

Applying Risk Terrain Modeling to a Violent Crimes Initiative in Kansas City, Missouri

Keywords: Violent Crime, Narcotics, RTM, Planning, Implementation, Evaluation, ACTION model

Aim: To share experiences of the KCPD with its first attempt to incorporate RTM into policing operations.

Excerpts:

- "VCI activities were most effective at suppressing crime and preventing the emergence of new crimes when they simultaneously targeted crime (density) hotspots and the highest-risk places identified by the RTM."
- "Now....Officers simultaneously maintain a visible presence in high-crime places as well as places that are most at risk for new crimes to emerge."
- "The long term goal is to use RTM to continually assess place-based risks and mitigate them with multi-faceted and interdisciplinary approaches."

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Background

Each year the Kansas City, Missouri Police Department (KCPD) conducts what has informally been named a Violent Crimes Initiative (VCI). The KCPD Violent Crimes Division and Narcotics & Vice Division spearhead the VCI in collaboration with other agencies including the ATF, FBI, and ICE. The VCI is deployed in designated ("target") areas of the city to curtail and prevent violent and narcotics-related crimes such as homicides, aggravated assaults, shootings, armed robberies, and narcotics sales or possession that were known to have occurred frequently in the recent past. Activities conducted during the three-day operation include execution of search warrants, buy busts, and intelligence-gathering activities.

In previous years, the methodology used to determine the VCI's target areas was to produce basic kernel density maps of all violent crime across the entire city. Command staff would then visually scan

these maps for the "hottest" hotspots and select those areas as the VCI's target areas. While certainly telling of Kansas City's past violent crime locations, density mapping failed to address one key goal of the VCI: to identify emergent crime locations and to prevent violent crimes from becoming endemic. To achieve this goal, an approach to spatial analysis other than conventional density maps of past crimes was needed. It was this void in KCPD's analytical toolkit that risk terrain modeling (RTM) filled with ease.

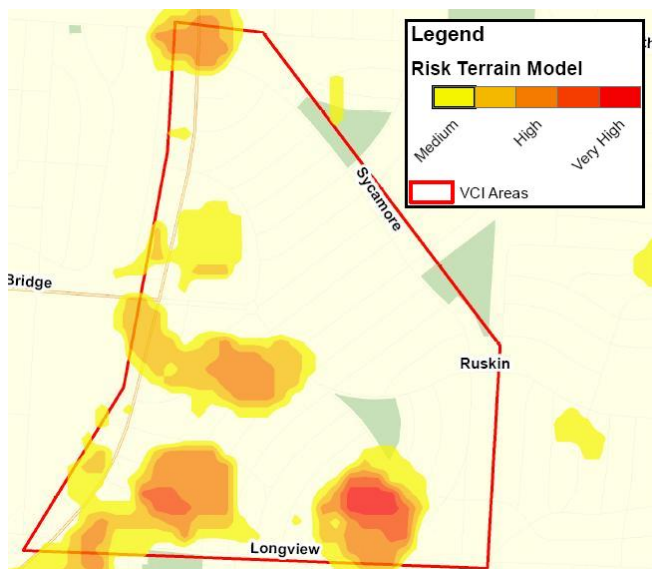
The 2010 VCI was only recently implemented, so data are still being collected and analyzed to determine its effectiveness at suppressing and preventing crimes (this is the topic of a forthcoming research paper, currently in progress). Here, we present a demonstration of how RTM was applied to the KCPD's 2010 VCI using the **ACTION**¹ risk analysis model.

Assessing Vulnerabilities, Exposures, and Threats

In the past, planning the VCI's activities and target areas relied solely on violent crimes known to the police that already happened. However, the 2010 VCI incorporated these and other data sets including DRAGNET reports², intelligence/activity from the

KCPD's Narcotics & Vice Division, and vacant house lists from City Hall to assess the city's vulnerabilities and threats to public safety. This more comprehensive analysis and understanding of past events and their contexts were incorporated into risk terrain models and maps that informed decisions about where to target the VCI. The map below shows the highest-risk clusters within a VCI target area.

In recognition of RTM's value for strategic decision-making and operational planning, new data sets are already being compiled or identified for inclusion in subsequent risk terrain models to inform future VCIs. For example, it is anticipated that much of the information in the citizen calls for service to the Kansas City 3-1-1 Action Center—a popular service used for quality of life issues such as vacant houses, uncollected trash, abandoned property, broken street lights, or public disorder—can be used as risk factors in a RTM.



Making Connections

After assessing the city's vulnerabilities and public safety threats, including known crime hotspots, VCI planners looked for connections among human (i.e. wanted subjects) and place-based targets of the VCI. Data was explored in a GIS to note any criminal behaviors and/or categories of calls for service that appeared spatially related to violent crime incidents (e.g., Disturbances with a Weapon, Suspicious Person

with a Weapon, or Sounds of Shots). Gang turfs and residences of known violent offenders were also mapped in a GIS and explored for spatial relationships to violent crime incident locations.

The VCI planning meetings were effective outlets for accomplishing this step of the ACTION model due to the variety of stakeholders present, including KCPD command staff and other community partners.

Setting Tasks to Respond and Prevent

In retrospect, setting tasks to prevent crime at high-risk places deserved more attention than it received at the early stages of the VCI, especially compared to efforts to respond to crime at known hotspots. Although many tasks addressed offenders' behaviors at hotspot places, too few tasks sought to mitigate one or more risk factors at these and other high-risk places that helped to attract and enable criminal activity (e.g., many vacant houses or poor street lighting). Instead, the 2010 VCI activities mirrored those of previous years, which were limited to the expertise and capacities of law enforcement, rather than a more multidisciplinary approach: 1) Execution of search warrants; 2) Knock & Talks³; 3) Buy Busts or other sting operations; 4) general intelligence gathering regarding violent or narcotics-related crime; and 5) Neighborhood canvassing by KCPD Homicide Unit squads for information regarding current or Cold Case Homicides. Patrol Divisions have, however, maintained police presence and continued certain VCI activities for preventative purposes in target areas and high-risk clusters, even after the VCI officially ended. These patrols are guided by new risk terrain maps of regularly updated data sets.

Measures of VCI activities were collected and are currently being analyzed as layers in new risk terrain models to evaluate their spatial and temporal impacts on locations of future crimes. Preliminary results suggest that VCI activities were most effective at suppressing crime and preventing the emergence of new crimes when they simultaneously targeted crime (density) hotspots and the highest-risk places identified by the RTM (even if crimes were not reported there)--thereby limiting opportunities for

dispersion or displacement to other likely crime-prone places.

Collecting Information about the Event

Discussions have already begun about how to refine risk terrain models and incorporate risk terrain maps into planning, implementation, and evaluation activities for the 2011 VCI. For now, KCPD is waiting for enough time to pass before it declares the 2010 VCI a success or failure. Long-term effects are as important to KCPD as short-term outcomes, and the RTM approach will permit empirical assessments of changes to high- and low-risk places over time. In addition to police statistics that traditionally measured VCI activities, such as number of arrests or pieces of intelligence collected, RTM offers new evaluation methods that more closely match the department's ideal definition of success—to suppress existing crime and prevent its reemergence in the same places or elsewhere in the city. For now, the following can be said of the VCI: 74 people were arrested; 145 warrants were cleared; more than \$48,000 and thousands of grams of narcotics were seized; and new information was obtained about 5 unsolved homicides.

Refining the Organization and Notifying Others

As a result of its successful application to all stages of the VCI, RTM has quickly become a valuable and favored tool used by KCPD officers and crime analysts. In particular, two Patrol Divisions are now working with the CSTAR Unit⁴ and using RTM to strategically and tactically deploy patrol officers to high-risk places. In the past, officers frequently patrolled their Divisions essentially at random between 911 calls for service. Now, risk terrain maps inform officers of the places that are most conducive to crime—regardless of the history of past crimes or the types of people who frequent these areas. Officers simultaneously maintain a visible presence in high-crime places as well as places that are most at risk for new crimes to emerge (that is, until steps are taken to preemptively mitigate risks). The Violent Crimes Division also expressed a desire to use the RTM

approach to spatial risk assessment for studying the place-based contexts of new robbery and assault patterns so they can take immediate steps to prevent repeats.

KCPD's use of RTM has also been shared with the greater Kansas City community through the internet and local media outlets. For more information, see the "RTM in Action" section of the riskterrainmodeling.com website for links to news stories and blog posts.

Conclusion

KCPD's first attempt to incorporate RTM into policing operations was very positive, and it is with great enthusiasm that KCPD adds RTM to its analytical toolkit. All of those involved were impressed with the practical theoretical framework, meaningful and actionable products, and ease of use. KCPD has already made progress with integrating RTM into strategic planning, risk reduction, and evaluation activities. Patrol divisions are now iteratively using risk terrain maps to address crime by (preemptively) focusing on known risk factors of crime at high-risk places; partnerships with outside agencies (e.g., Codes Enforcement, Public Works) address factors of risk outside the police department's purview. The long term goal is to use RTM to continually assess place-based risks and mitigate them with multi-faceted and interdisciplinary approaches. KCPD is convinced that strategically allocating existing resources to areas where crime problems are likely to emerge will result in fewer problems, period.

¹ Kennedy, L. W. & Van Brunschot, E. G. (2009). *The Risk in Crime*. New York: Roman and Littlefield.

² DRAGNET is a custom-made database used for tracking and responding to narcotics-related activity reported to the KCPD by both police officers and citizens.

³ A Knock & Talk is an investigative technique when investigators respond to a location and talk to occupants in hopes of gaining useful information about a crime and/or consent to search that location to locate contraband or wanted subjects when a warrant has not yet been obtained.

⁴ The KCPD's CSTAR Unit is an analytical unit responsible for GIS mapping, crime analysis, and CompStat-related functions.