Identifying High-Risk, Underserved Victim Populations in Cleveland County, NC, Using Geographic Information Systems (GIS) and Geographic Analyses

Final Report

Prepared by Drs. Christine Murray and Rick Bunch, The University of North Carolina at Greensboro; Cleveland County Sheriff Office collaborators included the following: Mark Craig, Professional Standards Lieutenant; John McIntyre, Criminal Investigations Lieutenant; Mike Proctor, Crime Analyst (Retired); Andrea Jones-Marshall, Victim Specialist; and Robby Barr, Victim Specialist. Bios for the project team members can be found in Appendix 1. The UNCG and CCSO project team members wish to thank the Justice Research and Statistics Association for financial support of this research.

This project involved a partnership between the Cleveland County Sheriff Office (CCSO; the LEV grantee) and interdisciplinary researchers at the University of North Carolina at Greensboro (UNCG). The purpose of this project was to use Geographic Information Systems (GIS) and geographic analyses to identify underserved populations by examining gaps between the victims served by the CCSO Victim Services Program and the population of violent crime victims in the general population of Cleveland County. The focus was on all violent crimes reported in Cleveland County through law enforcement incident reports during the 2020 calendar year, which was the first year of operation of the CCSO Victim Services Program. This project was funded by a grant through the LEV Grantee-Researcher Partnerships to Enhance Law Enforcement-based Victim Services Program, which is administered by the Justice Research and Statistics Association (JRSA) and funded by the Office for Victims of Crime, Office of Justice Programs, U.S. Department of Justice.

1. Description of the Problem and How It Was Identified

Cleveland County is a rural community that is located in the foothills of the Blue Ridge Mountains of North Carolina. According to the most current available US Census data, Cleveland County is home to about 98,000 residents. Adults ages 18 and over represent 78.1% of the population in the County, and 51.9% of the County’s population is female. The majority (75.8%) of Cleveland County residents are White, followed by 20.8% Black or African American, 3.8% Hispanic or Latino, 1.1% Asian, and 0.4% American Indian or Alaska Native, and 1.9% of the County’s residents report two or more racial backgrounds. The median household income in 2019 dollars in Cleveland County was $42,247, and 19% of the population is in poverty. Eighty-four percent of the population aged 25+ is a high school graduate, and 17.6% of the population holds a bachelor’s degree or higher. The two largest cities in Cleveland County are Shelby, with a population of about 20,000 residents, and Kings Mountain, with a population of about 11,000 residents.

The mission of the CCSO is to “maintain a high quality of life for all residents and visitors of Cleveland County, by providing competent and professional Law Enforcement Services and Detention Facilities, while working in partnership with our citizens to develop policing services to meet the unique needs of the community, while ensuring fairness, equal treatment, and protection to all.” The CCSO Victim Services program was established in January 2020 with funding from the Office for Victims of Crime. Initially, the program was proposed in order to assist detectives in maintaining contact with victims and engaging with them more effectively. Since the implementation of the program, it has proven to meet other needs that the Sheriff’s Office was unaware existed and has become an invaluable addition to the agency. The
The mission of the Victim Services Program is “to improve our community by working to meet the varying needs of crime victims, protecting the rights of victims, and providing a safe place for victims to receive support, education, and appropriate referrals.”

The CCSO Victim Services program employs two Victim Specialists, one full-time and one part-time. Victim Specialists receive referrals for victims of violent crime from three law enforcement agencies in Cleveland County: Cleveland County Sheriff’s Office, Kings Mountain Police Department, and Shelby Police Department. However, only victims whose crime victimizations occurred in the Qualified Opportunity Zone of the jurisdiction area of the Shelby Police Department are eligible to receive CCSO Victim Services program support. (Notes: All Kings Mountain Police Department reports are accepted as eligible clients in the CCSO Victim Services Program. Also, the U.S. Department of Housing and Urban Development defines Qualified Opportunity Zones as “economically distressed communities, defined by individual census tract, nominated by America’s governors, and certified by the U.S. Secretary of the Treasury via his delegation of that authority to the Internal Revenue Service.” There are two of these Qualified Opportunity Zones in Cleveland County, one of which is within the city limits of Shelby, and the other is within the city limits of Kings Mountain.)

Once referred, victims receive a call from a Victim Specialist and are educated about the criminal justice system, as well as their rights as victims. They also receive referrals for counseling, legal assistance, food and clothing, other victim services agencies, and housing resources, as needed. Victim Specialists attend court with victims and assist them in maintaining contact with the District Attorney’s Office and law enforcement personnel. Through partnerships with community clubs and donations from the community, the Victim Services Program is also able to meet some basic needs, such as toiletries and baby items, through the Victim Services closet.

In order to establish the sustainability of the CCSO Victim Services program after the initial Office for Victims of Crime grant funding period ends, the CCSO aimed to learn how effectively the program is meeting the needs of victims throughout Cleveland County. At the time when this study began in September 2020, although approximately 465 victims of violent crime were eligible to receive services from the CCSO Victim Services program from January through September 2020, only about 130 victims were referred for services, and of those, only about one-half received some type of service. For the entire 2020 calendar year, which was the timeframe used for this project’s data analyses, there were a total of 170 victims who were referred for services from the CCSO Victim Services program, and of these, 54% received services. Therefore, to enhance the service provision by the CCSO Victim Services program, the CCSO partnered with the UNCG researchers to identify areas in Cleveland County in which there were elevated rates of crime, but fewer victims were being referred to and engaging with the CCSO Victim Services program.

2. **Analysis Approach Used to Address the Problem**

This project examined three research questions: (a) RQ 1: In which regions (i.e., block groups) in the CCSO jurisdiction area of Cleveland County are there especially high rates of violent crime, as reported in law enforcement incident reports?; (b) RQ 2: In which regions in the CCSO jurisdiction area of Cleveland County are there especially high rates of violent crime, but residents are not accessing the CCSO Victim Services program at correspondingly high rates (as reflected in the location of the incident, and not their residential address)?; and (c) RQ3: What are the demographic profiles of the identified high-risk, underserved regions of Cleveland County?
RQ1 was answered using the geographic analyses of crime records from the CCSO, as well as from two other law enforcement agencies located in Cleveland County: the Shelby Police Department and the Kings Mountain Police Department. The geographic analyses aimed to identify clusters of block groups within Cleveland County in which there are disproportionately high numbers of reports of violent crime. RQ2 further used geographic analyses to map the addresses of victims served by the CCSO Victim Services program into corresponding block groups to protect victims’ privacy and identify crime hot spots in which there are fewer victims being referred to and accessing the program. RQ3 involved developing demographic profiles with descriptive statistics for each identified high-risk, underserved region of Cleveland County, using data from the most current US Census American Community Survey (ACS). The crime data and Victim Services program data used for the analyses focused on the 2020 calendar year.

This project followed the steps for using GIS to examine violence at the community level proposed by Murray, Bunch, and Hunt (2016). Step 1 (i.e., determining the goal of our analyses) and Step 2 (i.e., forming a collaborative partnership in which each partner’s unique expertise and backgrounds are valued) were completed at the outset of this research project. Step 3 involved defining the level of “neighborhoods” to apply the geographic analyses. For the purposes of this project, the “neighborhoods” were defined as Census block groups (Bunch, Murray, Gao, and Hunt, 2018). In Step 4 (i.e., identifying and preparing the data to be analyzed), the CCSO worked with their own crime analyst, as well as the crime analysts at two other law enforcement agencies within Cleveland County - the Shelby Police Department and the Kings Mountain Police Department - to secure and prepare the necessary crime and Victim Services program data to provide to the UNCG research team. The U.S. Census Bureau ACS data were accessible to Dr. Bunch for use in this project.

Step 5 involved planning and carrying out the geographic analyses once the data were available. Step 6 entailed exploring additional questions that emerged from the initial analyses, which was done through regular project team meetings. Step 7 involved interpreting the findings in the context of the nature of the crime, and specifically we considered unique dimensions of the research findings for interpersonal violence, such as domestic violence and sexual assault, as well as demographic and social factors that may impact community members’ willingness to engage with law enforcement agencies. Finally, in Step 8, the project team worked together to determine how the findings of the analyses would be used and disseminated, which included the preparation of this final technical report, as well as a non-technical summary for stakeholders wishing to review more of an overview of the project.

3. **Data Sources, Including Data Quality Issues and How These Were Addressed**

The CCSO provided the UNCG research team with 2020 calendar year data from CCSO crime records and the Victims Services program, as well as law enforcement data from the Shelby Police Department and the Kings Mountain Police Department.

Mapping and demographic data for block groups within Cleveland County were obtained from the Environmental Systems Research Institute (ESRI) Census datasets (2020). Block groups are the smallest geographic entity used to tabulate the decennial census. Each block group generally contains between 600 and 3,000 people.

One data quality issue that arose through the course of this project related to the data on victims served by the Victim Services program. Initially, the data on these victims used their residential addresses. However, through team meeting discussions, we identified that residential addresses often did not correspond with addresses where the crimes occurred. Therefore, the team decided that it would be more useful to this project to use the addresses where the crime
occurred (i.e., the incident report location) for the geographic analyses on the Victim Services program clients, and therefore the CCSO team provided the UNCG team with a second set of data with these crime incident locations, and that was the dataset used for the analyses.

4. Results of the Data Analyses
To provide a context for the data analyses, the maps and charts below present the demographics and victimization experiences of the 170 victims referred to the program for the 2020 calendar year (i.e., from January 1, 2020, through December 31, 2020). These data were provided by the CCSO team members.

<table>
<thead>
<tr>
<th>Chart 1: Gender</th>
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<tbody>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
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<table>
<thead>
<tr>
<th>Chart 2: Race</th>
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<tbody>
<tr>
<td>White Non-Latino/Caucasian</td>
</tr>
<tr>
<td>Black/African American</td>
</tr>
<tr>
<td>Hispanic</td>
</tr>
<tr>
<td>Not reported</td>
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<tr>
<th>Chart 3: Age</th>
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<tbody>
<tr>
<td>Under 12</td>
</tr>
<tr>
<td>12-17</td>
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<tr>
<td>18-24</td>
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<tr>
<td>25-34</td>
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<tr>
<td>35-44</td>
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<tr>
<td>45-54</td>
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<tr>
<td>55-64</td>
</tr>
<tr>
<td>65-74</td>
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<tr>
<td>75 and Older</td>
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<tr>
<td>Unknown</td>
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<tr>
<th>Chart 4: Services</th>
</tr>
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<tbody>
<tr>
<td>Received Services</td>
</tr>
<tr>
<td>Did not Receive Services</td>
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</tbody>
</table>
Chart 5: Number of victimizations reported

<table>
<thead>
<tr>
<th>Number of Victimizations</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>68%</td>
</tr>
<tr>
<td>Two</td>
<td>29%</td>
</tr>
<tr>
<td>Three or More</td>
<td>3%</td>
</tr>
</tbody>
</table>

Chart 6: Type of victimizations*  

<table>
<thead>
<tr>
<th>Type of Victimizations</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Physical Assault</td>
<td>51%</td>
</tr>
<tr>
<td>Domestic Violence</td>
<td>28%</td>
</tr>
<tr>
<td>Child Sexual Abuse</td>
<td>15%</td>
</tr>
<tr>
<td>Child Physical Abuse or Neglect</td>
<td>14%</td>
</tr>
<tr>
<td>Kidnapping</td>
<td>5%</td>
</tr>
<tr>
<td>Robbery</td>
<td>5%</td>
</tr>
<tr>
<td>Adult Sexual Assault</td>
<td>5%</td>
</tr>
<tr>
<td>Survivors of Homicide/Suicide Victims</td>
<td>4%</td>
</tr>
<tr>
<td>Hate Crime</td>
<td>1%</td>
</tr>
<tr>
<td>Cyber Crimes</td>
<td>1%</td>
</tr>
<tr>
<td>Elder Abuse or Neglect</td>
<td>1%</td>
</tr>
<tr>
<td>Human Trafficking</td>
<td>1%</td>
</tr>
<tr>
<td>Identity Theft/Fraud/Financial Crime</td>
<td>1%</td>
</tr>
<tr>
<td>Stalking or Harassment</td>
<td>1%</td>
</tr>
<tr>
<td>Teen Dating Victimization</td>
<td>1%</td>
</tr>
</tbody>
</table>

* Note: The sum of the percentages in this section is greater than 100% because victims could have reported more than one type of victimization.

**RQ 1: In which regions (i.e., block groups) in the CCSO jurisdiction area of Cleveland County are there especially high rates of violent crime, as reported in law enforcement incident reports?**

**County-wide Incidents.** For the initial, county-wide geographic analyses of RQ1, data from all three law enforcement agencies were included. In the second section of the RQ1 results, geographic analyses featuring only the incidents in the CCSO jurisdiction area within Cleveland County will be provided. Larger versions of each map are provided in Appendix 2 of this report.
Figure 1. Map showing the locations of incident reports by law enforcement agencies (County-wide).

Figure 1 shows the locations of incident reports by law enforcement agencies (Cleveland County Sheriff Office (CCSO), Kings Mountain Police Department (KMPD), and Shelby Police Department (SPD)). The map illustrates visual clusters of violent crime reports in and around the cities of Shelby and Kings Mountain (city limits are denoted by the gray regions). Higher populations generally result in higher counts of incident reports. To account for the underlying population, we standardized the number of incident reports to the number of households for each block group and mapped the resulting ratio (Figure 2). The map illustrates higher rates of violent crime in several block groups that are in or near the cities of Shelby and Kings Mountain.

Figure 2. Map showing incident report rates per 1000 households for each block group (County-wide). Dark blue indicates rates higher than average rates while brown
indicates rates lower than average rates. The black outline represents the city limits while the red outline represents the Qualified Opportunity Zones.

We used an Optimized Hot Spot Analysis (OHA) to examine statistically significant spatial clusters of incident report rates. The OHA examines each local pattern (target block group and its neighbors) in relation to global patterns (all block groups). The results are mapped by significance and confidence level (Figure 3). Some block groups may have high rates, but they are not considered significant since their neighboring block groups have lower or dissimilar rates of crime. The results show a clear hot spot in and around the city of Shelby. This indicates that the block groups around the city of Shelby have higher and similar rates of crime relative to other block group clusters in Cleveland County.

**Figure 3. Hot Spot Analysis of incident report rates (County-wide).** Block groups were used to aggregate incident counts. Incident counts and the number of households by block group were used to calculate rates. Red indicates clusters of high counts while blue indicates clusters of low counts.

**CCSO Jurisdiction Area-Only Incidents.** Following the analyses above, additional analyses were done to include only the areas of Cleveland County that are in the CCSO jurisdiction area, specifically to ensure that the crime incident analyses corresponded with the geographic areas of the County in which victims could be eligible for the CCSO Victim Services program.

Figure 4 shows the distribution of incident reports for the CCSO jurisdiction area. This map excludes all reports obtained by the SPD with the exception of occurrences within the Qualified Opportunity Zones. Visual clusters can be seen in the cities of Shelby and Kings Mountain, and within the Qualified Opportunity Zones. There are numerous occurrences scattered throughout the rural areas of the county.
Incident reports for the CCSO jurisdiction were standardized by household and mapped by block group (Figure 5). Along with portions of Shelby and most of Kings Mountain, many block groups in rural areas, especially to the south of Shelby, demonstrated higher than average rates of violent crime.

We ran an OHA to identify spatial clusters of high report rates for the CCSO jurisdiction. Figure 6 shows a notable cold spot northeast of Shelby where there are clusters of low rates. In addition, several block groups in and around Kings Mountain were revealed as hot spots where
rates were high. This analysis directly reflects the nature of the CCSO jurisdiction where incident reports are somewhat evenly scattered over the entire county.

**Figure 6. Hot Spot Analysis of incident report rates (CCSO Jurisdiction Area Only).**
Block groups were used to aggregate incident counts. Incident counts and the number of households by block group were used to calculate rates. Red indicates clusters of high counts while blue indicates clusters of low counts.

**RQ 2: In which regions in the CCSO jurisdiction area of Cleveland County are there especially high rates of violent crime, but residents are not accessing the CCSO Victim Services program at correspondingly high rates (as reflected in the location of the incident, not their residential address)?**

Figure 7 shows spatially significant clusters of block groups with high rates of incidents reported by victims receiving services from the CCSO Victim Services program per 1000 households. These clusters are based on the addresses of the reported crime by victims who are eligible to receive services. The analysis shows a clear hot spot in block groups in and around the city of Kings Mountain.
Figure 7. Hot spot analysis of victim locations. Rates were calculated per 1000 households for each block group. Red indicates clusters of high counts while blue indicates clusters of low counts.

Figure 8 maps the addresses of the reported crime in relation to whether they received any services. As the map shows, many victims in the rural areas outside of the cities of Shelby and Kings Mountain did not receive any services.

Figure 8. A map showing the locations of eligible victims and whether they received any service.

Figure 9 shows the number of eligible victims receiving services as a percentage of total eligible victims by block groups. Of note are the regions in and around the cities where some block groups around the city of Shelby received higher percentages of services than the block
groups around the city of Kings Mountain. In addition, there are scattered but numerous reports of violent crime throughout the rural areas where victims did not receive services.

**Figure 9. Percent of eligible victims who received services.**

Figure 10 shows the percentages of eligible victims receiving services by the total number of violent crime incident reports for each block group. In contrast to Figure 9, the reported addresses for the block groups in and around the city of Shelby did not receive services despite a relatively large number of incident reports.

**Figure 10. Percent of eligible victims who received services by the total number of violent crime incident reports.**

RQ3: What are the demographic profiles of the identified high-risk, underserved regions of Cleveland County? As Figure 10 illustrates, there were a high number of block groups that were identified as having the lowest ratios of victims being served compared to the
number of crime incidents reported by law enforcement agencies (i.e., those shaded in the lightest green color in Figure 10). To examine the demographic profiles of these high-risk, underserved regions of Cleveland County, the team selected six specific block groups to develop demographic profiles based on US Census data. The selected block groups are depicted in Figure 11, and the rationale for selecting each group is presented below.

**Block Group A** was selected to represent the northern region of Cleveland County, as well as because there were a higher number of crime incidents (Figure 4) in this block group as compared to the other northernmost block groups shaded light green in Figure 10.

**Block Group B** was selected because, when the Shelby Police Department incident reports were included, it was identified as part of the hot spot around Shelby (Figure 3). However, this block group is in the CCSO jurisdiction area and was shaded green in Figure 10, indicating a lower ratio of victims being served compared to incident report rates. In contrast to Block Group E, Block Group B was selected to include an area in the northern area of Shelby.

**Block Group C** was selected to represent the southwestern region of Cleveland County, as well as due to it being in between two other block groups (i.e., to the north and to the south) that had higher ratios of victims being served compared to incident report rates.

**Block Group D** was selected because it is a small portion of the Qualified Opportunity Zone within the Shelby city limits, so it is in a part of the City of Shelby that is within the CCSO jurisdiction area for the Victim Services program. Block Group D also had lower ratios of victims being served as compared to the other block groups in the Qualified Opportunity Zone.

**Block Group E**, like Block Group B, was selected because, when the Shelby Police Department incident reports were included, it was identified as part of the hot spot around Shelby (Figure 3). This block group also is in the CCSO jurisdiction area and was shaded green in Figure 10, indicating a lower ratio of victims being served compared to incident report rates. In contrast to Block Group B, Block Group E was selected to include an area in the southern area of Shelby.

**Block Group F** represents the southeastern region of Cleveland County. This block group was part of the incident report hot spot of victim locations (Figure 7), but it was shaded in light
green in Figure 10, again indicating a lower ratio of victims being served compared to incident reports. Another notable feature of this block group is that it is adjacent to the major interstate highway (I-85) that runs through the southeastern region of Cleveland County.

Key demographic characteristics of each of these block groups are depicted below. First, regarding race, all of the selected block groups have a majority of residents identifying their race as White. Block Groups E and F have the highest percentages of residents identifying their race as Black, and Block Group E also has the highest percentage of residents identifying as another race.

![Percent Race by Block Group](image)

*Figure 12. Percent race by block group for the selected block groups with lower ratios of victims being served compared to incident reports in Cleveland County.*

With respect to educational attainment for people 25+ years of age, Block Group D has the highest percentage of residents with a graduate degree, as well as the highest percentage of residents with a Bachelor’s degree. Block Group F has greater percentages of residents with educational levels at the Associate’s degree level and less. Additional trends regarding educational attainment for the selected block groups can be found in Figure 13.
The selected block group with the highest median income is Block Group D. The selected block groups with the lowest median incomes are Block Group A, followed by Block Group E and Block Group F. See Figure 14 for the median household income levels for each of the selected block groups.

For all of the selected block groups, the median age of residents was between the ages of 40 and 50. Block Group D had the highest median age (49.9 years), and Block Group E had the
lowest median age (40.2 years). See Figure 15 for the median age for each of the selected block groups.

![Median Age](image1)

**Figure 15. Median age by block group for the selected block groups with lower ratios of victims being served compared to incident reports in Cleveland County.**

Block Group D had the greatest differential between male and female residents, with females outnumbering males in this block group. See Figure 16 for additional information about the percentage of male and female residents in each block group.

![Gender/Sex](image2)

**Figure 16. Gender/sex by block group for the selected block groups with lower ratios of victims being served compared to incident reports in Cleveland County.**
Block Group D had the lowest number of renter-occupied housing units, and Block Group E had the highest number of renter-occupied housing units. See Figure 17 for the number of renter-occupied housing units in each of the selected block groups.

![Renter Occupied Housing Units](chart)

*Figure 17. Renter-occupied housing units by block group for the selected block groups with lower ratios of victims being served compared to incident reports in Cleveland County.*

The average household size was relatively consistent across all of the selected block groups in Cleveland County, as can be seen in Figure 18.

![Average Household Size](chart)

*Figure 18. Average household size by block group for the selected block groups with lower ratios of victims being served compared to incident reports in Cleveland County.*
Figure 19 shows the selected block groups along with all institutions that reside in Cleveland County. The institutions include libraries, schools, faith communities and museums, and they are useful to identify because they may offer opportunities for community outreach in the selected regions. There are a total of 371 institutions throughout Cleveland County. Block Group A has one institution (a place of worship). Block group B has five institutions (all are places of worship), Block Group C also has five institutions (all are places of worship), Block Group D has three institutions (two schools and one place of worship), Block Group E has four institutions (two schools and two places of worship), and Block Group F has six institutions (all are places of worship).

![Selected Block Groups and Institutions](image)

**Figure 19.** A map showing the selected block groups and institutions for all of Cleveland County.

### 5. Implications of the Results for Policy and Practice

Currently in its second year of operations, the CCSO Victim Services program is building its program while also providing services to a significant number of victims in Cleveland County. The program received 170 referrals and served 91 clients in its first year (2020), and for the first half of 2021 (i.e., January 1, 2021, through June 30, 2021), the program received 167 referrals and served 95 clients. Considering that the program is staffed by only 1.5 full-time Victim Specialists, this is a large number of clients served by a relatively small program.

The findings of this study indicate a need to continue to sustain - and likely to expand - the CCSO Victim Services program. First, only about one-half of the victims referred to the program in 2020 were served. Additional research is needed to determine the reasons why those victims were referred but did not receive services, and a survey of those victims could be one strategy for seeking that information. Possible reasons that victims may not have accepted those services could include that they did not need the type of help provided by the Victim Services program, that they were receiving support and guidance elsewhere, or that their contact information changed so they were not able to be reached by the Victim Specialists.

In addition to those victims who were referred but did not receive Victim Services program services, there is also a significant number of victims of crime who were eligible for services but were never referred to the program. In 2020, the number of victims who would have
been eligible for services was 546 (i.e., incident reports for the CCSO jurisdiction area). Therefore, with a total of 546 victims in Cleveland County who were eligible for services, only 170 (31%) were referred to the program, and only 91 (54%) of victims who were referred for services were served. Thus, during its first year, only 17% (i.e., 91 out of 546) of the victims who were eligible for the CCSO Victim Services program were served. Additional research also is needed to examine the extent to which the clients who did receive support from the CCSO Victim Services program were satisfied with these services. In addition, future research may be helpful for identifying benefits to the clients, as well as what impact the Victim Services program has on prosecution rates for the offenders of the crimes that impacted the victims.

The results of this project also identified that there are areas in Cleveland County in which residents face an elevated risk of experiencing crime, and yet they access the Victim Services program at lower rates. The results of RQ3 are especially useful for informing future outreach efforts to those regions of Cleveland County that are currently underserved by the Victim Services program, and the institutions (e.g., schools, religious institutions, and libraries) in those areas can be potential partners in those regional outreach efforts. The results of this study also provide a baseline for future evaluation of the CCSO Victim Services program. Since this project occurred during the program’s first year of service, the baseline data produced for this study can be used to track the growth of the program over time, as well as future geographic trends in crime incidents and victims being served.

One other important finding of this study is reflected in Figure 3, in which the overall hotspot analysis including data from the CCSO and the Shelby and Kings Mountain Police Departments for crime incidents identified the City of Shelby and its surrounding areas as the primary hotspot for violent crime in Cleveland County. However, a substantial region within that hotspot is not in the CCSO jurisdiction area, and therefore victims that are in the Shelby Police Department jurisdiction area but who are not in the Qualified Opportunity Zone are not eligible for the CCSO Victim Services program. It is the understanding of the project team that there is not a comparable Victim Services program within the Shelby Police Department, and therefore one potential opportunity for expansion of the CCSO Victim Services program would be to partner with the Shelby Police Department to hire additional staff to support victims in their jurisdiction area.

5. Ways the Partnership Can Be Sustained

A strong researcher-practitioner partnership was built through this project through regular communication and meetings throughout the project timeline. Currently, no specific additional projects are planned, but the research team members will plan to stay in contact to be able to partner again in the future if and when future collaboration opportunities arise.

6. Conclusion

This project involved a geographic analysis of crime victimization and crime victims served by the CCSO Victim Services program. This study was conducted using data from the first year of service delivery by the CCSO Victim Services program, and overall, the program served a substantial number of victims, especially given that the program is staffed by only 1.5 Victim Specialists. The findings of this study also suggest that there are unmet needs and victims who are currently underserved, and that there is variation in service ratios across Cleveland County. The results of these analyses can be used to inform outreach efforts by CCSO and its community partners to help increase the number of victims who have access to the support and information provided by the Victim Services program.
References


Appendix 1: Project Team Member Bios

1. **Mark Craig, Professional Standards Lieutenant, Cleveland County Sheriff’s Office**: Lt. Craig has been employed with CCSO since 2000. He started his career on patrol and was promoted to Criminal Investigations in 2004. He spent the next 13 years working as a Detective, Detective Sgt., and Detective Lieutenant. In 2017, he became the Professional Standards Lieutenant. In his current role, one of his responsibilities is to research, apply and manage grant opportunities. Since 2017, Lt. Craig has successfully applied for several small grant opportunities and has helped write two Federal grants. One of those grants was for a Victim Specialist position funded through the Office of Victims of Crime and a grant offered through the COPS Office for School Resource Officers.

2. **John McIntyre, Criminal Investigations Lieutenant, Cleveland County Sheriff’s Office**: Lt. McIntyre has been employed with the CCSO since 1996. He started his career on patrol and was promoted to K-9 handler in 2000 where he worked in the Patrol, Community Oriented Police, and Interstate Criminal Enforcement divisions. In 2010, he was promoted to the rank of Sergeant and worked in the Patrol Division. He later transferred to the Narcotics division, where he was sworn in with the FBI under the Safe Streets task force. Since 2017, he was promoted to the rank of Lieutenant over the Criminal Investigations Division, which includes detectives, crime scene detectives, sex offender registry, cold case detectives, and victims’ specialists.

3. **Mike Proctor, Crime Analyst (Retired), Cleveland County Sheriff’s Office**: Mr. Proctor is a member of the International Association of Crime Analysts (IACA) and has attended three IACA Annual Training Conference as well as numerous IACA training sessions. Mr. Proctor has attended ESRI User Conference as well as several ESRI Southeast User Conference. Mr. Proctor utilizes ESRI ArcGIS and other analytical and report management system software for analyses. Mr. Proctor has been employed with the CCSO since 2008 and has been serving as the CCSO Crime analyst since 2015. He retired from the CCSO in February 2021, so funds were included to support his continued involvement in this project following his retirement.

4. **Andrea Jones-Marshall, Victim Specialist, Cleveland County Sheriff’s Office**: Andrea Jones-Marshall is a Licensed Mental Health Counselor and practiced as such for 9 years before accepting a position as Victim Specialist with the Cleveland County Sheriff’s Office in January 2020. Since beginning the position with the CCSO, she has worked to establish guidelines, policies, and procedures for the new Victim Services program and has had the privilege of providing services to numerous victims of violent crime throughout Cleveland County. She is looking forward to participating in research that will help better the victim services program and increase the reach of those services to those who are underserved.

5. **Robby Barr, Victim Specialist, Cleveland County Sheriff’s Office**: Robby Barr has been with the Cleveland County Sheriff’s Office for 27 years. He started with the Sheriff’s Office after working as a Field Inspector with Froehling and Robertson Engineering. Law enforcement was always his dream, and he left that job to pursue his career. Robby started as a patrol officer with the Sheriff’s Office and, after 2 years, moved to teach the DARE program within the school system. Shortly after, he transferred to the criminal investigation division and worked in that capacity for 2 years. He then transferred to the School Resource Officer/DARE program in 2005 and worked as an SRO at Burns High
School for 13 years and finished up at Crest High School for the remainder of the years, prior to his retirement in October of 2020. He is excited to be back at the Sheriff’s Office and working in the Victim Specialist Unit. He is looking forward to assisting victims in a different role.

6. **Christine E. Murray, Ph.D., LCMHC, LMFT:** Christine Murray is the Director of the UNCG Center for Youth, Family, and Community Partnerships. She has worked at UNCG since 2005 and is a tenured faculty member who previously taught in the Department of Counseling and Educational Development. She has extensive experience doing research, professional training, and community-based work related to violence and victimization. She is the author of nearly 70 published or in-press peer reviewed publications. The vast majority of her research has used community-engaged, mixed methodology approaches, and she has a strong interest in bridging research and practice to strengthen community responses to complex social issues.

7. **Rick Bunch, Ph.D.:** Rick Bunch is a Professor in the department of Geography, Environment & Sustainability at UNC Greensboro. He has over 20 years of experience in research involving Geographic Information Systems (GIS) and the conceptualization, modeling, and analysis of geographically referenced data. He has taken the lead on approximately 60 funded projects and has published two GIS textbooks and over 30 academic articles, reports, and manuals. He currently serves on the editorial board for the journals of Cartography and Geographic Information Science and the International Journal of Applied Geospatial Research.
Appendix 2: Larger Versions of Maps in this Report

Incidents by Law Enforcement Agency

Figure 1. Map showing the locations of incident reports by law enforcement agencies (County-wide).
Figure 2. Map showing incident report rates per 1000 households for each block group (County-wide). Dark blue indicates rates higher than average rates while brown indicates rates lower than average rates. The black outline represents the city limits while the red outline represents the opportunity zones.
Figure 3. Hot Spot Analysis of incident report rates (County-wide). Block groups were used to aggregate incident counts. Incident counts and the number of households by block group were used to calculate rates. Red indicates clusters of high counts while blue indicates clusters of low counts.
Figure 4. Map showing the locations of incident reports by law enforcement agencies (CCSO Jurisdiction Area Only).
Figure 5. Map showing incident report rates per 1000 households for each block group (CCSO Jurisdiction Area Only). Dark blue indicates rates higher than average rates while brown indicates rates lower than average rates.
Figure 6. Hot Spot Analysis of incident report rates (CCSO Jurisdiction Area Only). Block groups were used to aggregate incident counts. Incident counts and the number of households by block group were used to calculate rates. Red indicates clusters of high counts while blue indicates clusters of low counts.
Figure 7. Hot spot analysis of victim locations. Rates were calculated per 1000 households using total counts divided by households for each block group. Red indicates clusters of high counts while blue indicates clusters of low counts.
Figure 8. A map showing the locations of eligible victims and whether they received any service.
Figure 9. Percent of eligible victims who received services.
Figure 10. Percent of eligible victims who received services by the total number of violent crime incident reports.
Figure 11. Map representing the selected block groups for demographic profiles.
Figure 19. A map showing the selected block groups and institutions for all of Cleveland County.