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MAPPING CRIME HOTSPOTS IN DAVAO CITY: A SPATIAL ANALYSIS

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Abstract:
This study analyzed the spatial distribution of index crimes in Davao City from 2020 to 2025 using Geographic Information Systems (GIS) to identify crime hotspots and examine patterns of crime concentration. Specifically, it focused on index crimes: rape, homicide, murder, robbery, theft, carnapping motor vehicle, carnapping motorcycle, and physical injuries. A quantitative, descriptive, and non-experimental research design was employed, utilizing secondary crime data obtained from the Davao City Police Office - City Investigation and Detective Management Unit. The data were organized using Microsoft Excel and analyzed through Quantum Geographic Information System to generate crime hotspot maps and identify barangays with high concentrations of crime incidents. The findings revealed that crime incidents were spatially concentrated in specific barangays rather than randomly distributed. Bucana consistently emerged as a recurring hotspot from 2020 to 2025, and rape was the dominant index crime from 2020 to 2023, whereas theft became the most prevalent crime in 2024 and 2025. The results support theories of this study, indicating that crime is influenced by population density, commercial activity, transportation networks, and human mobility. The study highlights the value of GIS-based crime mapping in supporting evidence-based policing, strategic resource allocation, hotspot policing, and public safety planning in Davao City.

SDG Indicator: #16 (Peace, Justice, and Strong Institutions)

Keywords: criminal justice, GIS, crime hotspots, spatial analysis, crime mapping, index crimes, Davao City

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1. Introduction

Crime remains one of the most significant challenges confronting rapidly urbanizing cities. As urban populations expand and economic activities intensify, criminal incidents tends to concentrate in specific locations rather than being randomly distributed. Understanding where crimes occur is essential for effective law enforcement planning, resource allocation, and crime prevention. Geographic Information Systems (GIS) and spatial analysis have become valuable tools for identifying crime hotspots, visualizing crime patterns, and supporting evidence-based policing strategies. By integrating and analyzing spatial crime data, GIS enables law enforcement agencies to examine the geographic distribution of crime and identify areas of elevated risk. As demonstrated by Jubit and Masron (2022), crime patterns can be identified as clustered, dispersed, or random through spatial analysis techniques, providing a deeper understanding of the spatial distribution of criminal activities. These capabilities support informed decision-making and the development of targeted crime prevention strategies.

Davao City has experienced continuous urban growth, expansion of residential communities, increased commercial development, and greater population mobility. While these developments contribute to economic progress, they also create opportunities for criminal activities to emerge and cluster in particular locations. Despite the city's reputation as one of the safest urban centers in the Philippines, crime incidents continue to occur across various barangays. The absence of a comprehensive spatial analysis of index crimes limits the ability of law enforcement agencies and local government units to identify persistent hotspots and emerging crime-prone areas. Previous studies have shown that crime concentrations are often associated with urbanization, population density, and human activity, highlighting the importance of GIS-based hotspot analysis in understanding the spatial distribution of crime and supporting effective crime prevention strategies (Ahmad *et al.*, 2024). Hence, there is a need to examine the spatial distribution of crimes through GIS-based mapping to provide a scientific basis for crime prevention and public safety initiatives.

Recent advancements in spatial criminology have demonstrated the effectiveness of GIS in identifying crime concentrations and supporting hotspot policing strategies. Crime mapping enables law enforcement agencies to visualize crime patterns, predict potential problem areas, and optimize patrol deployment. GIS-based spatial analysis has also been shown to support police resource allocation and improve decision-making by identifying areas with high crime risk and analyzing the spatial characteristics of criminal behavior (Jiang *et al.*, 2022). By analyzing indices of crimes: rape, homicide, murder, robbery, theft, carnapping motorcycle, carnapping motor vehicle, and physical injuries from 2020 to 2025, this study seeks to provide a comprehensive assessment of crime hotspots in Davao City and generate evidence-based information for crime prevention and police operations.

The primary objective of this study is to analyze the spatial distribution of index crimes in Davao City from 2020 to 2025 using Geographic Information Systems (GIS) in order to identify crime hotspots and examine patterns of crime concentration across the

city. Specifically, the research aims to achieve the following: (1) create visual spatial maps of crime hotspots for the focus index crimes namely rape, homicide, murder, robbery, theft, carnapping motor vehicle, carnapping motorcycle, and physical injuries across all barangays in Davao City from 2020 to 2025 using Geographic Information System (GIS); (2) identify barangays with high concentrations of crime incidents and determine the corresponding crime hotspots; and (3) provide geospatial information that may assist law enforcement agencies and local government units in crime prevention planning, patrol deployment, and resource allocation.

The urgency of this study lies its potential contribution to improving police response effectiveness and public safety. The Philippine National Police (PNP) emphasizes rapid response to emergency situations, and Davao City has consistently promoted the goal of achieving a three-minute police response time in active crime incidents. According to the Philippine Information Agency (2025), the PNP's three-minute response time rule requires police officers to respond to calls for assistance within three minutes from the moment an emergency call is received, highlighting the importance of police visibility and strategic deployment in enhancing public safety. However, achieving this target requires accurate knowledge of where crimes frequently occur and where police resources should be strategically deployed.

Without spatial identification of crime hotspots, police patrols may be distributed inefficiently, resulting in delayed response times and reduced operational effectiveness. GIS-based hotspot mapping provides valuable information that can assist police commanders in positioning patrol units closer to high-crime areas, thereby enhancing visibility, improving response capability, and strengthening crime prevention efforts. Furthermore, identifying hotspot locations allows local government units to prioritize public safety interventions, environmental improvements, and community-based crime prevention programs in barangays experiencing persistent crime concentrations.

2. Method

This chapter explains how the study was conducted to map and analyze crime in Davao City. It shows the exact steps taken to turn raw index crime records into clear visual maps. This study adopts a quantitative, descriptive, non-experimental design using secondary data.

2.1 Dataset

This research relied heavily on secondary quantitative data; consequently, no live human participants were interviewed. Instead, the primary unit of analysis consisted of official, documented crime records archived by the Philippine National Police (PNP), specifically the Davao City Police Office (DCPO). The records were obtained from the City Investigation and Detective Management Unit (CIDMU), encompassing data from all twenty DCPO Police Stations.

The data set encompassed all recorded incidents of index crimes which focuses on Murder, Homicide, Physical Injury, Rape, Robbery, Carnapping Motorcyle, Carnapping

Motorvehicle, and Theft that occurred within the geographical boundaries and jurisdictions of all police stations across Davao City from 2020 to 2025. Reports lacking geographic identifiers or falling outside this designated timeframe and crime classification were excluded from the analysis.

2.2 Materials and Instruments

To systematically prepare the secondary crime datasets acquired from the CIDMU, Microsoft Excel was utilized as the primary data management tool. The researcher utilized it to tabulate and organize the data required for the interpolation process and serve as the platform for systematically structuring and arranging the data. This step was vital to guarantee that the tabular data was structurally compatible with geographic information software, that the map coordinates were accurate, and that the entire dataset was optimized for spatial analysis, thereby preventing any rendering errors during the final mapping visualization.

The core analytical instrument employed for spatial analysis executed by the data analyst was the Quantum Geographic Information System (QGIS), which served as a pivotal tool for crafting detailed maps. In this software, the necessary data was input to visually represent the geographic distribution of rampant crimes. It will facilitate a comprehensive understanding of the specific locations where these incidents were rampant, offering valuable insights for the research.

3. Results and Discussion

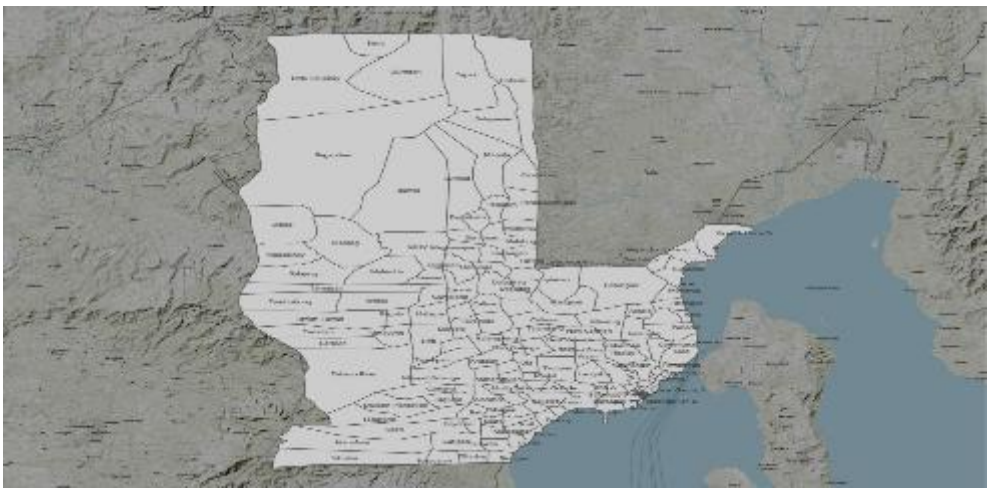

Figure 2: Study Area Map of Davao City Showing Barangay Boundaries

Figure 2 presents the study area of Davao City, illustrating the administrative boundaries of its barangays used in the spatial analysis. Davao City is the largest city in the Philippines in terms of land area and consists of both highly urbanized and rural barangays. The map serves as the geographic reference for plotting and analyzing the distribution of index crime incidents from 2020 to 2025. Barangay boundaries were used as the primary spatial units for aggregating crime incidents, allowing the identification of recurring hotspots and the examination of spatial crime patterns across the city. The

study area includes coastal, urban, suburban, and upland communities, providing a comprehensive representation of the diverse geographic environments in which crime incidents occurred.

Figures 3 to 8 illustrate the annual spatial distribution of index crime hotspots in Davao City from 2020 to 2025 as generated through Geographic Information Systems (GIS). These figures visually depict the geographic concentration of crime incidents across barangays, enabling the identification of recurring and emerging hotspot areas throughout the six-year period. By comparing the yearly hotspot maps, changes in the spatial distribution and intensity of crime can be observed, providing a clearer understanding of temporal crime patterns and persistent high-risk locations.

Figure 9 to Figure 14 presents the spatial distribution of index crime incidents recorded in Davao City during 2020. The map illustrates the geographic locations of the eight index crimes included in the study, namely, murder, homicide, physical injuries, rape, robbery, carnapping motorcycle, carnapping motor vehicle and theft. Each colored point represents the location of a reported crime incident, while barangay boundaries serve as the spatial units for identifying the geographic distribution of offenses across the city.

3.1 Crime Hotspots in Davao City, 2020

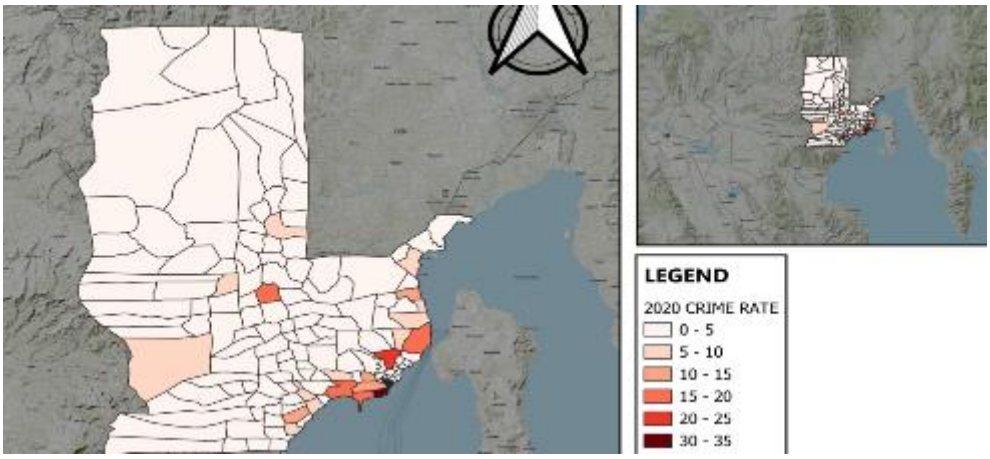

Figure 3: 2020 Index Crime Hotspots in Davao City

Figure 3 presents the 2020 index crime hotspot map, which identified Barangay Bucana as the primary crime hotspot in Davao City, recording 32 index crime incidents, the highest among all barangays. This was followed by Buhangin Poblacion (22 incidents), Matina Aplaya (17 incidents), Calinan Poblacion (16 incidents), Sasa (16 incidents), Talomo Poblacion (16 incidents), and Toril Poblacion (15 incidents). The spatial distribution indicates that crime incidents were concentrated in highly urbanized and economically active barangays located along major transportation corridors and commercial zones.

Rape emerged as the highest index crime in 2020, recording 175 incidents out of the total 517 index crime incidents in Davao City, as shown in Table 1. This was followed by theft with 113 incidents and physical injuries with 101 incidents. On the other hand,

carnapping of motor vehicles was the lowest recorded index crime, with only 1 incident throughout the city during 2020. Results revealed that Bucana and Matina Aplaya registered the highest number of rape cases, with 8 incidents each. The concentration of rape incidents in these locations suggests that population density and urban activity may influence the occurrence of sexual offenses by increasing interactions between potential offenders and victims.

The findings support the study of Salt *et al.* (2023), which revealed that urban communities generally experience higher rates of sexual violence due to increased exposure to risk factors, including social disorganization, weak informal social control, and greater anonymity among residents. Similarly, Leikuma-Rimicane *et al.* (2023) futher emphasized that sexual offenses are more prevalent in densely populated communities where offenders can easily identify and access potential victims. The high volume of daily activities, population movement, and varying levels of supervision in Bucana and Matina Aplaya create environments where opportunities for sexual offenses may arise.

3.2 Crime Hotspots in Davao City, 2021

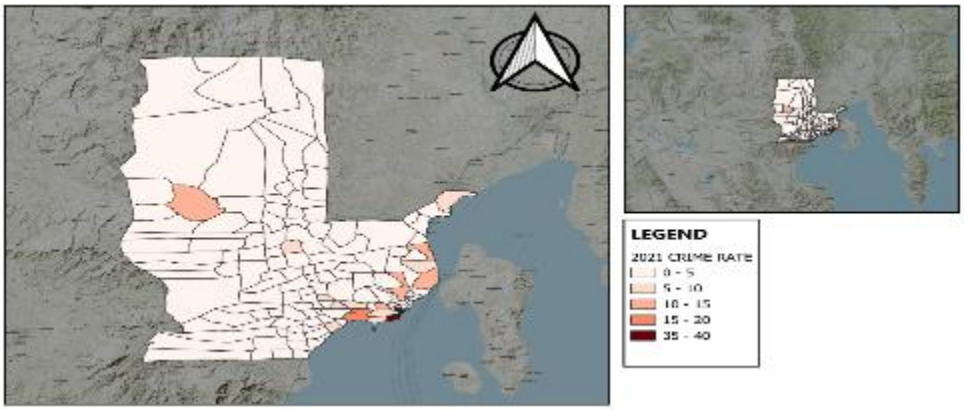

Figure 4: 2021 Index Crime Hotspots in Davao City

The 2021 index crime hotspot map identified Barangay 76-A (Bucana) as the primary crime hotspot in Davao City, recording 36 index crime incidents, the highest among all barangays, as shown in Figure 4. This was followed by Talomo Poblacion (20 incidents), Buhangin Poblacion (14 incidents), Tibungco (13 incidents), and Marilog, Ma-a, and Cabantian, Ilang, and Sasa with 12 incidents each. Similar to the 2020 pattern, crime incidents remained concentrated in highly urbanized and populated barangays characterized by mixed residential and commercial land uses, major transportation routes, and increased daily human activity. The persistence of Bucana and the emergence of Talomo Poblacion as major hotspots suggest that areas with greater population mobility and economic activity continue to experience higher levels of crime concentration.

The concentration of rape incidents in these areas suggests that dense populations and frequent social interactions may increase opportunities for sexual victimization and offender-victim encounters. The finding is supported by Lu *et. al* (2024), who emphasized that highly accessible and heavily utilized urban environments create greater

opportunities for offender-victim interactions, particularly in areas with continuous human activity and inadequate surveillance. Considering that Bucana, Talomo, and Cabantian are characterized by high population density, active commercial establishments, and substantial daily movement of people, these environmental conditions may have contributed to the persistence of rape as the most prevalent index crime in Davao City during 2021.

3.3 Crime Hotspots in Davao City, 2022

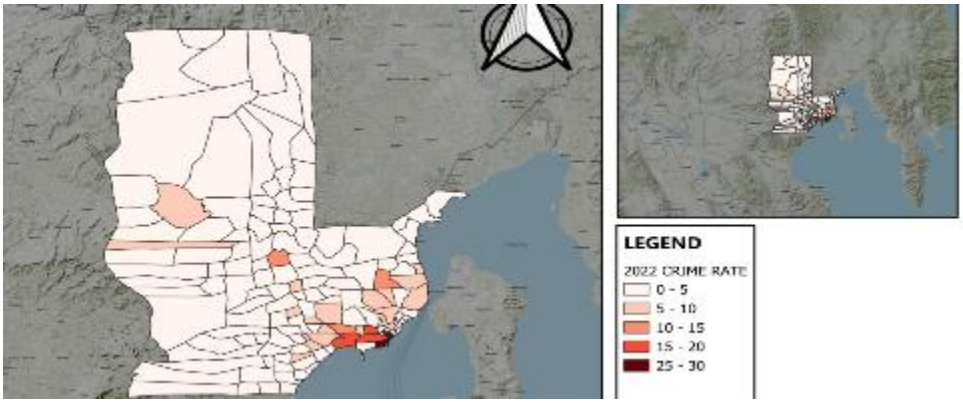

Figure 5: 2022 Index Crime Hotspots in Davao City

The 2022 index crime hotspot map identified Barangay 76-A (Bucana) as the primary crime hotspot in Davao City, recording 26 index crime incidents, the highest among all barangays. This was followed by Talomo Poblacion (17 incidents), Matina Crossing (16 incidents), Ma-a (16 incidents), Calinan Poblacion (13 incidents), Indangan (12 incidents), and Catalunan Grande (11 incidents). Compared to 2021, crime hotspots remained concentrated in urbanized and rapidly developing barangays characterized by dense residential settlements, commercial establishments, educational institutions, and major transportation routes. The persistence of Bucana as the leading hotspot indicates that it continued to experience a high concentration of criminal activities, while the emergence of crime toward developing residential communities.

The concentration of rape incidents in the above barangays may also be explained by environmental factors associated with urban settings. Button *et. al* (2025) found that sexual harm is more likely to occur in environments characterized by crowding, high levels of human activity, and limited informal guardianship. Their study revealed that crowded areas increase opportunities for offender-victim interaction, while environmental conditions that reduce visibility and supervision can heighten the risk of sexual victimization.

3.4 Crime Hotspots in Davao City, 2023

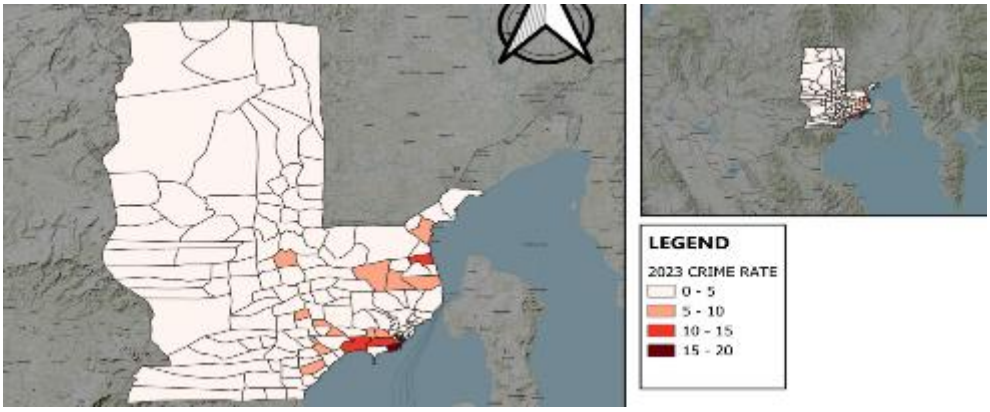

Figure 6: 2023 Index Crime Hotspots in Davao City

The 2023 index crime hotspot map identified Barangay 76-A (Bucana) as the primary crime hotspot in Davao City, recording 20 index crime incidents, the highest among all barangays. This was followed by Talomo Poblacion (15 incidents), Matina Crossing (14 incidents), Tibungco (12 incidents), Mintal (10 incidents), Calinan Poblacion (9 incidents), Bunawan Poblacion and Panacan (8 incidents each). Compared with 2022. The overall spatial distribution indicates a decline in crime concentration, although hotspots remained clustered in highly urbanized and economically active barangays characterized by dense residential populations, commercial establishments, transportation routes, and continuous human activity.

The concentration of rape cases in these barangays indicates that sexual offenses continued to be a major contributor to crime hotspots in Davao City during 2023. This finding is consistent with the study of Zhu *et al.* (2025), which found that sexual crimes tend to cluster in urban communities characterized by high population density, accessibility, and continuous human activity. The study emphasized that the spatial characteristics of urban environments influence opportunities for sexual victimization and contribute to the concentration of sexual crimes in specific locations.

3.5 Crime Hotspots in Davao City, 2024

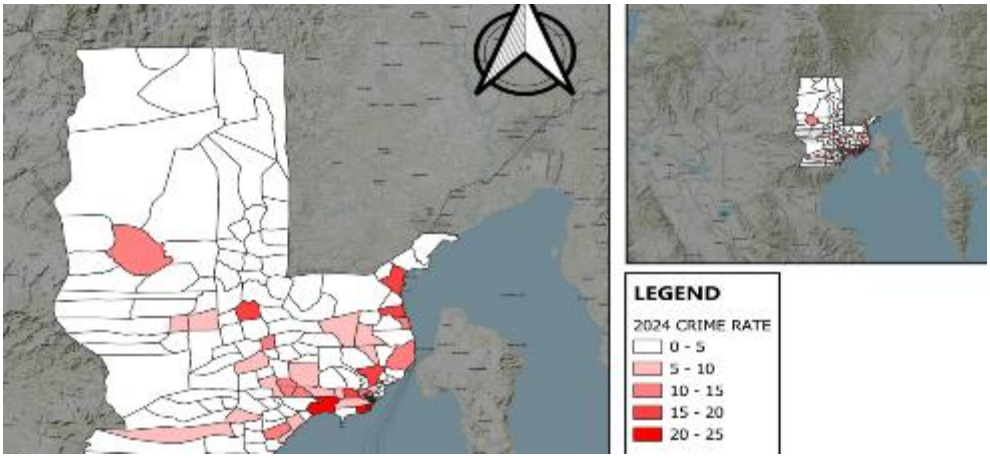

Figure 7: 2024 Index Crime Hotspots in Davao City

The 2024 index crime hotspot map identified Talomo Poblacion as the primary crime hotspot in Davao City, recording 25 index crime incidents, the highest among all barangays. This was followed by Barangay 76-A (Bucana) with 23 incidents, Ma-a (20 incidents), Buhangin Poblacion (20 incidents), Bunawan Poblacion (19 incidents), Tibungco (18 incidents), Ubalde (16 incidents), and Calinan Poblacion (16 incidents). Compared to the previous years, the 2024 map shows a wider spatial distribution of crime hotspots across both the urban and developing barangays. The concentration of crime in Talomo Poblacion, Bucana, Buhangin Poblacion, and Ma-a indicates that crime remained prevalent in densely populated communities characterized by commercial establishments, transportation corridors, residential settlements, and high levels of daily human activity. The emergence of Bunawan Poblacion and Ubalde among the leading hotspots further suggests the expansion of crime into rapidly urbanizing communities.

The finding is consistent with the study of Puttock *et al.* (2025), which found that cities and communities experiencing higher levels of commuter inflows and daily population mobility tend to record higher levels of theft. The study explained that increased human movement creates more opportunities for property-related crimes by increasing the number of potential targets and interactions with urban environments. The emergence of theft as the dominant index crime in 2024 may indicate a shift from violent crime toward property crimes. As commercial activities and population mobility increased within major urban centers, opportunities for theft likewise expanded. Considering that the above-mentioned barangays serve as major residential, commercial, and transportation centers in Davao City, the continuous movement of people may have contributed to the rise of theft as the most prevalent index crime during 2024.

3.6 Crime Hotspots in Davao City, 2025

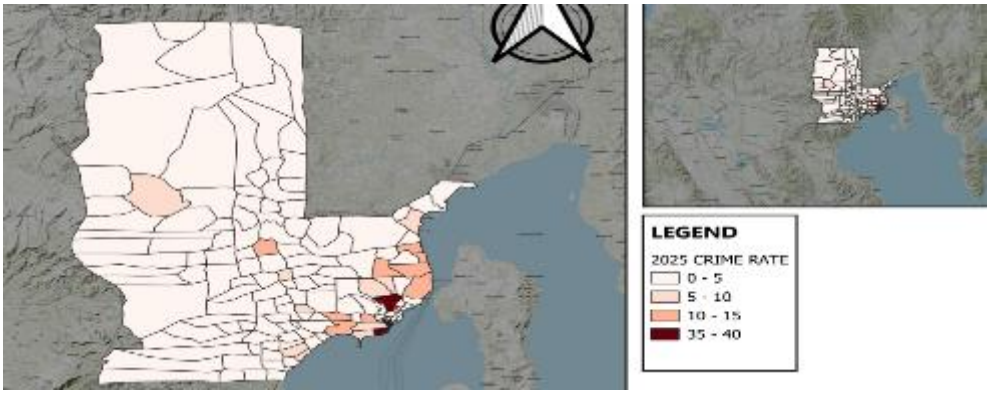

Figure 8: 2025 Index Crime Hotspots in Davao City

The 2025 index crime hotspot map still identified Barangay Bucana as the primary crime hotspot in Davao City, recording 37 crime incidents, the highest among all barangays. This was closely followed by Buhangin Poblacion (36 incidents), San Antonio (15 incidents), Talomo Poblacion (15 incidents), Ma-a (14 incidents), Panacan (13 incidents), and Calinan Poblacion (13 incidents). Other notable hotspot areas included Tibungco, Ilang, Catalunan Grande, Sasa, and Indangan, each registering 12 incidents. The spatial distribution indicates that crime incidents remained concentrated in highly urbanized barangays and growth centers characterized by dense populations, commercial establishments, transportation networks, and mixed residential - commercial land use. The persistence of Bucana and Buhangin Poblacion as major hotspots demonstrates the continuing influence of urbanization and population concentration on the spatial distribution of crime in Davao City. The clustering of crime hotspots in Bucana, Buhangin Poblacion, Talomo Poblacion, and Panacan supports the view that areas with high human activity and economic transactions are more vulnerable to theft and other index crimes. This finding is consistent with the study of Zheng *et al.* (2024), which revealed that theft crimes are strongly associated with urban functionality, population concentration, and economic activity. The study showed that areas characterized by commercial establishments, transportation accessibility, and dense populations tend to experience higher theft rates because they provide greater opportunities for property-related crimes.

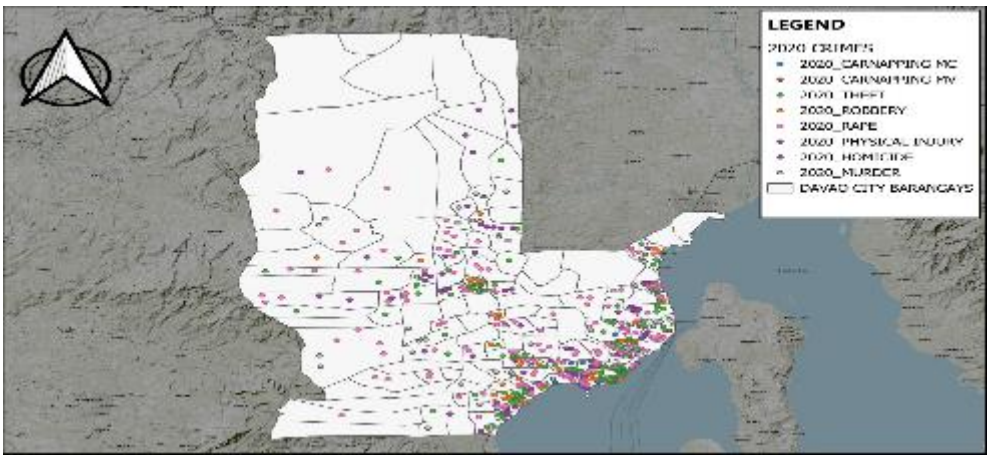

Figure 9: Spatial Distribution of Index Crimes in Davao City, 2020

Based on the spatial distribution, Barangay 76-A (Bucana) emerged as the primary crime hotspot with 32 recorded index crime incidents, followed by Buhangin Poblacion (22 incidents), Matina Aplaya (17 incidents), and Calinan Poblacion, Sasa, and Talomo Poblacion with 16 incidents each. Among the eight index crimes, rape recorded the highest frequency with 175 incidents, followed by theft with 113 incidents and physical injuries with 101 incidents, while homicide had the lowest frequency with 11 incidents. These findings indicate that crime incidents were concentrated in highly urbanized barangays characterized by dense populations, commercial establishments, and major transportation routes, supporting the assumptions of Crime Pattern Theory that crime is more likely to occur in places where opportunities and routine human activities converge.

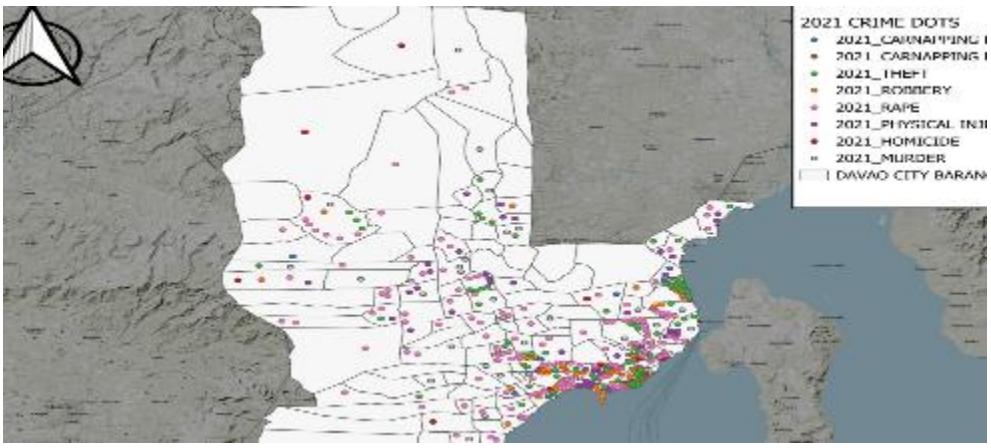

Figure 10: Spatial Distribution of Index Crimes in Davao City, 2021

Based on the spatial analysis, Barangay 76-A (Bucana) remained the primary crime hotspot in 2021 with 36 recorded index crime incidents, followed by Talomo Poblacion (20 incidents), Buhangin Poblacion (14 incidents), Tibungco (13 incidents), and Marilog, Ma-a, Cabantian, Ilang, and Sasa with 12 incidents each. Among the eight index crimes, rape recorded the highest frequency with 180 incidents, followed by theft with 93 incidents, physical injuries with 60 incidents, murder with 53 incidents, robbery with 48 incidents, and homicide with 13 incidents. The persistence of crime concentration in

highly urbanized barangays suggests that commercial activities, dense populations, and major transportation corridors continued to create opportunities for criminal behavior, consistent with the assumptions of Crime Pattern Theory and Routine Theory.

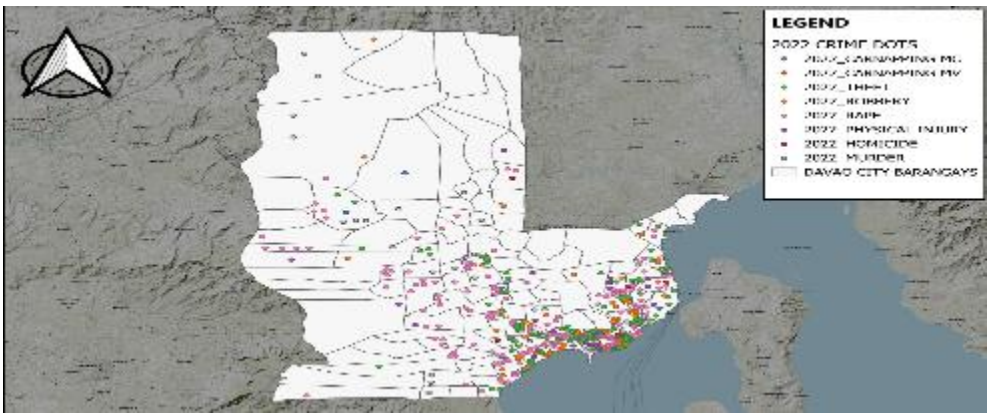

Figure 11: Spatial Distribution of Index Crimes in Davao City, 2022

Based on the spatial analysis, Barangay Bucana emerged as the primary crime hotspot in 2022 with 26 recorded index crime incidents, followed by Talomo with 17 incidents, Matina Crossing and Ma-a with 16 incidents each, Calinan with 13 incidents, and Indangan with 12 incidents. The continued concentration of crime incidents in these predominantly urbanized barangays suggests that dense populations, commercial establishments, transportation corridors, and routine human activities continued to create opportunities for criminal behavior. These findings are consistent with Crime Pattern Theory and Routine Activity Theory, which explain that crime tends to cluster in locations where motivated offenders, suitable targets, and limited guardianship converge.

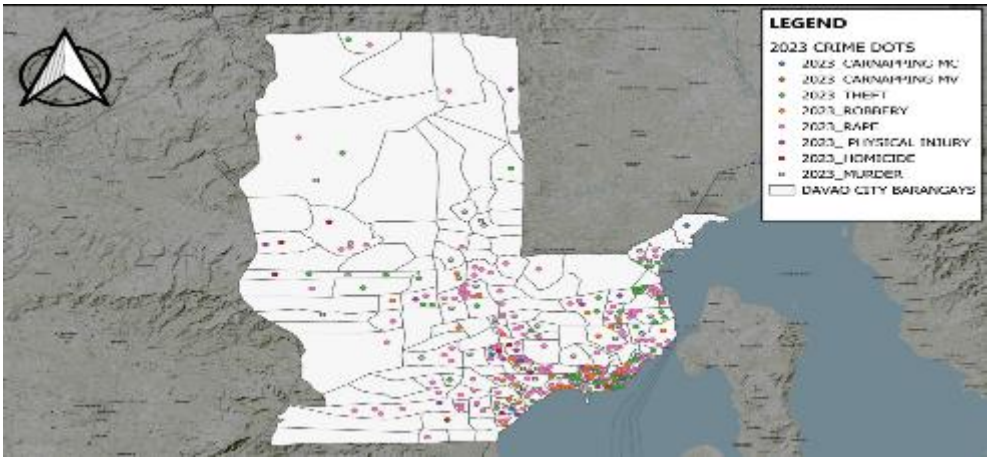

Figure 12: Spatial Distribution of Index Crimes in Davao City, 2023

Based on the spatial analysis, Barangay 76-A (Bucana) remained the primary crime hotspot in 2023, recording 20 index crime incidents, followed by Talomo Poblacion with 15 incidents, Matina Crossing with 14 incidents, Tibungco with 12 incidents, Mintal with 10 incidents, Calinan Poblacion with 9 incidents, and Bunawan Poblacion and Panacan

with 8 incidents each. Among the eight index crimes, rape remained the most frequently reported offense with 173 incidents, followed by theft with 63 incidents, murder with 54 incidents, robbery with 42 incidents, physical injuries with 15 incidents, homicide with 11 incidents, carnapping motorcycle with 5 incidents, and carnapping motor vehicle, which recorded no incidents during the year. Although the overall number of reported crimes declined compared with previous years, the persistence of crime concentration in highly urbanized barangays indicates that commercial centers, transportation corridors, and densely populated communities continue to provide favorable conditions for criminal activities. These findings are consistent with Crime Pattern Theory and Routine Activity Theory, which suggest that crime is more likely to occur in areas where motivated offenders, suitable targets, and limited guardianship converge within the routine activity spaces.

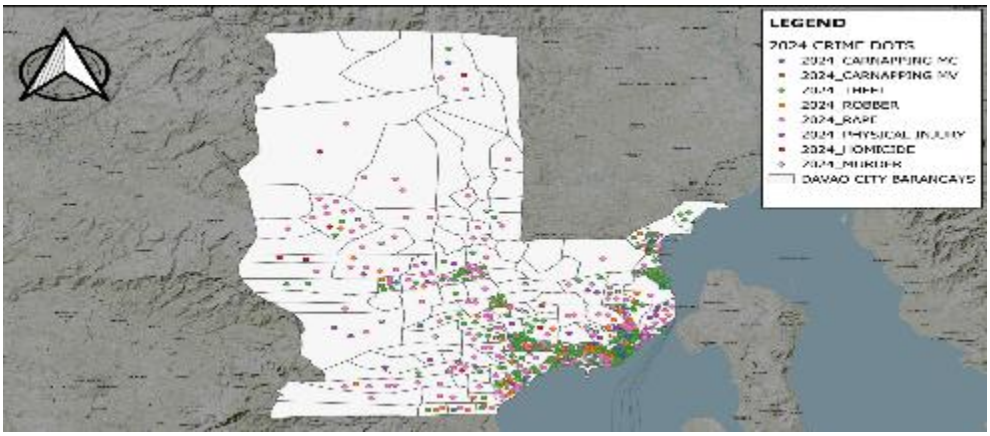

Figure 13: Spatial Distribution of Index Crimes in Davao City, 2024

Based on the spatial analysis, Talomo Poblacion emerged as the primary crime hotspot in 2024, recording 25 index crime incidents, followed by Barangay 76-A Bucana with 23 incidents, Ma-a and Buhangin Poblacion with 20 incidents each, Bunawan Poblacion with 19 incidents, Tibungco with 18 incidents, and Ubalde and Calinan Poblacion with 16 incidents each. Among the eight index crimes, theft became the most frequently reported offense with 312 incidents, surpassing rape, which recorded 226 incidents. The shift indicates an increasing prevalence of property-related crimes in the city, while the continued concentration of incidents in highly urbanized barangays reflects the influence of dense populations, commercial establishments, transportation corridors, and routine human activities on crime occurrence. These findings are consistent with Crime Pattern Theory and Routine Activity Theory, which suggest that crime is more likely to occur in places where motivated offenders, suitable targets, and limited guardianship converge.

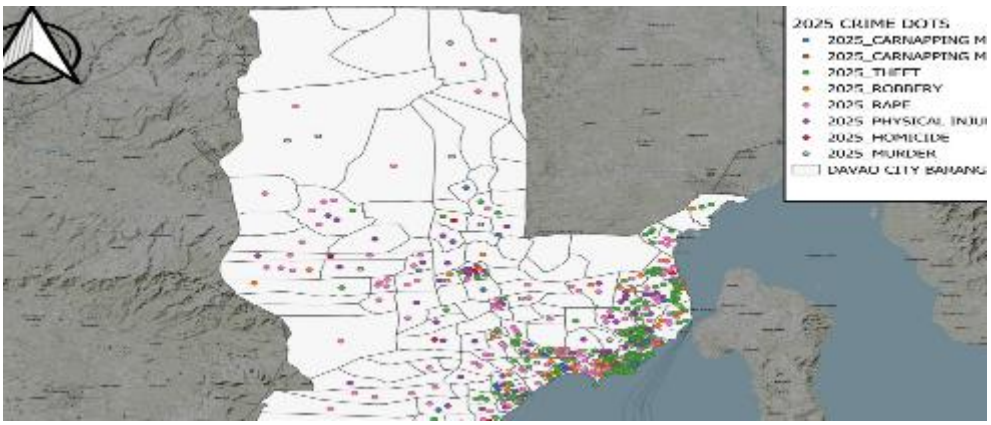

Figure 14: Spatial Distribution of Index Crimes in Davao City, 2025

Based on the spatial analysis, Barangay Bucana emerged as the primary crime hotspot in 2025, recording 37 index crime incidents, followed by Buhangin Poblacion with 36 incidents, San Antonio and Talomo Poblacion with 15 incidents each, Ma-a with 14 incidents, Calinan Poblacion and Panacan with 13 incidents each, and Catalunan Grande, Ilang, Indangan, Sasa, and Tibungco with 12 incidents each. Among the eight index crimes, theft remained the most frequently reported offense with 221 incidents, followed by rape with 155 incidents, physical injuries with 88 incidents, robbery with 44 incidents, murder with 35 incidents, homicide with 10 incidents, carnapping motorcycle with 21 incidents, and carnapping motor vehicle with one incident. The continued concentration of crime incidents in highly urbanized barangays highlights the influence of commercial activity, dense populations, and major transportation corridors on crime occurrence. Although theft remained the predominant offense, the persistence of recurring hotspot barangays indicates that these areas continue to experience environmental and social conditions that create opportunities for criminal behavior. These findings are consistent with Crime Pattern Theory and Routine Activity Theory, which explain that crime is more likely to occur where motivated offenders, suitable targets, and limited guardianship converge within routine activity spaces.

4. Conclusion and Recommendations

This study examined the spatial distribution of index crimes in Davao City from 2020 to 2025 using Geographic Information Systems (GIS) to identify crime hotspots and analyze patterns of crime concentration. The findings confirmed that crime incidents were not randomly distributed but consistently clustered in specific barangays characterized by high population density, commercial activity, transportation corridors, and mixed residential-commercial land use. Barangay Bucana emerged as the most persistent hotspot throughout the study period, while Talomo Poblacion and several other urban barangays also repeatedly exhibited high crime concentrations. These findings support Crime Pattern Theory and Routine Activity Theory, which explain that crime is more likely to occur where offenders, suitable targets, and opportunities converge within routine human activity.

The analysis also revealed changing crime patterns over the six-year period. Rape was the dominant index crime from 2020 to 2023, whereas theft became the most prevalent crime in 2024 and 2025, reflecting changing urban dynamics and increasing opportunities for property-related offenses. Despite these variations, the spatial concentration of crime remained relatively stable, indicating that recurring hotspot barangays continue to experience conditions that facilitate criminal activities. The study demonstrates that GIS-based crime mapping is an effective analytical tool for identifying crime hotspots, monitoring crime trends, and generating evidence that supports strategic police operations and crime prevention planning.

The findings of this study also provide a clear basis for policy recommendations. The Davao City Police Office (DCPO) should institutionalize the routine use of GIS-based crime mapping and hotspot analysis in crime intelligence, patrol planning, and operational decision-making to strengthen hotspot policing and support the city's three-minute police response time target. Local government units should integrate crime hotspot information into public safety policies and urban planning by prioritizing environmental interventions such as improved street lighting, expanded CCTV coverage, safer public spaces, and crime prevention through environmental design in recurring hotspot barangays. Furthermore, sustained collaboration among the DCPO, the barangay officials, educational institutions, and community organizations should be strengthened to enhance community-based crime prevention, encourage citizen participation, and reinforce informal social control. Finally, law enforcement agencies should continue conducting regular GIS-based hotspot monitoring and spatial crime analysis to evaluate crime trends, assess the effectiveness of interventions, and ensure that policing strategies remain responsive to emerging public safety concerns. These policy recommendations translate the study's findings into practical actions that can strengthen crime prevention, improve police operations, and promote safer communities.

Conflict of Interest Statement

The author declares no conflicts of interest related to the publication of this research study.

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