented the most frequently reported acts of violence tracked by the RTCC.

Comparison of cleared by arrest rates for cases involving and not involving RTCC technology revealed the following. Two-fifths (40%) of Robbery cases and over a third (36%) of homicide cases involving RTCC technology were Cleared by Arrest. A little less than a third (31%) of Aggravated Assaults that involved RTCC technology were also Cleared by Arrest. The violent incidents associated with the lowest rates of Cleared by Arrest were Destruction/Damage/ Vandalism of Property (15%) and Weapon Violations (12%). Overall, for the set of criminal incidents involving RTCC technology tracked for this study, almost one fifth (20%) were Cleared by Arrest. By comparison, for the five types of criminal acts not involving RTCC technology, the Cleared by Arrest rates for Homicides (52% vs. 36%) and Weapon Violations (26% vs. 12%) were higher but Aggravated Assaults (11% vs. 31%) and Property Destruction (6% vs. 15%) were lower. Overall clearance rate for the non-involved RTCC incidents was only marginally higher (20% vs. 17%) compared with those violent crime incidents involving RTCC technology.

Including this technology in a fully active police unit was not an easy task, particularly while dealing with field personnel shortages, changes in departmental leadership, and pressures from city, business, and residential interests for delivery of reduction of violent crime while also implementing, mastering, and instructing staff in the use of the RTCC applications. A review of timeline of implementation (see full report) illustrates the complexity of integrating the initial four technological applications, followed late in the project timeline (August 2023) with the introduction of automated license plate readers (ALPRs) and testing of a Drone for First Responders during the summer of 2023 with a scheduled rollout in mid-June 2024. During the fall of 2023, ALPRS were integrated with the Fusion camera and the Force Metrics search engine applications. Consequently, analysis of the implementation of the technology is limited, and its effects on the results during the period of study are difficult to assess. The rollout of the RTCC

technology affected affect the original plan for comparing geographic areas (Police Beats) in the City of Winston that were to be comparison sectors for areas that did receive RTCC applications. The WSPD chose to use the technology where if could be used. ShotSpotter was limited to a predetermined set of four Police Beats (112, 121, 221, and 222) and most city-owned/police department owned cameras operated in or near these Police Beats. However, because the WSPD requested assistance from business and residents for camera footage regarding possible criminal activity, this expanded RTCC "coverage" to essentially the entire city.

To offset the limitation of not having any RTCC technology Police Beats to compare against Police Beats without any active technology, the Evaluation Team developed a proxy approach of examining rates of violent crime (reported by the WSPD) and counts of case clearance by arrest by grouping Police Beats by high, medium, and low counts of violent crimes and by high, medium, and low counts of RTCC technology use. As the report shows, there was a clear association between higher rates of RTCC use among the Police Beats and the highest counts of violent crimes. This relationship also produced the result that beats with the rates of violent crimes had more opportunities to clear cases by arrest. It can be noted that for the Police Beats with the highest incidents of violent crime cases cleared by arrest averaged about 20%.

The data included in the report shows that more opportunities to make arrests did not result in higher rates of arrest involving RTCC technology. Rates of cases cleared by arrests were actually higher among Police Beats with moderate to low counts of violent crimes. This finding raises the question of whether a higher volume of criminal activity reduces the efficacy of the technology. It has been observed that some perpetrators know they are being tracked by camera but still engage in their criminal activity perhaps believing they will not be caught because most criminal acts do not lead to arrests or prosecutions.

Members of the Winston-Salem Police Department (WSPD) were surveyed regarding the impact of the Real Time Crime Center (RTCC), which was implemented beginning in January 2021. A total of 266 WSPD personnel completed the survey. The survey items addressed 10 items regarding the use of RTCC technology and its associated intelligence gathering applications. All except one question—which pertained to daily workload—were rated positively by at least half of the respondents. From the perspectives of WSPD personnel who responded to the survey, the RTCC had a positive impact on crime response and investigatory operations**.** Over 80% indicated it had "improved officer safety, increased situational awareness of patrol officers, and facilitated the detection of violent illegal use of firearms or other weapons to commit a criminal act." Over three-fourths reported it had "contributed to an increase in arrests and cleared crime" and almost three-fourths of the respondents noted it had "led to increased collection of crime scene evidence." Just over half of the sample indicated it had "shortened response times to incidents requiring a police response, contributed to a reduction in violent crime and gun-related crimes in the city" and had "improved on-scene officer and

citizen interactions." It also was credited by half of the respondents as "helping them become more efficient and effective in documenting cases."

In addition to the survey ratings, respondents provided comments about their use/involvement with the RTCC and its technology and intelligence gathering capabilities. The vast majority of the 40 sets of comments were very positive about RTCC and/or its technology. The comments were coded identifying three recurring themes: the most common was RTCC technologies as a holistic system which builds WSPD assets that integrates crime detection and investigation facilitating the detection of crimes (including location of suspects and vehicles) streamlined information processing and increased the speed of evidence collection. Another theme was that the RTCC provided officers assistive technology to enhance investigations and apprehensions of persons suspected of criminal activity. For some respondents, their take was that the technology might represent a means of "replacement" of personnel but nearly all respondents agreed that the use of the technology enhanced the scope of investigative and data collection work providing leads and reducing effort to pull together critical information. The third theme was that the RTCC enhanced officer safety**.** The technology enables officers in the field to be made aware of possible dangers in their encounters with suspects and locations.

Based on the available quantitative and the survey-based qualitative data from WSPD personnel, the findings suggest that the overall impact of the RTCC was positive. We draw this conclusion based on several sets of findings: percent changes in rates of violent crime, percent changes in case clearance by arrest rates, the qualitative feedback from WSPD personnel through their survey responses, and from RTCC leadership commentary and reporting. When taken together, these lines of analysis provide us with a more general and clearer picture of how RTCC technologies have contributed to enhancing the "solvability" of crimes in Winston-Salem.

It is of course extremely difficult to prove a causal relationship between any one violence reduction strategy—whether RTCC technologies, the introduction of a new police unit, or some community-based preventative program—and actual changes in rates of violent crimes. Violent crime is multi-causal and may not ever be directly attributable to the implementation and utilization of RTCC technologies. On the other hand, and as already described, the implementation of RTCC technologies is ongoing and many WSPD personnel are still learning how to integrate the RTCC into their normal operations. Therefore, any significant and identifiable decreases in violent crime rates as a result of RTCC technologies may not be fully verifiable until a greater amount of time has passed. With that said, it is clear for some Police Beats the utilization of RTCC appears to have made a substantial contribution to case clearance by arrest.

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Introduction

The Real-Time Crime Center: Using Technology to Respond to Violence Crime

> *In December 2019 two homicides shook the city of Winston-Salem, NC. The murders involved an active shooter incident at a municipal building where a city sanitation worker shot and killed a fellow employee and then opened fire on law enforcement when they surrounded the building. Before the suspect was killed to prevent further loss of innocent life, he shot and injured another co-worker and one police officer.*

To prevent future tragedies of this type, the Winston-Salem Police Department (WSPD) conducted a self-review of how it could be more proactive in detecting and preventing incidents of violent crime, particularly those involving firearms. While all acts of violence cannot be prevented, WSPD concluded that more rapid police responses could reduce if not prevent a substantial amount of the physical and psychological harm that occurs when criminal acts of violence are perpetrated. To this end, the Department established the Winston-Salem Police Department Real-Time Crime Center (WSRTCC). The purpose of the WSRTCC (hereafter referred as the RTCC) was to establish a set of technologies that would strategically monitor and provide situational awareness information to responding officers in the context of the perpetration of serious criminal acts in order to prevent and/or reduce potential for injury and loss of life and to facilitate the apprehension and subsequent conviction of violent criminals.

Program Goals

The WSPD identified two goals under its 2020 Strategies for Policing Innovation grant relating to its establishment of the RTCC. The first goal was to establish a more efficient and deliberate crime prevention and intervention response by utilizing several types of in the field (i.e., community placed cameras) and base office analytic technologies (i.e., computer tracking and analytics). This would entail enhanced training of WSPD personnel to increase their ability to gather and analyze information that would potentially predict the occurrence of criminal activity, as well as to gather and analyze information related to ongoing and concluded criminal incidents. A second goal was to implement the RTCC as a state of the science crime prevention and intervention response system to improve the WSPD's capacity to achieve higher clearance rates involving criminal activities that result in harm to others and destruction of property. In combination, the intent of these goals was to focus on achieving a reduction in violent crime and serious property destruction and subsequently increased citizen safety.

To achieve these goals WSPD initiated enhanced training and addition of more personnel, improvement in real time processing of data gathering and analysis to improve response time and response proficiencies (leading to collection of essential evidence and arrest), and the implementation of several technologies that have demonstrated records of improving policing of criminal activity.

Mission of the WSPD RTCC

The mission of the RTCC is to provide a law enforcement agency with the ability to capitalize on a wide and expanding range of technologies for efficient and effective policing. Such efforts allow law enforcement officers to respond quickly, or even immediately, to crimes in progress or to those that recently occurred. The technologies available enable law enforcement to respond to crime events more efficiently, more deliberately, with improved operational intelligence, and with a proactive emphasis on officer, citizen, businesses, and community safety.

RTCC Technology Applications

RTCC Central Command Site.

The RTCC was established to provide capabilities of conducting analysis of criminal incident data and other information that would enable the WSPD to focus on high-crime areas, enabling a timelier response and more accurate decision-making. The RTCC Central Command Site was established at the WSPD's main headquarters as a centralized location where a team of detectives, dispatchers, and a crime analyst would routinely meet to review and analyze data and communicate observations and intelligence with detectives and officers in the field. It also serves as the urgent response center for reports of active shooters and incidents involving attempts to flee from law enforcement or avoid arrests. The command room contains video panels to display video and audio feed obtainable from public and private video cameras. The RTCC command site room serves as the central command post for operations as well as the Real-time Information-sharing Platform helping RTCC team members and deployed officers make the best-informed decisions.

Force Metrics.

Force Metrics is a real-time information-sharing platform. It uses a search engine software system that enables WSPD personnel to readily access and search all WSPD created and licensed to access databases, reports, call taker notes, name fields, supplemental reports, and phone number. It provides for data-driven sourcing planning for faster response planning and greater informed decision-making that can be communicated to personnel responding and/or

investigating a criminal incident. As a real-time information-sharing platform it allows continuously updating of crime maps, bulletins, and case management, integrating with computer-aided dispatch (CAD), and a crime connector feature linking multiple records of people, places, activities, and assets. The system was implemented in February 2024.

ShotSpotter.

This technology provides long-range capability (within 3 square miles) for tracking of gun fire that can be used to identify locations as sites of possible gun violence. This can assist with on the scene tracking of additional instances of gunfire that can help determine the potential numbers of shooters, the direction shooters are moving, and cessation of gun fire. ShotSpotter uses an array of acoustic sensors that are connected wirelessly to a centralized, cloud-based application to reliably detect and accurately locates gunshots using triangulation. Each acoustic sensor captures the precise time and audio associated with impulsive sounds that may represent gunfire. This data is used to locate the incident and is then filtered by sophisticated machine algorithms to classify the event as a potential gunshot. Acoustic experts located with ShotSpotter's 24×7 Incident Review Center are available to ensure and confirm that the events are indeed gunfire. They can append the alert with other critical intelligence such as whether a fully automatic weapon was fired or whether there are multiple shooters. ShotSpotter was implemented September 2021.

Camera System (Fusus).

The Fusus platform integrates live video with feeds from other security systems like automated license plate readers, access control systems, security personnel geolocators and unmanned aerial vehicles (UAVs), creating a unified security overwatch. The technology enables the capture of video feeds showing evidence of crimes in progress, identifying information of suspects, victims, and potential witnesses. The WSPD adopted FUSUS to be a central hub of existing camera infrastructure to enhance situational awareness and investigative capabilities. This includes Camera Registry via FUSUS which allows private citizens to register their cameras. Detectives can then identify registered cameras in the area of an incident and remotely request the video surveillance. Currently, the RTCC has over 2,000 cameras that are integrated into the Fusus platform which includes over 113 state and local traffic cameras, and more than 160 cameras installed on city government properties, including housing projects.

An additional camera technology involves the use of Axon Body-Worn Cameras BWCs). While the use of BWCs predates the RTCC their regular use has established them as a critical safety tool, used almost daily by RTCC personnel. The cameras provide access live video feeds from

officers during high-risk situations, such as fights, struggles, foot pursuits, or other dangerous incidents, provides RTCC with real-time situational awareness. This enables the RTCC to direct resources where they are most needed, allowing officers to focus on handling the situation at hand. The GPS feature further enhances this capability by enabling tracking of officer locations, setting perimeters, and providing an extra layer of oversight, thus ensuring officer safety and improving response coordination.

Automated License Plate Readers (ALPRs).

ALPRS enable live tracking of offenders and enhance post incident investigative capabilities. The WSPD contracted with Verkada to provide automate license plate reading and integration into the Fusus platform allowing the video footage from these cameras to be viewed in WSPD's Fusus video management system. Installation of the ALPRs began in June 2023. Currently the WSPD's RTCC has 34 Verkada cameras with ALPR technology placed throughout the city.

Enhanced Information Access & Processing Technology.

In the past two years the RTCC has added complementary information processing software that aligns with the RTCC's of leveraging technology to enhance investigations.

Penlink, formerly known as COBWEBS, one of the first major tools brought into the RTCC (July 2023), was introduced because the developers of the center recognized the need for open-source intelligence gathering. The program provides a user-interactive program that retrieves information from the internet, requiring skilled operators to maximize its potential. While its use yields limited results on a daily basis, it has proven to be cost-effective, particularly in major cases and social media monitoring. Despite its complexity, it plays a valuable role in supporting investigations and enhancing the RTCC's capabilities.

LIVE911 allows RTCC personnel to listen directly to emergency calls as they come in, enabling them to hear the urgency and nuances of the caller's situation in real-time. By providing access to the call before it is officially dispatched, LIVE911 helps RTCC personnel assess the seriousness of incidents and prioritize or triage them accordingly. This capability enhances the efficiency of response efforts and improves overall situational awareness for the team. The software was implemented in October 2023.

CLEAR Accurint supports data access from a variety of sources to assist in locating individuals, making it especially useful for tracking wanted subjects. By incorporating commercial data from across the nation and integrating with other License Plate Recognition (LPR) systems, CLEAR

Accurint provides comprehensive location information and real-time intelligence. This capability strengthens the RTCC's ability to quickly find and apprehend individuals, further advancing its mission to close information gaps and protect the community. The software was introduced in October 2023.

READYOP was initially introduced in January 2024 as a communication platform to keep command informed about major incidents, has evolved into serving as the primary tracking tool for RTCC's daily operations. The platform's affordability and versatility have led to its expanded use, and it has become the primary application for managing communications during major events. READYOP allows RTCC personnel and assigned event staff to stay updated in real-time, ensuring seamless coordination. Its unique flexibility has made it a cornerstone of RTCC technology, providing invaluable support for both routine operations and large-scale events.

IDICORE, introduced in April 2024, was implemented to address a key gap in the Real Time Crime Center's (RTCC) technological capabilities. This platform allows analysts to efficiently search across private sector data, enabling them to quickly locate essential information such as phone numbers, people, vehicles, social media activity, associates, and family members. IDICORE enhances the RTCC's ability to gather critical intelligence, aligning with its broader mission to bridge information gaps. By leveraging this resource, the RTCC can provide more comprehensive and timely data to aid in investigations and improve overall situational analysis.

RTCC Implementation Event Timeline.

Presented in Appendix A is a timeline of events related to the implementation of the WSPD RTCC.

Literature Review

Real Time Crime Centers

Law enforcement agencies are increasingly turning to the use of innovative technologies to support police practices (Przeszkowski et al., 2023). Real-Time Crime Centers (RTCCs) represent one of the latest innovations in policing by which police departments leverage technology to enhance crime control and prevention efforts. RTCCs integrate a variety of technologies to help law enforcement agencies identify and respond to crime more efficiently. They use Information from multiple data systems including cameras and Closed-Circuit Television (CCTV), automated license plate readers (LPRs), and gunshot detection technology (such as ShotSpotter). RTCC's also often include intelligence databases that use advanced software systems to allow for

automated searching of videos and photographs, resulting in the ability to identify individuals from various social media platforms along with criminal records and calls for service to provide strategic and analytic support to police operations. The goal of RTCCs is to combine this information in real-time in a centralized location to enable police to quickly respond to crime incidents in progress, conduct active surveillance, inform decision-making, and/or support progress of criminal investigations of incidents that have already occurred (Arietti, 2024; Bureau of Justice Assistance, 2019; Guerette & Przeszlowski, 2023; Przeszlowski et al., 2022).

Based on a review by Arietti (2024) relatively few studies have examined the impact of police technologies on investigative outcomes such as case clearance, and existing findings have been mixed. She notes there is evidence to suggest that the integration of technology coupled with timely information and analysis may enhance investigations, though most RTCC evaluation work has focused on post-incident investigative purposes (Przeszlowski et al., 2022).

Implementation of RTCCs among Law Enforcement Agencies in the U.S.

While there has been a growing trend in implementation of RTCCs, the extent to which their impact has led to actual improvements in the investigation of crimes has not been well established. According to Arietti (2024), there have only been two evaluations of RTCCs that have shown a reduction in crime – one conducted by Hollywood et al., 2019 of Chicago's Strategic Decision Support Centers (SDSCs) and more recently, one by Guerette & Przeszlowski (2023) of a Miami police department based RTCC. Arietti (2024) notes that there have been over 140 RTCCs implemented across the United States; 80 since 2020 alone, and that most are located within agencies with over 500 personnel. In a study of 44 RTCCs, Przeszlowski et al., (2022) found that there was no single model of implementation or utilization of RTCC technology, but rather that RTCC's have employed a wide variety of information and technologies, including calls for service information, CCTV video footage, license plate readers, and intelligence databases. The primary functions of the RTCC's also varied but most included technology assisted applications, real time information for responses to crimes in progress, providing active surveillance, enabling real-time information sharing, and affording post-incident investigative support.

Police Response and Increased Clearance Rates

Research has shown that the enhancement of investigative resources and the combination of investigative effort and organizational aspects can improve case outcomes (Braga & Dusseault, 2018; Prince, Lum & Koper, 2021; Wellford et al., 2019). Case solvability is influenced by both circumstantial factors, (e.g., witnesses present at the crime scene) and investigative effort (e.g.,

response time in relation to an incident, follow up investigative work, recovery of evidence) (Arietti, 204, Prince, Lum, & Koper 2021). Higher clearance rates have been associated with faster police response (Blanes i Vidal & Kirchmaier, 2018), as well as with regular information sharing across investigative units and with patrol (Wellford et al., 2019), support provided by intelligence and crime analysis units (Carter & Carter, 2016), and use of technology assistive investigatory tools, including cameras/CCTV, gunshot detection technology such as ShotSpotter, and automated license plate readers (LPR's) (Braga & Dusseault, 2018; Circo & McGarrell, 2021; Doucette, et al. 2021; Koper & Lum, 2019; Prince, Lum, & Koper, 2021; Robin, Peterson & Lawrence, 2021).

Use of Clearance Rates for Demonstrating Impact of RTCCs

Case clearance rates reflect the ability of police to solve crime and represent an important measure of crime response effectiveness (Arietti, 2024). These case clearance rates, which often are represented as the percentage of cases solved by police, are often used as a measure of police performance and investigative success (Baughman, 2020). The clearance of a case demonstrates the combined result of the quality of the police response and the investigatory work on a reported criminal incident.

There have been considerable efforts made to improve police efficiencies with a particular emphasis on addressing response time to incidents, gathering of evidence, making arrests, and supporting the clearance of arrests (Arietti, 2024). These improvements have also included advancements in technology, training of law enforcement personnel in the use of the technology, and incorporation of technologic advancements into standard operating procedures. With these considerations in mind, RTCCs can enhance police operations in general by facilitating real-time observations of crimes in progress, provision of evidence that crimes or the illegal use of weapons or other materials have occurred, and observations of persons or vehicles fleeing the scene of a possible crime, all of which enhance judgments regarding arrest, prosecution, and detention. RTCCs are expressly positioned to enhance police investigations by providing these sources of information and intelligence (Arietti, 2024).

Examples of RTCC Technology Use

The RTCC utilizes multiple types of technology to assist with solving crimes and keeping the citizens and officers of Winston-Salem safe. These technologies include Force Metrics (a high-speed database search and retrieval software), Fusus (a system for managing camera surveillance), ShotSpotter (a system for tracking gunshot acoustic surveillance), and Verkada (an

automated License Plate Reader system). The following are some examples of the WSPD's RTCC use of these technologies in its investigative work.

Force Metrics Highlight

Force Metrics is a high-speed database search and retrieval system that allows WSPD personnel to rapidly access and operationalize police data such as addresses, phone numbers, and criminal histories. For example, a district Captain shared the following account: "On February 16, 2024, an "Assault on a Female" call was dispatched. Communications did not have an apartment number and advised that the telephone number was not showing up in our local system. But before dispatched officers arrived to respond, the Captain rang the phone number in Force Metrics, and within seconds was able to verify the telephone number, the victim it was associated with, and the exact address of the apartment. The search also revealed that the likely suspect had an outstanding order for arrest. This information was critical for the responding officers."

Another instance that exemplifies the importance of the Force Metrics system was reported by an officer on February 22, 2024: "I had an indecent liberties case last week in which the suspect was identified as the child's mother's ex-boyfriend. The mother only knew the suspect's first and last name, his approximate age, and the month in which he was born. I was able to use Force Metrics to identify him based upon the limited information provided."

FUSUS Highlight

FUSUS refers to a centralized system for managing the footage that comes from the cameras* that are part of the larger RTCC. While the use of FUSUS leads to a substantial increase in observation time, it also leads to less non-directed time in the field when investigation of incidents is occurring. The camera footage provided through the FUSUS network contributes to the gathering of more leads and definitive evidence which enhances the likelihood of resolving investigated incidents.

*At the time of this report WSPD had surveillance footage access to approximately 2,700 cameras including ones owned by the city and the police owned along with access to footage available from business and residential cameras.

An example of the utility of the FUSUS network is the following: On April 2nd, 2024, a call for service was generated by a reporting party that refused to give their name and a call back number. The call details stated there was a disturbance but did not reveal any information about an actual crime being committed. Officers and analysts in the RTCC immediately pulled up

the cameras and observed a male subject being assaulted by multiple subjects. This assault escalated to an assault with a deadly weapon (handgun) when the aggressors pulled out handguns and began shooting at the victim. Prior to the police arriving on scene, the victim had fled the area and never returned. The suspects left the area and were not located. In the past, prior to the RTCC, this case would have been cleared with all leads exhausted due to limited information, witnesses, and physical evidence. However, the camera footage and a sighting of the victim enabled the WSPD to pursue the case.

ShotSpotter Highlight

"ShotSpotter" refers to a system that allows police personnel to track gunshot acoustic surveillance and connect it to possible commissions of violent crime. In late 2022 a ShotSpotter network was positioned at key locations known to have high historical incidences of violent crimes with firearms. These locations roughly correspond with WSPD's Police Beats 112, 121, 221, and 222: (see Beat Map Appendix A). As a result, from January 1st, 2023, to April 4th, 2024, 1,604 reports of possible gunshot activity were initiated by a ShotSpotter alert. Without ShotSpotter, many of these incidents would likely have been unreported and investigated by the WSPD. While reports of all firearm discharges do not necessarily lead to criminal investigation reports, WSPD reported that the added information that ShotSpotter provides has increased the likelihood that criminal activity involving the discharge of a firearm will be identified and investigated.

Verkada Automated License Plater Reader Cameras Highlight

Verkada is an Automated License Plate Reader system that was incorporated into WSPD's FUSUS and Force Metrics technology applications. Since January 1, 2024, these cameras have assisted with the recovery of 15 stolen vehicles (most of these leading to subsequent apprehensions), the identification of 4 vehicles involved in homicides, and the identification of multiple vehicles involved in gun related incidents such as armed robberies and assaults with a deadly weapon. Currently, 34 cameras capture slightly over 100,000 license plate reads per day. To demonstrate the utility of the Verkada system, the following two accounts are illustrative.

On February 28th, 2024, a report of a traffic collision was reported near a Verkada camera. Detectives in the RTCC accessed the cameras and located the crash. The driver of the truck involved in this collision fled the scene, but the detectives were able to utilize the cameras to provide details of the direction the truck was headed. A patrol officer located the truck involved in this collision less than 1 mile away from the scene. The camera footage enabled WSPD to determine that the driver of the truck ran a red light at the intersection which assisted with the

determination for cause of the crash. The accident resulted in a traffic fatality and the WSPD Traffic Enforcement Unit responded to the scene and took on the investigation. The officers on scene were able to locate, interview, and charge the offender in a matter of hours. Previously, an incident like this may have taken days or weeks to solve if it was ever solved. For example, in July 2016, there was a traffic collision that resulted in a fatality under similar circumstances as the ones describe above, but there were no cameras in the area. The suspect vehicle fled the scene and was never located. To this day, the case remains open.

The second account involves an incident that took place on March 15th, 2024, when a report of two missing children (2 and 5 years old) was dispatched to the WSPD's patrol division. The mother reported that she left her apartment complex for one-half hour (from 12:00 to 12:30pm) and during this time, her children had gone missing. As patrol officers searched the surrounding area, detectives in the RTCC used the Verkada system and observed the mother's vehicle at various locations. The information they collected conflicted with the initial statements and timeframes that she had reported to the patrol officers on the scene. Once the mother of the children was confronted with this information, she changed her story. She confessed she had left her children for several hours. This ultimately led to her children being located and her being arrested due to her neglecting her children for multiple hours. The information obtained through the Verkada system potentially saved many hours of investigation; first, by having information to contradict the mother's story regarding the time of her absence, and second, by providing potential leads for where the children (who were returned) were located.
As is clear from the preceding anecdotes, the technologies associated with the WSPD's RTCC, have provided WSPD officers with additional tools for solving cases and contributing to public safety. A purpose of the evaluation was to examine the utility of using the RTCC technology applications for resolving reported crime incidents. Because the primary goal of the RTCC was to improve response and investigatory outcomes for violent crime activity the focus of the analyses presented in this report is on violent crime activity.

Analytic Approach

The purpose of this study was to determine whether violent crime cases assisted by RTCC information technologies resulted in improved case outcomes i.e., cleared by arrest (Statista Research Department, 2024). Specifically, the data analyses described in this report have sought to understand whether RTCC-assisted cases resulted in better rates of case clearances (by arrest), by focusing on answering a primary question: "Did RTCC-assisted violent crime incidents have greater rates of case clearance compared to violent crime cases that did not receive RTCC

support?" This framework of case solvability (sufficient collection of evidence for an arrest**)** was developed by WSPD RTCC leadership to help develop and guide the evaluation.

Because the RTCC was launched relatively recently and was in its initial phases of implementation throughout the study period, this evaluation was limited to examining contributions of the RTCC towards investigation of violent criminal incidents in the 24 Police Beats that comprise the city of Winston-Salem (see City Beat Map – Appendix A). In addition, the deployment of RTCC technologies was largely "incident-based" (that is, carried out either during the response to specific calls for service or during the investigation of those incidents) thereby only providing limited coverage of the entire city by RTCC operations. An additional constraint was that the data available for the evaluation was limited to crime data and outcomes of the incidents included in the WSPD database. Due to these factors, this evaluation concentrated on comparing counts and percentages of cases cleared vs. not cleared by arrest; by Police Beat; by calendar years (2021, 2022, 2023, 2024 (1st Quarter)), and by use of specific RTCC technology (FUSUS camera network, ShotSpotter, ALPR) for non-domestic violent crimes including Homicide, Aggravated Assault, Robbery, Vandalism/Property Destruction, and Weapon Violations.

In order to assess the effects of RTCC utilization and impact on a scale, results from data analyses were used to assign each Police Beat to one of three RTCC activity level categories: "Low" – Police Beats in the *lowest* third in terms of total counts of RTCC activity, Moderate – Police Beats in the *second highest* third in counts of RTCC activity, and High – Police Beats in the *highest* third in terms of counts of RTCC activity. These activity level categories provided a basis for assessing a relationship between RTCC activity and arrests for non-domestic violent crimes.

Organization of the Data

In order to assess the impact of the RTCC technologies on the WSPD's ability to address, investigate, and solve violent crimes in Winston-Salem, —crime data for five types of criminal acts were used: Aggravated Assault (NIBRS* code 13A), Destruction/Damage/Vandalism of Property (NIBRS code 290), Homicide (NIBRS code 9A), Robbery (NIBRS code 120), and Weapons Law Violations [Discharging Firearm, Possession/Concealing Weapons Weapons-Other, Weapon On School/Educational Property, Weapons- Selling/Distributing] (NIBRS code 520). These criminal acts represented the most frequently reported personal acts of violence tracked by the RTCC. The data for this report was provided by the Winston-Salem Police Department (WSPD) from calendar years 2021, 2022, 2023, and 2024 (1st Quarter). The data for the analyses

examining the impact of RTCC utilization was based on criminal arrests reported between - January 1, 2021 and December 31, 2023**.

*Bureau of Justice - National Incident Based Reporting System
**Some additional data for the 1st Quarter of 2024 relating to RTCC use also is included.

Crime Incident Data

Crime Incidents Cleared by Arrest by WSPD Police Beat (Table 1)

Table 1 presents counts and percents of study-targeted crime incidents for calendar years 2021, 2022, and 2023 by WSPD Police Beat. For analytic purposes, the Police Beats were classified by overall numbers of violent crime incidents, creating three groups: (1) Beats with the highest number of violent incidents (tables labeled H), (2) Beats with a midlevel number of violent incidents (tables labeled M), and (3) Beats with the lowest number of violent incidents (tables labeled L). The purpose of this classification was to determine if there was a relationship between the volume of violent incidents and the number of incidents being Cleared by Arrest.

For Homicide incidents overall, the percent of incidents Cleared by Arrest was essentially the same among the three groupings of Police Beats: about half of the investigated incidents. There was a difference in percent of clearance rates over time, with the midlevel Police Beats achieving an increasing rate of incidents Cleared by Arrest compared with the higher violent incident count Police Beat group, which experienced a decreasing rate of incidents Cleared by Arrest. For Aggravated Assault incidents, the overall Cleared by Arrest rate was similar, averaging between 10% and 14% across the three Police Beat groups for the study period 2021-2023.

For Destruction/Damage/Vandalism of Property incidents, the Police Beat groups with the highest and midlevel counts of violent incidents experienced overall rates that were similar and low, less than 10%. For the Police Beat group with the lowest violence incident counts, the average across the study period was a little over 20% due largely to the Cleared by Arrest rate in 2023 over 50%. It should be noted that for 2023, the total number of these incidents was only 13, compared with larger volumes of incidents in the other two groups: the High Violent Incident Group having 81, and the Midlevel Violent Incident Group having 46.

For Weapons Violation incidents, the Police Beat group with lowest violent incident counts had the highest Cleared by Arrest rate (33%) compared with the group with highest violent incident counts (25%) and the midlevel violent incident counts (21%). For all three groups the rate of Cleared by arrest was highest for 2023 compared with rates for 2021 and 2022.

Table 1-HOM-H. Crime Incidents Cleared by Arrest WSPD Police Beats

		Homicide Incidents			
		Percent Cleared by Arrest			
N = 9		**2021**	**2022**	**2023**	**Total**
Beats with the Highest Numbers of Violent Incidents					
222	Total Incidents	3	1	2	6
	CBA	3	1	0	4
	% CBA	100%	100%	0%	67%
112	Total Incidents	1	3	1	5
	CBA	0	2	0	2
	% CBA	0%	67%	0%	40%
212	Total Incidents	2	0	2	4
	CBA	1	0	0	1
	% CBA	50%	---	0%	25%
223	Total Incidents	3	3	1	7
	CBA	2	2	0	4
	% CBA	67%	67%	0%	57%
121	Total Incidents	3	1	0	4
	CBA	2	0	0	2
	% CBA	67%	0%	---	50%
213	Total Incidents	1	1	2	4
	CBA	1	0	1	2
	% CBA	100%	0%	50%	50%
211	Total Incidents	1	1	1	3
	CBA	1	0	0	1
	% CBA	100%	0%	0%	33%
122	Total Incidents	1	0	2	3
	CBA	0	0	1	1
	% CBA	0%	---	50%	33%
221	Total Incidents	1	0	2	3
	CBA	1	0	1	2
	% CBA	100%	---	50%	67%
Totals	Total Incidents	16	10	13	39
	CBA	11	5	3	19
	% CBA	69%	50%	23%	49%

Table 1-HOM-M. Crime Incidents Cleared by Arrest WSPD Police Beats

		Homicide Incidents			
		Percent Cleared by Arrest			
N = 9		**2021**	**2022**	**2023**	**Total**
Beats with Midlevel Numbers of Violent Incidents					
311	Total Incidents	1	0	1	2
	CBA	1	0	1	2
	% CBA	100%	---	100%	100%
123	Total Incidents	0	1	1	2
	CBA	0	0	0	0
	% CBA	---	0%	0%	0%
313	Total Incidents	1	1	0	2
	CBA	0	1	0	1
	% CBA	0%	100%	---	50%
113	Total Incidents	1	0	0	1
	CBA	0	0	0	0
	% CBA	0%	---	---	0%
124	Total Incidents	1	0	0	1
	CBA	0	0	0	0
	% CBA	0%	---	---	0%
314	Total Incidents	0	1	1	2
	CBA	0	1	1	2
	% CBA	---	100%	100%	100%
114	Total Incidents	0	0	1	1
	CBA	0	0	0	0
	% CBA	---	---	0%	0%
214	Total Incidents	0	0	1	1
	CBA	0	0	1	1
	% CBA	---	---	100%	100%
224	Total Incidents	0	1	0	1
	CBA	0	0	0	0
	% CBA	---	0%	---	0%
Totals	Total Incidents	4	4	5	13
	CBA	1	2	3	6
	% CBA	25%	50%	60%	46%

Table 1-HOM-L. Crime Incidents Cleared by Arrest WSPD Police Beats

		Homicide Incidents			
		Percent Cleared by Arrest			
N = 7		**2021**	**2022**	**2023**	**Total**
Beats with Lowest Numbers of Violent Incidents					
111	Total Incidents	1	0	1	2
	CBA	0	0	1	1
	% CBA	0%	---	100%	50%
323	Total Incidents	1	1	0	2
	CBA	0	1	0	1
	% CBA	0%	100%	---	50%
312	Total Incidents	0	0	2	2
	CBA	0	0	1	1
	% CBA	---	---	50%	50%
324	Total Incidents	0	0	0	0
	CBA	0	0	0	0
	% CBA	---	---	---	---
322	Total Incidents	0	0	0	0
	CBA	0	0	0	0
	% CBA	---	---	---	---
321	Total Incidents	0	0	0	0
	CBA	0	0	0	0
	% CBA	---	---	---	---
Not Identified	Total Incidents	0	0	0	0
	CBA	0	0	0	0
	% CBA	---	---	---	---
Totals	Total Incidents	2	1	3	6
	CBA	0	1	2	3
	% CBA	0%	100%	67%	50%

Table 1-AGA-H. Crime Incidents Cleared by Arrest WSPD Police Beats

		Aggravated Assault			
		Percent Cleared by Arrest			
N = 9		**2021**	**2022**	**2023**	**Total**
Beats with the Highest Numbers of Violent Incidents					
222	Total Incidents	36	36	27	99
	CBA	10	1	6	17
	% CBA	28%	3%	22%	17%
211	Total Incidents	32	40	26	98
	CBA	2	3	2	7
	% CBA	6%	8%	8%	7%
223	Total Incidents	32	31	28	91
	CBA	3	4	6	13
	% CBA	9%	13%	21%	14%
212	Total Incidents	26	31	32	89
	CBA	5	3	7	15
	% CBA	19%	10%	22%	17%
221	Total Incidents	28	34	20	82
	CBA	4	1	3	8
	% CBA	14%	3%	15%	10%
121	Total Incidents	30	27	22	79
	CBA	6	3	2	11
	% CBA	20%	11%	9%	14%
313	Total Incidents	27	30	22	79
	CBA	1	5	2	8
	% CBA	4%	17%	9%	10%
213	Total Incidents	24	32	22	78
	CBA	2	4	2	8
	% CBA	8%	13%	9%	10%
112	Total Incidents	37	17	23	77
	CBA	3	5	6	14
	% CBA	8%	29%	26%	18%
Totals	Total Incidents	272	278	222	772
	CBA	36	29	36	101
	% CBA	13%	10%	16%	13%

Table 1-AGA-M. Crime Incidents Cleared by Arrest WSPD Police Beats

		Aggravated Assault			
		Percent Cleared by Arrest			
N = 8		**2021**	**2022**	**2023**	**Total**
Beats with Midlevel Numbers of Violent Incidents					
123	Total Incidents	21	20	28	69
	CBA	1	2	3	6
	% CBA	5%	10%	11%	9%
311	Total Incidents	18	23	24	65
	CBA	0	0	0	0
	% CBA	0%	0%	0%	0%
113	Total Incidents	25	19	19	63
	CBA	3	0	4	7
	% CBA	12%	0%	21%	11%
122	Total Incidents	18	19	23	60
	CBA	0	5	5	10
	% CBA	0%	26%	22%	17%
214	Total Incidents	14	17	23	54
	CBA	3	4	4	11
	% CBA	21%	24%	17%	20%
224	Total Incidents	15	18	13	46
	CBA	2	1	1	4
	% CBA	13%	6%	8%	9%
124	Total Incidents	14	15	10	39
	CBA	3	2	1	6
	% CBA	21%	13%	10%	15%
314	Total Incidents	20	7	12	39
	CBA	3	0	0	3
	% CBA	15%	0%	0%	8%
Totals	Total Incidents	145	138	152	435
	CBA	15	14	18	47
	% CBA	10%	10%	12%	11%

Table 1-AGA-L. Crime Incidents Cleared by Arrest WSPD Police Beats

		Aggravated Assault			
		Percent Cleared by Arrest			
N = 8		**2021**	**2022**	**2023**	**Total**
Beats with the Lowest Numbers of Violent Incidents					
111	Total Incidents	9	17	10	36
	CBA	2	2	2	6
	% CBA	22%	12%	20%	17%
114	Total Incidents	19	11	5	35
	CBA	1	3	0	4
	% CBA	5%	27%	0%	11%
312	Total Incidents	10	15	10	35
	CBA	3	3	1	7
	% CBA	30%	20%	10%	20%
322	Total Incidents	15	9	9	33
	CBA	1	2	1	4
	% CBA	7%	22%	11%	12%
323	Total Incidents	10	11	12	33
	CBA	1	2	2	5
	% CBA	10%	18%	17%	15%
324	Total Incidents	8	8	12	28
	CBA	0	1	3	4
	% CBA	0%	13%	25%	14%
321	Total Incidents	7	7	5	19
	CBA	0	0	0	0
	% CBA	0%	0%	0%	0%
Not Identified	Total Incidents	1	3	4	8
	CBA	0	0	1	1
	% CBA	0%	0%	25%	13%
Totals	Total Incidents	60	70	62	192
	CBA	7	10	10	27
	% CBA	12%	14%	16%	14%

Table 1-VPD-H. Crime Incidents Cleared by Arrest WSPD Police Beats

Vandalism/Property Destruction					
Percent Cleared by Arrest					
N = 11		**2021**	**2022**	**2023**	**Total**
Beats with the Highest Numbers of Violent Incidents					
222	Total Incidents	26	12	9	47
	CBA	0	1	1	2
	% CBA	0%	8%	11%	4%
112	Total Incidents	22	15	10	47
	CBA	1	1	2	4
	% CBA	5%	7%	20%	9%
221	Total Incidents	25	7	13	45
	CBA	1	1	1	3
	% CBA	4%	14%	8%	7%
212	Total Incidents	11	22	10	43
	CBA	2	0	0	2
	% CBA	18%	0%	0%	5%
211	Total Incidents	13	24	5	42
	CBA	2	0	0	2
	% CBA	15%	0%	0%	5%
223	Total Incidents	11	20	7	38
	CBA	1	2	0	3
	% CBA	9%	10%	0%	8%
213	Total Incidents	8	17	10	35
	CBA	0	1	1	2
	% CBA	0%	6%	10%	6%
311	Total Incidents	12	9	8	29
	CBA	1	2	0	3
	% CBA	8%	22%	0%	10%
123	Total Incidents	8	14	4	26
	CBA	0	2	1	3
	% CBA	0%	14%	25%	12%
224	Total Incidents	7	9	9	25
	CBA	0	1	0	1
	% CBA	0%	11%	0%	4%
122	Total Incidents	6	8	8	22
	CBA	0	0	0	0
	% CBA	0%	0%	0%	0%
Totals	Total Incidents	149	157	93	399
	CBA	8	11	6	25
	% CBA	5%	7%	6%	6%

Table 1-VPD-M. Crime Incidents Cleared by Arrest WSPD Police Beats

		Vandalism/Property Destruction			
		Percent Cleared by Arrest			
N = 7		**2021**	**2022**	**2023**	**Total**
Beats with Midlevel Numbers of Violent Incidents					
121	Total Incidents	4	8	9	21
	CBA	0	0	1	1
	% CBA	0%	0%	11%	5%
114	Total Incidents	6	8	6	20
	CBA	1	0	1	2
	% CBA	17%	0%	17%	10%
313	Total Incidents	8	3	5	16
	CBA	1	0	0	1
	% CBA	13%	0%	0%	6%
113	Total Incidents	5	6	5	16
	CBA	1	0	0	1
	% CBA	20%	0%	0%	6%
214	Total Incidents	3	7	4	14
	CBA	0	0	1	1
	% CBA	0%	0%	25%	7%
314	Total Incidents	6	5	2	13
	CBA	0	0	2	2
	% CBA	0%	0%	100%	15%
124	Total Incidents	5	4	3	12
	CBA	0	0	0	0
	% CBA	0%	0%	0%	0%
Totals	Total Incidents	37	41	34	112
	CBA	3	0	5	8
	% CBA	8%	0%	15%	7%

Table 1-VPD-L. Crime Incidents Cleared by Arrest WSPD Police Beats

Vandalism/Property Destruction					
Percent Cleared by Arrest					
N = 7		**2021**	**2022**	**2023**	**Total**
Beats with Lowest Numbers of Violent Incidents					
312	Total Incidents	2	3	4	9
	CBA	0	0	2	2
	% CBA	0%	0%	50%	22%
321	Total Incidents	3	2	3	8
	CBA	1	0	2	3
	% CBA	33%	0%	67%	38%
324	Total Incidents	1	3	1	5
	CBA	0	0	0	0
	% CBA	0%	0%	0%	0%
322	Total Incidents	2	1	1	4
	CBA	0	0	1	1
	% CBA	0%	0%	100%	25%
323	Total Incidents	4	0	0	4
	CBA	0	0	0	0
	% CBA	0%	---	---	0%
111	Total Incidents	1	0	2	3
	CBA	0	0	2	2
	% CBA	0%	---	100%	67%
Not Identified	Total Incidents	1	0	2	3
	CBA	0	0	0	0
	% CBA	0%	---	0%	0%
Totals	Total Incidents	14	9	13	36
	CBA	1	0	7	8
	% CBA	7%	0%	54%	22%

Table 1-WV-H. Crime Incidents Cleared by Arrest WSPD Police Beats

		Weapons Violations			
		Percent Cleared by Arrest			
N = 9		**2021**	**2022**	**2023**	**Total**
Beats with the Highest Numbers of Violent Incidents					
212	Total Incidents	77	64	64	205
	CBA	20	16	19	55
	% CBA	26%	25%	30%	27%
122	Total Incidents	58	76	70	204
	CBA	8	10	11	29
	% CBA	14%	13%	16%	14%
112	Total Incidents	52	77	57	186
	CBA	14	14	20	48
	% CBA	27%	18%	35%	26%
222	Total Incidents	59	67	58	184
	CBA	14	13	23	50
	% CBA	24%	19%	40%	27%
121	Total Incidents	42	60	63	165
	CBA	10	14	29	53
	% CBA	24%	23%	46%	32%
211	Total Incidents	66	48	43	157
	CBA	25	14	9	48
	% CBA	38%	29%	21%	31%
223	Total Incidents	73	60	50	183
	CBA	17	9	16	42
	% CBA	23%	15%	32%	23%
213	Total Incidents	55	59	44	158
	CBA	13	9	10	32
	% CBA	24%	15%	23%	20%
123	Total Incidents	49	44	51	144
	CBA	10	5	14	29
	% CBA	20%	11%	27%	20%
Totals	Total Incidents	541	576	522	1639
	CBA	135	113	160	408
	% CBA	25%	20%	31%	25%

Table 1-WV-M. Crime Incidents Cleared by Arrest WSPD Police Beats

		Weapons Violations			
		Percent Cleared by Arrest			
N = 9		**2021**	**2022**	**2023**	**Total**
Beats with Midlevel Numbers of Violent Incidents					
311	Total Incidents	62	36	39	137
	CBA	15	6	7	28
	% CBA	24%	17%	18%	20%
221	Total Incidents	58	35	37	130
	CBA	10	10	12	32
	% CBA	17%	29%	32%	25%
313	Total Incidents	41	29	46	116
	CBA	9	4	4	17
	% CBA	22%	14%	9%	15%
124	Total Incidents	31	43	38	112
	CBA	10	14	17	41
	% CBA	32%	33%	45%	37%
114	Total Incidents	38	44	26	108
	CBA	10	6	6	22
	% CBA	26%	14%	23%	20%
113	Total Incidents	37	35	35	107
	CBA	8	6	15	29
	% CBA	22%	17%	43%	27%
314	Total Incidents	30	32	35	97
	CBA	9	5	5	19
	% CBA	30%	16%	14%	20%
214	Total Incidents	25	26	36	87
	CBA	0	2	10	12
	% CBA	0%	8%	28%	14%
224	Total Incidents	33	26	27	86
	CBA	8	4	1	13
	% CBA	24%	15%	4%	15%
Totals	Total Incidents	355	306	319	980
	CBA	79	57	77	213
	% CBA	22%	19%	24%	22%

Table 1-WV-L. Crime Incidents Cleared by Arrest WSPD Police Beats

		Weapons Violations			
		Percent Cleared by Arrest			
N = 7		**2021**	**2022**	**2023**	**Total**
Beats with the Lowest Numbers of Violent Incidents					
324	Total Incidents	22	17	17	56
	CBA	2	4	3	9
	% CBA	9%	24%	18%	16%
111	Total Incidents	10	21	22	53
	CBA	4	9	9	22
	% CBA	40%	43%	41%	42%
323	Total Incidents	16	16	19	51
	CBA	4	5	4	13
	% CBA	25%	31%	21%	25%
312	Total Incidents	18	12	18	48
	CBA	5	1	6	12
	% CBA	28%	8%	33%	25%
322	Total Incidents	19	9	12	40
	CBA	10	4	7	21
	% CBA	53%	44%	58%	53%
321	Total Incidents	10	15	14	39
	CBA	1	6	5	12
	% CBA	10%	40%	36%	31%
Not Identified	Total Incidents	5	9	8	22
	CBA	3	6	4	13
	% CBA	60%	67%	50%	59%
Totals	Total Incidents	100	99	110	309
	CBA	29	35	38	102
	% CBA	29%	35%	35%	33%

Table 1-ROB-H. Crime Incidents Cleared by Arrest WSPD Police Beats

		Robbery			
		Percent Cleared by Arrest			
N = 8		**2021**	**2022**	**2023**	**Total**
Beats with the Highest Numbers of Violent Incidents					
222	Total Incidents	17	13	32	62
	CBA	3	2	1	6
	% CBA	18%	15%	3%	10%
311	Total Incidents	15	17	14	46
	CBA	1	1	1	3
	% CBA	14%	6%	7%	7%
313	Total Incidents	21	15	10	46
	CBA	6	7	1	14
	% CBA	29%	47%	10%	30%
111	Total Incidents	14	11	19	44
	CBA	4	1	3	8
	% CBA	29%	9%	16%	18%
211	Total Incidents	8	13	20	41
	CBA	0	4	4	8
	% CBA	4%	31%	20%	20%
124	Total Incidents	8	15	18	41
	CBA	2	5	8	15
	% CBA	25%	33%	44%	37%
223	Total Incidents	16	12	11	39
	CBA	3	1	3	7
	% CBA	19%	8%	27%	18%
123	Total Incidents	7	18	12	37
	CBA	2	3	1	6
	% CBA	29%	17%	8%	16%
Totals	Total Incidents	106	114	136	356
	CBA	21	24	22	67
	% CBA	20%	21%	16%	19%

Table 1-ROB-M. Crime Incidents Cleared by Arrest WSPD Police Beats

		Robbery			
		Percent Cleared by Arrest			
N = 8		**2021**	**2022**	**2023**	**Total**
Beats with Midlevel Numbers of Violent Incidents					
314	Total Incidents	15	8	12	35
	CBA	5	3	4	12
	% CBA	33%	38%	33%	34%
323	Total Incidents	10	10	12	32
	CBA	4	6	2	12
	% CBA	40%	60%	17%	38%
121	Total Incidents	11	13	7	31
	CBA	1	6	1	8
	% CBA	9%	46%	14%	26%
122	Total Incidents	9	12	8	29
	CBA	3	4	0	7
	% CBA	8%	33%	0%	24%
322	Total Incidents	11	11	7	29
	CBA	2	1	3	6
	% CBA	18%	9%	43%	21%
321	Total Incidents	8	10	7	25
	CBA	1	0	1	2
	% CBA	13%	0%	14%	8%
212	Total Incidents	7	11	6	24
	CBA	2	0	1	3
	% CBA	29%	0%	17%	13%
312	Total Incidents	6	7	10	23
	CBA	1	3	3	7
	% CBA	17%	43%	30%	30%
Totals	Total Incidents	77	82	69	228
	CBA	19	23	15	57
	% CBA	23%	23%	23%	23%

Table 1-ROB-L. Crime Incidents Cleared by Arrest WSPD Police Beats

		Robbery			
		Percent Cleared by Arrest			
N = 8		**2021**	**2022**	**2023**	**Total**
Beats with Lowest Numbers of Violent Incidents					
112	Total Incidents	7	5	10	22
	CBA	1	1	2	4
	% CBA	14%	20%	20%	18%
213	Total Incidents	3	8	11	22
	CBA	1	0	1	2
	% CBA	30%	21%	9%	20%
114	Total Incidents	4	12	5	21
	CBA	1	2	3	6
	% CBA	25%	17%	60%	29%
113	Total Incidents	6	4	9	19
	CBA	0	1	1	2
	% CBA	0%	25%	11%	11%
214	Total Incidents	3	9	7	19
	CBA	1	1	1	3
	% CBA	33%	11%	14%	16%
324	Total Incidents	5	10	3	18
	CBA	0	4	1	5
	% CBA	0%	40%	33%	28%
224	Total Incidents	3	8	5	16
	CBA	1	4	2	7
	% CBA	33%	50%	40%	44%
Not Identified	Total Incidents	2	1	5	8
	CBA	1	0	1	2
	% CBA	50%	0%	20%	25%
Totals	Total Incidents	33	57	55	145
	CBA	6	13	12	31
	% CBA	18%	23%	22%	21%

Crime Incidents Cleared by Arrest Associated with the Application of RTCC Technology by Police Beat (Table 2)

Table 2 presents counts and percentages of the utilization of RTCC technology (ShotSpotter/SST and Cameras) for the five categories of violent incidents by Police Beat grouping (*by counts of violent incidents*). As can be seen in the table, the Police Beat group with the greatest number of violent incidents were more likely to use ShotSpotter, Cameras, and both in combination (20% of incidents) compared with the mid-level and low-level volume of violent incidents Police Beat groups (0% of incidents).

Table 2-H. Counts Involving ShotSpotter or Cameras by Police Beat by Volume of Violence Incidents

Beats with the Highest Counts of Violent Incidents

		Counts of RTCC Utilization					Percentages of RTCC Utilization				
Beat	***Total Incidents***	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**
222	***371***	199	134	17	21	172	54%	36%	5%	6%	46%
212	***359***	354	1	4	0	5	99%	0.3%	1%	---	1%
223	***345***	241	88	7	9	104	70%	26%	2%	3%	30%
112	***328***	174	150	3	1	154	53%	46%	1%	---	47%
211	***321***	319	0	2	0	2	99%	---	1%	---	1%
122	***313***	309	0	4	0	4	99%	---	1%	---	1%
213	***292***	288	2	2	0	4	99%	1%	1%	---	1%
121	***282***	211	65	6	0	71	75%	23%	2%	---	25%
221	***277***	218	45	11	3	59	79%	16%	4%	1%	21%
Totals	**2,888**	**2313**	**485**	**56**	**34**	**575**	**80%**	**17%**	**2%**	**1%**	**20%**

Table 2-M. Counts Involving ShotSpotter or Cameras by Police Beat by Volume of Violence Incidents

Beats with Midlevel Counts of Violent Incidents

		Counts of RTCC Utilization					Percentages of RTCC Utilization				
Beat	**Total Incidents**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**
123	***270***	269	0	1	0	1	100%	---	---	---	0%
311	***251***	248	1	2	0	3	99%	---	1%	---	1%
313	***249***	246	0	3	0	3	99%	---	1%	---	1%
113	***199***	195	4	0	0	4	98%	2%	---	---	2%
124	***187***	185	2	0	0	2	99%	1%	---	---	1%
214	***180***	163	0	17	0	17	91%	---	9%	---	9%
114	***177***	173	3	1	0	4	98%	2%	1%	---	2%
224	***172***	169	1	2	0	3	98%	1%	1%	---	2%
314	***171***	167	1	3	0	4	98%	1%	2%	---	2%
Totals	***1,856***	**1,815**	**12**	**29**	**0**	**41**	**98%**	**1%**	**2%**	**---**	**2%**

Table 2-L. Counts Involving ShotSpotter or Cameras by Police Beat by Volume of Violence Incidents

Beats with Low Level Counts of Violent Incidents

		Counts of RTCC Utilization					Percentages of RTCC Utilization				
Beat	**Total Incidents**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**
111	***108***	104	0	4	0	4	96%	---	4%	---	4%
323	***107***	107	0	0	0	0	100%	---	---	---	0%
312	***105***	103	0	2	0	2	98%	---	2%	---	2%
324	***103***	102	0	1	0	1	99%	---	1%	---	1%
322	***94***	93	0	1	0	1	99%	---	1%	---	1%
321	***76***	76	0	0	0	0	100%	---	---	---	0%
No Beat*	***34***	31	3	0	0	3	91%	9%	---	---	9%
Totals	***627***	**616**	**3**	**8**	**0**	**11**	**98%**	**0.5%**	**1%**	**---**	**2%**

*Not identified

Crime Incidents Cleared by Arrest by Volume of RTCC Utilization by Police Beat (Table 3)

Table 3 presents counts and percentages of the utilization of RTCC technology (ShotSpotter/SST and Cameras) for the five categories of violent criminal acts by Police Beat grouping. As can be seen in the table, the Police Beat groups with the greatest rate of RTCC utilization were far more likely to use ShotSpotter, Cameras, and both in combination (35% of incidents) compared with the midlevel (3%) and low level (1%) volume of violent incidents Police Beat groups.

Table 3-H. Counts Involving ShotSpotter or Cameras by Police Beat By Volume of RTCC Utilization

Beats with the Highest Counts of RTCC Technology Utilization

		Counts of RTCC Utilization					Percentages of RTCC Utilization				
Beat	***Total Incidents***	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**
222	371	199	134	17	21	***172***	54%	**36%**	**5%**	**6%**	**46%**
112	328	174	150	3	1	***154***	53%	**46%**	**1%**	**0%**	**47%**
223	345	241	88	7	9	***104***	70%	**26%**	**2%**	**3%**	**30%**
121	282	211	65	6	0	***71***	75%	**23%**	**2%**	**0%**	**25%**
221	277	218	45	11	3	***59***	79%	**16%**	**4%**	**1%**	**21%**
Totals	**1,603**	**1,043**	**482**	**44**	**34**	***560***	**65%**	**30%**	**3%**	**2%**	**35%**

Table 3-M. Counts Involving ShotSpotter or Cameras by Police Beat by Volume of Violence Incidents

Beats with the Midlevel Counts of RTCC Technology Utilization

		Counts of RTCC Utilization					Percentages of RTCC Utilization				
Beat	**Total Incidents**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**
214	***180***	163	0	17	0	***17***	91%	---	9%	---	9%
212	***359***	354	1	4	0	***5***	99%	0.3%	1%	---	1%
314	***171***	167	1	3	0	***4***	98%	1%	2%	---	2%
114	***177***	173	3	1	0	***4***	98%	2%	1%	---	2%
113	***199***	195	4	0	0	***4***	98%	2%	---	---	2%
213	***292***	288	2	2	0	***4***	99%	1%	1%	---	1%
122	***313***	309	0	4	0	***4***	99%	---	1%	---	1%
111	***108***	104	0	4	0	***4***	96%	---	4%	---	4%
Totals	***1,799***	1,753	11	35	0	***46***	97%	1%	2%	0%	3%

Table 3-L. Counts Involving ShotSpotter or Cameras by Police Beat by Volume of Violence Incidents

Beats with the Lowest Counts of RTCC Technology Utilization

		Counts of RTCC Utilization					Percentages of RTCC Utilization				
Beat	**Total Incidents**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**	**No RTCC Involvement**	**ShotSpotter**	**Cameras**	**Both**	**Any RTCC Involvement**
224	172	169	1	2	0	***3***	98%	1%	1%	---	2%
313	249	246	0	3	0	***3***	99%	---	1%	---	1%
311	251	248	1	2	0	***3***	99%	---	1%	---	1%
No Beat*	34	31	3	0	0	***3***	91%	9%	---	---	9%
312	105	103	0	2	0	***2***	33%	---	2%	---	2%
124	187	185	2	0	0	***2***	99%	1%	---	---	1%
211	321	319	0	2	0	***2***	99%	---	1%	---	1%
322	94	93	0	1	0	***1***	29%	---	1%	---	1%
324	103	102	0	1	0	***1***	31%	---	1%	---	1%
123	270	269	0	1	0	***1***	100%	---	---	---	0%
323	107	107	0	0	0	***0***	33%	---	---	---	0%
321	76	76	0	0	0	***0***	24%	---	---	---	0%
Totals	**1,969**	**1,948**	**7**	**14**	**0**	***21***	**99%**	**0.4%**	**1%**	**0%**	**1%**

*Not identified

Crime Incidents Cleared by Arrest Application of RTCC Technology Compared with Non-Use of RTCC Applications (Table 4)

Table 4 presents counts and percentages of the utilization of RTCC technology (ShotSpotter/SST and Cameras) for the five categories of violent criminal acts examined in this evaluation study. The table presents the counts/percentages of the incidents tracked that utilized RTCC technology, and the counts/percentages of these incidents Cleared by Arrest (CBA). As can be seen in the table, two-fifths (40%) of Robbery cases and over a third (36%) of homicide cases involving RTCC technology were Cleared by Arrest. A little less than a third (31%) of Aggravated Assaults that involved RTCC technology were also Cleared by Arrest. The violent incidents associated with the lowest rates of Cleared by Arrest were Destruction/Damage/Vandalism of Property (15%) and Weapon Violations (12%). Overall, for the set of criminal incidents involving RTCC technology tracked for this study, almost one fifth (20%) were Cleared by Arrest. By comparison, for the five types of criminal acts not involving RTCC technology, the Cleared by Arrest rates for Homicides (52% vs. 36%) and Weapon Violations (26% vs. 12%) were higher but Aggravated Assaults (11% vs. 31%) and Property Destruction (6% vs. 15%) were lower. Overall clearance rates for the non-involved RTCC incidents were only marginally higher (20% vs. 17%) compared with those violent crime incidents involving RTCC technology.

Table 4. Utilization of RTCC Technology Investigating Incidents of Violence

Offense	Total Incidents	No RTCC Involvement	ShotSpotter	Camera	Both	Any RTCC Involvement	Percent RTCC Involvement Cleared by Arrest	Percent No RTCC Involvement Cleared by Arrest
Homicide	58	**44**	**3**	**7**	**4**	14		
CBA	28	23	0	4	1	5	36%	52%
% CBA	48%	52%	0%	57%	25%	36%		
Aggravated Assault	1,442	**1,333**	**72**	**29**	**8**	109		
CBA	179	145	11	17	6	34	31%	11%
% CBA	12%	11%	15%	59%	75%	31%		
Property Destruction/Vandalism	548	**462**	**62**	**18**	**6**	86		
CBA	42	29	6	6	1	13	15%	6%
% CBA	8%	6%	10%	33%	17%	15%		
Weapons Violations	2,886	**2,489**	**358**	**23**	**16**	397		
CBA	707	658	37	9	3	49	12%	26%
% CBA	24%	26%	10%	39%	19%	12%		
Robbery	390	**370**	**4**	**16**	**0**	20		
CBA	97	89	3	5	0	8	40%	24%
% CBA	25%	24%	75%	31%	---	40%		
Totals	5,324	4,698	499	93	34	626		
CBA	1,053	944	57	41	11	109	17%	20%
% CBA	20%	20%	11%	44%	32%	17%		

Utilization of RTCC Technology Investigating Incidents of Violence by Police Beats and Year (Table 5)

Table 5 presents the utilization of RTTC applications by highest to lowest usage rates for all 24 Beats plus one set of incidents not identified by Police Beat. The order of the Police Beats was based on the combined utilization counts of any RTCC application across 2021, 2022, and 2023. For the top eight Police Beats, all except Beats 121 and 221 were associated with an increased percentage of Cleared by Arrest associated with RTCC use application at the end of the three-year study period. Beats 222, 121, and 223 all had close to a 100% increase in cases Cleared by Arrest in 2023 compared with the combined average of 2021 and 2022. For the remaining Police Beats RTCC utilization was relatively low across the three years. It should be noted that for this set of Beats only Beat 111 has a higher Cleared by Arrest rate for non-RTCC cases than ones assisted by RTCC technology applications. Overall, for all Police Beats, Cleared by Arrest rates was nearly double for 2023 (29%) compared with the combined average (17%) for 2021 and 2022.

Table 5.1. Utilization of RTCC Technology Investigating Incidents of Violence by Police Beats and Year

Police Beat		2021					2022					2023				
		No RTCC Involvement	SST*	Cameras	SST & Cameras	Any RTCC	No RTCC Involvement	SST	Cameras	SST & Cameras	Any RTCC	No RTCC Involvement	SST	Cameras	SST & Cameras	Any RTCC
222	**Total Incidents**	**2,421**	**40**	**22**	**3**	**62**	**1,898**	**77**	**10**	**12**	**87**	**1,652**	**45**	**30**	**8**	**75**
	CBA	808	2	8	2	10	415	9	3	3	12	258	9	16	2	25
	% CBA	33%	5%	36%	67%	16%	22%	12%	30%	25%	14%	16%	20%	53%	25%	33%
112	**Total Incidents**	**2,054**	**38**	**2**	**1**	**40**	**1,714**	**97**	**2**		**99**	**1,578**	**56**	**1**		**57**
	CBA	570	2	2		4	334	12	1		13	330	12			12
	% CBA	28%	5%	100%	---	10%	19%	12%	50%		13%	21%	21%	---		21%
223	**Total Incidents**	**2,015**	**37**	**15**		**52**	**1,594**	**52**	**12**	**3**	**64**	**1,556**	**29**	**23**	**6**	**52**
	CBA	565	3	6		9	346	3	4	1	7	212	8	8	2	16
	% CBA	28%	8%	40%		17%	22%	6%	33%	33%	11%	14%	28%	35%	33%	31%
121	**Total Incidents**	**2,637**	**21**	**4**		**25**	**2,178**	**39**	**2**		**41**	**1,727**	**23**	**4**		**27**
	CBA	685	3	2		5	544	3	1		4	373	3	2		5
	% CBA	26%	14%	50%		20%	25%	8%	50%		10%	22%	13%	50%		19%
221	**Total Incidents**	**2,372**	**13**	**12**	**1**	**25**	**1,731**	**29**	**8**	**1**	**37**	**1,472**	**19**	**12**	**2**	**31**
	CBA	796	3	2	1	5	415	3	4	1	7	225	2	4		6
	% CBA	34%	23%	17%	100%	20%	24%	10%	50%	100%	19%	15%	11%	33%	---	19%
214	**Total Incidents**	**1,670**		**10**		**10**	**1,608**		**12**		**12**	**1,298**		**20**		**20**
	CBA	255		1		1	212		4		4	155		8		8
	% CBA	15%		10%		10%	13%		33%		33%	12%		40%		40%
111	**Total Incidents**	**3,165**		**1**		**1**	**2,909**		**5**		**5**	**2,845**		**16**		**16**
	CBA	989					800		1		1	867		4		4
	% CBA	31%		---		---	28%		20%		20%	30%		25%		25%
211	**Total Incidents**	**2,322**	**1**	**1**		**2**	**1,857**		**5**		**5**	**1,344**		**7**		**7**
	CBA	797					502		1		1	257		2		2
	% CBA	34%	---	---		---	27%		20%		20%	19%		29%		29%

* ShotSpotter

Table 5.2. Utilization of RTCC Technology Investigating Incidents of Violence by Police Beats and Year

Police Beat		2021					2022					2023				
		No RTCC Involvement	SST	Cameras	SST & Cameras	Any RTCC	No RTCC Involvement	SST	Cameras	SST & Cameras	Any RTCC	No RTCC Involvement	SST	Cameras	SST & Cameras	Any RTCC
	Total Incidents	**1814**		**2**		**2**	**1547**	**1**	**3**		**4**	**1183**	**1**	**4**		**5**
213	CBA	381					255		1		1	165				
	% CBA	21%		---		---	16%	---	33%		25%	14%	---	---		---
	Total Incidents	**1,176**		**2**		**2**	**1,249**	**1**	**2**		**3**	**925**		**6**		**6**
224	CBA	261		1		1	196	1			1	90		1		1
	% CBA	22%		50%		50%	16%	100%	---		33%	10%		17%		17%
	Total Incidents	**2,169**		**6**		**6**	**1,840**	**1**			**1**	**1,664**		**3**		**3**
311	CBA	557		5		5	439					284		2		2
	% CBA	26%		83%		83%	24%	---			---	17%		67%		67%
	Total Incidents	**2,229**	**1**	**5**		**6**	**2,014**		**1**		**1**	**1,708**		**3**		**3**
313	CBA	465		3		3	371		1		1	225				
	% CBA	21%	---	60%		50%	18%		100%		100%	13%		---		---
No	**Total Incidents**	**636**	**2**			**2**	**710**	**3**		**1**	**3**	**1,388**	**2**	**3**		**5**
Beat	CBA	250					262	1		1	1	126	2			2
**	% CBA	39%	---			---	37%	33%		100%	33%	9%	100%	---		40%
	Total Incidents	**2,215**	**1**	**1**		**2**	**2,190**	**4**	**1**		**5**	**1,601**		**1**		**1**
113	CBA	584					642					317				
	% CBA	26%	---	---		---	29%	---	---		---	20%		---		---
	Total Incidents	**1,718**		**2**		**2**	**1,620**	**1**			**1**	**1,450**	**2**	**3**		**5**
114	CBA	225					198					165		2		2
	% CBA	13%		---		---	12%	---			---	11%	---	67%		40%
	Total Incidents	**2,364**					**2,404**	**1**			**1**	**2,028**		**7**		**7**
314	CBA	552					478					287		3		3
	% CBA	23%					20%	---			---	14%		43%		43%
	Total Incidents	**2,060**		**2**		**2**	**1,723**		**2**		**2**	**1,423**		**3**		**3**
122	CBA	396					347		1		1	221		2		2
	% CBA	19%		---		---	20%		50%		50%	16%		67%		67%

** Not Identified

Table 5.3. Utilization of RTCC Technology Investigating Incidents of Violence by Police Beats and Year

Police Beat		2021					2022					2023				
		No RTCC Involvement	SST	Cameras	SST & Cameras	Any RTCC	No RTCC Involvement	SST	Cameras	SST & Cameras	Any RTCC	No RTCC Involvement	SST	Cameras	SST & Cameras	Any RTCC
212	**Total Incidents**	**1,839**		**2**		**2**	**1,616**	**1**	**2**		**3**	**1,435**		**1**		**1**
	CBA	419					250		1		1	199		1		1
	% CBA	23%		---		---	15%	---	50%		33%	14%		100%		100%
324	**Total Incidents**	**2,357**		**2**		**2**	**2,215**					**1,806**		**4**		**4**
	CBA	428		1		1	410					184		1		1
	% CBA	18%		50%		50%	19%					10%		25%		25%
124	**Total Incidents**	**3,396**					**3,149**	**1**			**1**	**2,251**	**1**	**2**		**3**
	CBA	755					854					419	1	1		2
	% CBA	22%					27%	---			---	19%	100%	50%		67%
323	**Total Incidents**	**3,028**		**1**		**1**	**3,021**					**2,327**	**1**	**2**		**3**
	CBA	580		1		1	632					330		1		1
	% CBA	19%		100%		100%	21%					14%	---	50%		33%
322	**Total Incidents**	**2,389**		**1**		**1**	**2,104**					**1,668**		**2**		**2**
	CBA	543		1		1	473					249		1		1
	% CBA	23%		100%		100%	22%					15%		50%		50%
312	**Total Incidents**	**2,438**					**2,130**					**1,925**		**2**		**2**
	CBA	498					339					261		2		2
	% CBA	20%					16%					14%		100%		100%
123	**Total Incidents**	**2,310**					**2,393**					**1,922**		**1**		**1**
	CBA	360					369					248				
	% CBA	16%					15%					276		---		---
321	**Total Incidents**	**1,678**					**1,712**					**1,266**		**1**		**1**
	CBA	364					354					156		1		1
	% CBA	22%					21%					12%		100%		100%
All Beats	**Total Incidents**	54,472	154	93	5	247	49,126	308	67	17	375	41,442	179	161	16	340
	CBA	13,083	13	33	3	46	10,437	32	23	6	55	6,603	37	62	4	99
	% CBA	24%	8%	35%	60%	19%	21%	10%	34%	35%	15%	16%	21%	39%	25%	29%

Cleared by Arrest for Violent Incidents by Police Beat – Jan-Mar 2024 (Tables 6.1/6.2/6.3)

Table 6 presents a summary of counts of non-domestic violent crime incidents included in the WSPD crime incident database for January 1 through Mar 31, 2024. The data are organized by Police Beats, counts and percentages of cases cleared by arrest for Homicide, Robbery, Aggravated Assault, Property Destruction/Vandalism, Weapons Violations, and a Grand Total of all incidents reported for these incident categories. Data by Beats are organized by highest to lowest counts of total incidents. As can be seen from the table, Beat 222 had the most violent incidents with 60 and was fifth (22%) in percent of cases cleared by arrest. Beats 211, 113, 224, 124, and 221 all had at least 25% of the investigated violent crimes cleared by arrest. These beats ranged in incident count from 5th highest to 14th (out of 18 ranks).

Table 6.1. Cleared by Arrest for Violent Incidents by Police Beat - Jan - Mar 2024

Beat	Status	Homicide	Robbery	Aggravated Assault	Property Destruction / Vandalism	Weapons Violations	Grand Total
222	Total Incidents	0	3	13	24	20	60
	CBA	---	2	2	3	6	13
	% CBA	---	67%	15%	13%	30%	22%
311	Total Incidents	0	1	17	25	10	53
	CBA	---	0	1	0	4	5
	% CBA	---	0%	6%	0%	40%	9%
112	Total Incidents	0	1	12	20	17	50
	CBA	---	0	1	1	6	8
	% CBA	---	0%	8%	5%	35%	16%
213	Total Incidents	1	1	11	19	18	50
	CBA	0	1	1	0	2	4
	% CBA	0%	100%	9%	0%	11%	8%
313	Total Incidents	0	4	6	29	9	48
	CBA	---	2	2	1	2	7
	% CBA	---	50%	33%	3%	22%	15%
121	Total Incidents	0	1	10	18	17	46
	CBA	---	0	1	2	6	9
	% CBA	---	0%	10%	11%	35%	20%

Table 6.2. Cleared by Arrest for Violent Incidents by Police Beat - Jan - Mar 2024

Beat	Status	Homicide	Robbery	Aggravated Assault	Property Destruction / Vandalism	Weapons Violations	Grand Total
	Total Incidents	0	6	12	13	15	46
211	CBA	---	1	2	1	9	13
	% CBA	---	17%	17%	8%	60%	28%
	Total Incidents	0	3	9	15	17	44
122	CBA	---	0	1	0	3	4
	% CBA	---	0%	11%	0%	18%	9%
	Total Incidents	0	5	14	16	9	44
221	CBA	---	1	5	1	4	11
	% CBA	---	20%	36%	6%	44%	25%
	Total Incidents	1	2	14	14	9	40
212	CBA	0	0	2	0	2	4
	% CBA	0%	0%	14%	0%	22%	10%
	Total Incidents	0	2	7	20	11	40
223	CBA	---	0	1	1	6	8
	% CBA	---	0%	14%	5%	55%	20%
	Total Incidents	0	1	8	18	12	39
114	CBA	---	0	1	1	0	2
	% CBA	---	0%	13%	6%	0%	5%
	Total Incidents	0	4	10	22	2	38
111	CBA	---	1	2	0	1	4
	% CBA	---	25%	20%	0%	50%	11%
	Total Incidents	0	4	5	15	14	38
124	CBA	---	2	3	0	5	10
	% CBA	---	50%	60%	0%	36%	26%
	Total Incidents	0	2	7	23	6	38
312	CBA	---	1	0	1	3	5
	% CBA	---	50%	0%	4%	50%	13%
	Total Incidents	0	2	9	13	10	34
323	CBA	---	0	1	1	4	6
	% CBA	---	0%	11%	8%	40%	18%

Table 6.3. Cleared by Arrest for Violent Incidents by Police Beat - Jan - Mar 2024

Beat	Status	Homicide	Robbery	Aggravated Assault	Property Destruction / Vandalism	Weapons Violations	Grand Total
No Beat	Total Incidents	0	0	1	32	0	33
	CBA	---	---	0	1	---	1
	% CBA	---	---	0%	3%	---	3%
113	Total Incidents	1	1	8	14	8	32
	CBA	0	0	2	1	6	9
	% CBA	0%	0%	25%	7%	75%	28%
123	Total Incidents	0	1	9	16	6	32
	CBA	---	0	2	0	0	2
	% CBA	---	0%	22%	0%	0%	6%
314	Total Incidents	0	3	3	18	8	32
	CBA	---	2	1	0	1	4
	% CBA	---	67%	33%	0%	13%	13%
224	Total Incidents	0	1	7	10	8	26
	CBA	---	1	2	2	2	7
	% CBA	---	100%	29%	20%	25%	27%
214	Total Incidents	0	1	4	9	10	24
	CBA	---	0	1	1	1	3
	% CBA	---	0%	25%	11%	10%	13%
324	Total Incidents	0	0	5	9	9	23
	CBA	---	---	0	0	1	1
	% CBA	---	---	0%	0%	11%	4%
322	Total Incidents	0	3	5	9	5	22
	CBA	---	1	1	1	2	5
	% CBA	---	33%	20%	11%	40%	23%
321	Total Incidents	0	2	2	14	0	18
	CBA	---	0	0	0	---	0
	% CBA	---	0%	0%	0%	---	0%
Grand Total	Total Incidents	3	54	208	435	250	950
	CBA	0	15	39	59	82	195
	% CBA	0%	28%	19%	14%	33%	21%

Automated License Plate Reader Involvement in Violent Crime Incidents (Table 7)

Table 7 shows that 11 incidents also involved use of ShotSpotter (N = 2), Cameras (N = 11) or Both (N = 2). In all, 11 of the 15 incidents also involved other RTCC technology.

Table 7. Automated License Plate Reader Involvement in Violent Crime Incidents

July 2023 – December 2023 Data – Total Incidents Assisted (N = 15)

Beat	Status	Homicide	Robbery	Aggravated Assault	Property Destruction/ Vandalism	Weapons Violations	Grand Total
113	Total Incidents	0	1	0	0	0	1
	CBA	---	0	---	---	---	0
	% CBA	---	0%	---	---	---	0%
122	Total Incidents	0	0	1	0	0	1
	CBA	---	---	1	---	---	1
	% CBA	---	---	100%	---	---	100%
123	Total Incidents	0	0	0	0	2	2
	CBA	---	---	---	---	0	0
	% CBA	---	---	---	---	0%	0%
124	Total Incidents	0	0	1	0	0	1
	CBA	---	---	1	---	---	1
	% CBA	---	---	100%	---	---	100%
211	Total Incidents	0	0	1	0	0	1
	CBA	---	---	0	---	---	0
	% CBA	---	---	0%	---	---	0%
214	Total Incidents	0	0	0	0	1	1
	CBA	---	---	---	---	0	0
	% CBA	---	---	---	---	0%	0%
221	Total Incidents	0	1	0	1	0	2
	CBA	---	0	---	1	---	1
	% CBA	---	0%	---	100%	---	50%
222	Total Incidents	0	0	0	2	0	2
	CBA	---	---	---	0	---	0
	% CBA	---	---	---	0%	---	0%
223	Total Incidents	1	0	1	0	0	2
	CBA	0	---	0	---	---	0
	% CBA	0%	---	0%	---	---	0%
311	Total Incidents	0	0	0	1	0	1
	CBA	---	---	---	0	---	0
	% CBA	---	---	---	0%	---	0%
314	Total Incidents	0	0	0	1	0	1
	CBA	---	---	---	0	---	0
	% CBA	---	---	---	0%	---	0%

Note: Due to the limited amount of license plate reader data (in terms of the time-period ALPRs were implemented and incident counts), the Evaluation Team decided to present these data separately from the preceding tables. Consideration of the contribution of ALPRs terms of case clearances and potential solvability value to the RTCC will be included in the Conclusion section.

Table 8. Automated License Plate Reader Involvement in Violent Crime Incidents

January 2024 – March 2024 Data Total Incidents Assisted (N = 9)

Beat	Status	Homicide	Robbery	Aggravated Assault	Property Destruction/ Vandalism	Weapons Violations	Grand Total
113	Total Incidents	1	0	0	0	0	1
	CBA	0	---	---	---	---	0
	% CBA	0%	---	---	---	---	0%
124	Total Incidents	0	1	0	0	0	1
	CBA	0	1	---	---	---	1
	% CBA	---	100%	---	---	---	100%
212	Total Incidents	0	0	1	0	0	1
	CBA	---	---	0	---	---	0
	% CBA	---	---	0%	---	---	0%
213	Total Incidents	1	1	0	0	0	2
	CBA	1	0	---	---	---	1
	% CBA	100%	0%	---	---	---	50%
312	Total Incidents	0	1	0	0	0	1
	CBA	---	0	---	---	---	0
	% CBA	---	0%	---	---	---	0%
321	Total Incidents	0	0	0	1	0	1
	CBA	---	---	---	0	---	0
	% CBA	---	---	---	0%	---	0%
323	Total Incidents	0	1	0	1	0	2
	CBA	---	0	---	0	0	0
	% CBA	---	0%	---	0%	---	0%

Workload Hours and Calls for Service by Police Beat

Tables 9 and 10 presents workload hours and Call for Service by Police Beat for 2020 – 2024. Due to data availability limitations, 2020 data are based on annualized data provided for October 1, 2020 through December 31, 2020 while 2024 data are based on annualized data provided for January 1, 2024 through April 25, 2024. The Police Beats are organized by high to low use of RTCC Technology.

Workload Hours (Table 9)

A comparison of the averages of the three RTCC utilization groups for the 2021-2023 reporting period (those years with complete actual data counts) is depicted in Table 9. This table shows that the impact of the use of RTCC technology on workload hours was minimal, as the average number of workload hours was quite similar. This may indicate that RTCC utilization had minimal impact on workload demand. However, as the table also shows the average workload hours for the three utilization groups tended to be higher for 2020 and 2021 and then shows a modest decline through 2024. Percent differences in average workload hours for the high RTTCC utilization group reflects a decrease in 2023 vs. 2022 of nearly 10% (9.9%) and a slightly greater amount (10.9%) when compared with the average reported workload hours for 2021 and 2022. For the moderate RTCC use group the percent differences were very modest representing a 5.6% decrease for the 2023 and 2022 comparison, and a slightly greater decrease, 6.5%, for the comparison of 2023 with the combined 2021 and 2022 average. For the Low RTCC utilization group, workload hours were lower in 2023 compared with 2022 (10.9%) but higher when compared with the combined average of 2021 and 2022 (12.9%).

Table 9. Workload Hours by Police Beat

Beat	2020*	2021	2022	2023	2024**	Average 2021 - 2023	Utilization of RTCC Technology
222	9,099	7,190	6,875	7,334	6,649	7,133	High
112	6,962	7,306	7,679	6,388	5,521	7,125	High
223	9,027	7,309	7,597	6,655	6,812	7,187	High
121	8,612	8,627	8,164	6,248	5,344	7,680	High
221	8,012	7,594	6,958	6,963	6,117	7,172	High
Average	**8,342**	**7,605**	**7,455**	**6,718**	**6,089**	**7,259**	High
214	6,647	6,412	6,977	5,812	4,634	6,400	Moderate
212	7,763	7,436	6,584	6,789	5,729	6,936	Moderate
314	8,035	7,974	8,351	7,964	6,877	8,096	Moderate
114	7,061	6,780	6,436	6,099	6,303	6,438	Moderate
113	6,623	6,890	6,811	6,228	4,691	6,643	Moderate
213	8,227	6,499	6,500	5,686	5,352	6,228	Moderate
122	6,850	8,209	7,027	6,248	6,181	7,161	Moderate
111	7,996	8,674	9,150	9,757	8,595	9,194	Moderate
Average	**7,400**	**7,359**	**7,229**	**6,823**	**6,045**	**7,137**	Moderate
224	5,003	4,530	5,656	4,192	4,891	4,793	Low
313	7,215	8,319	7,883	6,831	6,703	7,678	Low
311	7,594	7,296	6,720	7,402	6,048	7,139	Low
312	7,296	7,715	7,138	7,801	6,892	7,551	Low
124	11,316	10,767	9,862	7,797	6,132	9,475	Low
211	7,122	6,927	6,517	5,695	4,246	6,380	Low
322	7,236	6,561	5,229	5,350	4,852	5,713	Low
324	10,361	8,485	7,852	6,767	5,950	7,701	Low
123	8,542	8,363	8,157	7,258	6,469	7,926	Low
323	10,446	9,334	9,430	7,480	8,743	8,748	Low
321	6,199	5,109	5,311	4,502	4,056	4,974	Low
Average	**8,030**	**7,582**	**7,250**	**6,461**	**5,907**	**7,098**	Low

*Estimation is based on reported # Calls for Service for Oct 1 2020 through Dec 31 2020 - annualized

**Estimation is based on reported # Calls for Service for Jan 1 2024 through Apr 25 2024 - annualized

Calls for Service (Table 10)

Table 10 compares the average number of Calls for Service by RTCC utilization group (based on the 2021-2023 average) across the years of the study period. The data in this table shows that average amounts of Calls for Service across the RTCC utilization groups were very similar, although the low level RTCC utilization subgroup did report the highest average number of Calls for Service (by only 3 calls) followed by the high and moderate RTCC utilization subgroups. Examination of the Call data over time shows a modest decline in counts beginning in 2023. Comparison of the estimated workload hours for 2024 with the 2021-2023 average for Police Beats with the highest. midlevel, and lowest RTCC utilization show a decline of 17%, 14%, and 19% of calls for service, respectively. These data a modest decrease in demand for police response, but because the group averages are relatively similar, there insufficient to conclude an association positive or negative with utilization of the RTCC.

Table 10. Calls for Service by Beat

Beat	2020*	2021	2022	2023	2024**	Average 2021 - 2023	Utilization of RTCC Technology
222	9,099	7,935	7,276	6,756	6,649	7,322	High
112	6,962	7,542	7,089	7,035	5,521	7,222	High
223	9,027	6,838	6,488	5,692	6,812	6,339	High
121	8,612	8,959	7,970	7,915	5,344	8,281	High
221	8,012	7,903	7,197	7,042	6,117	7,381	High
Average	**8,342**	**7,835**	**7,204**	**6,888**	**6,089**	**7,309**	High
214	6,647	6,015	5,735	4,940	4,634	5,563	Moderate
212	7,763	6,327	5,777	5,349	5,729	5,818	Moderate
314	8,035	8,158	7,722	7,082	6,877	7,654	Moderate
114	7,061	5,598	5,513	4,918	6,303	5,343	Moderate
113	6,623	8,446	7,724	6,761	4,691	7,644	Moderate
213	8,227	6,109	5,504	4,778	5,352	5,464	Moderate
122	6,850	6,879	5,815	5,545	6,181	6,080	Moderate
111	7,996	12,880	12,598	12,946	8,595	12,808	Moderate
Average	**7,400**	**7,552**	**7,049**	**6,540**	**6,045**	**7,047**	Moderate
224	5,003	4,263	4,497	3,585	4,891	4,115	Low
313	7,215	7,965	7,388	6,902	6,703	7,418	Low
311	7,594	7,709	6,603	6,754	6,048	7,022	Low
312	7,296	7,701	7,424	7,436	6,892	7,520	Low
124	11,316	10,388	10,354	8,710	6,132	9,817	Low
211	7,122	8,090	7,012	6,349	4,246	7,150	Low
322	7,236	7,117	6,218	6,138	4,852	6,491	Low
324	10,361	8,548	7,866	7,392	5,950	7,935	Low
123	8,542	7,648	7,245	6,731	6,469	7,208	Low
323	10,446	9,646	9,698	8,991	8,743	9,445	Low
321	6,199	6,436	6,338	6,149	4,056	6,308	Low
Average	**8,030**	**7,774**	**7,331**	**6,831**	**5,907**	**7,312**	Low

Winston-Salem Police Department Personnel Perceptions of the Impact of the Real Time Crime Center

Collected January 2024

Survey Respondents

Members of the Winston-Salem Police Department (WSPD) were surveyed regarding the impact of the Real Time Crime Center (RTCC), which was implemented beginning in January 2021. A total of 266 WSPD personnel completed the survey. A little over two-fifths (n = 113 / 42.5%) of the respondents identified themselves as being associated with one or more of the Department's Police Beats, while the remaining respondents (n = 153 /57.5%) reported that their connections/responsibilities were not specific to a Police Beat. Listings of Police Beat representation and other WSPD functions/responsibilities are presented in Tables S1 and S2.

Table S1. Police Beat Representation Counts

WSPD Police Beat	Number of Personnel Identifying with Beats*
111	9
112	19
113	15
114	19
121	16
122	14
123	2
124	13
211	4
212	6
213	10
214	1
221	9
222	10
223	9
224	8
311	9
312	8
313	4
314	1
321	3
322	7
323	8
324	7

*Some respondents identified association with multiple Beats.

Table S2. Department/Function Personnel Counts

Department/Function	Personnel Count
CIB	4
CID	34
CRU	1
DTBP	2
FIID	17
FSB	1
FSD	4
FSD Commander	1
SID	8
SOD	17
SSB	8
SSD	1
Squad 232	1
Roving District 1	2
Roving District 2	1
Bike Patrol	1
D1 Field Commander	1
D2 Captain	1
D3 Field Commander	1
D3 Patrol Lieutenant	1
Zone 2 Field Commander	1
Light Duty	2
Field Training	1
In Training	1
Accreditation	1
Communications	12
Community Resources Unit	1
Evidence Management	2
False Alarm Reduction Unit	1
Forensics	5
IT Department	13
OCP	4
Professional Staff	1
Records	1

Use of RTCC Technologies

Survey respondents' reported use of the RTCC Technologies is presented in Table S3. As reflected in the Table, there was widespread use of RTCC technologies by WSPD personnel.

Table S3. Technologies of the RTCC Used in the Performance of Duties

RTCC Technologies	Number of Respondents
ShotSpotter	162 (61%)
Permanently mounted cameras	159 (60%)
Fixed license plate readers	130 (49%)
Resident business owned cameras (integrated with FUSUS)	106 (40%)
Drones* with camera access (integrated with FUSUS)	47 (18%)
High speed data base extraction (Force Metrics)	14 (0.5%)
Remote Monitoring (video surveillance)	1 (.003%)
ReadyOps Technology (tracking mechanism for technology used)	1 (.003%)

*Full implementation of drones had not occurred at the time of the development of this report.

Table S4 presents specific uses of the RTCC technologies and intelligence applications reported by the survey respondents.

Table S4. Reported Uses of RTCC Technology and Intelligence Applications

Use of RTCC Technology and Intelligence Applications	Number of Respondents
Participated in activities such as responding to a call for service (CFS)	123 (46%)
Engaged in efforts to apprehend a suspect or assist on a crime scene in some capacity	123 (46%)
Located and/or arrested a suspect	104 (39%)
Collected evidence from a crime scene	80 (30%
Used RTCC tools or technology/information from a crime scene to identify witnesses	64 (24%)
Used RTCC tools or technology/information from a crime scene to get witnesses to come forward (or to build better rapport with a witness to gain information might not obtain otherwise)	27 (10%)

Table S5 presents examples of the use of the RTCC technologies and intelligence applications as reported by some of the respondents. These examples reflect a range of purposes for which WSPD personnel used the application of the RTCC technology and intelligence gathering applications.

Table S5. Field Examples of Use of RTCC Technology and Intelligence Applications

• Used RTCC info to help keep the Chief informed on ongoing cases as they develop
• Recorded vehicle crashes
• Collected evidence and located suspects in response to calls
• Tracked stolen vehicles through license plate readers and provided updates on the vehicle location
• Live-streamed a foot chase and gave updates while tackling a suspect to take into custody
• Tracked down a few stolen/suspect vehicles based on the RTCC indicating the vehicles had traveled past one of the automatic license plate readers
• Gathered information for monitoring public nuisance locations
• Used information from RTCC and ShotSpotter to aid in dispatch information
• Used RTCC as another set of eyes for surveillance during narcotics transactions
• Used RTCC tools or technology/info to identify targets and targets' contacts
• Used ShotSpotter to dispatch officers
• Used video surveillance to document crimes, identify suspects, and identify suspect vehicles based on license plate readers and cameras
• Used footage of crime scene post-alleged sexual assault
• Used RTCC information to inform special investigations

Impact of RTCC Operations According to WSPD Personnel

Table S6 presents a summary of ratings that respondents provided to 10 questions relating to the use of RTCC technology and its associated intelligence gathering applications. The table reflects that for all questions—except the question addressing daily workload—at least half of the respondents positively assessed the RTCC's technologies and intelligence gathering capabilities.

For the questions related to the RTCC's contributions toward reducing response time, interactions with citizens, overall reduction in gun violence, and assistance with case documentation, the evaluations rates were positive overall, though decidedly mixed. These four items suggest that there is room for improvement in these areas of RTCC operations.
For the question regarding impact on workload, only about a third of respondents indicated that connecting with the RTCC did not increase their workload. This would appear to be an area for WSPD to concentrate on. Given that the RTCC has been fully operational for less than a year, and is still in its developmental stages, the question of how it can be efficiently incorporated into officers' daily operations to decrease their workloads is still being addressed. As WSPD learns more about the RTCC technology being used and how to better integrate the opportunities that RTCC technologies afford to officers, RTCC-connected operations will likely streamline officers' duties and decrease their workloads.

From the perspectives of WSPD personnel who responded to the survey, the RTCC had a positive impact on crime response and investigatory operations**.** From the survey of 266 WSPD personnel, over 80% indicated it had "improved officer safety, increased situational awareness of patrol officers, and facilitated the detection of violent illegal use of firearms or other weapons to commit a criminal act." Over three-fourths reported it had "contributed to an increase in arrests and cleared crime" and almost three-fourths of the respondents noted it had "led to increased collection of crime scene evidence." Just over half of the sample indicated it had "shortened response times to incidents requiring a police response, contributed to a reduction in violent crime and gun-related crimes in the city" and had "improved on-scene officer and citizen interactions." It also was credited by half of the respondents as "helping them become more efficient and effective in documenting cases."

Table S6. Impact of RTCC Operations

Survey Items/Ratings	Agree/ Somewhat Agree	Neither	Agree/ Somewhat Disagree	Total Respondents
The RTCC has improved officer safety.	207	18	7	232
	89.2%	7.8%	3.0%	
The RTCC has increased situational awareness for patrol officers.	191	32	9	232
	82.3%	13.8%	3.9%	
The RTCC has facilitated the detection of violent illegal use of firearms or other weapons to commit a criminal act.	188	34	10	232
	81.0%	14.7%	4.3%	
The RTCC has contributed to an increase in arrests and cleared crimes.	178	43	10	231
	77.1%	18.6%	4.3%	
The RTCC has led to increased collection of crime scene evidence.	171	52	9	232
	73.7%	22.4%	3.9%	
The RTCC has shortened response times to incidents requiring a police response.	130	82	19	231
	56.3%	35.5%	8.2%	
RTCC involvement has improved on-scene officer and citizen interactions.	118	103	11	232
	50.9%	44.4%	4.7%	
The RTCC has contributed to a reduction in violent crime and gun-related crimes in the city.	125	80	27	232
	53.9%	34.5%	11.6%	
The RTCC has helped me become more efficient and effective in documenting cases in which I have been involved.	115	98	17	230
	50.0%	42.6%	7.4%	
The RTCC has not increased my daily workload.	79	108	44	231
	34.2%	46.8%	19.0%	

Table S7 provides a full list of comments that respondents chose to share about their use/involvement with the RTCC and its technology and intelligence gathering capabilities. The vast majority of the 40 sets of comments were very positive about RTCC and/or its technology. To more systematically analyze the trends and patterns represented in the respondents' perspectives on the benefits of RTCC technologies, the comments were coded according to a series of three recurring themes: the RTCC as an asset builder that integrates crime detection

and investigation (ultimately leading to case clearances), the RTCC as a way in which officers and technology interact**,** and the RTCC as enhancing officer safety.

The most common theme that emerged through the analysis was that WSPD personnel identified the RTCC as an asset builder for integrating recent detection and investigatory technology. Some respondents addressed specific RTCC technologies in this regard, but the majority of positive comments reflected an understanding of RTCC technologies as a holistic system which builds WSPD assets by facilitating the detection of crimes (including location of suspects and vehicles) streamlining information processing and increasing the speed of evidence collection. For example, one respondent stated that "As a supervisor of a proactive patrol squad, the officers that worked for me were able to locate many suspects and suspect vehicles in relation to violent crimes due to the information being given out by the RTCC. The LPRs and cameras in the apartment complex have been beneficial in numerous ways."

Another respondent concurred with the sentiment that RTCC technology enhances officers' abilities to detect crimes by saying "I enjoy having an 'eye in the sky' because there is high potential that RTCC will observe something that I cannot see due to many different factors. I can't be everywhere at once and so having additional eyes is helpful when investigating a crime." Both statements demonstrate that the RTCC technologies are contributing to officers' abilities to do their jobs, both in terms of concrete crime detection and investigation tools, as well as by building officers' confidence that they have more resources at their disposal. That is, while the patrol squad supervisor may have more concrete examples of how the RTCC has assisted his squad in their duties, the other respondent has a heightened sense of investigation capacity by simply knowing that RTCC technologies are available for use.

Many respondents not only echoed these sorts of statements but also expanded on them to suggest that RTCC technology is helping compensate for the ongoing staff shortage at WSPD. For instance, one respondent stated that "the technology has been a game changer for our agency and made us more effective, despite the officer shortage. I look forward to seeing how much better we operate as an agency when we get our staffing numbers back and can utilize this technology even further due to more officers utilizing the technology." This perspective suggests that RTCC technology will only further enhance WSPD's capabilities, effectiveness, and efficiency once the department is fully staffed, and is helping to ameliorate the impacts of the staff shortage in the meantime. However, it is important to note that not all respondents agreed with this sentiment. Though an extreme minority, a handful of comments revealed a

sense that even by using technology, “You can’t replace officers on the street,” to use the words of one respondent.

This interaction between people and technology in the context of RTCC utilization was another theme that emerged frequently in the analysis of respondents’ survey comments. While some respondents differed regarding the RTCC’s ability to replace staff in the context of a personnel crisis (as described above), all respondents agreed that the WSPD officers who are directly in charge of managing RTCC technology (“RTCC staff”) have been a crucial asset in ensuring the success of the WSPD’s utilization of the RTCC. For instance, one respondent explained that with regards to the RTCC “not only is the technology being used extraordinary, but the people assigned to the Center are phenomenal and eager to help. The technology is fantastic, but the RTCC staff are the real reason for the success of the technology.” Other comments attributed similar importance to the abilities of the RTCC staff to ensure that the technology was being used in the most effective and efficient way. So, while certain comments (as well as the ratings responses described above) pointed out the learning curve for officers to truly integrate RTCC technology into their daily operations, a significant number of respondents provided high praise to the RTCC staff’s ability to leverage the technology for the most beneficial purposes possible. One comment in the surveys dovetailed with this evaluation’s discussion of the way in which RTCC technologies were implemented by noting that that the process of implementing of RTCC technology identified areas of need of change or improvement such as involving replacing or improving existing surveillance equipment, incorporating higher quality video surveillance equipment, and fiber optics to achieve peak performance.

Ultimately, the RTCC technologies’ and RTCC staff’s contributions to crime detection, intelligence gathering, and officer confidence combine to lead to greater case solvability. Indeed, in many of the respondents’ comments, the RTCC was credited with having led to the arrest of multiple violent offenders and to case clearances by arrest that in the past would have been cleared as “inactive.” In this sense, comments from the officer surveys further substantiate the findings from this evaluation’s quantitative analysis component, in which the data suggests that those areas which has a higher usage of RTCC technology have a higher likelihood of greater rates of case clearances.

In addition to the broad theme of RTCC’s ability to build WSPD assets for detecting crime, gathering intelligence, and solving crimes, and the theme of interactions between people and technology, the other theme that emerged from the analysis of survey responses was that the implementation and utilization of RTCC technology has contributed to feelings of greater officer

safety. The main way that RTCC technology contributes to officer safety is by providing intelligence on the locations of violent criminals thereby enabling officers to be better prepared for apprehending suspects. For example, one respondent rolled "officer safety" into the multiple benefits of the RTCC in general, stating that "The RTCC Team is a HUGE asset in identification, location, and officer safety in the numerous calls for service they assist with. Since RTCC implementation their assistance has made many investigations more fruitful in evidence and offender location."

Other respondent addressed officer safety more specifically in terms of how RTCC technology by stating that "Officer safety is greatly increased when violent criminals can be more accurately located and tracked." And still another respondent felt that the RTCC technology not only helped protect officers but also the larger community, stating that "I cannot stress enough that RTCC brings our department into the investigative technological future, which keeps officers and our citizens safer daily." This final statement—which is representative of many others—captures the broad sense that the technologies that comprise the RTCC for the WSPD are the pathway forward for a successful department that ensures the safety of its own officers as well as of the citizens of Winston-Salem.

So, despite certain snags in implementation, usage, or the integrity of equipment of RTCC survey respondents were overwhelmingly positive about the prospects for the RTCC to enhance WSPD's ability to solve crimes and keep officers and citizens safe.

Table S7. Respondent Comments on the Use of RTCC Technology and Intelligence Gathering Applications

• Tracking patterns of criminal activities.
• Traffic Crashes with injuries - Video assisted in capturing the scene of events.
• As a supervisor of a proactive patrol squad, the officers that worked for me were able to locate many suspects and suspect vehicles in relation to violent crimes due to the information given out by the RTCC. The LPRs and cameras in the apartment complex have been beneficial in numerous ways.
• As the RTCC continues to evolve and integrate more technology into its operations, I believe they will become more of an asset all around, which will enhance investigations on the front hopefully leading to more successful clearances and prosecutions.
• Great resource with fantastic results. The RTCC is helping the department bridge the gap between officer shortages and crime prevention.
• I am pleased with the work this unit does.
• I believe that RTCC operations have had an overall positive impact on the department.
• I enjoy having an "eye in the sky" because there is high potential that RTCC will observe something that I cannot see due to many different factors. I can't be everywhere at once and so having additional eyes is helpful when investigating a crime.
• I have been a police officer for over two decades. This is the best technology I have ever seen to provide effective immediate information which is valuable for officer safety.
• I think it is a good tool and has been very helpful.
• I think very highly of RTCC. It has become an invaluable tool to have.
• Implementation of the technology is great in the field; however, some of the video surveillance equipment that is owned by the department/city is subpar. In order to achieve the full potential of the unit, I suggest incorporating higher quality video surveillance equipment and fiber optics to support the demand of said equipment to achieve peak performance.
• Not only is the technology being used, extraordinary, the people assigned to the Center are phenomenal and eager to help.
• RTCC has been a great resource during my day-to-day operations.
• RTCC has been a phenomenal asset in the detection, investigation, and successful clearance of crimes in our city.
• RTCC is a great resource to this department!!!
• RTCC is awesome in the assistance that they provide to the troops on the ground, especially during fluid and rapidly evolving incidents!

Table S7. Respondent Comments on the Use of RTCC Technology and Intelligence Gathering Applications (continued)

- RTCC is the future for this department

- RTCC operations and the clarity of the video footage would help with identifying suspects or course of travel from a suspect vehicle when I was given a tutorial. I have not personally been able to use this on an investigative incident.

- The increased speed in the collection of evidence or the location of suspect vehicles/persons is highly effective as provided by RTCC. Officer safety is greatly increased when violent criminals can be more accurately located and tracked.

- The people working in RTCC are excellent and in my experience, go above and beyond on the few times I've needed their assistance.

- The Real Time Crime Center is exceptional and has led to the arrest of multiple violent offenders. I utilize RTCC on a daily basis for the days I work. It assists with investigations, officer safety and with documentation. The technology is fantastic but the employees working the RTCC are the real reason for the success of the technology.

- The RTCC has become a vital part of the WSPD and will continue to be even more integral as the staffing levels in RTCC increase and will help us continue to solve crimes.

- The RTCC has led to multiple cases being cleared by arrest that in the past would have been closed inactive. The technology has been a game changer for our agency and made us more effective, despite the officer shortage, and I look forward to seeing how much better we operate as an agency when we get our staffing numbers back and can utilize this technology even further due to more officers utilizing the technology.

- The RTCC is a game changer for law enforcement. It is allowing us to solve crimes we otherwise would not be able to.

- The RTCC is amazing.

- The RTCC is great! Everyone up there does a fantastic job in ensuring officer safety. While I don't think that having an RTCC decreases gun crime, it definitely helps identify those who engage in gun crime.

- The RTCC Team is a HUGE asset in identification, location, and officer safety in the numerous calls for service they assist with. Since RTCC implementation their assistance has made many investigations more fruitful in evidence and offender location. I cannot stress enough that RTCC brings our department into the investigative technological future, which keeps officers and our citizens safer daily.

- They are an invaluable asset to our agency. We are lucky to have them and cannot wait to see where we continue to grow in the use of technology that assists officers with their duties, while keeping the officers and the community safe.

Table S7. Respondent Comments on the Use of RTCC Technology and Intelligence Gathering Applications (continued)

- They have been a great asset to the department and the community.
- This has been a very beneficial investment for the agency on a wide swathing level of involvement from various bureaus and divisions.
- "...Has contributed to a reduction in violent crime and gun related crimes in the city." Not with a record # of homicides last year. You can't replace officers on the street.
- The LPRs have been a huge help.
- RTCC has its good points. The ShotSpotter program has done the most for the city of Winston Salem of any technology used in years. The timeliness of the discharging firearms alerts allows the camera to be directed to correct areas that otherwise would not be known. ShotSpotter is user friendly and complete in its connectivity to CAD and does not rely on human intervention. LPR alerts must be manned. If not, the information provided is meaningless. The camera systems and cooperation from local citizens are an asset. Camera recordings provide great evidence benefits. RTCC is a benefit to officers when it is operational. All employees with RTCC that will be on the radio for broadcasts should work with communications to be more effective with radio communications and to increase the benefit of the information that is disseminated.
- RTCC has caused information delay as they sift through data. They do great for watching live [action] but once any historical information/footage needs to be reviewed it slows [the process down] and substantially impacts real time information.
- I am a member of the Traffic Enforcement Unit. My duties involve Speed Enforcement and crash investigation, to include investigating fatal traffic crashes. I have not encountered any scenes myself, where the RTCC has been able to assist but have heard many of the stories of times when they have been helpful. Please do not take the lack of information I have provided as negative input. However, I would love to see more traffic cameras on their list in the future.
- I do not directly interact with the RTCC but can clearly see the benefits of the center within our agency. They have made a major impact in investigations and timeliness of apprehension, and they are invaluable to this agency.
- These questions are hard to answer when my division doesn't use it as often as patrol does.
- I have not used RTCC very often. I look forward to using it more.
- I work in records as a non-sworn / professional staff. I think it would be great if some of us that don't interact with the RTCC within the scope of our roles could get a tour of the RTCC and better understand what its capabilities area.

Conclusions and Overall Impacts of the RTCC in Winston-Salem

It was noted at the beginning of this report that the focus of the evaluation was primarily on the impact of RTCC application technologies in assisting the WSPD in solving violent crimes. As in the case of many instances of the rollout of technology a smooth planned implementation often does not occur. In the case of the WSPD this also was the case. The deployment of the RTCC technologies was not as systematic as planned owing to delays in purchasing and acquiring the technology, personnel shortages, and the proverbial learning curve for using the technologies. This meant that the WSPD did not have the staff or time to implement the technology in ways to determine their efficacy before full implementation.

Including this technology in a fully active police unit was not an easy task, particularly while dealing with field personnel shortages, changes in departmental leadership, and pressures from city, business, and residential interests for delivery of reduction of violent while engaging in the process of implementing, mastering, and instructing how use the RTCC applications. A review of timeline of implementation (see Appendix B) illustrates the complexity of integrating the implementation of the initial four technological applications, followed late in the project timeline (August 2023) with the introduction of automated license plate readers (ALPRs) and testing of a Drone for First Responders during the summer of 2023 with a scheduled rollout in mid-June 2024. During the fall 2023, ALPRS were integrated with the Fusion camera and the Force Metrics search engine applications. Consequently, analysis of the implementation of the technology is limited and how this may have affected the results during the period of study is difficult to assess. It did affect the original plan for comparing geographic areas (Police Beats) in the City of Winston that were to be comparison sectors for areas that did receive RTCC applications. The WSPD chose to use the technology where if could be used. ShotSpotter was limited to a predetermined set of four Police Beats (112, 121, 221, and 222) and most city-owned/police department owned cameras operated in or near these Police Beats. However, because the WSPD requested assistance from business and residents for camera footage they may have collected regarding possible criminal activity, this expanded RTCC “coverage” to essentially the entire city.

To offset the limitation of not having any RTCC technology Police Beats to compare against beats without any active technology, the Evaluation Team developed a proxy approach of examining rates of violent crime (reported by the WSPD) and counts of case clearance by arrest by grouping polices beats by high, medium, and low counts of violent crimes and by high, medium, and low counts of RTCC technology use. As the report shows there was a clear association of

higher rates of RTCC use among the Police Beats with the highest counts of violent crimes. This relationship also produced the result that beats with the rates of violent crimes had more opportunities to clear cases by arrest. It can be noted that for the Police Beats with the highest incidents of violent crime cases cleared by arrest averaged about 20%.

Police Beats with Highest Numbers of Violent Incidents and Percent Cases Cleared by Arrest

Beat #	# Incidents	# Incidents Cleared by Arrest	Percent Cleared by Arrest
222	398	79	20%
212	365	76	21%
223	358	69	19%
211	341	66	19%
112	337	72	21%
122	320	48	15%
121	300	75	25%
213	296	46	16%

The data presented in Table 5 shows that more opportunities to make arrests did not result in higher rates of arrest involving RTCC technology. Rates of cleared cases by arrests were actually higher among Police Beats with moderate to low counts of violent crimes. This finding raises the question whether volume of criminal activity reduces the efficacy of the technology. It has been observed that some perpetrators know they are being tracked by camera but still engage in their criminal activity perhaps believing they will not be caught because most criminal acts do not lead to arrests or prosecutions.

Based on the available quantitative and the survey-based qualitative data from WSPD personnel, the findings suggest that the overall impact of the RTCC was positive. We draw this conclusion based on several sets of findings: percent changes in rates of violent crime, percent changes in case clearance by arrest rates, the qualitative feedback from WSPD personnel through their survey responses, and from RTCC leadership commentary and reporting. Taken together, these lines of analysis provide us with a more general and clearer picture of how RTCC technologies have contributed to enhancing the “solvability” of crimes in Winston-Salem.

It is of course extremely difficult to prove a causal relationship between any one violence reduction strategy—whether RTCC technologies, the introduction of a new police unit, or some community-based preventative program—and actual changes in rates of violent crimes. Violent crime is multi-causal and may not ever be directly attributable to the implementation and utilization of RTCC technologies. On the other hand, and as already described, the implementation of RTCC technologies is ongoing and many WSPD personnel are still learning how to integrate the RTCC into their normal operations. Therefore, any significant and identifiable decreases in violent crime rates as a result of the application of RTCC technologies may not be fully verifiable until a greater amount of time has passed. With that said, it is clear for some beats (see below) the utilization of RTCC appears to have made a substantial contribution to case clearance by arrest.

Total Violence* Incidents for 2021 – 2023

Beat #	# Incidents Cleared by Arrest	# Incidents Assisted by RTCC Applications	Percent Cleared by Arrest
222	224	47	21%
112	196	29	15%
223	168	32	19%
121	93	14	15%
221	93	18	19%

*Homicide, Aggravated Assault, Vandalism/Property Destruction, Weapons Violations, Robbery

RTCC Leadership Reporting

Solvability of Cases

The final line of analysis that has led us to conclude that the implementation and utilization of RTCC technologies by the WSPD has ultimately been positive is the qualitative feedback that we have received in the course of meetings and discussions with RTCC leadership. The idea that the RTCC technologies have enhanced "case solvability," or the overall likelihood that criminal incidents will result in being cleared by arrest, has been significant point of emphasis by leadership personnel of WSPD RTCC. They have repeatedly reiterated that, at an objective level, they now have more tools at their disposal to efficiently and effectively pursue evidence and intelligence that leads to solving cases. The lead officer of the RTCC staff unit reported that with

the technological tools and personnel associated with the RTCC “the solvability of cases has dramatically increased. We know it (RTCC) has had an absolute major effect-it makes it easier to solve crimes and that is very positive.” He went on to provide examples from the utilization of the Automated License Plate Readers saying, that “now, we are able to actually stop the exact right vehicles, as opposed to stopping ‘all the red ones’ coming from the direction of a crime scene.” (Cameras have also been paired with ALPRs in certain instances to further narrow down the identification of targeted vehicles). From the perspective of RTCC leadership this technology has allowed them to streamline their investigations by focusing on precise individual targets as opposed to larger groups of suspects based on broad characteristics.

Impact Beyond Winston-Salem

In further substantiating their overwhelmingly positive appraisal of the impact of the RTCC on case solvability, RTCC leaders have also highlighted the requests they have received to share and disseminate the lessons they have learned from the RTCC to other departments and jurisdictions across the country. Representatives from many police departments and sheriff’s offices from across North Carolina and the southeastern region of the US have come to the WSPD to learn about the RTCC and its impact. RTCC leaders have also been invited to visit other jurisdictions and to attend conferences to provide presentations about the RTCC process, its impacts, successes, and the best practices that other departments can adopt to emulate the success of the WSPD’s RTCC.

From its inception, Winston-Salem has been a state leader in the development and progression of Real Time Crime Centers (RTCCs). While the concept of an RTCC is not new, such centers were relatively scarce during the rollout and implementation. Although the initial stages were gradual, they quickly gained significant traction through demonstrable success.

The effective deployment of technology and innovative strategies attracted considerable attention from various agencies, businesses, state officials, and national representatives, leading to frequent visits to the RTCC. This interest was further amplified as they presented at numerous conferences across the country and showcased their achievements through local media and social platforms.

As inaugural members of the National Real Time Crime Center Association (NRTCCA), the WSPD has broadened their footprint and established themselves as leaders in the RTCC arena. In recognition of their efforts, Lieutenant Ben Jones was honored with the NRTCCA Supervisor of the Year award in 2023. Although the blueprint for RTCCs existed prior, Winston-Salem's

creative and effective implementation has not only achieved remarkable success but has also served as a model that continues to draw visitors seeking to learn from their experience.

Recommendations for Development of RTCC Operations and System Impact

- Systematic Implementation: RTCC technology deployment should be implemented as an interdependent system with each piece/phase of the technology tested and placed in operation when the RTCC team has the capacity to oversee implementation and collect performance data as a single technology and as interdependent part of the RTCC's technology suite. While it may be tempting for law enforcement agencies to implement RTCC technology as rapidly as possible once they have access to it, it is advisable to roll out this implementation in a way that is strategic, intentional, and systematic in order to monitor the efficacy of its deployment in terms of achieving arrests of high problem crimes (involving violence, property destruction , increase concerns for public safety).

- Target the Approach and the Technology to Areas of Greatest Need: RTCC technology should be deployed to areas with the greatest need for frequent surveillance. Operations and field personnel should be trained and in regular communication contact advantage of the observation data (i.e., shot fired, camera footage, and other intelligence relate to the crime and likely suspects. Low incident areas of violent crimes may benefit from the applications of RTCC technologies, but cost in personnel and equipment should be factors in determining areas of deployment.

- Document the Process of RTTC Implementation, Operations, and Data Collection: An important component to operational success is to be able to describe clearly the critical steps that were taken in the run up to the deployment of all aspects of the RTCC including the guidelines that were established for deployment and operations, recruitment of RTCC personnel, training, and performance evaluation, training and communications with command and field personnel, benchmark measures of RTCC operations and success, and collection of the essential data for documentation, evaluation and reporting.

- Meaningful Outcome Measures: Reduction in crime is not a feasible outcome measure. Law enforcement agencies/departments considering implementing a RTCC to address specific types of crime should focus on the identification and measurement of the specific outcomes that their RTCC is being developed to achieve. These measures should be readily and routinely collected. While interpretative analysis is always beneficial, the selection of

measures should be based on determinable outcomes (i.e., an arrest occurred, evidence was gathered that was presented in court).

- Equitable Policing: Technology can contribute to times savings, lifesaving, solvability of crimes and arrests of those who commit crimes. But it also is important to be aware of the "downside" of technology. It can be over-used and over relied on resulting in communities developing fear of being monitored and over-policed. Application of RTCC technologies should be monitored for benefits (i.e., closing criminal cases) and potential drawbacks (creating conditions that draw focused attention based on gender, race, appearance that actually interfere with positive policing and respecting rights of individuals who may be in the vicinity where a crime has or is suspected to have occurred.

- Community Engagement: To assess the acceptance of the application of policing technology departments should institute community engagement including community surveys, listening sessions, and reporting to residents and other stakeholders about the use of the technology and its results.

- Financial Sustainability: Law enforcement departments/agencies should seek sustainable funding sources for RTCC technology, through their normal jurisdictional sources (city or county budgets), or from state and federal grant opportunities.

- Collaborate with Research Partners: RTCCs are relatively new and few in number. To better understand and demonstrate their value, law enforcement departments/agencies should collaborate with a research partner to develop an evaluation plan for tracking implementation and outcomes of their RTCC. Effective collaboration should include open communications about timelines, changes in implementation of technology and operations, and data collection to enable meaningful evaluation of the RTCC.

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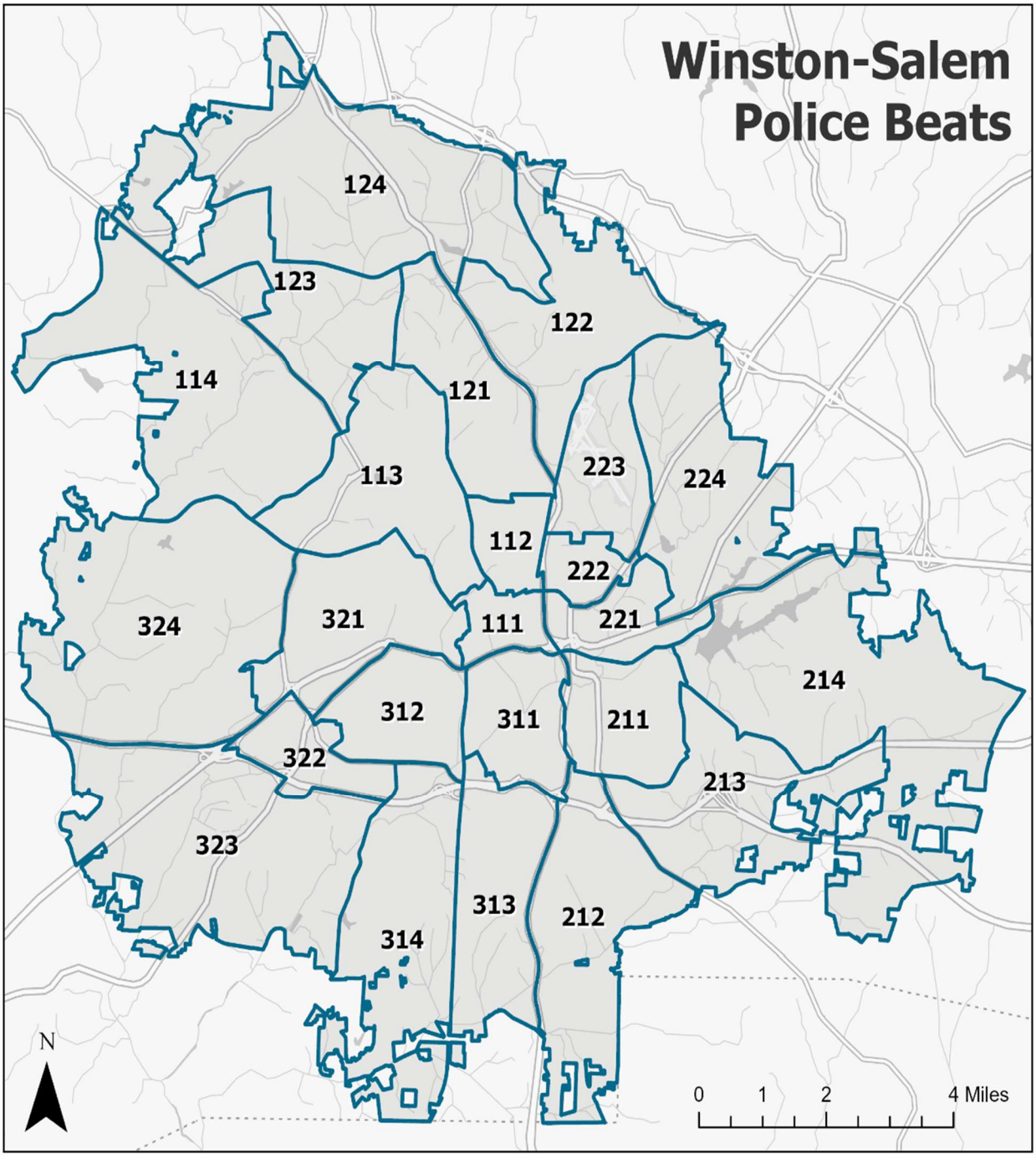
Appendix A - WSPD Beat Map



Appendix B. Implementation Events for the Winston-Salem Police Department RTCC

Date	Event
04/01/20	Applied for Strategies for Policing Innovation Grant
11/24/20	Conducted interviews with WSPD Detectives for roles within the RTCC
11/01/20	WSPD awarded Strategies for Policing Innovation Grant
12/10/20	Established a temporary setup of RTCC Operations
12/15/20	RTCC Development Team toured Raleigh Police Intelligence Center (RIC)
01/04/21	Winston-Salem City Council formally accepted grant award
01/06/21	Assigned first two 2 Detectives to the RTCC
01/08/21	FOX 8 News provided coverage of ShotSpotter and the RTCC Winston-Salem police implementing ShotSpotter system and Real Time Crime Center | FOX8 WGHP (myfox8.com)
01/13/21	1st RTCC initiated case (IR# 2102305)
01/21/21	Stakeholder Interviews with UNCG Evaluation Team
01/22/21	Covert Media Consulting Training with RTCC personnel completed
01/22/21	Introduced PowerDMS software training for all sworn officers
01/25/21	Created flyers for business owner and community resident camera registry
01/28/21	Published 1st RTCC Intel Bulletin (Janeshia Marion)
02/05/21	Camera Survey released in PDMS
02/05/21	Created RTCC Logo
02/09/21	Winston-Salem Downtown Business Partnership published RTCC information in weekly flyer
03/02/21	Conducted a social media campaign via Twitter, Instagram, Facebook, and NextDoor regarding the RTCC and camera registry
03/03/21	Added 1st camera registrants in FUSUS
03/04/21	Created a RTCC Request for Assistance Form
03/05/21	1st RTCC Request for Assistance Form completed
03/05/21	1st RTCC Briefing and Search Warrant executed
03/08/21-3/10/21	RTCC staff visited Orlando Florida Police Department/Attended FUDUS Symposium
03/09/21	Made a presentation about the RTCC to the Winston-Salem Hispanic League
03/16/21	Translated RTCC operations documents into Spanish
03/18/21	Created a RTCC Brochure
03/23/21	28 Code of Federal Regulations training with RTCC personnel completed
03/25/21	Began weekly meetings with FUSUS (Alex Perez) for operational assistance
03/26/21	Made a presentation about the RTCC to the Winston-Salem Ministers' Conference
03/29/21	RTCC assisted in identifying suspect vehicle in a drive-by shooting involving a 4 year old (IR#2117201)
03/30/21	Made a presentation about the RTCC to the Winston-Salem Police Foundation
03/31/21	1st Camera Registry Video received
03/31/21	WXII News presented a news story on the initiation of the RTCC
04/01/21	U.S. Congresswoman Kathy Manning (NC District 6) visited the RTCC
04/08/21	Community Resources Unit (CRU) conducted a community meeting to discuss RTCC operations
04/12/21	RTCC Service Patch/Logo was created
04/15/21	RTCC helped with a homicide investigation (IR#2120607)
04/28/21	1st RTCC Success Story published
04/28/21	1st Text-A-Tip received

Date	Event
04/30/21	Tactical Workup sheet completed
05/03/21	Four new communities added to camera sharing in FUSUS
05/04/21-05/06/21	Conducted training about the RTCC to all patrol officers
05/10/21-05/14/21	Made a presentation about the RTCC at 2021 International Chief of Police (IACP) Conference
09/01/22	Assigned three Crime Analysts to work in the RTCC
10/01/22	One additional Sworn Officer temporarily assigned to the RTCC
11/16/22	WSPD hosted a tour to introduce the RTCC to the public https://www.youtube.com/watch?v=yvDzyztpbA8
12/01/22	Two additional Sworn Officers temporarily assigned to RTCC
12/12/22	FUSUS by Axon story about RTCC incorporation of community cameras to help with crime solving https://www.fusus.com/blog/winston-salem-unveils-new-real-time-crime-center-powered-by-fusus
02/01/23	Winston-Salem Department of Transportation linked its cameras with FUSUS
02/01/23	Two additional Crime Analysts stationed with the RTCC
04/01/23	One additional Sworn Officer temporarily assigned to RTCC
08/02/23	Implemented License Plate Readers
01/08/23	Maryland Apartments cameras installed by WSPD
01/08/23	Northside Lanes apartments cameras installed by WSPD
01/09/23	Abbington Gardens apartments cameras installed by WSPD
06/27/23	FOX8 News: ShotSpotter system serves as valuable asset to Winston-Salem police in recent shootings https://myfox8.com/news/north-carolina/winston-salem/shotspotter-system-serves-as-valuable-asset-to-winston-salem-police-in-recent-shootings/
07/14/23	Behind the Scenes: Winston-Salem Police Department's Real Time Crime Center https://www.youtube.com/watch?v=t3t12whZvMg
08/11/23	Winston-Salem Journal: Real time crime center keeps an open eye for trouble https://journalnow.com/news/local/crime-courts/real-time-crime-center-keeps-watch-in-ws/article_bbd6d366-32fc-11ee-ae6d-83c41982d286.html
09/13/23	WFMY News 2: Winston-Salem police find success with real-time crime center https://www.youtube.com/watch?v=F5wf8Vy3HG8
07/15/23	Added CLEAR Accurint software to the RTCC to aid in locating and tracking individuals
07/15/23	Added Penlink software to the RTCC to provide open source intelligence gathering for information retrieval
08/11/23	Winston-Salem Journal: Real time crime center keeps an open eye for trouble https://journalnow.com/news/local/crime-courts/real-time-crime-center-keeps-watch-in-ws/article_bbd6d366-32fc-11ee-ae6d-83c41982d286.html
09/13/23	WFMY News 2: Winston-Salem police find success with real-time crime center https://www.youtube.com/watch?v=F5wf8Vy3HG8
10/15/23	Launched LIVE911 enabling WSPD to listen in on 911 emergency calls
01/15/24	Upgraded the use of READYOP to serve as the primary tracking tool for RTCC daily operations
04/15/24	Added IDICORE software to enable information search across private sector databases

Appendix C. WSPD RTCC Baseline Officer Survey

October 2023

The purpose of this survey is to find out about your use and perceived impact of the WSPD's Real Time Crime Center (RTCC). All responses will remain confidential and accessible only to the North Carolina Network for Safe Communities evaluation team at the University of North Carolina Greensboro. A report summarizing the aggregated responses to the survey will be shared with WSPD command. The survey should take approximately 5 minutes to complete.

What are the beat numbers for which you are primarily responsible? (Check all that apply)

___ 112 ___ 113 ___ 114 ___ 121 ___ 122 ___ 124 ___ 212

___ 213 ___ 221 ___ 222 ___ 223 ___ 224 ___ 311 ___ 312

___ 322 ___ 323

Q1. Which of the following technologies of the RTCC have you used in the performance of your duties? (Check all that apply)

____ Permanently mounted cameras

____ Resident business owned cameras

____ Camera mounted drones

____ Fixed license plate readers

____ Mobile license plate readers

____ ShotSpotter

____ High speed data base extraction

____ Other (Please describe)

Q2 Which of the following have you experienced due to information/assistance from the RTCC? (Check all that apply)

____ Participated in activities such as responding to a call for service (CFS), engaging in efforts to apprehend a suspect or assisting on a crime scene in some capacity

____ Collected evidence from a crime scene

____ Used RTCC tools or technology / information from a crime scene to identify witnesses

____ Used RTCC tools or technology / information from a crime scene to get witnesses to come forward (or to build better rapport with a witness to gain information you might not have otherwise)

____ Locate and/or arrest a suspect

____ Other (please describe) _____

Q3. Please rate your level of agreement with the following statements related to *potential impacts* of the Real Time Crime Center (RTCC). If you have no opinion or are unsure about a statement, rate your level agreement as "neither agree nor disagree/unsure."

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree/unsure (3)	Somewhat agree (4)	Strongly agree (5)

____ The RTCC has increased my daily workload.

____ The RTCC has improved officer safety.

____ The RTCC has shortened response times to incidents requiring a police response.

____ The RTCC has facilitated the detection of violent illegal use of firearms or other weapons to commit a criminal act.

____ The RTCC has increased situational awareness for patrol officers.

____ RTCC involvement has improved on-scene officer and citizen interactions.

____ The RTCC has contributed to an increase in arrests and cleared crimes.

____ The RTCC has led to increased collection of crime scene evidence.

____ The RTCC has contributed to a reduction in violent and gun-related crimes in the city.

____ The RTCC has helped me become more efficient and effective in documenting cases in which I have been involved

Q4. Please describe anything else you would like to share regarding your experience with RTCC operations?

WSPD RTCC Impact Survey - Dec 2023