

## Place Network Investigations

### Working Paper 2026-14

Irshad Altheimer, Ph.D.  
Ellen M. Granberg Endowed Full Professor | Department of Criminal Justice  
Director | Center for Public Safety Initiatives  
Rochester Institute of Technology  
ixagcj@rit.edu

Gregory Drake, Ph.D.  
Assistant Professor | Department of Criminology and Criminal Justice  
Director | Institute for Crime and Justice Research  
St. John Fisher University  
gdrake@sjfc.edu

Riley Chappell  
Senior Research Assistant | Institute for Crime and Justice Research  
St. John Fisher University  
rchappell@sjfc.edu

Jake Streamer, B.S.  
Research Assistant | Center for Public Safety Initiatives  
Rochester Institute of Technology  
jws8495@rit.edu

Hayder Alhafedhi, M.S.  
Research Assistant | Center for Public Safety Initiatives  
Rochester Institute of Technology  
hragcj@rit.edu

## Executive Summary

Place Network Investigation (PNI) is described by researchers as a place-based strategy used to decrease high levels of violence. Specifically, PNI focuses on the reduction of gun violence in high-crime areas by mobilizing a wide range of city resources beyond traditional law enforcement. The intervention is based on research that explains how crime is consistently concentrated across places, victims, and offenders. Reports by authors included in this review have demonstrated PNI is an effective strategy to reduce violent crime and, in at least one study, urban blight. However, more work is needed to determine its effectiveness at scale.

Place Network Investigations function by analyzing Crime Place Networks (CPNs), which consist of 4 types of settings depending on what occurred within those areas. These areas are as follows: Crime Sites, Convergent Settings, Comfort Spaces, and Corrupting Spots. PNIs, unlike other similar place-based strategies, focus specifically on the people and places within a common network to disrupt criminal activity in said areas.

A common theme amongst all the research reviewed is that there was not enough evidence to accurately claim how effective an intervention could potentially be. After conducting their studies, many authors cite the fact that there were instances where community relations were cited as having been improved. Additionally, PNI could reliably be seen as decreasing violent crime -- a most favorable result. However, despite the positive outcome(s) of most PNI tests, the volume of literature is relatively small and shallow.

## Introduction

PNI, or Place Network Investigation, is described by researchers as a citywide strategy used to decrease high levels of violence. Specifically, PNI focuses on the reduction of gun violence. While it is not a new intervention, PNI has gained national recognition with cities across the country, starting the process of building a body of research on the intervention. The intervention is grounded in research that “consistently shows that crime concentrates across places, victims, and offenders” (Madensen et al., 2017). The consensus regarding PNI, in what limited work has been done to study its effects, has shown the technique is relatively effective in reducing violent crime and other externalities, including urban blight and negative community feedback.

## Functions of PNI

Before reviewing the literature on the effectiveness of PNIs, it is first important to describe how they function. PNIs use a similar method to the investigations of Crime Place Networks (CPNs) conducted by Place Based Investigations (PBIs). CPNs consist of 4 different types of areas in one place, which include: Crime Sites, Convergent Settings, Comfort Spaces, and Corrupting Spots. While the PBI program is very similar to PNI, they do have a few differences in how they deal with crime. PBIs, according to an earlier review by Madensen et al. (2017), focus on the analysis of CPNs and hot spots within a community, while PNIs target specific people and places within those networks to disrupt criminal activity.

## The PNI Toolkit

Dr. Tamara Herold and colleagues developed a toolkit for Place Network Investigations.

Herold breaks the PNI process into 5 distinct stages: Reviewing Internal Data, Gathering Site Intelligence, Uncovering the Network, Documenting Place Dynamics, and Disrupting Place Networks.

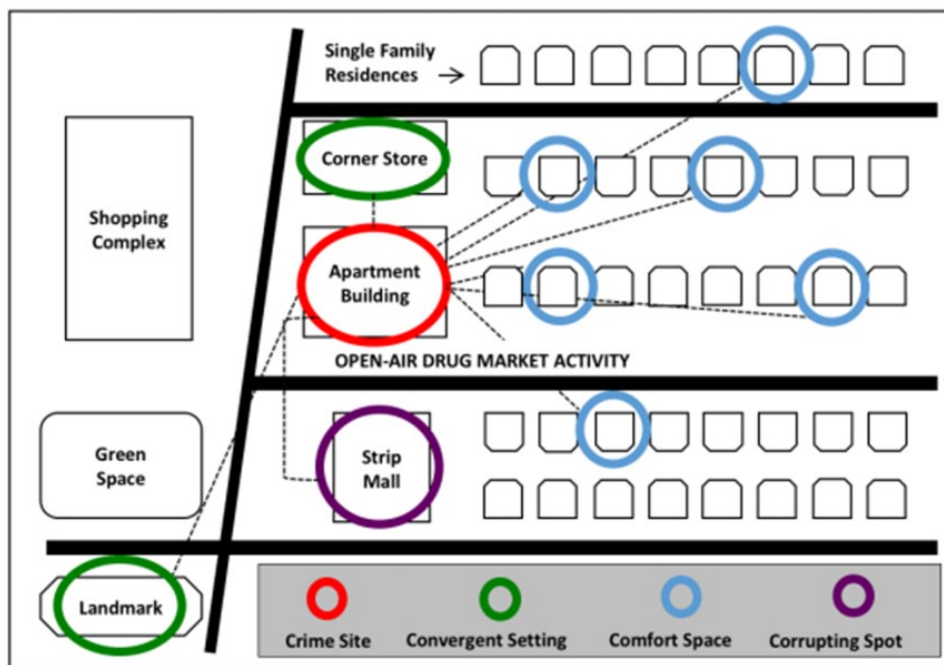
The first stage is "Reviewing Internal Data". This stage consists of analyzing existing crime data and beginning to conduct intel audits on the sites that will be a part of the upcoming investigations. This stage also suggests that leaders of the program should help all stakeholders understand hot spots involved in the PNI and facilitate a discussion on how these places contribute to crime (Herold, n.d).

The second stage of the process is to "Gather Site Intelligence". This stage consists of conducting surveillance and gathering intelligence on things that individuals associated with the program do not yet understand. This stage also discusses the potential to conduct Crime Prevention Through Environmental Design (CPTED) audits, which are designed to assess environmental designs that are associated with crime sites. Additionally, this stage of the project aims to find a way to fit the PNI within existing crime reduction strategies (Herold, n.d).

Stage three is "Uncovering the Network". The main part of this stage is about how physical spaces contribute to the amount of crime that takes place in them. In this stage, finding additional sources of intelligence is the main goal, along with the identification of place connections. Crime locations are important to PNI, so it is equally important to find how they are linked to other places within the network (Herold, n.d).

Stage four is labeled “Documenting Place Dynamics”. The goal of this stage is to document ways in which PNI can effectively disrupt criminal networks. This stage is important for classifying each crime location. There are four distinct classifications: Crime Sites (where crime happens); Convergent Settings (public locations where offenders meet); Comfort Spaces (private locations used for meetings, etc.); and Corrupting Spots (legitimate businesses engaged in illicit activities). Additionally, this stage involves documenting and explaining why offenders use these locations (Herold, n.d.).

**Figure 1: Crime Place Network (Source: Madensen et al., 2017)**



*Figure 1. A graphical illustration of a Place Network*

Source: Herold et al., n.d.

The fifth and final stage is labeled “Disrupting Place Networks”. This stage introduces the idea of using police interventions in the networks to reduce violence in those areas. It also suggests partnering with the city's legal department to more accurately address harmful conditions. Herold suggests focusing solely on the places in question, not the offenders

themselves, to further the goal of PNI, which is to “remove the place infrastructure that allows offenders to use space in vulnerable neighborhoods” (Herold, n.d).

Figure 1 is a graph of a “crime place network,” illustrating how a persistent crime problem can be supported by multiple connected locations (i.e., a network), rather than a single address or site. In the figure, the apartment building is identified as the primary crime site, but as the diagram demonstrates, criminal activity is sustained through links to other nearby places that play different roles in the network. These roles are categorized as crime sites (an apartment building), convergent settings (a corner store or local landmark), comfort spaces (various single-family residences), and corrupting spots (a nearby strip mall). The connecting lines in the figure represent how movement and interaction between these places can facilitate ongoing activity, in this example, an open-air drug market supported by adjacent places, highlighting the importance of documenting place dynamics and understanding how each location contributes to the broader crime problem.

## Literature Review

### Case Study: Cincinnati, Ohio 2014—2018

In 2017, an article written by Herold (then Tamara Madensen) et al., discussed the effects of a PBI conducted alongside the Cincinnati Police Department (CPD) the previous year. The experiment with Place-Based Investigations started in June of 2016 and continued throughout the calendar year. While the authors’ analysis of the Cincinnati area revealed over 20 different high crime areas and micro locations, the CPD focused its efforts on one such high crime area: the intersection and surrounding streets around Baltimore and McHenry. According to the authors, “gunshot victims in this location decreased from 18 in 2015 to 5 in

2016, with no shooting victims reported in the last three months of the year” (Madensen et al., 2017, pp.1-2). Additionally, the authors found that the community's response to PBI in Cincinnati was overwhelmingly positive. With investigators soliciting information from residents to police and actively working to improve safety, community relations improved.

Hammer et al. (2017) discuss the effects of a PNI project, then called Place-Based Investigations of Violent Offender Territories (a.k.a. PIVOT), in Cincinnati, after being initiated in 2016. The location analysis conducted by the authors was able to uncover 6 major areas affiliated with gun violence. The authors found that there was a reduction of up to 80% in gunshot victims in the target areas after the intervention.

According to the authors, “analysis/investigations revealed that drug market offenders capitalized on physical features of the nearby space and management practices of place owners” (Hammer et al., 2017, p.9). The authors also mentioned that “two potential displacement locations were identified based on proximity and similar place features, but neither of which has materialized as an extension of the original crime place network” (Hammer, et al., 2017, p.9). Overall, the article found the PIVOT program to be an effective way to not only locate criminal networks, as stated prior, but also to be effective in decreasing the effects of gun violence.

A 2020 University of Cincinnati dissertation by Matthew Hammer examined the effects of PIVOT as a place-network disruption strategy designed to reduce gun violence in Cincinnati, Ohio. Rather than treating violent crime as a problem rooted only in individual offenders, Hammer situates PIVOT within a broader place-based framework that emphasizes criminogenic environments and the interconnected “place networks” that can sustain

violence. To build the study, Hammer drew on multiple sources, including crime reports, census data, aggregated arrest counts, and other supporting data to examine how these networks operate and how interventions can be designed to disrupt them.

Hammer explains that Cincinnati's intervention sites were not chosen randomly; they were selected because they consistently exhibited high levels of gunshot victimization. As the author notes, the "intervention sites were each selected due to consistently high levels of gunshot victimization. This single characteristic is what binds these five spaces. PIVOT sites are spread throughout the City of Cincinnati" (Hammer, 2020, pp.82-83). These locations were also selected because of their outsized contribution to the city's gun violence problem, and Hammer uses site context and observations to highlight how connections between nearby places can shape routine activity, offender movement, and the persistence of violence.

The dissertation then provides a detailed look at the five PIVOT sites and what investigators observed in each place network. For example, one site's network included multiple residential, commercial, and public-space locations, with several being used in socially "normal" ways while others were vacant and vulnerable to criminal use. Hammer describes Site 1's network as consisting of "four single or two-family homes, three commercial properties, two public spaces (sidewalk and street), and one multi-family apartment building. Seven of the ten locations were occupied or used in socially intended ways" (Hammer, 2020, p.96). In contrast, other locations within and across the sites were characterized by long-standing patterns of gun violence and environmental conditions that created opportunities for concealment, congregation, and ongoing conflict. Hammer also notes, after extensive investigative effort, that Site 5 ultimately lacked evidence of a corruption spot, stating that "it

was not included in the place network after a substantial investment of time studying the market and its associated activity” (Hammer, 2020, p.121). Together, these site discussions reinforce the core PIVOT idea that violence can be tied to networks of places and that disrupting the infrastructure of those networks may reduce crime.

The intervention itself is framed as a disruption strategy that can be compared with other well-known policing approaches while remaining distinct in its emphasis on place networks. Hammer explains that he “also provides detailed explanations of interventions that were applied to disrupt crime place networks. He compares PIVOT interventions with other widely known and applied policing strategies” (Hammer, 2020, p.124). Alongside these place-oriented interventions, the study describes efforts to incorporate community engagement, including the creation of communication channels for residents; for instance, “A PIVOT hotline number was also created to solicit information and community feedback” (Hammer, 2020, p.126). Importantly, the interventions were intended to apply across the PIVOT sites, and the dissertation emphasizes how visible physical degradation and place conditions often overlooked in traditional enforcement-heavy strategies became central to understanding the broader costs and harms associated with these environments.

To assess impact, Hammer describes a multi-measure approach that focuses on shootings and related indicators. He explains that CPD “first counted shootings before and after the project. Second, CPD used a violence score. This metric included shootings, gun crimes, and gun-related calls for service, weighted by recency and severity. Finally, CPD measured intervals between shootings within project sites” (Hammer, 2020, p.138). At the same time, Hammer is careful to clarify the limits of these internal analytics and emphasizes that the system was designed to monitor outcomes rather than serve as a complete evaluation tool;

he notes that the analytic approach relied on “rigorous statistical tests and control variables” (Hammer, 2020, p.141). Even with these cautions, the dissertation reports meaningful and statistically significant results for several sites. Hammer concludes that “the PIVOT intervention was statistically significant across all three testing methods for Sites One, Three, and Five. Two of the three methods produced statistically significant effects for PIVOT at Site Four. And there was no backfire effect in any PIVOT project site” (Hammer, 2020, p.162).

A major concern for place-based strategies is whether they simply displace violence to nearby areas, but Hammer reports evidence pointing more toward diffusion of benefits than harmful displacement. He explains that “excepting Site One, the reduction in shooting victim counts was greater at the full extent than at the project sites alone. This suggests there was not a negative impact because of displacement, but rather a diffusive benefit” (Hammer, 2020, pp.171-172). Hammer also notes that temporal displacement is less plausible in a strategy built around disrupting places as continuous opportunity structures rather than focusing on time-limited patrol surges, arguing that if PIVOT were “a directed patrol strategy during peak event times, the risk of temporal displacement might be great. But in this case, place-network disruption is not variable by hour or day. If successfully implemented, a location is disrupted twenty-four hours a day, seven days a week” (Hammer, 2020, p.172).

Overall, Hammer concludes that PIVOT is a useful and effective violence-reduction strategy in the Cincinnati context, particularly for reducing shootings. While he acknowledges that not every model produced significant findings across every outcome, he reports a consistent downward pattern across the measured indicators and emphasizes that the strongest statistical evidence supports reductions in shootings. As Hammer summarizes, “in fourteen of fifteen instances, shootings, violent crime, and weapon calls declined after PIVOT. In the

fifteenth instance, weapon calls at Site Two remained [the same]. The strongest statistical evidence favoring PIVOT was found during evaluation of the dependent variable, 'shootings'" (Hammer, 2020, p.216).

### **Case Study: Dallas. Texas 2021—2024**

In 2025, another article was published by Cardwell et al. regarding the effectiveness of implementing Place Network Investigations (PNIs) to try to reduce violent crime. The authors conducted this PNI investigation with the Dallas Police Department (DPD) "to assist them in implementing PNI as a violent crime control measure in tandem with a broader series of violence reduction strategies" (Cardwell, et al., 2025, p.284). In addition, the authors strive to discuss challenges they faced during the implementation of the program, as well as any suggestions they have for those seeking to integrate PNI efforts elsewhere.

This study in the city of Dallas uses both the PNI and SARA (Scanning, Analysis, Response, and Assessment) models. The authors use these "to develop tailored interventions and implement appropriate police and other city government responses to high crime at discrete locations and evaluate their effectiveness after implementation" (Cardwell, et al., 2025, p.285). The authors explain the four main steps that make up the PNI process, and they elaborate on the importance of city governments and non-governmental leaders in the implementation of PNI within cities. The authors also reference the Cincinnati PNI conducted between 2016 and 2018, as well as the Las Vegas PNI, to illustrate how PNIs lead to positive outcomes and results when properly introduced.

In 2021, the Dallas Police Department (DPD) started implementing a VCRP (Violent Crime Reduction Plan), which adopted a similar process to hotspot policing. Later in the year, the

PNI program would be established at the DPD, although it would not officially begin until early 2022 (it would continue for another two-and-a-half years). The authors explain that during this period, “there [was] evidence that some of the sites [had] exhibited decreases in violence since the PNI efforts began” (Cardwell, et al., 2025, p.292). The main sites focused on by the PNI were a group of apartment buildings, which, due to the close collaboration with both the apartment managers and the PNI research team, contributed greatly to the success of the PNI. The authors conclude that the PNI in Dallas has evolved over the course of its investigation and has provided positive results for the reduction of violent crime (Cardwell, et al., 2025).

**Table 2: PNI Investigative Board Responses**

| City Department                     | Disruption Techniques                                                                                                                                                    |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fire                                | <ul style="list-style-type: none"> <li>• Eliminate hazards (e.g., remove illegal scrap yard)</li> <li>• Fire code violations fines/arrests</li> </ul>                    |
| Traffic/Engineering                 | <ul style="list-style-type: none"> <li>• Street redesign (e.g., traffic calming, closures)</li> <li>• Adding/removing signage</li> </ul>                                 |
| Community Improvement Organizations | <ul style="list-style-type: none"> <li>• Private property consultations (e.g., graffiti removal)</li> <li>• Adding fencing or public space definition markers</li> </ul> |
| Buildings                           | <ul style="list-style-type: none"> <li>• Parking spaces, dumpster placement/organization</li> <li>• Execute vacate orders</li> </ul>                                     |
| Health                              | <ul style="list-style-type: none"> <li>• Removal of illegal kitchens or vendors</li> <li>• Address lead paint in buildings</li> </ul>                                    |
| Port Authority                      | <ul style="list-style-type: none"> <li>• Building demolitions</li> <li>• Initiate large-scale redevelopment projects</li> </ul>                                          |
| Treasury                            | <ul style="list-style-type: none"> <li>• Permit revocation (e.g., illegal dance halls)</li> <li>• Citations for non-licensed activities (e.g., gaming)</li> </ul>        |
| Parks & Recreation                  | <ul style="list-style-type: none"> <li>• Redesign or development of park spaces</li> <li>• Removal of dilapidated playground equipment</li> </ul>                        |
| Non-profit Redevelopment Groups     | <ul style="list-style-type: none"> <li>• Purchase vacated properties</li> <li>• Help community leaders secure low-income housing</li> </ul>                              |
| Public Services                     | <ul style="list-style-type: none"> <li>• Foliage removal, community clean-up efforts</li> <li>• Altering trash pick-up schedules</li> </ul>                              |
| Human Relations Commission          | <ul style="list-style-type: none"> <li>• Advocacy and offender desistance outreach</li> <li>• Job and social services messaging</li> </ul>                               |

*Figure 2. A graphical illustration of a Place Network.*

Source: Adapted from Madensen et al.

Table 2 demonstrates what a “PNI Investigative Board” can do once investigators identify a crime place network. The report explains that this board consists of executives from different city agencies and departments and community organizations, including non-profit and non-governmental organizations, who may contribute resources (codes, permits, inspections, redesign, cleanup, redevelopment, outreach) to disrupt place

dynamics that enable crime. Table 2 is an overview of the many non-policing disruption tools that an investigative board could utilize. For instance, a Fire Department may leverage and address fire hazards and code violations to disrupt activity in vacant lots or dilapidated buildings. A Port Authority or Buildings Department can reorganize property conditions or issue vacate orders. A City Treasury can revoke permits; a Parks & Rec Department can redesign public spaces; and collaborations with non-profits can help secure low-income housing, et cetera.

### **Case Study: Las Vegas, Nevada 2018—2019**

In 2020, a report from Herold et al. in collaboration with the Las Vegas Metropolitan Police Department (LVMPD) analyzed the role of PNI as one of three components of a “gang and gun violence reduction” project, alongside hotspot deployments and focused deterrence (Herold et al., 2020). The LVMPD selected a pilot site in the northeast area command. The site was a persistent hotspot for violent crime for years. The report evaluated the effectiveness of a PNI strategy over one year, from May of 2018 to April of 2019. There were four main axes on which effectiveness was evaluated:

1. Surveillance and intelligence gathering.
2. External agency coordination and partnership building.
3. Effecting changes to physical locations and in-place management practices.
4. Enforcement actions (Herold et al., 2020).

In terms of results, gun violence at the pilot site declined 39.1% from the year before the PNI to the year after. This suggests the effectiveness of the PNI in this instance. The report illustrates how the PNI created new and reaffirmed existing community partnerships and

refocused the violent crime prevention efforts away from short-term suppression and towards long-term prevention solutions (Herold et al., 2020, p. 29).

The report specifies how the LVMPD achieved high levels of compliance with all steps of the PNI process. However, there is one considerable limitation: the formal PNI Investigative Board -- a board of city officials from all departments as well as city leadership -- held only one meeting during the year-long treatment period. As mentioned previously in this review, this could have limited the capacity for the city to solve problems relevant to the PNI outside of policing measures. The report emphasizes the importance of regular meetings of this body (Herold et al., 2020).

The LVMPD strategy differs from the others discussed in this review in other aspects. The investigative unit executing the PNI also used “a wide array of undercover and surveillance activities, beyond those initially used in previous PNI sites (e.g., PEN registers, GPS tracking, law enforcement-sponsored UBER accounts).” The LVMPD went as far as collaborating with local Homeowners’ Associations (HOA) to introduce significant fines for failing to update tenant information, to curb the usage of those properties for illegal activity, and to assist police investigations. Upgrades of existing screening technology, such as traffic cams, license plate readers, street lighting, and access controls were also completed (Herold et al., 2020, pp.22-24).

## Broader Impacts of Intervention

PNI interventions have been shown to improve the quality of life in communities beyond simply lowering violent crime statistics. The 2020 report from Hammer et al. notes that place-network disruption can also result in "additive" outcomes when city and community partners

focus on improving physical and social conditions. Examples of additive outcomes include improvements, recreation spaces, and allowing residents more agency in those areas. Importantly, PIVOT's evaluation strategy acknowledges that success should be measured in more than just crime counts; it should also include broader measures related to community circumstances and quality of life. Hammer et al. mention how a “blight index”, based on quantitative community feedback, for example, could be deployed as an indirect quality-of-life measure focused on visible signs of neglect and disrepair. According to the PIVOT report, evaluations of the Baltimore & McHenry PIVOT project site revealed that blight decreased during the most active phase of implementation, with the overall blight index falling from 2.4 to 1.7 (a 29.2% decrease) over the surveyed months (Hammer et al., 2017).

## Conclusion

In all the literature included in this review, there are several emergent themes. PNI (or PIVOT) interventions appear effective in reducing violent crime. Several authoritative reports in recent years cite this crime reduction, and in some instances, other positive externalities, including improved community relations. However, additional research is still needed, as the existing body of research on PNI and PIVOT approaches is relatively shallow, and the nature of evaluating these interventions is necessarily a complex task.

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