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FOCUSED DETERRENCE PART 2

Jaline King
Research Assistant

James McCutchen
Senior Research Developer
Public Safety Institute

Dr. Amaia Iratzoqui
Research Director

Bill Gibbons
Executive Director

The University of MEMPHIS tm

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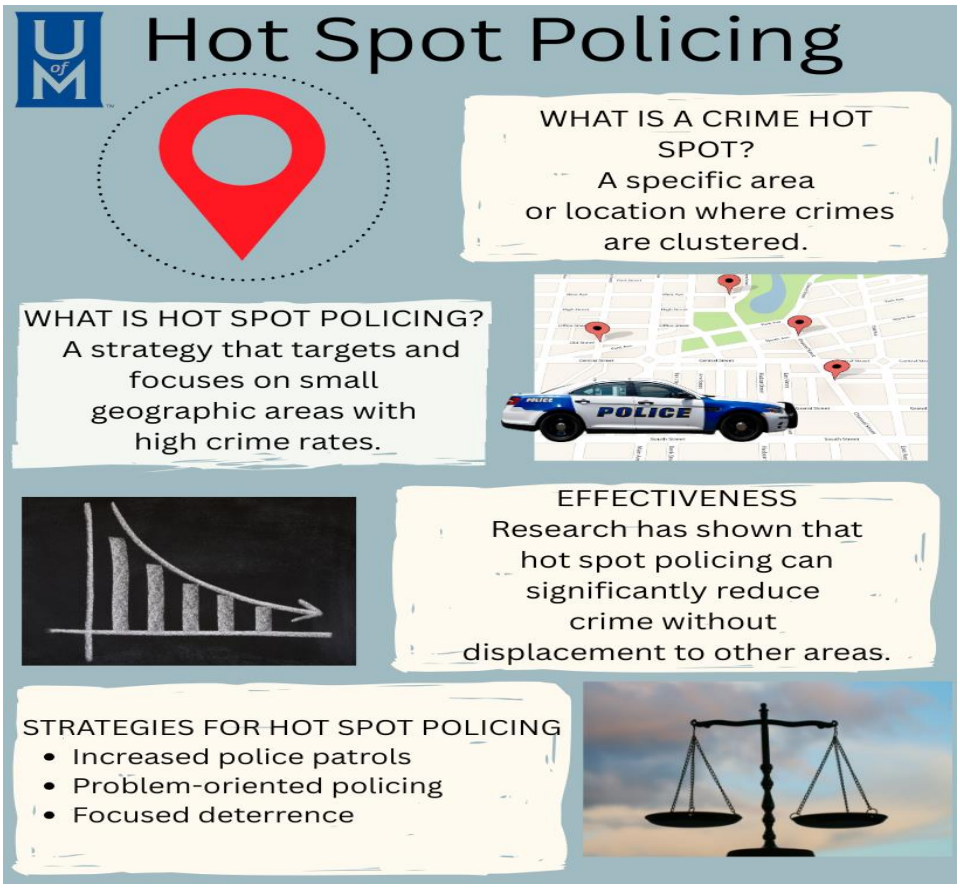
Introduction

Crime mapping plays a critical role in the implementation of focused deterrence strategies, particularly by aiding in the identification of high-risk locations—often referred to as *hot spots*—where law enforcement can concentrate its efforts. Within a focused deterrence framework, mapping helps agencies not only visualize patterns of criminal activity over time but also strategically identify neighborhoods, blocks, or intersections where gun violence and group-related crimes cluster. This spatial awareness allows for a more precise and efficient allocation of deterrence resources, such as targeted enforcement and community engagement (Corsaro & Engel, 2015). The current paper provides an overview of crime mapping strategies, including decisions around technologies and what to map. Then, as an example, it reviews the application of these tools in Memphis and Shelby County. It concludes with recommendations to better align crime mapping practices with focused deterrence goals.

Mapping Crime:

Background



Crime mapping has come a long way from its humble beginnings. Early efforts involved little more than pushing pins into a corkboard to track incidents. In the 19th century, pioneers like André-Michel Guerry and Adolphe Quetelet advanced the field by using thematic maps to visualize crime patterns, while John Snow's 1854 cholera study in London famously demonstrated the power of spatial analysis by tracing an outbreak to a single water pump (Tulchinsky, 2018). These early examples laid the foundation for modern crime mapping, which has become a critical tool in law enforcement and public safety strategies.

Current Use

Today, agencies use geographic information systems (GIS) and other digital technologies to not only visualize crime locations but to understand the conditions under which crime is more likely to occur. Crime mapping helps law enforcement and researchers determine where crime is happening and why, moving beyond raw numbers to reveal underlying spatial patterns. With advancements in real-time data collection and mapping tools, analysts can now identify crime-prone areas like gas stations, convenience stores, or public transit stops, which often feature high foot traffic and limited surveillance—conditions that can attract criminal activity (Ratcliffe, 2010).

This modern approach to mapping supports hot spot policing, a strategy that concentrates enforcement efforts in small geographic areas with high crime intensity rather than distributing officers uniformly. Studies show this targeted deployment can reduce crime without significantly displacing it to neighboring areas (Braga et al., 2014), aligning closely with the principles of focused deterrence, which similarly emphasizes concentrating limited resources where they will have the greatest impact.

To identify these hot spots, agencies often use tools like kernel density estimation (KDE), which highlights clusters of crime incidents across a given area (Eck et al., 2005). The intensity of crime in a particular location is visually represented as "hotter" indicating higher concentrations of incidents. The choice of spatial scale is also important; analyzing data across different levels, whether by city, neighborhood, or block, can influence how hot spots are interpreted and where resources are deployed.

In the context of focused deterrence, these spatial insights are especially valuable. Crime mapping not only helps visualize where violence or group activity is most intense but also allows agencies to link incidents, detect retaliatory patterns, and

focus interventions on the people and places driving the most harm (Weisburd & Lum, 2005). When integrated into community-oriented policing, mapping also promotes transparency and collaboration by making crime patterns accessible and actionable for both law enforcement and the communities they serve.

Crime Mapping Decisions:
How and What to Map

Scales of Crime Mapping: Micro and Macro Approaches

One important element of crime mapping is the level of spatial focus. Neighborhood- or micro-level mapping offers a closer view of where crime is occurring and helps identify specific patterns tied to individual behaviors or repeat locations (Buil-Gil, 2021; Eck et al., 2005; Stroker, 2008). Zooming in on small areas—such as a single street, intersection, or block—makes it easier to identify high-risk spots, such as a particular street corner with frequent robberies or a bus stop with multiple assaults. This granular view allows law enforcement and city officials to better understand the immediate environmental or social factors that may be contributing to crime and to take targeted actions. Local-level mapping is especially useful for addressing persistent problems in specific areas, stopping recurring incidents, and preventing violence from escalating or spreading—key components of focused deterrence efforts.

On the other hand, macro-level mapping provides a broader lens by examining crime trends across larger geographic areas, such as entire precincts, cities, or even regions (Stroker, 2008). While it doesn't provide the same street-level detail, this approach is valuable for identifying larger patterns, such as citywide increases in violent crime or shifts in crime rates over time. It can also help explain how broader factors—like population change, economic conditions, or shifts in law enforcement policy—may be influencing crime (Braga et al., 2019; Levitt, 2004; Stowell et al., 2009). Macro-level mapping is ideal when making policy decisions that affect multiple communities, planning citywide prevention strategies, or analyzing the long-term impact of social or economic interventions.

Both approaches—micro and macro—are essential, and each serves a different but complementary purpose. In a focused deterrence framework, micro-level mapping helps pinpoint the most immediate places and people for intervention, while macro-level analysis ensures that efforts are informed by the larger context and can adapt to broader shifts over time.

Temporal and Topical Scope in Crime Mapping

A second important dimension of crime mapping is the scope of focus, which includes both the time frame of analysis and the type of crime being mapped. Short-term data, often collected over the span of a few days or weeks, is particularly useful for detecting immediate spikes in firearm violence or emerging patterns related to specific events or seasonal changes (Weisel, 2011). This kind of data allows law enforcement to respond rapidly to active threats, such as patterns of retaliation or group violence, where timing is critical. Short-term mapping can guide real-time adjustments to patrol strategies, resource deployment, and interventions—especially during periods of heightened risk like shooting incidents, holiday weekends, or large public gatherings.

In contrast, long-term data offers a broader perspective, helping identify slow-building trends that may not be apparent in short-term snapshots. While a few weeks of data might suggest a temporary drop in crime, long-term trends could reveal a steady increase over several years. This type of analysis is vital for avoiding overreaction to short-term fluctuations and is most effective when informing strategic planning, policy development, or the evaluation of ongoing crime reduction strategies (Cheng & Adepeju, 2014).

The temporal aspect impacts the number of crimes that are represented on the crime map. An essential aspect of crime mapping accuracy lies in the number of incidents included in the dataset. For example, analyzing only three or four crimes can result in a map that appears scattered or disorganized, making it difficult to identify meaningful patterns. Depending on how the points are distributed, such a small dataset might misleadingly suggest that crime is happening everywhere—or nowhere in particular. This can lead to misinterpretations of crime distribution and make it harder for law enforcement to prioritize interventions effectively.
In contrast, using a larger dataset—such as mapping 10,000 crimes over a span of several months—provides a more reliable foundation for identifying true hotspots and recurring problem areas. With more data, analysts can differentiate between isolated incidents and persistent trends. For instance, a single robbery on a block may be random, but twenty robberies in the same area over time signal a deeper issue. Larger datasets allow for clearer pattern recognition, more accurate trend analysis, and better-informed decision-making when allocating law enforcement resources.

Crime mapping can also vary in topical scope—focusing either on a single crime type (e.g., shootings, robberies) or groupings of related offenses. Determining the appropriate time frame and crime category depends on the goals of the analysis and the specific problem being addressed. The table below offers several considerations in determining the scope of mapping:

Table 1.

Map Different Types of Crime Together when:	Do Not Map Different Types of Crime Together when:
They are related crimes (e.g., burglary and theft) (Velasco et al., 2000)	They relate to different risk factors (violent vs. non-violent) (Boba, 2005)
They demonstrate broad trends or hotspots (Boba, 2005)	It obscures other meaningful patterns (Velasco et al., 2000)
They have similar crime characteristics (Ratcliffe, 2010)	They have separate and distinct causes (Weisburd & Lum, 2005)
Analyzing overall crime distribution (Chainey & Ratcliffe, 2013)	The focus is on specific crime types (Ratcliffe, 2010)

Table 1 above provides soft logical rules that are research driven on when and when not to combine types of crime in mapping/analysis. Whether or not to map different types of crime together depends on the goals of the analysis and the nature of the crimes involved. It can be useful to map multiple crime types together when they are closely related, such as burglary and theft, or when the goal is to identify broad crime trends or overall hotspots (Velasco et al., 2000; Boba, 2005). Combining crimes with similar characteristics or shared risk factors can provide a clearer picture of general crime distribution across a city or neighborhood (Ratcliffe, 2010; Chainey & Ratcliffe, 2013).

However, it's important to avoid combining crime types when doing so could obscure important differences or hide distinct patterns. For example, violent and non-violent crimes often have different causes and risk factors and mapping them together may mask meaningful insights needed for targeted interventions (Boba, 2005; Weisburd & Lum, 2005). If the goal is to analyze specific crime types, such as shootings or assaults, these should be mapped separately to maintain analytical clarity (Ratcliffe, 2010). In short, the decision to map crime types together or separately should be driven by the purpose of the analysis, the nature of the crimes, and the need for precision in identifying trends or informing strategic responses.

Current Operations in Mapping Crime

Memphis, Tennessee employs a variety of advanced technologies and data-driven tools to enhance its crime mapping and prevention efforts, primarily through Memphis Police Department's (MPD's) Real Time Crime Center (RTCC). These tools work together to improve public safety and enable more strategic deployment of law enforcement resources.

The RTCC functions as a centralized intelligence hub, operating 2,100 cameras across 650 locations throughout the city (Atlas of Surveillance, 2022). It integrates surveillance video, license plate readers, and other real-time data sources to provide officers with immediate access to information during active incidents. When a crime is reported, analysts at the RTCC can access nearby footage, identify individuals with prior criminal records, and examine recent crime patterns in the area. This real-time access enhances decision-making, helps identify suspects more quickly, and can support more efficient investigations.

The RTCC also incorporates a data-driven system which analyzes historical crime data, including time of day, type of offense, and location, to detect patterns and forecast future hotspots. This predictive approach supports preventive policing by focusing patrols and surveillance in areas with elevated risk. It also serves as a performance management tool, helping MPD assess the effectiveness of specific strategies and make real-time adjustments.

As Memphis continues to explore focused deterrence strategies, there are promising opportunities to build on the strong technological foundation provided by the RTCC. For instance, adding longer-term mapping tools and standardized spatial boundaries could strengthen the ability to identify chronic hotspots and align enforcement with broader social indicators. This would allow for a deeper understanding of where persistent problems exist and how they may relate to underlying structural conditions. While current efforts are highly effective in providing real-time intelligence and short-term responsiveness, expanding the analytic scope could further support the city's ability to apply focused deterrence approaches that address both immediate risks and long-term trends.

Conclusion

As Memphis continues to invest in focused deterrence strategies, crime mapping stands to play an even more influential role—not only in identifying where crime is most concentrated but in uncovering why it persists in certain areas. Crime mapping has already proven useful for tracking incidents and directing patrols, but the next evolution involves leveraging mapping as a tool for understanding underlying conditions that contribute to violence and disorder. Integrating variables such as unemployment, poverty, housing instability, and education levels into spatial analyses can illuminate structural factors that often drive persistent hotspots (Federal Bureau of Investigation, 2011; Weisburd et al., 2012). These insights allow for more context-aware deterrence strategies that combine enforcement with prevention and community engagement.

For example, mapping areas with high gang activity alongside indicators of housing instability or school dropout rates may reveal opportunities for combining targeted policing efforts with social services, such as housing outreach, youth programming, or job training. This approach moves focused deterrence beyond immediate suppression and toward sustainable violence reduction.

Crime mapping can also be used to monitor demographic shifts, population turnover, and neighborhood transitions, which all affect where and how crime manifests. These dynamics are especially relevant in rapidly changing urban areas, where proactive strategies depend on timely, localized data. As new communities emerge, or old ones experience strain, crime mapping offers a valuable way to anticipate emerging hotspots before they escalate.

In Memphis, existing tools such as MPD's Real Time Crime Center (RTCC) provide a solid foundation for data-driven policing. These tools already support effective short-term, real-time responses, and with continued development, they can be expanded to include long-term analysis, standardized spatial boundaries, and cross-sector collaboration. These enhancements would better align crime mapping practices with the core principles of focused deterrence—precision, accountability, and community partnership.

Ultimately, crime mapping—when paired with advancing technologies such as GIS, predictive analytics, and risk terrain modeling—has the power to transform policing into a more responsive, equitable, and informed system. When used strategically, these tools help law enforcement make smarter decisions, improve public safety outcomes, and build lasting trust with the communities they serve. Memphis can lead the nation with innovation and commitment to violence reduction by enhancing its use of crime mapping which is critical to creating safer neighborhoods and supporting the broader goals of focused deterrence.

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