



# GUN VIOLENCE PREVENTION

Berkeley, California

## Abstract

This research extensively reviews the relevant literature on gun crime, crime concentration, gun violence prevention approaches, and small city gun violence prevention taken from other programs. Various interventions are evaluated using specific criteria in the context of Berkeley's "brand" of gun violence. The recommended program is a combination of police and non-police interventions that hopefully brings a holistic sense to the program. This research also makes recommendations as to implementation and program evaluation.

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**Table of Contents**

**Executive Summary..... 5**

**Statement of Positionality ..... 7**

**Introduction and Problem Analysis..... 7**

**Gun Crimes and Regulations Legal Landscape in Berkeley ..... 11**

**Data Analysis Results..... 12**

    Hot Spot Analysis..... 12

    Social Network Analysis..... 13

**Key Criteria ..... 15**

**Program components ..... 16**

**Component #1: Hot Spots Policing/Place-based Policing..... 16**

**Component #2: Hot Spots Policing Version of Problem-Oriented Policing (POP)..... 17**

**Social Network Analysis, Focused Deterrence, and Social Services..... 18**

        Component #3: SNA and Focused Deterrence/Custom Notifications..... 18

        Component #4: SNA and Social Services ..... 19

**Component #5 Warrants to Remove Firearms from Domestic Abusers (DVROs) and Individuals Posing a Danger to Themselves or Others (GVROs), Court-Issued Protective Orders, and Criminal Protective Orders (CPOs)..... 20**

**Component #6 Street Outreach Workers/Violence Interrupters ..... 20**

**Component #7 Hospital-Based Violence Intervention ..... 21**

**Component #8 Gun Buyback Programs ..... 21**

**Longer Term Solutions Addressing the Root Causes of Gun Violence ..... 21**

**Evaluating Components Using Criteria ..... 21**

    Hot Spots Policing..... 21

    Hot Spots Version of Problem-Oriented Policing (POP) ..... 25

    SNA and Focused Deterrence ..... 26

    SNA and Social Services ..... 27

**Warrants to Remove Firearms from Domestic Abusers (DVROs), Individuals Posing a Danger to Themselves or Others (GVROs), Court-Issued Protective Orders, and Criminal Protective Orders (CPOs)..... 28**

**Street Outreach Workers/Violence Interrupters ..... 29**

**Hospital Based Violence Intervention..... 30**

**Gun Buyback Programs..... 31**

<b><i>Packaged components into programs</i></b> .....	<b>31</b>
<b>Alternative #1: Problem Oriented Policing (POP) at Hot Spots + Street Outreach Workers</b> .....	<b>31</b>
<b>Alternative #2: Problem Oriented Policing (POP) at Hot Spots + Street Outreach Workers + SNA Focused Deterrence</b> .....	<b>31</b>
<b>Alternative #3: Problem Oriented Policing (POP) at Hot Spots + Street Outreach Workers + SNA Focused Deterrence + Social Services</b> .....	<b>32</b>
<b><i>Program recommendation</i></b> .....	<b>32</b>
<b><i>Implementation</i></b> .....	<b>32</b>
<b>POP at Hot Spots</b> .....	<b>33</b>
<b>Focused Deterrence/Custom Notifications</b> .....	<b>34</b>
<b>Street Outreach Workers</b> .....	<b>35</b>
<b>Social Services</b> .....	<b>35</b>
<b><i>Program Evaluation</i></b> .....	<b>36</b>
<b>Program Evaluation Recommendation</b> .....	<b>36</b>
<b><i>Conclusion</i></b> .....	<b>37</b>
<b><i>Appendices</i></b> .....	<b>39</b>
<b>Appendix A: Research Approach and Methodology</b> .....	<b>39</b>
Overview of Research Sources.....	39
Interview Protocol.....	39
Interview Practices Employed.....	39
Interview Subjects.....	39
<b>Appendix B Literature Review</b> .....	<b>41</b>
Crime Concentration/Place-Based Policing .....	41
Gun Buyback Programs .....	44
Hot Spots Policing .....	46
Problem Oriented Policing.....	50
Social Network Analysis as it Relates to Gun Violence .....	52
Gangs and Gang Membership.....	54
Domestic Violence and Firearm Accessibility.....	55
Hospital Based Violence Intervention Programs (HVIPs).....	56
Focused Deterrence (Custom Notifications).....	57
Street Outreach Teams/Violence Interrupters .....	58
Root Causes of Gun Violence .....	61
<b>Appendix C Visualizations</b> .....	<b>62</b>
Hot Spot Visualizations.....	62
Social Network Analysis Visualizations.....	64

**Appendix D Criteria Matrix ..... 66**  
***References* ..... 68**

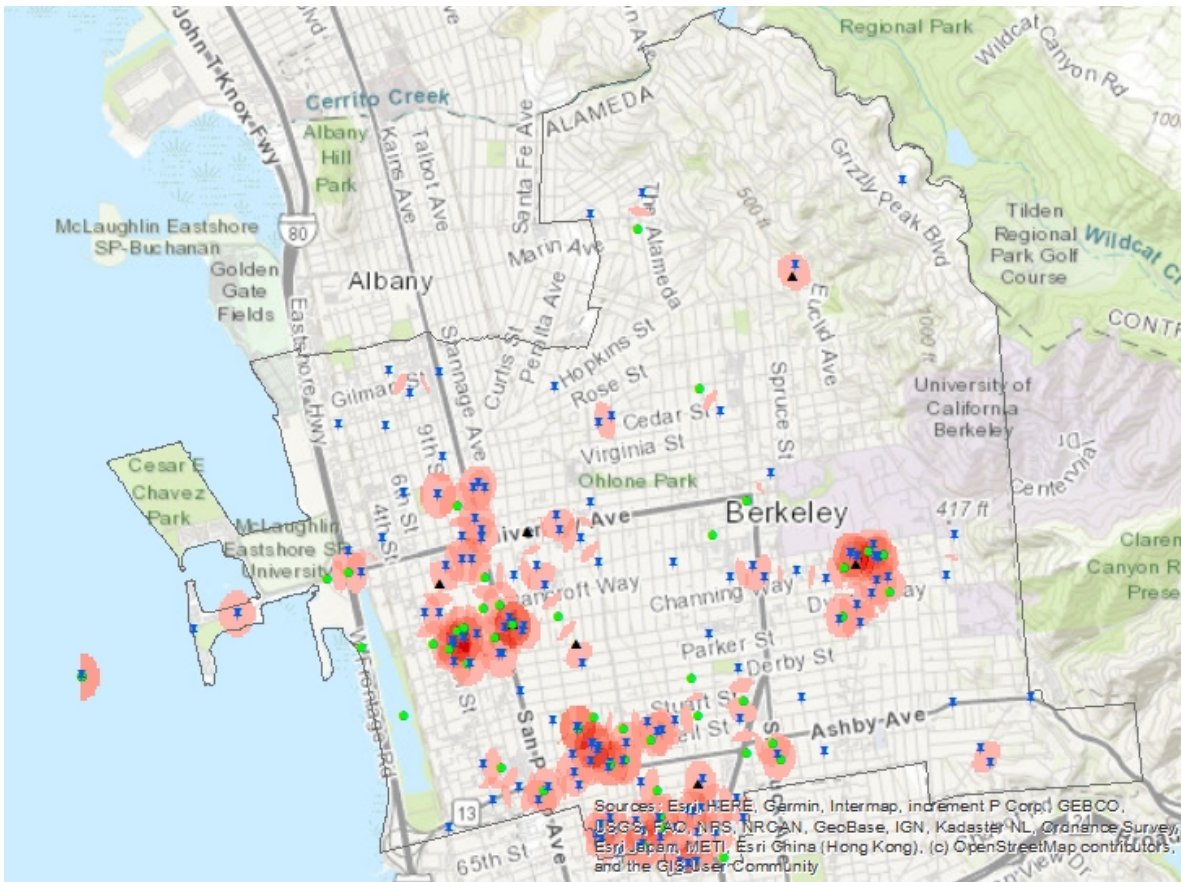
## Executive Summary

Gun violence in Berkeley is rising rapidly and becoming a city-wide concern. As such, the City Council has affirmed a \$1 million budget for “Berkeley Ceasefire” that will fund non-police interventions. Within the police department, the Gun Violence Intervention Working Group of the Berkeley Police Department is partnering with a UC Berkeley researcher to develop a program that incorporates both police and non-police interventions.

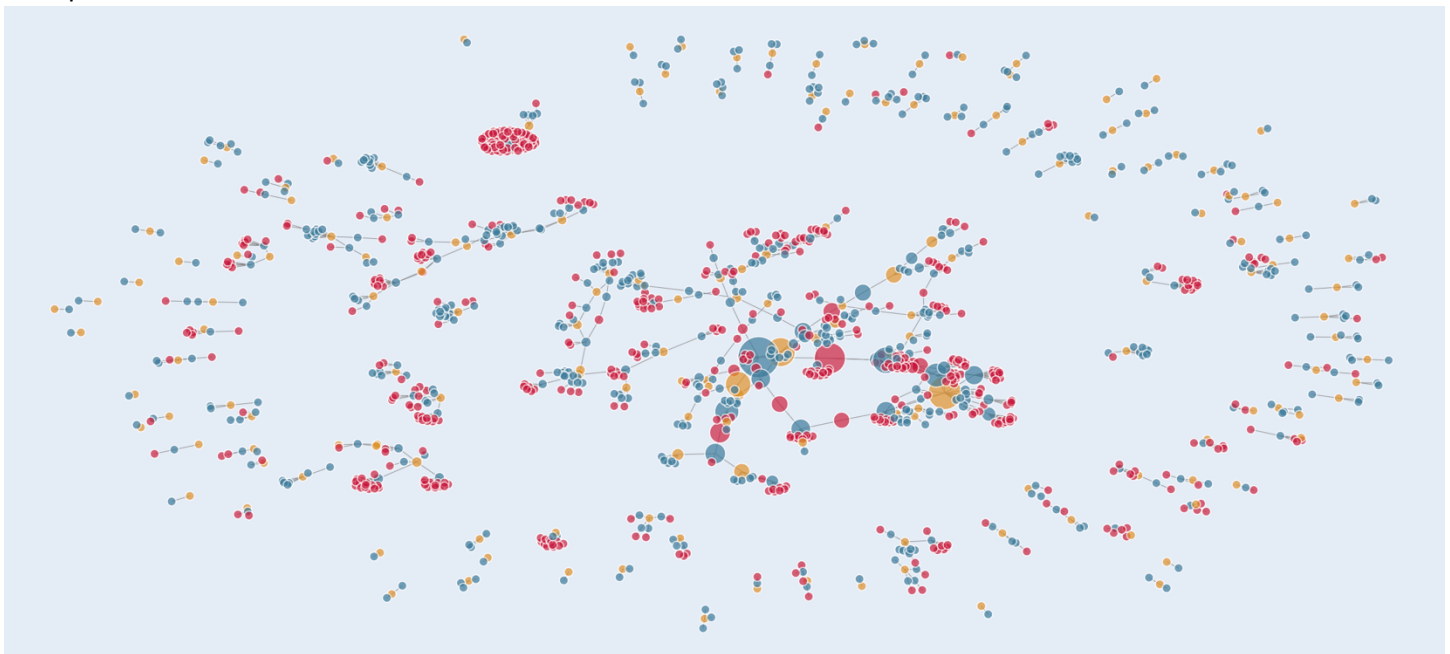
Causes of this steep rise in gun violence – from seven to over 50 annually in the last five years – are several. 4% have been fatal, 21% have resulted in injury, and 75% were simply “shots fired”. First, Berkeley’s problem is in the context of skyrocketing gun violence nationwide and regionally. Second, the proliferation of ghost guns makes it even more difficult to suppress supply-side dynamics. Third, street-crew shootings and domestic violence make up some portion of shootings. However, much of the gun violence is not categorized and cannot be attributed to any one cause.

This research employs mixed methods. Qualitatively, an extensive literature review was done on major topics around gun violence and prevention, and interviews with experts and practitioners were conducted. Quantitatively, I calculated geospatial point density using ArcGIS to locate “hot spots” and I performed social network analysis (SNA) to identify networks relevant to gun violence. Geospatially, I identified seven key locations for the department and community to focus interventions on. SNA revealed key ideal recipients of both social service outreach and focused deterrence measures.





Hot Spots Identified



Berkeley Shootings Social Network of Offenders and Victims

I considered a basic version of hot spots policing, a problem-solving version of hot spots policing, SNA-based focused deterrence, SNA-based social services, warrants to remove firearms from domestic abusers, street outreach workers, and hospital-based violence intervention programs as components to form a comprehensive gun violence prevention program. Ultimately, I concluded that four of these components will form the basis of the recommendation – problem solving at hot spots, focused deterrence, social services, and street outreach workers. This program option is advantageous because it is holistic and erodes gun violence from multiple angles. Additionally, if one approach is clearly not working or is running up too high of a cost, it can be cut and other portions of the program can remain ongoing instead of rebuilding a new program from scratch. This program should be monitored as closely as possible during its first year followed by an annual pre-test post-test evaluation to determine how close the program is to meeting the benchmark of 10% fewer shootings per year.

Intervention	Description
POP at Shooting Hot Spots	Random patrol idles at and checks on hot spots for 15-20 minutes. Officer notes events, people, or problems that facilitate crime at hot spot.
SNA Focused Deterrence	Social Network Analysis is used to identify who is most likely to be involved in future gun violence and a CBO and police deliver a “hard” deterrence message and the community delivers a “soft” extension of help or social services.
SNA Social Services Outreach	Connected to above but can be done without deterrence. SNA is used to identify people who are at risk and to extend wraparound social services to them, tailored to their specific needs. Case management ideal.
Street Outreach Workers	These individuals have connections to the community and carry legitimacy in their work to diffuse conflict, stop retaliation, and urge non-violence. They also help people exit a violent lifestyle.

## Statement of Positionality

I am a white skinned, queer, Latinx woman. I am Venezuelan American. I have never been shot or involved in any violent crime. This research and its findings are part of my Master’s thesis, for the Advanced Policy Analysis course at the Goldman School of Public Policy at the University of California, Berkeley.

## Introduction and Problem Analysis

I recommend that Berkeley implement a multi-pronged, holistic gun violence prevention program that incorporates problem-solving at hot spots, street outreach, targeted focused deterrence and social services.

The number of incidents involving firearms is sharply rising in Berkeley, California, a small city in the San Francisco East Bay. Berkeley is not alone. The nation has seen a dramatic rise in gun violence in all cities, spurring policymakers and public safety practitioners to find solutions. The Berkeley Police Department’s Gun Violence Intervention Working Group, city councilmembers, and community leaders are searching for near-term strategies to reduce gun violence.

Many gun violence intervention programs have been developed throughout the country, focusing on everything from place-based or “hot spots” policing to public health epidemiological modeling to a combination of several approaches. There have also been many programs that integrate other city services and departments, as well as Community-Based Organizations (CBOs). All of these programs have all had varying effects and results, not to mention costs and personnel. The challenge Berkeley has is to design a multi-pronged program that is uniquely suited to its mode of gun violence and to also develop a monitoring and evaluation process that the department will implement after some time has passed. Existing models typically have a multi-pronged approach, and often include both police activities and activities taken on by other city departments or CBOs.

Let it be noted that for the purposes of this research problem and design, “gun violence” will be defined as firearm violence between two or more people, and classified as either “shots fired”, shooting-related injury, or shooting-related death. This provides clarity that suicides, although a majority (roughly two-thirds) of firearm violence incidents in the United States<sup>1</sup>, are not within the scope or aim of this particular project.

In 2020, Berkeley’s \$1 million Ceasefire Program<sup>2</sup> was proposed by the City Council<sup>3</sup> in response to an alarming rise in shootings – 39 that year. In 2021 there were 50 incidents of gun violence and in 2022 even more, resulting in three dead and 15 injured.<sup>4</sup> Over the past five years, shootings have risen from 15 in 2017 to 53 in 2022 – an increase of over 353%.<sup>5</sup> The population of Alameda County has fallen since the 2020 census, primarily attributed to the pandemic.<sup>6,7</sup> Berkeley’s population likewise has dropped to 117,145 in 2021.<sup>8</sup> So, there are approximately 45 shootings per 100,000. But, calculating only for injuries and deaths due to firearm violence, that figure drops to approximately 13 per 100,000. For injuries alone the rate is 10 per 100,000. The rate of gun deaths, however, is just 2.6 – far smaller than the state rate of 9 per 100,000. I was unable to find shots fired or firearm injury data for the state as a whole.

This is a policy problem because the police department is in charge of public safety for the City of Berkeley. This charge is represented through city budgeting, city regulations, and internal police policies. Gun violence is a clear threat to public safety and public health, one that represents injuries and loss of life. “Effective violence prevention is

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<sup>1</sup> Wintemute, Garen J. “The Epidemiology of Firearm Violence in the Twenty-First Century United States.” *Annual Review of Public Health*, vol. 36, no. 1, Mar. 2015, pp. 5–19. *DOI.org (Crossref)*, <https://doi.org/10.1146/annurev-publhealth-031914-122535>.

<sup>2</sup> The goal of the Ceasefire Program, formally the “Violence Intervention Initiative”, is to identify community members most likely to engage in violence and surround them in “circles of care” like drug rehabilitation, job training, and available social workers. This is what the fiscal year 2023-2024 budgets for the Ceasefire Program: one full time director, one program manager, five life coaches, three outreach workers, a fringe estimate, and gun violence problem analysis.

<sup>3</sup> “Ceasefire Off Agenda Memo- Update Violence Intervention Initiative Berkeley Ceasefire.Pdf.” *Google Docs*, [https://drive.google.com/file/d/1ESpeLFADzRbLVNRBR6Ujdi1Uu4PwyFE1/view?usp=embed\\_facebook](https://drive.google.com/file/d/1ESpeLFADzRbLVNRBR6Ujdi1Uu4PwyFE1/view?usp=embed_facebook). Accessed 18 Jan. 2023.

<sup>4</sup> *Current Trends*. Berkeley Police Department, Transparency Hub <https://bpd-transparency-initiative-berkeleypd.hub.arcgis.com/pages/current-trends>. Accessed 25 Jan. 2023.

<sup>5</sup>Id.

<sup>6</sup> Base population of 2020 census for entire county is 39,538,245. Census estimate for 2022 is 39,029,342.

<sup>7</sup> Bureau, U. C. (n.d.). *County population totals and components of change: 2020-2022*. Census.Gov. Retrieved May 5, 2023, from <https://www.census.gov/data/datasets/time-series/demo/popest/2020s-counties-total.html>

<sup>8</sup> *U. S. Census bureau quickfacts: Berkeley city, California*. (n.d.). Retrieved May 4, 2023, from <https://www.census.gov/quickfacts/berkeleycitycalifornia>



fundamental to community and economic development, mental health, and a decent quality of life”.<sup>9</sup> Gun violence is also a problem that can be addressed through policy formation and change. This policy formation and change has occurred in cities throughout the country, so there are many blueprints for Berkeley to follow.

*“Public safety is foundational to human development, economic development, and a civilized life – and communities beset by violence in all those respects...Gun violence is a multifaceted problem requiring a multifaceted response. But an essential component of any comprehensive effort is more effective policing. Most instances in which one person shoots another are crimes. The police offer a unique capacity for violence prevention that has no good substitute from other institutions, and effective policing could prevent much of the shooting.” – Braga and Cook, 2022<sup>10</sup>*

This project is best defined as “programmatically”, “prescriptive”, and “evaluative”. The goal of this project is to design a program for Berkeley to adopt – some policy prescription is needed to do that. And on the back end the program needs a way to be evaluated so that future versions integrate past successes or failures into better addressing the causes of gun violence.

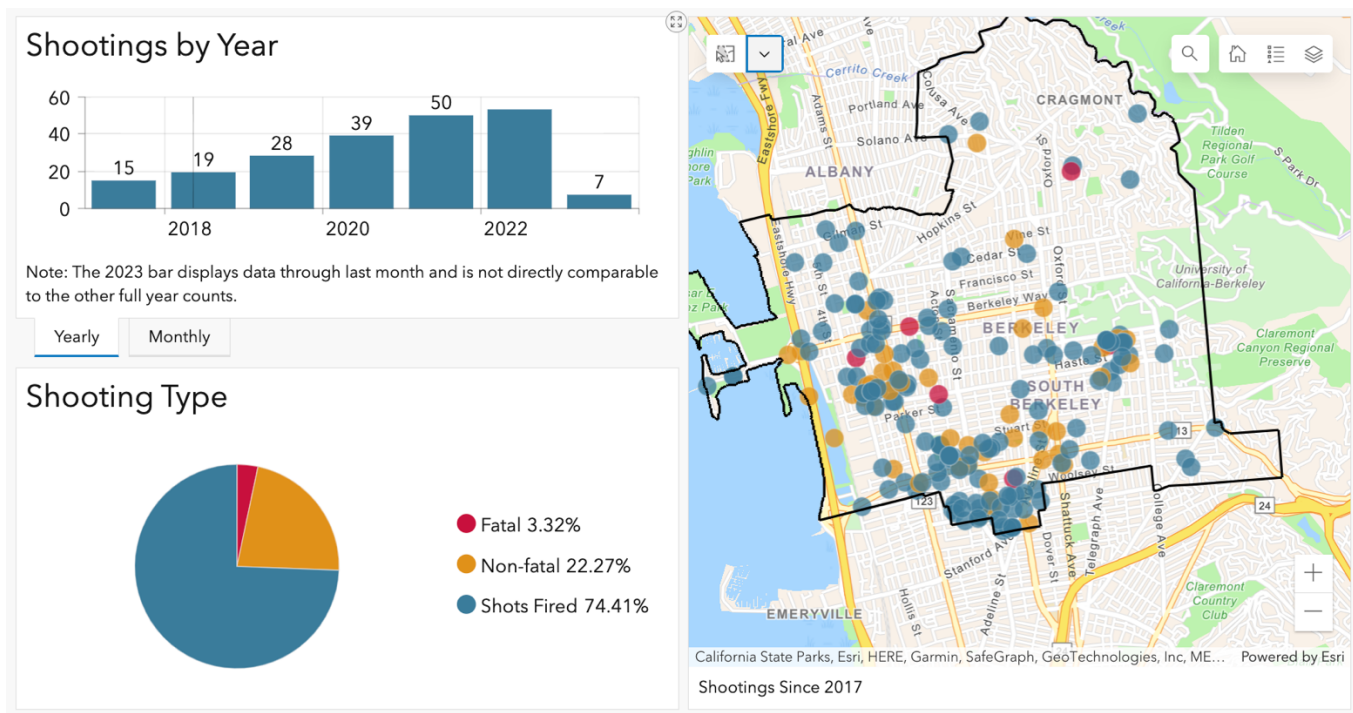
It became clear to the Berkeley City Council that this rise was steep and unusual, prompting action. They are prominent stakeholders in the perseverance of said action, whatever it may be – Berkeley Ceasefire and additional measures taken. But more importantly, so are Berkeley’s inhabitants, workers, and passersby. Over the last several years in Berkeley, families of victims and concerned citizens have held rallies for change as well as vigils in memory of those killed. However, “shots fired” and “shooting-related injuries” affect even more people – not just those directly involved but also their greater neighborhood and even the whole city. Promoting a Berkeley that feels and *is* safe to all people, however lofty, is a theme of this project.

Geographic specificity here matters. (Northeast Berkeley neighborhoods Northside etc.) and the Berkeley hills area (Cragmont etc.), simply put, experience less gun violence of all varieties as defined in this project. Clearly from the map on Berkeley Police Department’s “Transparency Hub”, South (of UC Berkeley) and West Berkeley are where a majority of gun violence incidents occur and where we should be focused.

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<sup>9</sup> Braga, A. A., & Cook, P. J. (2023). *Policing gun violence: Strategic reforms for controlling our most pressing crime problem*. Oxford University Press.

<sup>10</sup> Id.



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Who is involved in these incidents matters too. South and West Berkeley are home to more people of color, people that are lower income, and who live in more of a “city-scape” proximate to Oakland and the water. In Berkeley, most perpetrators of gun violence in Berkeley are African American and victims are predominantly African American.<sup>12</sup> Nationwide, “Homicide risk is concentrated to a remarkable degree among Black males through much of the life span. At ages 20-29 in 2012, the firearm homicide rate for Black males was at least five times higher than that for Hispanic males and at least 20 times that for White males.”<sup>13</sup> This is true for Berkeley as well. Arrested subjects, suspects, and detainees were 81% male and 19% female. They were 67% Black, 19% Hispanic, 9% white, 4% Asian, and 2% other. For firearm victims, they were 58% male, 42% female, 40% white, 25% Black, 13% other, 12% Hispanic, and 10% Asian. Notably, this includes victims of property crime, who are more likely to be white, and which distorts the racial percentages of victims. Excluding “shots fired” entirely for victims in order to exclude property damage, the race breakdown does change: 37% Black, 30% white, 15% Hispanic, and 13% other.<sup>14</sup> These figures are for all shootings.

This report does seek to know the “why”. We are interested in *who* is involved in gun violence, *where* the incident took place, *what* happened, and *how* individuals were affected (injury, loss of life, fear). But crucially, “why” gun violence is occurring, and occurring the ways that it currently does in Berkeley, will illuminate our pursuit of the right gun violence

<sup>11</sup> *Current trends*. (n.d.). Retrieved March 7, 2023, from <https://bpd-transparency-initiative-berkeleypd.hub.arcgis.com/pages/current-trends>

<sup>12</sup> Berkeley Police Department, 2023

<sup>13</sup> Wintemute, Garen J. “The Epidemiology of Firearm Violence in the Twenty-First Century United States.” *Annual Review of Public Health*, vol. 36, no. 1, Mar. 2015, pp. 5–19. DOI.org (Crossref), <https://doi.org/10.1146/annurev-publhealth-031914-122535>.

<sup>14</sup> Berkeley Police Department, 2023

prevention program and program evaluation. Generally, gun violence is rising in Berkeley because nationwide, cities are seeing spikes in gun violence, locally ghost guns are proliferating, there is some gang- and street-crew gun violence, and there is some firearm-related domestic violence. However, the majority of gun violence cases are not specific to any category and is “random”. This is especially true of when police arrive on scene, possibly have witnesses, but only identify shell casings and do not apprehend a suspect. This happens more often than not.

The client in this case should seek to sustain a continued decrease in gun violence incidents, year after year. The Center for Criminal Justice Violent Crime Working Group states that city leaders and criminal justice advocates should aim for an annual homicide and violent crime reduction of 10% because that goal is both tangible and realistic for cities.<sup>15</sup> At Berkeley’s volume, that’s about six shootings per year. Such a benchmark is helpful but not strict. Any reduction is a good sign and obviously exceeding it is welcome.

Long term, Berkeley should hope to get back to the 2017 rate of less than ten annual gun violence incidents. Over the course of less than ten years, we should expect to return to 2017 levels. If we are to expect the pandemic to continue subsiding, addressing gun violence with a holistic program should decrease gun violence now faster than it rose over the past five years due with that anomaly.<sup>16</sup> This is what happened in Champaign, Illinois after they implemented their multi-pronged, holistic *Blueprint* program.<sup>17</sup> The program should be monitored closely in its first year, following a very thorough annual evaluation. Then, each year there should be an analysis of shootings that occurred, what form gun violence is taking over time, and how close the city is to that 10% reduction.

## Gun Crimes and Regulations Legal Landscape in Berkeley

In California, a background check is done at the point of sale for every firearm sold. It requires that everyone with a concealed carry permit complete a training that includes shooting a gun. Open carry requires a permit or is barred altogether, and the state can bar concealed carry permits to be issued to anyone they deem dangerous. The state has so far refused to enact a “Shoot First” law, also known as a “Stand Your Ground” law. Assault weapons are prohibited, except where they have been grandfathered in or modified to be “California compliant”. New handguns are required to have childproofing features and microstamping technology – which marks bullets and cartridge cases with a unique fingerprint each time the firearm is discharged. To abide by state law, firearms must be stored locked, unloaded, and separate from ammunition when a child under 18 can or will access the firearm. Ghost guns are regulated (this is not particularly enforceable), high capacity magazines are prohibited, and there is no legal immunity for the gun industry. Officials are required to trace all guns recovered at crime scenes.

People with violent misdemeanors, felonies, hate crime convictions, a short-term emergency order in place (for domestic abusers), or a history of stalking are prohibited from possessing a firearm. Domestic abusers with misdemeanor convictions or restraining orders in place, and stalkers must relinquish their weapons. Fugitives and those who have been involuntarily committed or deemed a danger to themselves or others are barred from possessing a

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<sup>15</sup> “Saving Lives: Ten Essential Actions Can Take to Reduce Violence Now.” *Council on Criminal Justice*, 12 Jan. 2022, <https://counciloncj.org/10-essential-actions/>.

<sup>16</sup> *Gun violence prevention and response*. (n.d.). City of Champaign. Retrieved May 4, 2023, from <https://champaignil.gov/police/resources/gun-violence-prevention-and-response/>

<sup>17</sup> *Id.*



weapon. Law enforcement, immediate family members, employers, coworkers, teachers, roommates, people with a child in common or who have a dating relationship in California can petition the court to temporarily take away gun access for those in crisis. There are no guns allowed in K-12 schools, on college campuses, at the state capitol, or in political demonstrations. Dealers are required to be licensed, are barred from completing sales while background checks are ongoing, must release their sales records to law enforcement and notify law enforcement when someone barred from doing so attempts to purchase a weapon. Finally, there are waiting periods to buy a gun. These are the foundational laws related to firearms in California.<sup>18</sup>

California also allows localities to enact their own gun safety laws. In Berkeley, discharging a firearm is illegal in all cases *except* where law enforcement is concerned or a citizen is acting in assisting an officer. Violation of this law is a misdemeanor and shall be punished by a fine of not more than one thousand dollars, or by imprisonment not to exceed six months, or by both such fine and imprisonment.<sup>19</sup> Right now in Berkeley, there is “a rise in detection and seizure of firearms lacking serial numbers or other identifying markings, commonly known as “ghost guns””.<sup>20</sup> They are prohibited by city ordinance but have been linked to many shootings over the last several years. Each possession and use of a ghost gun (or part or frame of a ghost gun) is a Class 1 misdemeanor. In 2022, BPD seized 47 ghost guns and 72 other guns. It is a rising problem, complicating tracing guns to crimes and to people.

## Data Analysis Results

### Hot Spot Analysis

Hot spot analysis of shootings in Berkeley shows that they are concentrated at about seven specific sites. ArcGIS was used to do geospatial analysis on five years of shooting data in Berkeley. Because there were fewer than 2,000 data points, we were unable to run Cluster, Hot Spot, or Optimized Hot Spot analysis. Instead, Point Density analysis was used as it can run for smaller datasets.<sup>21</sup>

We knew broadly already that the south (of UC Berkeley) and west parts of Berkeley are where most shootings occur. Although at first shootings appeared to be clustered along long corridors, our Point Density analysis allowed us to further demonstrate what intersections and city blocks are statistically significant points of convergence that deserve attention. Seven locations were foremost identified by the software: 63<sup>rd</sup> Street & King Street, Acton Street & Russell Street, Channing Street & 8<sup>th</sup> Street, Channing Street & San Pablo Avenue, Durant Street & Sather Street, Harmon Street & Sacramento Street, and Oregon Street & Park Street (San Pablo Park). Identifiable to BPD from experience is the site just south of UC Berkeley, San Pablo Park, and two sites on Channing that relate to public housing where chronic

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<sup>18</sup> *California*. (n.d.). Everytown Research & Policy. Retrieved April 8, 2023, from <https://research.everytown.org/rankings/state/california/>

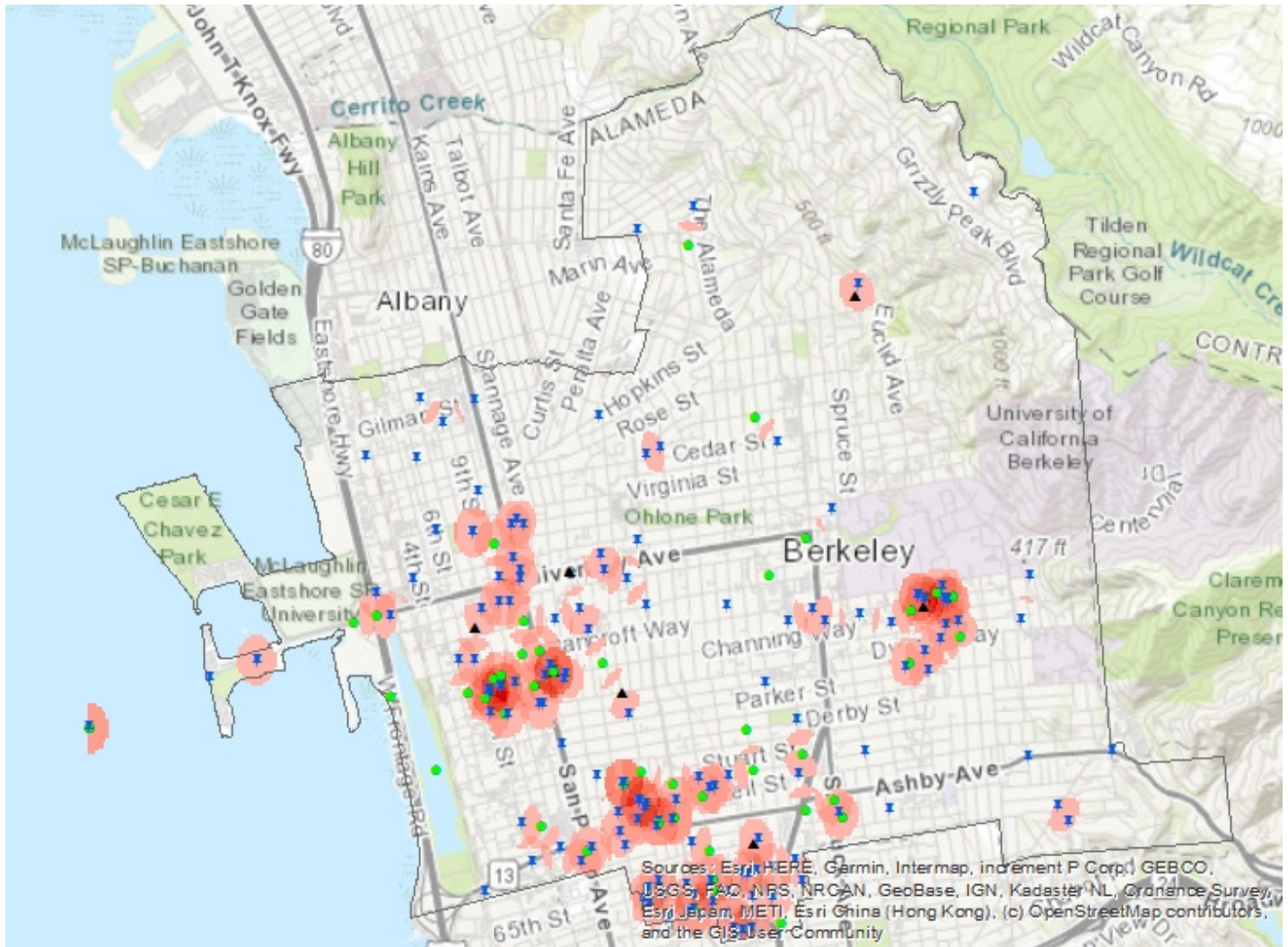
<sup>19</sup> *Ch. 13.72 Discharge of Firearms*. (n.d.). Berkeley Municipal Code. Retrieved April 8, 2023, from <https://berkeley.municipal.codes/BMC/13>.

<sup>20</sup> *Ch. 13.73.010 Non-Serialized Firearms*. (n.d.). Berkeley Municipal Code: PROHIBITION OF POSSESSION OR SALE OF NON-SERIALIZED, UNFINISHED FIREARM FRAMES OR RECEIVERS AND NON-SERIALIZED FIREARMS. Retrieved April 17, 2023, from <https://berkeley.municipal.codes/BMC/13.73.010>

<sup>21</sup> The Point Density Tool calculates a magnitude-per-unit area from point features that fall within an area around each cell. The sum value of points within a search area (neighborhood) is divided by the search area size to get each cell's density value. Conceptually, a neighborhood is defined around each raster cell center, and the number of points that fall within the neighborhood is totaled and divided by the area of the neighborhood. calculates the magnitude per unit area from point features within a neighborhood.



offenders are known to reside. Below we have shown the full picture of the city with the Point Density layered on top. A zoomed in portrait of each of one can be found in Appendix C.



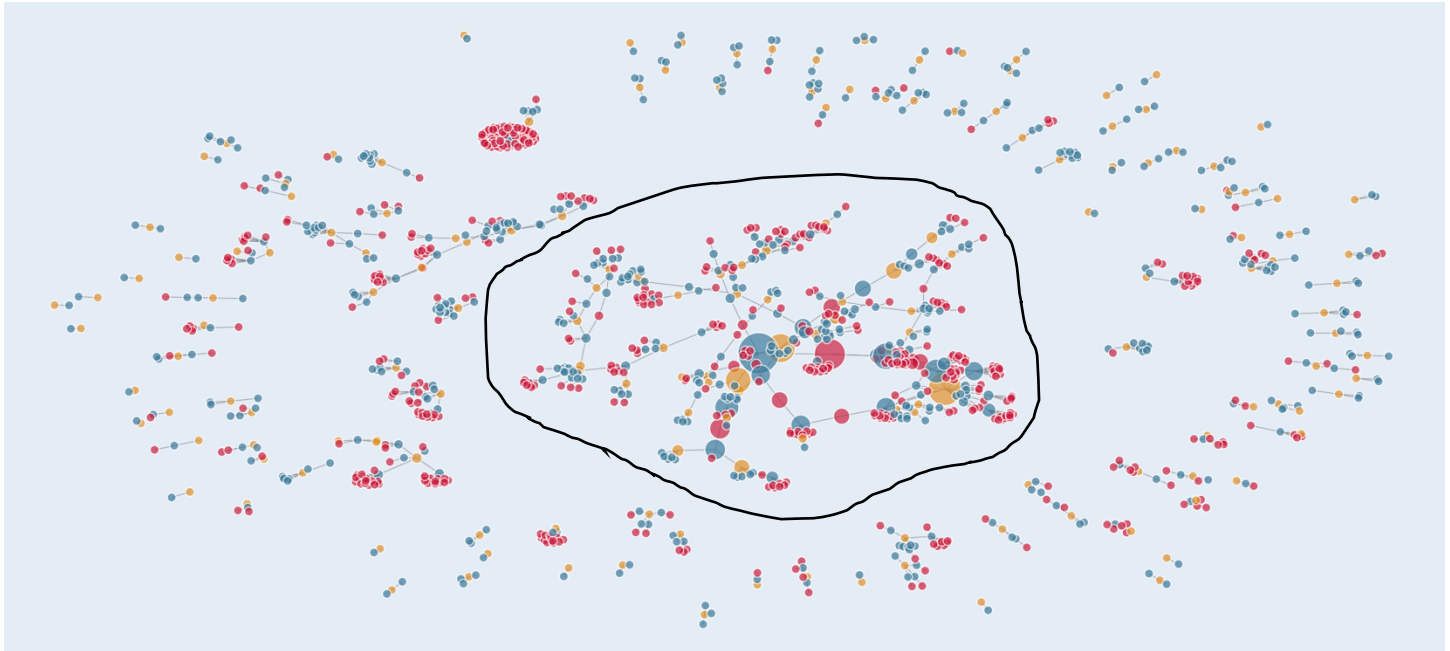
Temporal analysis of shootings in Berkeley reveals very little. There are not clear patterns about how shooting locations have changed over the last five years. There does not seem to be an identifiable pattern when viewing the shootings by quarter year.

### Social Network Analysis

*“By identifying high-risk individuals and transmission pathways that might not be detected by other means, a contagion-based approach could detect strategic points of intervention that would enable measures to proactively reduce the trauma associated with gun violence rather than just react to past incidents...such a contagion-based approach is centered on the*

*subjects of gun violence and...has the potential to move the larger public dialogue on gun violence away from efforts that rest largely on geographic or group-based policing efforts that tend to disproportionately affect disadvantaged minority communities.” – Green, Horel, and Papachristos (2017)<sup>22</sup>*

Social Network Analysis allowed us to see clearly that what Berkeley has is akin to other cities. We have a large network of incidents, suspects/detained parties/arrested, and victims. Within that network is a denser, more interconnected network at the center compared to the larger network. See below:



It is important that the distal effects of exposure are considered. With any SNA intervention, we should include not just immediate ties to victims and perpetrators but also their indirect 2<sup>nd</sup> degree and higher order ties.<sup>23</sup> Likelihood of victimization is two to three times greater if one has a social tie to a victim than if they have no exposure to victims.<sup>24</sup> This accounts for how transmissible victimization within networks.<sup>25</sup> In Boston’s Cape Verdean network, researchers found 85% of victims in the large component.<sup>26</sup> In Newark, 33% of all shootings occurred in network components comprising approximately less than 4% of the entire population.<sup>27</sup> Clustering also occurs *within* a network – you can

<sup>22</sup> Green, B., Horel, T., & Papachristos, A. V. (2017). Modeling contagion through social networks to explain and predict gunshot violence in Chicago, 2006 to 2014. *JAMA Internal Medicine*, 177(3), 326. <https://doi.org/10.1001/jamainternmed.2016.8245>

<sup>23</sup> Papachristos, A. V., Wildeman, C., & Roberto, E. (2015). Tragic, but not random: The social contagion of nonfatal gunshot injuries. *Social Science & Medicine*, 125, 139–150. <https://doi.org/10.1016/j.socscimed.2014.01.056>

<sup>24</sup> Id.

<sup>25</sup> Green, B., Horel, T., & Papachristos, A. V. (2017). Modeling contagion through social networks to explain and predict gunshot violence in Chicago, 2006 to 2014. *JAMA Internal Medicine*, 177(3), 326. <https://doi.org/10.1001/jamainternmed.2016.8245>

<sup>26</sup> Papachristos, A. V., Braga, A. A., & Hureau, D. M. (2012). Social networks and the risk of gunshot injury. *Journal of Urban Health*, 89(6), 992–1003. <https://doi.org/10.1007/s11524-012-9703-9>

<sup>27</sup> Papachristos, A. V., Braga, A. A., Piza, E., & Grossman, L. S. (2015). The company you keep? The spillover effects of gang membership on individual gunshot victimization in a co-offending network: gang membership, networks, & victimization. *Criminology*, 53(4), 624–649. <https://doi.org/10.1111/1745-9125.12091>



see dense pockets of individuals connected to each other by a small number of ties. While perhaps not as extreme, Berkeley's network follows a similar dynamic, as is visually apparent.

## Key Criteria

**Do not allow non-police interventions in a program to amount to more than the allotted \$1 million.** Berkeley Police explained to me that that budget was for non-police interventions. The annual Ceasefire budget that was passed by the City Council is for non-police interventions of one million dollars in sum. Anything of that nature under the umbrella of the program cannot exceed this amount annually. This is the most difficult criterion to fulfill, as we will see that most non-police program elements likely surpass this budget. It is probable more funds will need to be procured, and demonstrated project success will help the city to prioritize and justify more funding.

**Reduction of shootings by 10% per year.**<sup>28</sup> For Berkeley this amounts to about 5 shootings per year. This is the basic measure of effectiveness for the project, supported by literature – specifically it is the recommendation to law enforcement by the Council on Criminal Justice. This criterion is essential, although it may take time to achieve. Any reduction should be seen as a success. But, the program should be flexible enough to allow for alterations to be made continually to enable the program to get to a 10% reduction in shootings annually.

**The program needs to be workable to the City Manager's Office that will authorize the program.** This report will be read and implemented by the Office of the City Manager. It is necessary that the report is understandable from their point of view and also acceptable from a political standpoint. The city is still hiring for the specific position of Assistant to the City Manager so it is impossible to know the constraints they will bring to the project.

**This program needs to avoid delegitimizing the Berkeley police, instilling fear of crime in Berkeley residents, and decreasing the community's collective efficacy.**<sup>29, 30</sup> These metrics are signs that the community-police relationship is breaking down. Police legitimacy means that the public consents to police authority and sees their part of the contract as obeying city laws. Crime spikes or hostility toward police are signs that police legitimacy is decreasing. Fear of crime can occur when a portion of the city is visually seeing more police in their immediate vicinity and interpreting this as a sign that crime has increased. When fear of crime increases in a city, fewer people interact with their neighbors or report incidents that they feel are happening all the time. Collective efficacy is the social cohesion of a group, which allows for residents to enforce mutually agreed upon norms and rules for their neighborhood. Ensuring community-police relationship success is critical to the mission of reducing gun violence. Even if short-term goals are achieved, a breakdown could offset any gains in long-term crime control.<sup>31</sup> A community survey or way for residents to report how they are feeling and behaving in their neighborhood after the treatment begins would be a good start to evaluating this

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<sup>28</sup> Saving lives: Ten essential actions cities can take to reduce violence now. (2022, January 12). *Council on Criminal Justice*. <https://counciloncj.org/10-essential-actions/>

<sup>29</sup> Weisburd, D., Bushway, S., Lum, C., & Yang, S.-M. (2004). Trajectories of crime at places: A longitudinal study of street segments in the city of Seattle\*. *Criminology*, 42(2), 283–322. <https://doi.org/10.1111/j.1745-9125.2004.tb00521.x>

<sup>30</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>31</sup> Id.

metric. If funds allow, having a polling agency do this work formally would go a long way to ensuring the health of the community-police relationship.

**Continually monitor the program and analyze progress to ensure success.** Ensure that there are personnel to monitor and evaluate the program in its infancy and on the annual. Both budget and effectiveness need to be monitored. The budget constraints are above, and it needs to be reviewed not only annually but as the program goes along to make sure that non-police interventions will not exceed the one million dollar figure at year's end. In terms of effectiveness we know that our aim is about 5 fewer shootings per year. *But*, we want to stay in touch with different safety practitioners to make sure that what is being seen and heard on the ground lines up with this goal – even before the year is over.

**Use of police and non-police resources.** It is well known that the police are not a multitool for all public safety issues. Many issues can be addressed or improved using city services or community-based organizations (CBOs). The gun violence intervention program needs to utilize both the capabilities of law enforcement and the different services available through the city or CBOs.

## Program components

### Component #1: Hot Spots Policing/Place-based Policing

Based on a long history of experimental and quasi-experimental studies and evidence, it is now known that hot spots policing – focusing on places not people – is an effective crime prevention strategy.<sup>32, 33, 34</sup> Hot spots are identified by creating a crime map, usually with a GIS mapping system, plotting incidents, and using one of the various mathematical hot spot tools to highlight where crime convergence is unusually high compared to other micro-units of a city. Police randomly idle at hot spots every several hours and remain there for 15-20 minutes.<sup>35</sup> An absolute minimum of 10 minutes must be spent there to have a crime control effect and some “survival time”.<sup>36</sup> Survival time is the amount of time after police leave that an area remains disorder- and crime-free.<sup>37</sup> Koper (1995) studied the residual deterrent effects of police patrols in hot spots and whether longer “dosages” (time spent at a hot spot) created stronger effects. He found that each additional minute of police presence increased survival time by 23%.<sup>38</sup>

Two theories underpin this strategy. First, deterrence: police can maximize crime and disorder reduction at hot spots simply by being visible randomly and intermittently, thus maximizing deterrence and minimizing the amount of

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<sup>32</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>33</sup> Braga, A. A., Papachristos, A. V., & Hureau, D. M. (2010). The concentration and stability of gun violence at micro places in Boston, 1980–2008. *Journal of Quantitative Criminology*, 26(1), 33–53. <https://doi.org/10.1007/s10940-009-9082-x>

<sup>34</sup> Skogan, W. G., & Frydl, K. (2004). *Fairness and effectiveness in policing: The evidence*. National Academies Press.

<sup>35</sup> Koper, C. S. (1995). Just enough police presence: Reducing crime and disorderly behavior by optimizing patrol time in crime hot spots. *Justice Quarterly*, 12(4), 649–672. <https://doi.org/10.1080/07418829500096231>

<sup>36</sup> Id.

<sup>37</sup> Id.

<sup>38</sup> Id.



unnecessary time spent at hot spots. Second, crime opportunity reduction: police presence modifies the opportunity structure to cause crime and disorder at hot spots.<sup>39</sup>

The concern has often been, if you are patrolling certain micro-locations more often, you might encounter negative crime spillover effects to neighboring areas as the hot spot is recognized to encounter police more often.<sup>40</sup> However, several studies have shown that what is more likely is the diffusion of crime control benefits into the surrounding areas, not crime displacement.<sup>41, 42, 43, 44</sup>

In one small city in the Midwest, continual adjustment of hot spots, and active management and tracking of patrols helped keep officers diligent as a trend has been that effectiveness of this intervention decreases over time. This study showed that without deep problem solving efforts, a sustained visible presence approach can also serve to impact crime over the long run.<sup>45</sup> This strategy can easily be operationalized for Berkeley gun violence. For this report, hot spot analysis was run and seven locations were identified [12].

## Component #2: Hot Spots Policing Version of Problem-Oriented Policing (POP)

The same theories of deterrence and opportunity reduction underlie POP at hot spots. Braga (2012) found that POP programs that incorporate hot spots policing produced effect sizes more than double those produced by hot spots studies only on police presence.<sup>46</sup> POP is associated with statistically significant impacts on crime reduction and shows no evidence of crime displacement.<sup>47</sup>

The first step to POP at each hot spot is identifying the spots, bumping up police presence for the near future, and spending that same 15 minutes every few hours of patrol at the spot, patrolling and scanning for potential problems

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<sup>39</sup> Braga, A. A., Turchan, B. S., Papachristos, A. V., & Hureau, D. M. (2019). Hot spots policing and crime reduction: An update of an ongoing systematic review and meta-analysis. *Journal of Experimental Criminology*, 15(3), 289–311. <https://doi.org/10.1007/s11292-019-09372-3>

<sup>40</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>41</sup> Braga, A. A., Turchan, B. S., Papachristos, A. V., & Hureau, D. M. (2019). Hot spots policing and crime reduction: An update of an ongoing systematic review and meta-analysis. *Journal of Experimental Criminology*, 15(3), 289–311. <https://doi.org/10.1007/s11292-019-09372-3>

<sup>42</sup> Sherman, L. W., & Weisburd, D. (1995). General deterrent effects of police patrol in crime “hot spots”: A randomized, controlled trial. *Justice Quarterly*, 12(4), 625–648. <https://doi.org/10.1080/07418829500096221>

<sup>43</sup> Weisburd, D., Wyckoff, L. A., Ready, J., Eck, J. E., Hinkle, J. C., & Gajewski, F. (2006). Does crime just move around the corner? A controlled study of spatial displacement and diffusion of crime control benefits. *Criminology*, 44(3), 549–592. <https://doi.org/10.1111/j.1745-9125.2006.00057.x>

<sup>44</sup> Bowers, K. J. (2004). Prospective hot-spotting: The future of crime mapping? *British Journal of Criminology*, 44(5), 641–658. <https://doi.org/10.1093/bjc/azh036>

<sup>45</sup> Koper, C. S., Lum, C., Wu, X., & Hegarty, T. (2021). The long-term and system-level impacts of institutionalizing hot spot policing in a small city. *Policing: A Journal of Policy and Practice*, 15(2), 1110–1128. <https://doi.org/10.1093/policing/paaa096>

<sup>46</sup> Braga, A. A. (2008). *Problem-oriented policing and crime prevention* (2nd ed). Willow Tree Press.

<sup>47</sup> Hinkle, J. C., Weisburd, D., Telep, C. W., & Petersen, K. (2021). Problem-oriented policing for reducing crime and disorder: An updated systematic review and meta-analysis. *CrimRxiv*. <https://doi.org/10.21428/cb6ab371.5277ad69>

using the SARA method (see Literature Review [50]). Regarding what to do at each spot, most traditionally the S.A.R.A. method (Scanning-Analysis-Response-Assessment) is used when applying POP.<sup>48</sup>

Police presence is theorized to deter would-be criminal acts from occurring, and this bears out in the research.<sup>49</sup> This deterrence is key, but in practice it cannot go on forever. While there, police document problems that could facilitate crime, whether they be social or environmental. That is where other entities, and the police department staff that liaises with them, come into play. Depending on the unique environment of each hot spot, the department would come together and determine what non-police interventions would transform the location. This could involve street teams to diffuse possibly violent situations, street lighting, the addition of green space, among many other interventions. If these transformations cause the area to be perceived differently by would-be criminals (again, this bears out in the research), the program's impact has the staying power to continue to deter gun violence longer than simply patrolling hot spots.

### Social Network Analysis, Focused Deterrence, and Social Services

Some social network analysis (SNA) was done for this report. Further SNA may have to be done as time passes or as other alternatives are identified. "Gunshot violence follows an epidemic-like process of social contagion that is transmitted through networks of people by social interactions."<sup>50</sup> Social network analysis allows police to see clearly which people are most connected to incidents of gun violence and either victims or perpetrators of gun violence.<sup>51, 52, 53</sup> Studies show that it is these individuals who are most at risk of becoming involved in gun violence for the first time or again. The theories of change here are deterrence and social supports.

### Component #3: SNA and Focused Deterrence/Custom Notifications

From SNA the police can identify those most at-risk of gun violence perpetration or victimization. The task then is to deliver a message that violence will no longer be tolerated in the community and that any violence will be met with swift consequences. Champaign, Illinois has a program where these "custom notifications" are not done by law enforcement

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<sup>48</sup> Eck, J. E., & Spelman, W. (1987). *Problem-solving: Problem-oriented policing in Newport News*. U.S. Dept. of Justice, National Institute of Justice.

<sup>49</sup> Koper, C. S. (1995). Just enough police presence: Reducing crime and disorderly behavior by optimizing patrol time in crime hot spots. *Justice Quarterly*, 12(4), 649–672. <https://doi.org/10.1080/07418829500096231>

<sup>50</sup> Green, B., Horel, T., & Papachristos, A. V. (2017). Modeling contagion through social networks to explain and predict gunshot violence in Chicago, 2006 to 2014. *JAMA Internal Medicine*, 177(3), 326. <https://doi.org/10.1001/jamainternmed.2016.8245>

<sup>51</sup> Zeoli, A. M., Pizarro, J. M., Grady, S. C., & Melde, C. (2014). Homicide as infectious disease: Using public health methods to investigate the diffusion of homicide. *Justice Quarterly*, 31(3), 609–632. <https://doi.org/10.1080/07418825.2012.732100>

<sup>52</sup> Papachristos, A. V., Braga, A. A., & Hureau, D. M. (2012). Social networks and the risk of gunshot injury. *Journal of Urban Health*, 89(6), 992–1003. <https://doi.org/10.1007/s11524-012-9703-9>

<sup>53</sup> Papachristos, A. V., Wildeman, C., & Roberto, E. (2015). Tragic, but not random: The social contagion of nonfatal gunshot injuries. *Social Science & Medicine*, 125, 139–150. <https://doi.org/10.1016/j.socscimed.2014.01.056>

but by a community-based organization.<sup>54</sup> This is because when police do notifications, receptivity of that “hard” message by individuals can be very low.<sup>55</sup>

At the least, in Berkeley, street outreach or social workers would need to accompany the police for the delivery of the custom notification and/or provide a written notice of zero tolerance signed by the police chief. The notice would detail that individual’s legal vulnerabilities for their specific criminal history. Avoidance of punishment, theoretically and empirically, is what drives gun violence down. So, for focused deterrence to work, the desire to avoid punishment needs to be there.

After the individual is given the “hard” message, the CBO can deliver the helping or “soft” message. The “soft” message is that neither the CBO nor the police nor the individual’s family want to see them dead from gun violence, and essentially, they all want to help lift this person out of a violent future. They offer the individual various services to help them navigate a new way forward. The downside to this intervention is that the individual can reject both messages, stay involved in violence, and refuse social services. Focused deterrence has credibility in the literature but is by no means the only way the police can utilize SNA.

#### Component #4: SNA and Social Services

Through identification using SNA, the police can connect at-risk people with community-based organization case managers and thus to social services. This can include case management broadly, mental health services, housing assistance, reentry services for the formerly incarcerated, economic opportunity (employment, training), restorative justice, among other services.

The vast majority of these types of interventions would require the city to partner with CBOs or other city departments<sup>56</sup> and, as with environmental improvements in Problem Solving Policing, require some sort of go-between for the Berkeley Police Department to monitor the course of the program. The theory of change here is that with additional social supports, the impetus to turn to delinquency and gun violence decreases.<sup>57</sup> For example, for the young man who is occasionally dealing drugs with a gun and has many connections to gunshot victims, perhaps job training and employment may provide him financial incentive to refrain from carrying a handgun and dealing drugs. For the older gang member, perhaps stable housing opportunities for their family would remove them from the geographic area the gang operates in and provide a way out of life on the street. These are just examples, but very targeted social services can and do change people’s motivations for engaging in violence.<sup>58</sup> There is not much of a role for law enforcement to play in this intervention, it is more a city-CBO partnership that precludes the “hard” message described above.

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<sup>54</sup>Elvir, J. (2023, March 22). *Champagne, Illinois Blueprint Program* [Zoom].

<sup>55</sup> Id.

<sup>56</sup> *Pivot*. (n.d.). Retrieved February 15, 2023, from <https://www.cincinnati-oh.gov/police/community-involvement/pivot/>

<sup>57</sup> Braga, A. A., Papachristos, A. V., & Hureau, D. M. (2010). The concentration and stability of gun violence at micro places in Boston, 1980–2008. *Journal of Quantitative Criminology*, 26(1), 33–53. <https://doi.org/10.1007/s10940-009-9082-x>

<sup>58</sup> Id.

## Component #5 Warrants to Remove Firearms from Domestic Abusers (DVROs) and Individuals Posing a Danger to Themselves or Others (GVROs), Court-Issued Protective Orders, and Criminal Protective Orders (CPOs)

Combining the use of DVROs with GVROs, Court-Issued Protective Orders, and CPOs might be impactful. Each of these are aimed at preventing people deemed to be a danger to themselves or others from possessing a firearm.<sup>59</sup> GVROs – also referred to as “red flag laws” – are court-issued orders that temporarily suspend a person’s access to firearms when they are found to pose a significant risk to themselves or others by having legal access to firearms or ammunition. Court-Issued Protective Orders are certain orders from a court prohibiting specified persons (also called the “restrained party” or “respondent”) from possessing firearms or ammunition. CPOs are like DVROs, but are issued by a court during a criminal case, or after a finding of guilt. Like GVROs and DVROs, CPOs prohibit the subject of the order from possessing firearms or ammunitions.<sup>60</sup> Using each of these more and in addition to DVROs would augment the strategy of using DVROs more often in the community.

## Component #6 Street Outreach Workers/Violence Interrupters

Out of the public health science of behavioral epidemiology emerged the idea that violence is a social contagion capable of spreading from individual to individual based on exposure.<sup>61</sup> Street Outreach Workers or “Violence Interrupters” address this cause by being a presence on the street, stopping the spread of the contagion of violence. Street Outreach Workers help identify violence and interrupt or mediate it in real time. They are credible messengers, often formerly incarcerated or have been involved in or affected by violence in the past. They bolster any law enforcement intervention they aid due to that credibility.<sup>62</sup> They often have connections to or knowledge of the street life, culture, and “code”, and can be a quality “go-between” for those living a life of violence and the larger gun violence intervention program.<sup>63</sup>

Operating beneath this strategy is the aim to increasing informal social controls – or fortifying a community’s collective norms and standards of conduct, and encouraging community members to uphold them. When done well it “marries the goal of strengthening a community’s moral voice against violence with the imperative to offer help to its highest risk population.”<sup>64</sup> It also lends itself to concrete violence interventions, such as controlling rumors during moments of

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<sup>59</sup> *Domestic violence restraining orders and gun violence restraining orders*. (2022, September 20). State of California - Department of Justice - Office of the Attorney General. <https://oag.ca.gov/ogvp/gvro-dvro>

<sup>60</sup> Id.

<sup>61</sup> Butts, J. A., Roman, C. G., Bostwick, L., & Porter, J. R. (2015). Cure violence: A public health model to reduce gun violence. *Annual Review of Public Health*, 36(1), 39–53. <https://doi.org/10.1146/annurev-publhealth-031914-122509>

<sup>62</sup> Considering the place of streetwork in violence interventions. (n.d.). *National Network for Safe Communities (NNSC)*. Retrieved March 31, 2023, from <https://nnscommunities.org/guides/considering-the-place-of-streetwork-in-violence-interventions/>

<sup>63</sup> Id.

<sup>64</sup> *Op-ed: What we know (And don’t know) about street outreach and gun violence prevention*. (2021, October 25). Chicago Tribune. <https://www.chicagotribune.com/opinion/commentary/ct-opinion-chicago-gun-violence-street-outreach-20211025-6pylamxs5jzazhyya3x3nb3eya-story.html>



conflict, calming people down to defuse potential retaliation, and mentoring people at high risk of hurting someone or being hurt”.<sup>65</sup>

### Component #7 Hospital-Based Violence Intervention

Hospital-Based Violence Intervention Programs identify violently injured patients and intervene at their hospital bedside immediately following a violent victimization. Patients are assigned a case manager or social worker who evaluates patients based on the patient’s perception of their own psychosocial, emotional, or financial needs and connects them with providers in the community that are capable of addressing those needs. Various models tend to emphasize that case workers need to be culturally competent and it is beneficial if they come from similar environments as patients. In the San Francisco Bay Area, there are two such programs. The Wraparound Program is run by Zuckerberg San Francisco General Hospital, and they utilize hospital social worker staff to work with patients if they opt in.<sup>66</sup> The other is run through Highland Hospital in Oakland by YouthAlive! – a CBO.<sup>67</sup> I was unable to reach these programs to better understand their similarities and differences. That said, gunshot victims in Berkeley go to Highland Hospital as it is the local Trauma 1 hospital.

### Component #8 Gun Buyback Programs

Gun buyback programs are a supply-side oriented tactic to reduce gun violence. Gun buyback programs are “no-questions-asked”, anonymous forums for community members to relinquish weapons in exchange for monetary value – usually cash or a gift card. The theory of change here is financial – money incentivizes those willing to part with their weapon to do so, thereby the community becomes safer for each gun collected in the buyback program.

### Longer Term Solutions Addressing the Root Causes of Gun Violence

It is indisputable that addressing the root causes of negative social phenomena improves well-being and has a decreasing effect on violence overall. Berkeley should either start or continue to improve public schools, lessen income inequality and poverty, invest in quality public housing and public services, and build social bridges so under-resourced community members can thrive. They should continue to minimize easy access to firearms by high-risk people – legislatively or via the warrant described above. However, the urgency of this issue makes these longer term solutions drive change over the course of years not months, and are thus outside the particular scope of this project. These solutions should, however, absolutely be part of the normal operations of the city of Berkeley.

## Evaluating Components Using Criteria

### Hot Spots Policing

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<sup>65</sup> Considering the place of streetwork in violence interventions. (n.d.). *National Network for Safe Communities (NNSC)*. Retrieved March 31, 2023, from <https://nnscommunities.org/guides/considering-the-place-of-streetwork-in-violence-interventions/>

<sup>66</sup> *Wraparound project*. (n.d.). Retrieved May 5, 2023, from <https://wraparound.ucsf.edu/>

<sup>67</sup> O’Brien, J. (2019, June 20). Dinner honors clients, highland social workers. *Youth ALIVE!* <https://www.youthalive.org/dinner-honors-clients-highland-social-workers/>

The majority of the U.S. public believes policing is more cost-effective than incarceration and supports focus on sentinel patrols (patrolling and prevention rather than solving crimes already committed) and crime Hot Spots Policing (HSP).<sup>68</sup> This is relevant because it is common knowledge that Berkeley is to the political left of the U.S. average and therefore is less punitive.

There is very robust evidence not only that hot spots policing is an effective crime prevention strategy but that it has significant diffusion of crime control benefits rather than crime displacement.<sup>69</sup> It is well established that mere presence of law enforcement at hot spots is sufficient to deter crime.<sup>70, 71, 72, 73</sup> “Crime prevention is maximized when police focus resources on these micro-units of geography.” While this may seem controversial at the outset, understanding that the micro-units examined here are street segments or intersections. No neighborhood or city area is targeted broadly. Hot spots here are hyper-local locations where there has been a convergence of shootings surrounding that spot. 20 out of 25 experimental or quasi-experimental evaluations report crime reductions, so the vast majority, suggest that when police focus in on this micro-unit they can positively impact public safety in that area.<sup>74</sup>

The Berkeley Police Department says that HSP could be accomplished without increasing costs, with officers spending more time at hot spots along their regular beats. During the day shift there are 14 beats (down from 16 due to staffing shortages). During the night shift they collapse into seven. Each hot spot would require officer presence for 15 minutes every few hours at random.<sup>75</sup> The main cost of this alternative is a department-wide training where all officers would be taught the efficacy and responsibilities of performing Hot Spots Policing.

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<sup>68</sup> Metcalfe, C., & Pickett, J. T. (2018). The extent and correlates of public support for deterrence reforms and hot spots policing: Deterrence reforms and hot spots policing. *Law & Society Review*, 52(2), 471–502. <https://doi.org/10.1111/lasr.12327>

<sup>69</sup> Braga, A. A., Turchan, B. S., Papachristos, A. V., & Hureau, D. M. (2019). Hot spots policing and crime reduction: An update of an ongoing systematic review and meta-analysis. *Journal of Experimental Criminology*, 15(3), 289–311. <https://doi.org/10.1007/s11292-019-09372-3>

<sup>70</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>71</sup> Braga, A. A., Turchan, B. S., Papachristos, A. V., & Hureau, D. M. (2019). Hot spots policing and crime reduction: An update of an ongoing systematic review and meta-analysis. *Journal of Experimental Criminology*, 15(3), 289–311. <https://doi.org/10.1007/s11292-019-09372-3>

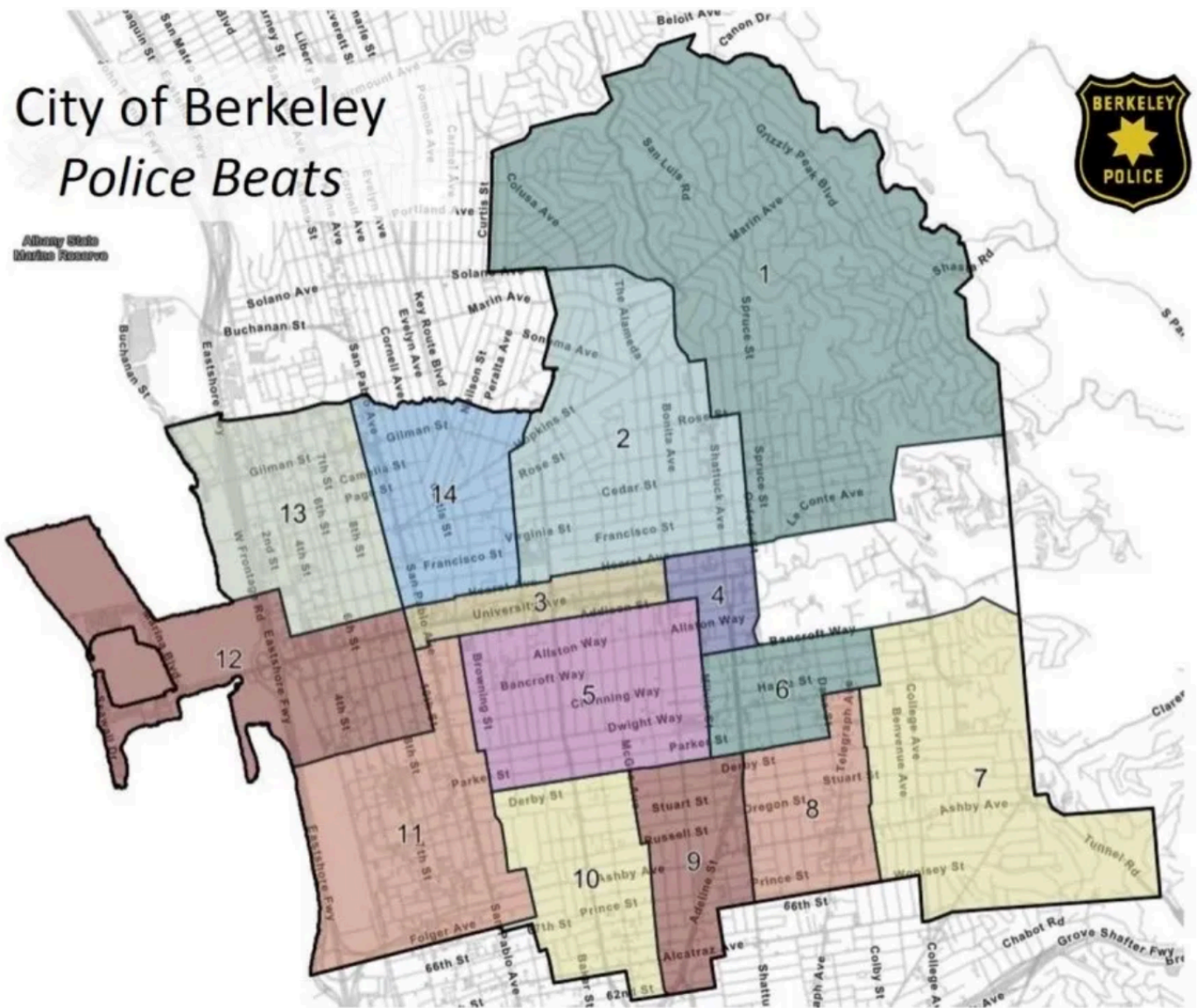
<sup>72</sup> Braga, A. A., Papachristos, A. V., & Hureau, D. M. (2010). The concentration and stability of gun violence at micro places in Boston, 1980–2008. *Journal of Quantitative Criminology*, 26(1), 33–53. <https://doi.org/10.1007/s10940-009-9082-x>

<sup>73</sup> Skogan, W. G., & Frydl, K. (2004). *Fairness and effectiveness in policing: The evidence*. National Academies Press.

<sup>74</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>75</sup> Koper, C. S. (1995). Just enough police presence: Reducing crime and disorderly behavior by optimizing patrol time in crime hot spots. *Justice Quarterly*, 12(4), 649–672. <https://doi.org/10.1080/07418829500096231>

## City of Berkeley Police Beats



*Berkeley Daytime Beats (collapse into eight at night)*<sup>76</sup>

Crime concentration has been studied in small cities some, and those studies have concluded that crime concentrates more not less in small cities. Generally, “reducing crime by 20% at hot spots that generate 50% of a jurisdiction’s crime should reduce the locality’s overall crime level by roughly 10%.”<sup>77</sup> “City leaders should commit to tangible reductions in these measures. Annual 10% reductions in homicides and non-fatal shootings are realistic goals.”<sup>78</sup> It is likely that this intervention will reduce shootings by 10% annually for as long as the program can be maintained. I am confident in this

<sup>76</sup> Berkeley Police Department, 2023

<sup>77</sup> Nagin, D. S., & Sampson, R. J. (2019). The real gold standard: Measuring counterfactual worlds that matter most to social science and policy. *Annual Review of Criminology*, 2(1), 123–145. <https://doi.org/10.1146/annurev-criminol-011518-024838>

<sup>78</sup> Saving lives: Ten essential actions can take to reduce violence now. (2022, January 12). *Council on Criminal Justice*. <https://counciloncj.org/10-essential-actions/>



with one strong caveat: the gun violence concentration in hot spots does not reach 50% of overall levels, so it is harder to project just how much gun violence will drop.

I am also confident that the issue of gun violence is poignant enough to make this intervention politically feasible. It is BPD's experience that the city council has an appetite for law enforcement action to address gun violence. While the Assistant to the City Manager has not been hired yet, we can have moderate confidence in interpreting this appetite as consistent in city government.

"It is not entirely clear whether police can achieve and maintain such 'system-level' impacts through HSP."<sup>79</sup> There is strong evidence of eventual of deterrence decay – due to either police loss of focus or fatigue.<sup>80</sup> Another weakness of this alternative is that it is truly short-term and difficult to maintain. Decay can also be caused by non-geographical crime displacement such as offense type, target, or temporal displacement.<sup>81</sup> Displacement by type is when offenders switch crime; displacement by target is when they change who they are victimizing; and displacement temporally is when time or date is altered to avoid detection.<sup>82</sup>

"Prior studies of HSP, which have often focused on pilot or other temporary programs, have mostly used follow-up periods ranging from a few months or less (in most studies) to 1–2 years; very rarely have they gone beyond 2 or 3 years to assess the long-term institutionalization and impacts of these strategies. Notably, the studies of HSP's aggregate-level effects highlighted above spanned several months at most."<sup>83</sup> In one exception, a study of the HSP program in Manhattan, Kansas over the course of 8 years, violent crime dropped by 39.8% over 8 years. But, strength of the effect did weaken over time.<sup>84</sup>

The perception of aggressive policing may drive a wedge between the community and police. Studies have conflicted on whether HSP produces a negative impact on police legitimacy but most study data do not support that concern.<sup>85</sup> Resident fear of crime at hot spots is relatively unaffected by increased police intervention. There is little empirical evidence to date on the impact of HSP approaches on citizens in targeted areas in terms of fear, collective efficacy, or

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<sup>79</sup> Nagin, D. S., & Sampson, R. J. (2019). The real gold standard: Measuring counterfactual worlds that matter most to social science and policy. *Annual Review of Criminology*, 2(1), 123–145. <https://doi.org/10.1146/annurev-criminol-011518-024838>

<sup>80</sup> Koper, C. S., Lum, C., Wu, X., & Hegarty, T. (2021). The long-term and system-level impacts of institutionalizing hot spot policing in a small city. *Policing: A Journal of Policy and Practice*, 15(2), 1110–1128. <https://doi.org/10.1093/police/paaa096>

<sup>81</sup> Id.

<sup>82</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>83</sup> Eck, J. (1993). Criminal Justice Abstracts. *Problem Solving Quarterly: A Police Executive Research Forum Publication Reporting on Innovative Approaches to Policing*, 6(3), 1–2.

<sup>84</sup> Koper, C. S., Lum, C., Wu, X., & Hegarty, T. (2021). The long-term and system-level impacts of institutionalizing hot spot policing in a small city. *Policing: A Journal of Policy and Practice*, 15(2), 1110–1128. <https://doi.org/10.1093/police/paaa096>

<sup>85</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>



attitudes toward the police more generally.<sup>86</sup> Based on these overall findings, I am very confident that HSP has low or no negative impact on fear, collective efficacy, or police legitimacy.

### Hot Spots Version of Problem-Oriented Policing (POP)

Implementing POP at hot spots would use normal staff hours and beats, not increasing costs. It *would* require training, redirecting patrols, or rearranging staff activities (including researcher/analyst capacity) which would likely cost less than \$1 million, but this intervention is not beholden to that criterion. It would require heavy use of the Violence Prevention Working Group and the Crime Prevention Through Environmental Design (CPTED) strategies – a multi-disciplinary approach to reduce opportunities for crime that are inherent in structure design, architectural planning and design, and the management of natural environments.<sup>87</sup> According to John Eck, Ph.D., this approach needs to recognize who has power over places, and that is primarily property owners – landlords, homeowners, public housing authorities, and businesses that own their buildings. These people need to buy in to whatever changes Berkeley wants to make to specific environments that are relevant to them.

Few studies have done cost-benefit analysis on this intervention but in all cases where cost-benefit was measured, POP projects were associated with a substantial cost savings.<sup>88</sup> A meta-analysis of POP programs shows statistically significant reduction in crime by 34%. But, specifically, violent crime studies did not yield a significant effect but the reduction was still positive, 9.5%. There are some violent crime studies in the meta-analysis but they don't have the same large drops that property crime studies show. Still, studies show evidence of some impact of POP programs.<sup>89</sup> It shows no evidence of crime displacement and possibly diffusion of crime benefits.<sup>90</sup> It is proven that things that are aggressive do not work as well as things that are problem-solving.<sup>91</sup> I am somewhat confident that it is likely to reduce shootings by about 10%.

Because this strategy does not direct patrols only, but focuses on problem-solving and may leverage non-police resources like city services, it is less controversial as there is less of a chance of increased enforcement on low-income neighborhoods of color. This will make it more palatable to Berkeley residents and politicians. These changes, unlike altered patrolling alone, are far more sustainable over time. POP (and CPTED) is more capable of maintaining its negative impact on crime over time. You may have multiple iterations of solving the problem (e.g. maintaining green space) but this is doable.

In the meta-analysis of P.O.P. Six, eight, and three studies collectively show limited impact on police legitimacy, fear of crime, and collective efficacy respectively. The most rigorous study designs show little to no decrease on police legitimacy but, the studies are not consistent with one another. Often, they show that people who live near target

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<sup>86</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>87</sup> *Current trends*. (n.d.). Retrieved March 7, 2023, from <https://bpd-transparency-initiative-berkeleypd.hub.arcgis.com/pages/current-trends>

<sup>88</sup> Braga, A. A., Turchan, B. S., Papachristos, A. V., & Hureau, D. M. (2019). Hot spots policing and crime reduction: An update of an ongoing systematic review and meta-analysis. *Journal of Experimental Criminology*, 15(3), 289–311. <https://doi.org/10.1007/s11292-019-09372-3>

<sup>89</sup> Hinkle, Joshua C., et al. "Problem-Oriented Policing for Reducing Crime and Disorder: An Updated Systematic Review and Meta-Analysis." *CrimRxiv*, July 2021. *DOI.org (Crossref)*, <https://doi.org/10.21428/cb6ab371.5277ad69>.

<sup>90</sup> Id.

<sup>91</sup> Eck, J. (2023, March 24). *Professor of Criminal Justice at the University of Cincinnati* [Zoom].

problem sites are more susceptible to fear of crime.<sup>92</sup> Collectively, they show mixed and inconsistent effects on collective efficacy.

According to John Eck, Ph.D., the main downside to this is that it is most likely to reduce shootings over a period of months or years, not necessarily right away. There will need to be interim solutions while that success is being developed. Hot spots patrol can certainly fill that gap, or other interventions.<sup>93</sup> Depending on urgency and how easily the “problems” can be addressed, this may or may not be preferable in Berkeley.

### SNA and Focused Deterrence

SNA and focused deterrence require normal data analyst personnel hours which use existing staff time and adds \$0. It requires officer training, which is exempt from the cost criterion but would likely meet it. However, this also requires contracting with a CBO and monitoring their participation, which likely costs around \$1 million. Social network analysis models gun violence in a way that helps identify who could be victimized in the future and to target individuals with law enforcement messages.<sup>94</sup> The literature shows that these individuals would have to adopt permanent lifestyle changes in order to sustain lower tendency toward gun violence. Also, new high-risk individuals would need to be prevented from entering the pool of violence, so SNA would need to be iterative for the program to be successful. Gun violence reduction strategies are best served by directing intervention and prevention toward high-risk social networks.<sup>95</sup> A “hard” message with a “soft” message can beneficially leverage both law enforcement and social services. Focused deterrence studies conclude that they statistically significantly reduce gun violence, making me somewhat confident that reductions could meet 10% annually.

According to Cody Telep Ph.D., “focused deterrence can be effective in a smaller city if violence is concentrated among a small group of individuals. There is some good evidence from places like Lowell, MA that are similar in size to Berkeley.<sup>96</sup> The challenging part for a small city can just be coordinating all the criminal justice organizations and resources needed to create [credible deterrence] to make the program successful in a small environment.”<sup>97</sup>

The Berkeley Ceasefire D2 Ad Hoc Advisory Group Brief reflects a sole focus on social services and a lack of political will to engage law enforcement directly with at-risk individuals. This intervention has moderate political feasibility, as the Brief does mention that BPD is already playing a role in SNA. While there is no literature evidence, logic says that because this affects a very small group of people rather than a neighborhood or hot spot, it is not voluminous enough to cause fear of crime to rise, or police legitimacy or collective efficacy to fall. I am very confident in this low risk.

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<sup>92</sup> Hinkle, Joshua C., et al. “Problem-Oriented Policing for Reducing Crime and Disorder: An Updated Systematic Review and Meta-Analysis.” *CrimRxiv*, July 2021. *DOI.org (Crossref)*, <https://doi.org/10.21428/cb6ab371.5277ad69>.

<sup>93</sup> Eck, J. (2023, March 24). *Professor of Criminal Justice at the University of Cincinnati* [Zoom].

<sup>94</sup> Green, B., Horel, T., & Papachristos, A. V. (2017). Modeling contagion through social networks to explain and predict gunshot violence in Chicago, 2006 to 2014. *JAMA Internal Medicine*, 177(3), 326. <https://doi.org/10.1001/jamainternmed.2016.8245>

<sup>95</sup> Papachristos, A. V., Braga, A. A., & Hureau, D. M. (2012). Social networks and the risk of gunshot injury. *Journal of Urban Health*, 89(6), 992–1003. <https://doi.org/10.1007/s11524-012-9703-9>

<sup>96</sup> *Project safe neighborhoods (Lowell, Massachusetts)*. (n.d.). National Gang Center. Retrieved May 5, 2023, from <https://nationalgangcenter.ojp.gov/spt/Programs/3588>

<sup>97</sup> Telep, C. (2023, April 11). *Associate Professor & Associate Director of the School of Criminology & Criminal Justice at Arizona State University* [Email].

## SNA and Social Services

SNA and requires normal data analyst and office personnel hours (to identify individuals and liaise with the CBO respectively) which uses existing staff time and adds \$0. This does require contracting with a CBO and monitoring their participation, which adds costs likely around \$1 million. Finding out just how much it will cost is based on first estimating, how many individuals you want to serve, and second, what size case load is manageable and appropriate for a case manager. Once again, modeling gun violence helps identify who could be victimized by or perpetrate gun violence in the future, and target social services to those individuals.<sup>98</sup> Gun violence reduction strategies are best served by directing intervention and prevention toward high-risk social networks.<sup>99</sup> However, this intervention is unlikely to reduce shootings without additional “hard message”. If it reduces shootings, I am somewhat confident that it is unlikely to reach the 10% annual goal.

The Berkeley Ceasefire D2 Ad Hoc Advisory Group Brief makes clear that a targeted social services approach is incredibly politically palatable in Berkeley. Again, individuals would have to adopt permanent lifestyle changes in order to sustain lower tendency toward gun violence. Also, new high-risk individuals would need to be prevented from entering the pool of violence, so SNA would need to be iterative for the program to be successful. While there is no literature evidence, logic confidently illustrates that because this does not involve police it cannot cause police legitimacy or collective efficacy to fall, or fear of crime to rise.

Papachristos, Ph.D., recognizes the relatively high average age of those involved in violence in his study – 29 – and says that this high age actually means the services needed by the population are many and vary widely. Health and housing, he says, are the big two, but jobs, job training, education, psychological help, and childcare are also important for many individuals. Street Outreach is there to build trust and relationships, and stop violence, but it cannot be a replacement for the dire need of clinicians – both mental and physical health clinicians – for this population.<sup>100</sup>

The literature is not as supportive of these programs and they are understudied and do not have as much empirical success. Since they are opt-in, a program’s success could also simply reflect the less vulnerable nature of those who are likely to take up the program. This component very much reflects the vision for Berkeley to “surround individuals in circles of care”. It is certainly possible to extend social services proactively but there is no guarantee they will be taken up.

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<sup>98</sup> Green, B., Horel, T., & Papachristos, A. V. (2017). Modeling contagion through social networks to explain and predict gunshot violence in Chicago, 2006 to 2014. *JAMA Internal Medicine*, 177(3), 326. <https://doi.org/10.1001/jamainternmed.2016.8245>

<sup>99</sup> Papachristos, A. V., Braga, A. A., & Hureau, D. M. (2012). Social networks and the risk of gunshot injury. *Journal of Urban Health*, 89(6), 992–1003. <https://doi.org/10.1007/s11524-012-9703-9>

<sup>100</sup> Papachristos, A. (2023, March 9). *Professor of Sociology and Faculty Fellow at Northwestern’s Institute for Policy Research* [Zoom].

## Warrants to Remove Firearms from Domestic Abusers (DVROs), Individuals Posing a Danger to Themselves or Others (GVROs), Court-Issued Protective Orders, and Criminal Protective Orders (CPOs)

When there is a gun in the home, domestic violence is more likely to escalate to murder.<sup>101</sup> Removing firearms from homes of abusers is rated one of the most effective and most frequently used interventions according to a national survey of local police departments.<sup>102</sup> Domestic violence restraining order firearm-prohibition laws are associated with 10% reductions in Intimate Partner Homicide, but those results are only statistically significant when the law covers dating partners and ex-parte orders.<sup>103</sup><sup>104</sup> California law does both of these things. Upon being served with a domestic violence protective order in California, the respondent must relinquish his or her firearm by surrendering it immediately upon request of any law enforcement officer, or within 24 hours if no request is made.<sup>105</sup>

This requires staff time and liaising with the courts to get warrants for these interventions. Expert opinion within the police department states that routine staff hours are used up until liaising with the courts, which requires more. Sometimes the Community Services Bureau will look at calls or cases and proactively seek a GVRO. In some cases it is based on the continued behavior of a subject. If BPD gets a seizure order/warrant, based on the nature of the situation, it will likely cost overtime in the form of BPD's SRT (SWAT) serving the search warrant. This only applies if someone is not in custody when BPD is granted the seizure order. Most cases will likely be the former, in which BPD takes someone into custody responding to a call and contemporaneously seizes the guns by consent or warrant. I can confidently say that this intervention has minimal costs, with the exception of the overtime.<sup>106</sup>

The downside of this component is that domestic violence-related firearm incidents are just not that common in Berkeley, and even very successful interventions of this nature would not reduce overall gun violence much. There are only a handful of Domestic Violence cases annually that include firearms. I can confidently say that this would not amount to a 10% reduction in shootings – the cases are not frequent enough. Also, it is known that acquiring a firearm illegally is easy locally, especially with the proliferation of ghost guns.<sup>107</sup>

As California is one of the friendliest states to gun regulations and Berkeley is an epicenter of progressive gun reforms, this intervention should not be politically problematic. Restraining orders and protective orders are, by their very definition, temporary. So, logically, I am confident that this would not have long-lasting effects, although it may reduce

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<sup>101</sup> Domestic violence & firearms in California. (n.d.). *Giffords*. Retrieved April 9, 2023, from <https://giffords.org/lawcenter/state-laws/domestic-violence-and-firearms-in-california/>

<sup>102</sup> Koper, C. S., Woods, D. J., & Kubu, B. E. (2013). Gun violence prevention practices among local police in the United States. *Policing: An International Journal of Police Strategies & Management*, 36(3), 577–603. <https://doi.org/10.1108/PIJPSM-06-2012-0052>

<sup>103</sup> An “ex parte order” is when one is able to get a restraining order without the other person present

<sup>104</sup> Zeoli, A. M., McCourt, A., Buggs, S., Frattaroli, S., Lilley, D., & Webster, D. W. (2018). Retracted: Analysis of the strength of legal firearms restrictions for perpetrators of domestic violence and their associations with intimate partner homicide. *American Journal of Epidemiology*, 187(7), 1449–1455. <https://doi.org/10.1093/aje/kwx362>

<sup>105</sup> Domestic violence & firearms in California. (n.d.). *Giffords*. Retrieved April 9, 2023, from <https://giffords.org/lawcenter/state-laws/domestic-violence-and-firearms-in-california/>

<sup>106</sup> Berkeley Police Department (2023)

<sup>107</sup> Smith, E. (2023, January 25). *California has some of the strictest gun laws in the country. Here's what we know about the guns used in this week's deadly attacks*. CNN. <https://www.cnn.com/2023/01/25/us/california-shootings-guns-wwk/index.html>



the number of shootings by a few. This intervention occurs siloed away in individual homes. Neighbors would see the police on scene but overall there logically should be no impact on police legitimacy, fear of crime, or collective efficacy.

### Street Outreach Workers/Violence Interrupters

Acquiring street outreach workers involves contracting with a CBO and monitoring their participation, which adds costs likely around \$1 million. If they are already operating in Oakland or Richmond it would be worth exploring if they could expand operations to include Berkeley as well. I reached out to several CBOs for input and did not manage to connect with any of them.

Street teams can be very effective. But that assessment is based on high-risk community members opting in and having contact with a street team member. Of people that participated in Chicago's CRED program, victimization rates were 50% lower than non-participants.<sup>108</sup> I am unsure of what percentage reduction in shootings would occur because it is based on opting-in, and we don't know the likelihood of any one person opting in to the program. Andrew Papachristos, Ph.D. claims that there will also be reports coming out soon that show a positive programmatic effect at an individual and a community level.<sup>109</sup> What is unrealistic, he says, is "level setting" – claiming a specific amount of impact for any program. While sometimes it has been effective, sometimes it also hasn't.

The National Network for Safe Communities (NNSC) highlights the imperative of strong working relationships between street outreach workers and police departments for street work to be successful as part of a larger gun violence initiative.<sup>110</sup> This is the case in Stockton, California, Los Angeles, California, Chicago, Illinois, and New York City, New York.<sup>111</sup> Unfortunately, there is not such affirming research on street teams in small cities. However, there could be much added value to custom notifications (focused deterrence) if street outreach workers accompanied Berkeley police to deliver messages to high-risk individuals. It would increase credibility of the police and the message, and the optics would be more genuine.<sup>112</sup>

Again, referencing the Berkeley Ceasefire D2 Ad Hoc Advisory Group Brief, there is strong evidence that social services and community interventions that do not involve law enforcement are extremely palatable to politicians. Participants chose CRED and remained enrolled in CRED to avoid pervasive community violence and attempt to improve their own situations. Those individuals were receptive to CRED recruitment efforts, citing the program's immediate, tangible

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<sup>108</sup> *Op-ed: What we know (And don't know) about street outreach and gun violence prevention.* (2021, October 25). Chicago Tribune. <https://www.chicagotribune.com/opinion/commentary/ct-opinion-chicago-gun-violence-street-outreach-20211025-6pylamxs5jzjhyya3x3nb3eyastory.html>

<sup>109</sup> Papachristos, A. (2023, March 9). *Professor of Sociology and Faculty Fellow at Northwestern's Institute for Policy Research* [Zoom].

<sup>110</sup> Considering the place of streetwork in violence interventions. (n.d.). *National Network for Safe Communities (NNSC)*. Retrieved March 31, 2023, from <https://nnscommunities.org/guides/considering-the-place-of-streetwork-in-violence-interventions/>

<sup>111</sup> *Project safe neighborhoods (Lowell, Massachusetts)*. (n.d.). National Gang Center. Retrieved May 5, 2023, from <https://nationalgangcenter.ojp.gov/spt/Programs/3588>

<sup>112</sup> Elvir, J. (2023, March 22). *Community Relations Manager Champaign, Illinois Blueprint Program* [Zoom].

benefits and fulfilling relationships with staff as key reasons for remaining engaged.<sup>113</sup> There is some evidence of long-lasting effects but only for those that take up the program.

This intervention tangentially involves police but mostly uses community members as credible messengers for peace, so it maintains trust between street teams and community members. Papachristos states that, “in the 90s in Boston, you actually saw people recognize that there are different lanes, and people stayed in their lanes and shared relevant information and it actually went without much drama...outreach organizations and police for their part, they don’t want to be seen crossing the line. I do not think street outreach should be informants nor do I think that cops should be using intelligence to do so.”<sup>114</sup> If those boundaries can be maintained, street outreach will likely have no impact on police legitimacy. If done well, it would diffuse street tensions and likelihood of shootings/crime, leading to a decrease in fear of crime. Street workers ostensibly create more accountability by leveraging existing relationships in the community, thereby increasing collective efficacy.

Reviewing shootings that have just occurred and having information flow unidirectionally from police to streetworkers would identify high risk individuals and also likely prevent future violence. Protocols and boundaries need to be established prior to their work. Information should not flow from streetworkers to police, but rather only from police to streetworkers in terms of intelligence. This preserves the credibility of street outreach among community members. The only times they should be together are during intelligence meetings (shooting reviews, violence reviews) and custom notifications. If this working agreement can be designed, a mutually beneficial relationship can be formed, sustained, and trusted, street outreach can be effective in Berkeley.

### Hospital Based Violence Intervention

YouthAlive! is a CBO currently doing bedside interventions at Highland Hospital in Oakland, which is the local Trauma 1 hospital for Berkeley.<sup>115</sup> Shooting victims are nearly always sent to the local Trauma 1 hospital according to DHHS. While attempts to contact YouthAlive! to understand the logistics and determine the efficacy of their ongoing program have not been successful, this intervention is already being done.

Youth Alive! is doing bedside intervention when there is an act of violence to stop retaliation and connect victims with services. It stands to reason that, as it is already happening, hospital-based violence intervention is already being paid for and we do not need to consider it as a program component. More research is necessary to understand their approach and its efficacy, but since it is ongoing and shootings are still rising, it has little to no chance of reaching a 10% annual reduction in shootings. By the same token, this is already happening and not causing any political friction. In terms of how long its effects endure, this is a one-on-one interaction that hopefully has a positive effect on others in the victim’s social network. But, shootings are still increasing so it is unlikely to have long term or notable spillover effects.

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<sup>113</sup> *Op-ed: What we know (And don’t know) about street outreach and gun violence prevention.* (2021, October 25). Chicago Tribune. <https://www.chicagotribune.com/opinion/commentary/ct-opinion-chicago-gun-violence-street-outreach-20211025-6pylamxs5jzhhyya3x3nb3eya-story.html>

<sup>114</sup> Papachristos, A. (2023, March 9). *Professor of Sociology and Faculty Fellow at Northwestern’s Institute for Policy Research* [Zoom].

<sup>115</sup> Berkeley Police Department, 2023

Because this does not involve police and does not occur in a neighborhood, I can confidently conclude that it has little to no effect on police legitimacy, fear of crime, or collective efficacy.

## Gun Buyback Programs

While the low cost is very attractive – a simple multiple of however many guns are turned in – the efficacy of gun buyback programs to curb firearm violence is seriously limited.<sup>116</sup> Many studies have shown gun violence is a serious public emergency.<sup>117</sup> Studies also show that buybacks do indeed have the ability to collect many weapons from the community.<sup>118</sup> However, studies fail to show how buybacks are causal drivers in any reduction of violence or attract participants that are also involved in community violence. In this last respect programs have deeply failed, with participants lacking most characteristics of violent offenders, other than being mostly male. The typical buyback participant is over 55, white, and either inherited a gun they did not want or have no use for a gun.<sup>119</sup> For more on these shortcomings, see Gun Buyback Programs [44] in the Literature Review. That said, buyback programs have no chance of increasing fear of crime, or decreasing police legitimacy or collective efficacy. Law enforcement plays a passive role, simply facilitating the collection of weapons.

## Packaged components into programs

### Alternative #1: Problem Oriented Policing (POP) at Hot Spots + Street Outreach Workers

A POP approach would allow for longer-term systemic impacts to be made at hot spots than hot spots policing on its own. While law enforcement would be analyzing and spending time at hot spots, street outreach workers would be building rapport with offenders and possible victims as well as diffusing tensions among individuals.

### Alternative #2: Problem Oriented Policing (POP) at Hot Spots + Street Outreach Workers + SNA Focused Deterrence

A POP approach would allow for longer-term systemic impacts to be made at hot spots than hot spots policing on its own. While law enforcement would be analyzing and spending time at hot spots, street outreach workers would be building rapport with offenders and possible victims as well as diffusing tensions among individuals. Street outreach workers would also help in the custom notification process, to balance the deterrent message by offering support and social services.

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<sup>116</sup> Kasper, R. E., Green, J., Damle, R. N., Aidlen, J., Nazarey, P., Manno, M., Borer, E., & Hirsh, M. P. (2017). And the survey said.... Evaluating rationale for participation in gun buybacks as a tool to encourage higher yields. *Journal of Pediatric Surgery*, 52(2), 354–359. <https://doi.org/10.1016/j.jpedsurg.2016.08.009>

<sup>117</sup> Wintemute, G. J. (2015). The epidemiology of firearm violence in the twenty-first century united states. *Annual Review of Public Health*, 36(1), 5–19. <https://doi.org/10.1146/annurev-publhealth-031914-122535>

<sup>118</sup> Kasper, R. E., Green, J., Damle, R. N., Aidlen, J., Nazarey, P., Manno, M., Borer, E., & Hirsh, M. P. (2017). And the survey said.... Evaluating rationale for participation in gun buybacks as a tool to encourage higher yields. *Journal of Pediatric Surgery*, 52(2), 354–359. <https://doi.org/10.1016/j.jpedsurg.2016.08.009>

<sup>119</sup> Violano, P., Driscoll, C., Chaudhary, N. K., Schuster, K. M., Davis, K. A., Borer, E., Winters, J. K., & Hirsh, M. P. (2014). Gun buyback programs: A venue to eliminate unwanted guns in the community. *Journal of Trauma and Acute Care Surgery*, 77(3), S46–S50. <https://doi.org/10.1097/TA.0000000000000319>



### Alternative #3: Problem Oriented Policing (POP) at Hot Spots + Street Outreach Workers + SNA Focused Deterrence + Social Services

A POP approach would allow for longer-term systemic impacts to be made at hot spots than hot spots policing on its own. While law enforcement would be analyzing and spending time at hot spots, street outreach workers would be building rapport with offenders and possible victims as well as diffusing tensions among individuals. Street outreach workers would also help in the custom notification process, to balance the deterrent message by offering support and social services. In this package, the city would invest additional money in case management for at-risk individuals, making both focused deterrence and social services key applications of the social network analysis.

### Program recommendation

I recommend that the City of Berkeley and Berkeley Police Department implement Alternative #3: Problem Oriented Policing (POP) at Hot Spots + Street Outreach Workers + SNA Focused Deterrence + Social Services. As long as the budget can make it work, I highly recommend doing the most programmatically that can be done as gun violence takes human lives.

These programs are complementary but not interdependent. So, it is additionally advantageous, if any part of the program fails to produce results or runs up too high of a cost it can be cut while other measures are already active. The remaining measures would not be harmed. This is more convenient than having to start from scratch with new program ideas. If the same CBO is being funded for multiple programs, it is critical that it is clear how much of their funding goes to each program. In the slight way that focused deterrence is related to social services and street outreach, it is most likely helpful not harmful if community members recognize the same workers in different roles. More frequent, positive encounters promote trust and mutual respect.

In the analysis of outcomes, POP at hot spots has the potential for negative community-level effects, which could be counteracted by street workers that develop trust and cohesion in a neighborhood. The “hard” message of focused deterrence is similarly counteracted through the offering of social services. Bundling, in this sense, ensures that Berkeley achieves its goals without creating significant deleterious side effects due to one component or another. Having such a multipronged program is aspirational and as such may not be feasible – that is really up to the city.

Eroding violence from multiple angles is a goal of this recommendation. It recognizes that the roots of gun violence are complex, many, and intertwined. If we can simultaneously activate this multi-pronged program, we will be joining other small cities (Champaign, IL, Lowell, MA) in attempting to curb gun violence from a law enforcement perspective and a human perspective.

### Implementation

The program as a whole would benefit from one additional administrative staff member assigned to the Community Services Bureau and one additional patrol officer. The administrative staff member will ensure that officers know to whom they should make their reports related to the program and would be available to communicate with CBOs or other municipal services regarding ongoing programmatic matters. The additional patrol officer would be able to fill any

gaps created by POP at hot spots in overall patrol. I realize this may be difficult, with patrol downsizing and the hiring crisis being what it is.

It is ideal if the City of Berkeley can find a CBO willing and able to manage focused deterrence, street outreach, and the extension of social services. Even if it costs more budgetarily, this makes sense from an efficiency standpoint and from an information standpoint. It is much easier if one CBO houses all the information necessary to do all three jobs and it can be reasoned that each one would be enhanced by the others.

### POP at Hot Spots

Ideally, the department would select a few (2-5) crime concentrations in specific places identified (7) in this research on which to focus.<sup>120</sup> The police would need to incorporate the mapped gun violence incident data from this report but also possibly do their own crime mapping if it would be more up-to-date by the time this report is read.

Police should use the S.A.R.A. method when operationalizing problem-solving. “Scanning” involves the identification and prioritization of potential problems that may be causing crime within a jurisdiction. “Analysis” involves an in-depth evaluation of problems using a variety of data sources so the most appropriate response can be developed. This is not just about problem outcomes like traditional policing but concerned with the underlying processes that lead to problems. “Response” is the development and implementation of an intervention tailored to the nature of the problem distilled in the analysis phase. Response searches should be broad, involving law enforcement and non-law enforcement methods, other agencies, community groups and members. “Assessment” is the ongoing monitoring and evaluation of the response effect on targeted problem(s). This process is intended to lead to continual improvements and refinement in further iterations of the response.<sup>121</sup>

When not answering calls for service, officers should visit the locations on their beat, on a random basis, and patrol (including foot patrol) for 15-20 minutes. A minimum of 10 minutes must be spent in each hot spot to have any deterrent effect.<sup>122</sup> This should be repeated periodically and unpredictably. This will likely require a reorganization or reorientation of patrol, to enable them to spend 15 minutes every several hours (but randomly – for example not every three hours on the dot just several times a shift) in each hot spot. If problems are inside a store or business, walk inside of that location in addition to outside patrol.<sup>123</sup> While patrolling hot spots, officers should record anything notable that facilitates crime, from the same individuals to substantial debris to a deserted lot used as a loitering area. These notes should be used in the future to alter these spaces in ways where crime control is long lasting.

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<sup>120</sup> How many hot spots are addressed at one time depends on the capabilities of the police force. If they can treat multiple locations with enough dosage that may make sense from a public safety perspective. But if they are experimenting to see which approach works best they might want to begin with a small number of places.

<sup>121</sup> Chief Eliot Isaac, Lt. Matthew Hammer M.S., Blake Christenson M.A., & Dr. Tamara D. Madensen. (2017). *P.I.V.O.T. Place Based Investigations of Violent Offender Territories* (Herman Goldstein Award Submission). Cincinnati Police Department.

<sup>122</sup> Koper, C. S. (1995). Just enough police presence: Reducing crime and disorderly behavior by optimizing patrol time in crime hot spots. *Justice Quarterly*, 12(4), 649–672. <https://doi.org/10.1080/07418829500096231>

<sup>123</sup> *High-Crime Areas (“Hot spots”)*. (n.d.). <https://www.evidence-basedpolicing.org/hot-spot-patrols/#:~:text=The%20Koper%20Principle%20states%20that,in%20conjunction%20with%20other%20strategies.>

It is well within the capacity of the Berkeley Police Department to undertake POP, especially because they have some degree of a head start. Some police officers already use a POP approach to their beats. To do POP at hot spots, they would need evolving data analysis, personnel to devote to, at minimum, two hot spots for a limited amount of time, and administrative personnel to liaise with other departments and CBOs regarding non-police interventions. BPD says that both POP and hot spots policing could both be accomplished with “staff time,” with officers incorporating POP approaches along their regular beats. Additionally, there already are some staff that could liaise with other city departments without increasing costs. POP at hot spots will require a training for all patrol officers and office staff who would be coordinating city or community services regarding problems cited by patrol.

### Focused Deterrence/Custom Notifications

Focused deterrence will require a training for all officers that will be utilized for this specialized program as well as any CBO actors partnered with for this purpose. Other criminal justice agencies (e.g. parole, probation) need to be identified early on, and if they can also participate in the trainings that is ideal. The earlier who does what can be determined all the better. The CBO needs to be amenable to delivering the “soft” message while working in tandem with the police and others as they deliver the “hard” message. The officers involved in this intervention need to be selected extremely carefully. Not only do they need to believe in deterrence but they need to be able to deliver the message with great care. The Community Services Bureau (CSB) in tandem with the Personnel and Training Department’s Subject Matter Experts (SMEs) on focused deterrence should coordinate internal training for these officers. CSB is dedicated to liaising with the public and should be responsible for all communications regarding training for this highly specialized team. Not only do they have experts on doing so but they have powerful data analysis personnel and tools (coding, GIS mapping, network analysis), allowing them to zero in on key people.

A best practices process to custom notifications is encouraged by COPS – Community Oriented Policing Services at the U.S. Department of Justice<sup>124</sup>. First, impact players are identified, using SNA if possible. Next, custom legal assessments are done for each impact player that law enforcement plans on notifying. Third, positive influentials in impact players’ lives are identified and community, social services, and street outreach workers are mobilized. Lastly, written documents and support materials are created to aid with the notification.

Identifying impact players is straightforward. The first thing is to talk to frontline personnel – beat officers, special units, probation, parole, corrections staff, and/or confidential informants. They have the greatest knowledge of who is at the center of ongoing violence. If violence has just occurred, convene right away to determine the groups involved, key players, and instigating factors. Debrief all the same parties, review incident data, crosscheck lists of groups and their members, conduct criminal history reviews of active group members, perform social network analysis, and create a final list of impact players. Get input from street outreach workers and community members, and use social network analysis to focus resources strategically on those at highest risk of violence. Identify as many impact players as possible to notify.<sup>125</sup>

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<sup>124</sup> Kennedy, D. M., & Friedrich, M. A. (2014). *Custom Notifications: Individualized Communication in the Group Violence Intervention*. U.S. Department of Justice COPS Community Oriented Policing Services. [https://nnscommunities.org/wp-content/uploads/2017/10/GVI\\_Custom\\_Notifications\\_Guide.pdf](https://nnscommunities.org/wp-content/uploads/2017/10/GVI_Custom_Notifications_Guide.pdf)

<sup>125</sup> At this stage, it unnecessary for evidence to meet legal standards for arrest because arrests are not goal of custom notifications. Their purpose is to communicate to impact players that violence is unacceptable, let them know their custom legal exposure, and to offer them opportunities for help. As such, evidence can be based on broad range of information that officers and community members provide about impact players.



An influential is a person close to an impact player who has their respect and can help them make positive choices. This may be someone within their family or a person with moral standing and credibility within the community. Asking the impact player is the best way to identify an influential, followed by examining personal connections – family, friends, partners, coaches, barbers, school resource officers, or street outreach workers. A last resort is looking at people who have posted their bail or attended hearings. An influential is only relevant in this context if they are a positive influence on the individual and not committed to the street code – the set of norms that mandates violence as a response to disrespect, indifference to prison, and antagonism to the police. If an impact player cannot be directly reached, delivering the message both orally and in writing to the influential seems to be an effective substitute.<sup>126</sup>

It is important that custom legal assessments are made for each person to whom a notification is given. A meeting should be held with prosecutors to determine the individual's personal legal exposure from past violent crimes, especially those with a firearm, and compile the potential state and federal sanctions for further violent crimes. "Compiling custom legal assessments of this sort requires a close working partnership between police and prosecutors at local, state, and federal levels. After police perform an incident review to identify the impact players they want to notify, they pass their names to the [prosecutor]. The state prosecutor reviews the criminal records and determines potential sanctions for a range of violent offenses [sometimes] consulting with the federal prosecutor to establish whether grounds exist for a federal case."<sup>127</sup> The custom legal assessment should be finalized in writing that is plain and easily understood.

### Street Outreach Workers

The first step required is identifying a CBO that is ready and willing to take on street outreach. It is smart to check with neighboring cities (Oakland, Richmond) that are already overseeing similar work. This will require approximately bimonthly meetings between the CBO and the Berkeley Police. This is so that the police can provide any intelligence that may help the CBO on the street and so that the police can monitor and get an idea of the effectiveness of the street outreach. While these meetings may not cost any money per se, it will take dedicated staff time and record keeping within the Community Services Bureau. During these meetings it is important to go over cost effectiveness and budget items of the CBO's program to create an accountability structure for the funding they are getting from the city. It is also important that the city apply for grants to fund this program, so it makes sense for there to be dedicated personnel specializing in grant research and applications at least at the city level. Champaign, IL found such positions essential for its CBO programs within their gun violence initiative.<sup>128</sup>

### Social Services

This has the same steps as above – it first requires identifying a CBO that is ready and willing to take on social services case management and checking with neighboring cities is the logical first step. It is my understanding that many community members in Berkeley have case managers through many different CBOs. It is important that, once SNA identifies who should be targeted for social services based on risk, those people should all be managed through one CBO.

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<sup>126</sup> Ruderman, W. (2013, March 3). To Stem Juvenile Robbers, Police Trail Youth Before the Crime. *New York Times*.

<sup>127</sup> Kennedy, D. M., & Friedrich, M. A. (2014). *Custom Notifications: Individualized Communication in the Group Violence Intervention*. U.S. Department of Justice COPS Community Oriented Policing Services. [https://nnscommunities.org/wp-content/uploads/2017/10/GVI\\_Custom\\_Notifications\\_Guide.pdf](https://nnscommunities.org/wp-content/uploads/2017/10/GVI_Custom_Notifications_Guide.pdf)

<sup>128</sup> Elvir, J. (2023, March 22). *Community Relations Manager Champaign, Illinois Blueprint Program* [Zoom].

This will also require a bimonthly meeting between the CBO and police. This is so that the police can monitor and get an idea of the effectiveness of the case management by the CBO. It may also help police to know what services people are taking up or which seem to be most needed. While these meetings may not cost any money per se, it will take dedicated staff time and record keeping, within the Community Services Bureau. During these meetings it is important to go over cost effectiveness and budget items of the CBO's program to create an accountability structure for the funding they are getting from the city. It is also important that the city apply for grants to fund this program, so it makes sense for there to be dedicated personnel specializing in grant research and applications at least at the city level. Champaign, IL found such positions essential for its CBO programs within their gun violence initiative.<sup>129</sup>

## Program Evaluation

### Program Evaluation Recommendation

According to David Weisburd, Ph.D., "It is important to begin assessment when a program begins so that you can see how the intervention affected the street over time. As a rule, if the purpose is to assess the impacts of the program it is better to select sites and then randomize them to receive the intervention. If you have control conditions that have not been treated, that will provide the best comparison for assessing whether the intervention is having an impact. Those "control" sites can then receive the treatment later if it turns out that the intervention is effective. Sometimes such rigor is not possible in the everyday realities of policing, but it is still important to try to identify comparison places that are similar to those receiving the intervention if you want a valid assessment of the program's utility. It is a good idea of police agencies to team up with researchers if they are trying to assess outcomes."<sup>130</sup>

As previously stated, the client in this case should seek to sustain a continued decrease in gun violence incidents, year after year. The Center for Criminal Justice Violent Crime Working Group states that city leaders and criminal justice advocates should aim for an annual homicide and violent crime reduction of 10%.<sup>131</sup> The program should be monitored closely in its first year, following a very thorough annual evaluation. No randomized control trial is possible, due to this program operating in the real world. Not just because of legal and ethical constraints, but you could not leave a part of Berkeley without police services just to test a hypothesis. But, what would be possible is applying alternatives 2 and 3 differentially – applying social services in one part of the city and not in a different part. If the department really wants to know if an intervention is effective this is a good choice. The question then becomes, which parts of the city are comparable enough to give different treatments? Only police intelligence and data analysis of violence can answer this question.

Berkeley's trend should be regularly compared to the rest of Alameda County and the state to see where it sits contextually. In a **one-group pretest-posttest design**, the dependent variable is measured once before the treatment is implemented and once after it is implemented. This is a stronger evaluative measure than simply a posttest evaluation. This would mean comparing the number of shootings prior to the intervention to the number after the intervention begins. It might also make sense to compare shots fired pre-test to shots fired post-test, and likewise with firearm

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<sup>129</sup> Elvir, J. (2023, March 22). *Community Relations Manager Champaign, Illinois Blueprint Program* [Zoom].

<sup>130</sup> Weisburd, D. (2023, April 11). *Distinguished Professor at George Mason University* [Email].

<sup>131</sup> "Saving Lives: Ten Essential Actions Can Take to Reduce Violence Now." *Council on Criminal Justice*, 12 Jan. 2022, <https://counciloncj.org/10-essential-actions/>.

injuries and firearm fatalities. This would be informative by allowing practitioners and researchers to see from which category the most change is coming from.

## Conclusion

The value of law enforcement partnerships with academic researchers is a cornerstone of data-driven, smart policing. Especially in this turbulent time, where policing is under strict scrutiny by the public, it is imperative that the foundations of policing be navigated and calculated with scientific precision. I selected this Advanced Policy Analysis with an optimistic eye toward these foundations as we move forward in our search for stronger policies around policing. “Police chiefs benefit immensely from having a respected academic representative standing next to them affirming that the choices and decisions made by the police follow best practices developed by research, study, and assessment.”<sup>132</sup>

Gun violence takes human lives, and we should pilot as many prongs of a program as can be sustained budgetarily and practically. It is my hope that these recommendations are undertaken with as much aspiration as they are intended, and that the consistency of the science underpinning policing remains in place. “Promising partnerships are developing between American police agencies and universities as well as abroad. If carefully cultivated and nurtured, these relationships may well be the third police research tradition that is essential for enhancing police practices.”<sup>133</sup>

The past lack of “real-world” value of academic police research mainly was reflected in the absence of implementation recommendations. “It would be naïve to suggest that the working relationship is always smooth.”<sup>134</sup> “Academics are very good at detecting, describing, and documenting the problems in police practices. Academics are also very good at theorizing and providing innovative ways to enhance policing practices...however, academics have not traditionally been good at providing the necessary guidance regarding implementation.”<sup>135</sup> This is why I have included a relatively detailed implementation process for each prong of the program that I am recommending. However, much of implementation changes as programs go along, incorporating real-time data and experience.

Ultimately, we cannot solve the crime problems of today, including the rise in gun violence, without smart and evidence-based solutions. It is well documented “why police administrators should strongly consider the work generated by the academic community...and why academics need to better listen to and understand police”.<sup>136, 137</sup> This research has carefully considered the policies, procedures, and politics underlying professional policing and sought to overcome past

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<sup>132</sup> Engel, R. S., & Whalen, J. L. (2010). Police–academic partnerships: Ending the dialogue of the deaf, the Cincinnati experience. *Police Practice and Research, 11*(2), 105–116. <https://doi.org/10.1080/15614261003590803>

<sup>133</sup> Id.

<sup>134</sup> Fleming, J. (2010). Learning to work together: Police and academics. *Policing, 4*(2), 139–145. <https://doi.org/10.1093/police/paq002>

<sup>135</sup> Engel, R. S., & Whalen, J. L. (2010). Police–academic partnerships: Ending the dialogue of the deaf, the Cincinnati experience. *Police Practice and Research, 11*(2), 105–116. <https://doi.org/10.1080/15614261003590803>

<sup>136</sup> Id.

<sup>137</sup> There are four primary reasons for police administrators to strongly consider the research and viewpoints of the academic world when making important decisions about the leadership of a police department: (1) operational effectiveness and efficiency, (2) external validity, (3) cooperative transparency, and (4) the information technology revolution. (Engel & Whalen, 2010)

barriers of “the ivory tower versus the real world”.<sup>138</sup> I hope that this research and any that follows can continue the new trend in police-academic partnerships that is grounded in practical, applicable methods that practitioners can use.

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<sup>138</sup> Original quotation



## Appendices

### Appendix A: Research Approach and Methodology

I employ a mixed methods approach in this report, focusing on a review of the scholarly literature, an examination of interventions that could or could not apply to the City of Berkeley’s gun violence, qualitative interviews, and Berkeley Police Department shooting data. Quantitatively, I performed point density analysis to identify geospatial points of convergence or gun violence “hot spots”, and Social Network Analysis to identify individuals at risk of gun violence perpetration and victimization.

#### Overview of Research Sources

Source Category	Source
Legal	California Penal Code Berkeley Municipal Code
Scholarly	UC Berkeley Library
Departmental – Police	2018-2022 Shooting Data on Location, Type, Date and Time 2017-2022 Data on All Persons Involved in Shootings and Their Race, Gender, and Age
Public	Berkeley Police Department Transparency Hub

#### Interview Protocol

I developed a step-by-step approach to guide requests for interviews, the interview process, and the follow-up. After initially developing this approach, I integrated feedback from a GSPP Faculty Advisor, and refined the final approach:

Step 1: Send email to request interview using email template

Step 2: Set up time to schedule interview

Interviews completed by the end of March / early April

Step 3: Find category of interview and look at question bank

Log all interviews and notes in Interview Running Notes document

Step 4: Send thank you and any other follow-up message(s) to interviewee

Step 5: Consolidate takeaways

#### Interview Practices Employed

I am experienced with policy work related to public safety more generally, but much research was done in order to target the right subjects. I contacted the subjects and scheduled the interviews. In all but one case I recorded the sessions with permission so that notes could be taken later. This made space for follow-up questions and comments.

#### Interview Subjects

**David Weisburd Ph.D.**, Distinguished Professor at George Mason University

**Andrew Papachristos Ph.D.**, Professor of Sociology and Faculty Fellow at Northwestern's Institute for Policy Research, and the Faculty Director of Corners: The Center for Neighborhood Engaged Research & Science.

**Cody Telep Ph.D.**, Associate Professor & Associate Director of the School of Criminology & Criminal Justice at Arizona State University

**John Eck Ph.D.**, Professor of Criminal Justice at University of Cincinnati

**Rebecca Plevin, M.D., FACS**, Co-Director of the San Francisco Wraparound Project

**Jorge Elvir**, Champagne, IL Blueprint Community Relations Manager, Equity and Engagement Department

## Appendix B Literature Review

### Crime Concentration/Place-Based Policing

It is a well-known in criminology that crime in general is concentrated in a very small amount of micro-geographic units. Or, more scientifically the “Law of Crime Concentration” says that “for a defined measure of crime at a specific micro-geographic unit, the concentration of crime will fall within a narrow bandwidth of percentages for a defined cumulative proportion of crime.”<sup>139</sup> Specifically, gun violence is concentrated in small portions of the country and within even smaller geographic portions of cities, particularly in under resourced and disadvantaged neighborhoods. This results in an “uneven distribution of race and place,” further complicating how police address it and what issues fall out of those interventions.<sup>140</sup>

Weisburd’s “law of crime concentration” says that crime at a specific micro-geographic unit, the concentration of crime will fall within a narrow bandwidth of percentages (eg. 25% or 50%) for a defined proportion of crime, even when there is extreme volatility in the total number of crime incidents.<sup>141</sup> Weisburd (2004, 2015) and Braga (2010), among others, find strong support for the law of crime concentration.<sup>142</sup> For example, in Seattle it was found that 50% of crime incidents occurred at only 4.5% of street segments.<sup>143</sup>

For example, over the course of 30 years in Boston, 89% of street segments and intersections had zero ABDW (Assault and Battery with a Dangerous Weapon) firearm incidents and another 6% experienced just one. The remainder was responsible for the overwhelming majority of ABDW firearm incidents.<sup>144</sup> This trend was stable over the course of the 30-year period. Due to this crime concentration, it has been productive and impactful for police to focus on the small proportion of cities that generates the most crime. In his study of crime concentration in different sized cities, Weisburd looks at small cities: Brooklyn Park, MN, Redlands, CA, and Ventura, CA. He finds that 50% of crime is concentrated in between 2.1 and 3.5% of the cities. This is remarkable because he finds that it is *even more concentrated* than his sample of large cities (New York, NY, Cincinnati, OH etc.).<sup>145</sup>

Braga (2013) finds that 89% of Boston’s street segments and intersections had zero firearm assaults with a deadly weapon. 6% experienced 1. The remaining 5% was responsible for virtually *all* of Boston’s gun violence. The epidemic

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<sup>139</sup> Weisburd, D. (2015). The law of crime concentration and the criminology of place\*: The law of crime concentration. *Criminology*, 53(2), 133–157. <https://doi.org/10.1111/1745-9125.12070>

<sup>140</sup> Papachristos, A. V., Wildeman, C., & Roberto, E. (2015). Tragic, but not random: The social contagion of nonfatal gunshot injuries. *Social Science & Medicine*, 125, 139–150. <https://doi.org/10.1016/j.socscimed.2014.01.056>

<sup>141</sup> Weisburd, D. (2015). The law of crime concentration and the criminology of place\*: The law of crime concentration. *Criminology*, 53(2), 133–157. <https://doi.org/10.1111/1745-9125.12070>

<sup>142</sup> Braga, A. A., & Weisburd, D. (2010). *Policing problem places: Crime hot spots and effective prevention*. Oxford University Press.

<sup>143</sup> Weisburd, D., Bushway, S., Lum, C., & Yang, S.-M. (2004). Trajectories of crime at places: A longitudinal study of street segments in the city of Seattle\*. *Criminology*, 42(2), 283–322. <https://doi.org/10.1111/j.1745-9125.2004.tb00521.x>

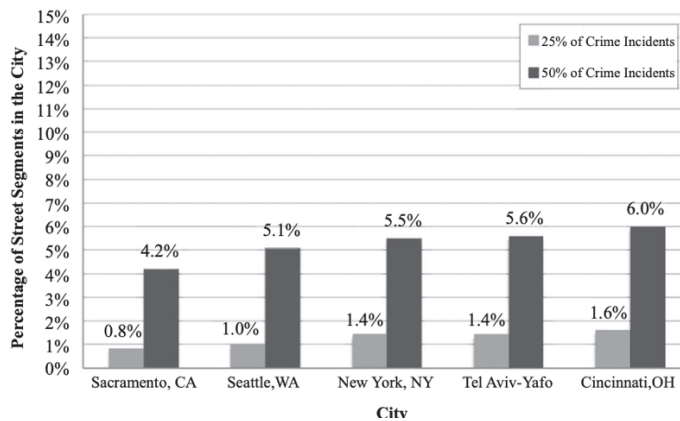
<sup>144</sup> Braga, A. A., Papachristos, A. V., & Hureau, D. M. (2010). The concentration and stability of gun violence at micro places in Boston, 1980–2008. *Journal of Quantitative Criminology*, 26(1), 33–53. <https://doi.org/10.1007/s10940-009-9082-x>

<sup>145</sup> Weisburd, D. (2015). The law of crime concentration and the criminology of place\*: The law of crime concentration. *Criminology*, 53(2), 133–157. <https://doi.org/10.1111/1745-9125.12070>

and later downturn of gun violence is credited to trends at 3% of micro-places that experienced volatility in gun violence through that time.<sup>146</sup>

So far as it has been studied, smaller cities have higher levels of crime concentration. Scholars caution applying big city trends and solutions to less dense cities, suburbs, and rural areas. Weisburd (2015) looked at three small cities, including Ventura, CA which is comparable to Berkeley's size. The data suggest that crime concentration can be different in smaller cities, like simply being on a few specific high-density streets. They have fewer overall crime incidents and their street segments are generally much longer. Small city phenomena are just beginning to be studied.<sup>147</sup>

**Figure 3. The Law of Crime Concentration in Large Cities**

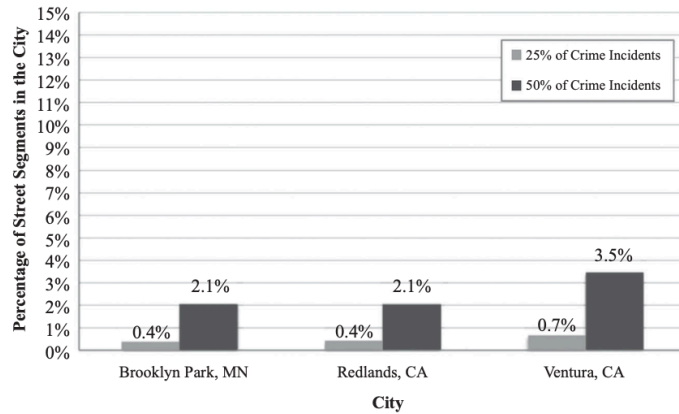


<sup>146</sup> Braga, A. A., & Schnell, C. (2013). Evaluating place-based policing strategies: Lessons learned from the smart policing initiative in Boston. *Police Quarterly*, 16(3), 339–357. <https://doi.org/10.1177/1098611113497046>

<sup>147</sup> Weisburd, D. (2015). The law of crime concentration and the criminology of place\*: The law of crime concentration. *Criminology*, 53(2), 133–157. <https://doi.org/10.1111/1745-9125.12070>



**Figure 4. The Law of Crime Concentration in Small Cities**



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The street segment has been identified as a useful division of a city because it is a sort of “micro-community,” in that a block has certain culture, closeness, norms, activities, boundaries, and historical evolution. These qualities make it “an important theoretical unit in the studying of crime at place”.<sup>149</sup> The “street segment” is two block faces on both sides of a street between two intersections.<sup>150</sup> It is a better micro-unit choice than smaller units, such as addresses, and makes for less complicated data gathering and analysis. Intersections have, on occasion, been used in addition to street segments. “City level gun violence trends are understood best by the analyses of trends at a very small number of micro places, such as street segments and intersections, rather than analyses of trends at larger areal units such as neighborhoods, arbitrarily-defined policing districts, or Census tracts.”<sup>151</sup> Knowing this has positively impacted gun violence policing and public policy. The more we learn about the concentration of gun violence, the more we are able to concentrate treatments for gun violence (policing, social services etc.) in those specific areas.<sup>152</sup> What are now referred to generally as “Place-Based Policing” and “Hot Spots Policing” originate from these studies and conclusions.

The natural conclusion from this, with the caveat of having only few small city studies, is that if crime is indeed so concentrated, policing and prevention resources should be similarly geospatially concentrated.<sup>153</sup> Interventions should

<sup>148</sup> Weisburd, D. (2015). The law of crime concentration and the criminology of place\*: The law of crime concentration. *Criminology*, 53(2), 133–157. <https://doi.org/10.1111/1745-9125.12070>

<sup>149</sup> Id.

<sup>150</sup> Weisburd, D., Bushway, S., Lum, C., & Yang, S.-M. (2004). Trajectories of crime at places: A longitudinal study of street segments in the city of Seattle\*. *Criminology*, 42(2), 283–322. <https://doi.org/10.1111/j.1745-9125.2004.tb00521.x>

<sup>151</sup> Braga, A. A., Papachristos, A. V., & Hureau, D. M. (2010). The concentration and stability of gun violence at micro places in Boston, 1980–2008. *Journal of Quantitative Criminology*, 26(1), 33–53. <https://doi.org/10.1007/s10940-009-9082-x>

<sup>152</sup> Weisburd, D., Groff, E. R., & Yang, S.-M. (2014). The importance of both opportunity and social disorganization theory in a future research agenda to advance criminological theory and crime prevention at places. *Journal of Research in Crime and Delinquency*, 51(4), 499–508. <https://doi.org/10.1177/0022427814530404>

<sup>153</sup> Weisburd, D. (2015). The law of crime concentration and the criminology of place\*: The law of crime concentration. *Criminology*, 53(2), 133–157. <https://doi.org/10.1111/1745-9125.12070>

focus on very specific location and not larger neighborhoods or “beats”.<sup>154</sup> This conclusion extends beyond criminal justice intervention and applies as well to social interventions that may ameliorate gun violence. The concept of treating city “hot spots” in prevention efforts grows out of the now established fact of crime concentration.

### Gun Buyback Programs

Gun buyback programs theoretically decrease the supply of guns in a community. Buyback programs encourage participation by offering cash or gift cards in exchange for weapons voluntarily surrendered and by using a “no questions asked” policy. Several studies have been done on who participates in a gun buyback program once it exists, but less studies have illuminated their effect on overall gun violence. “Additional research is needed to determine effective methods to target individuals who would have the greatest impact on gun violence if they relinquished their weapons.”<sup>155</sup> Less ambiguously, these individuals are *not* relinquishing their guns during gun buybacks, which is why research is needed on *how* to get high-risk individuals to participate.

For example, some characteristics of participants in a Worcester, Massachusetts buyback program from 2009 to 2015 are that 68% had gun safety training and a majority were white males over 55 years old who did not themselves buy the gun. Most commonly, those surveyed inherited the gun they turned in, and there was a strong positive relationship between inheriting a gun and turning it in.<sup>156</sup> This is significantly different than the population of individuals involved in gun violence. In fact, 98% of gun buyback participants were white when just 65% of Worcester’s population is white.<sup>157,158</sup> This study illustrates that guns are a public health risk and that buybacks take in guns, but it fails to illustrate how buybacks increase public safety by removing guns accessible to individuals at risk of violence. Even they state, “Our program has so far failed to attract significant numbers of young minority community members. Improving upon this is particularly important, given the higher burden of gun violence experienced among minority communities. A recent New York Times review article explored 358 national armed encounters occurring in 2015 where four or more people were killed or wounded. They found that 73% of the victims were black, 72% were males, and the average age was 27.”<sup>159</sup>

A study that looks at three cities’ programs (Worcester, MA included) found that more than half of participants (55%) did not purchase the firearm, but acquired it through inheritance, gift, or random find.<sup>160</sup> “The primary goal of gun

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<sup>154</sup> Braga, A. A., & Schnell, C. (2013). Evaluating place-based policing strategies: Lessons learned from the smart policing initiative in Boston. *Police Quarterly*, 16(3), 339–357. <https://doi.org/10.1177/1098611113497046>

<sup>155</sup> Violano, P., Driscoll, C., Chaudhary, N. K., Schuster, K. M., Davis, K. A., Borer, E., Winters, J. K., & Hirsh, M. P. (2014). Gun buyback programs: A venue to eliminate unwanted guns in the community. *Journal of Trauma and Acute Care Surgery*, 77(3), S46–S50. <https://doi.org/10.1097/TA.0000000000000319>

<sup>156</sup> Kasper, R. E., Green, J., Damle, R. N., Aidlen, J., Nazarey, P., Manno, M., Borer, E., & Hirsh, M. P. (2017). And the survey said.... Evaluating rationale for participation in gun buybacks as a tool to encourage higher yields. *Journal of Pediatric Surgery*, 52(2), 354–359. <https://doi.org/10.1016/j.jpedsurg.2016.08.009>

<sup>157</sup> Id.

<sup>158</sup> U. S. Census bureau quickfacts: Worcester city, Massachusetts. (n.d.). Retrieved April 19, 2023, from <https://www.census.gov/quickfacts/worcestercitymassachusetts>

<sup>159</sup> Kasper, R. E., Green, J., Damle, R. N., Aidlen, J., Nazarey, P., Manno, M., Borer, E., & Hirsh, M. P. (2017). And the survey said.... Evaluating rationale for participation in gun buybacks as a tool to encourage higher yields. *Journal of Pediatric Surgery*, 52(2), 354–359. <https://doi.org/10.1016/j.jpedsurg.2016.08.009>

<sup>160</sup> Violano, P., Driscoll, C., Chaudhary, N. K., Schuster, K. M., Davis, K. A., Borer, E., Winters, J. K., & Hirsh, M. P. (2014). Gun buyback programs: A venue to eliminate unwanted guns in the community. *Journal of Trauma and Acute Care Surgery*, 77(3), S46–S50. <https://doi.org/10.1097/TA.0000000000000319>

buyback programs is the removal of unwanted firearms from the community,” not necessarily the increase of safety and decrease of gun violence. “To improve the effectiveness of gun buyback programs, it is necessary to understand the demographic that is likely to participate. The majority of participants in our gun buyback program study were white males. Most have additional weapons at home. Participants are more likely to reside in suburban affluent communities than in urban locations, which is similar to other reports.”<sup>161</sup> As there has not yet been innovation in how to attract likely perpetrators and likely victims of gun violence to these gun buybacks, and as we know the demography of said population, gun buybacks are not linked causally to less gun violence.

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<sup>161</sup> Violano, P., Driscoll, C., Chaudhary, N. K., Schuster, K. M., Davis, K. A., Borer, E., Winters, J. K., & Hirsh, M. P. (2014). Gun buyback programs: A venue to eliminate unwanted guns in the community. *Journal of Trauma and Acute Care Surgery*, 77(3), S46–S50. <https://doi.org/10.1097/TA.0000000000000319>

**Table 3**  
Reasons cited for turning in gun(s), 2009–2015.

	N	%
Don't need it	131	48.0
Afraid kids would get it	37	13.55
Safety	21	7.69
Need gift cards	19	6.96
Family member asked	15	5.49
Other	15	5.49
Can't store it	14	5.13
Afraid of guns	9	3.30
Don't know how to use it	6	2.20
Afraid used against me	4	1.47
Bad experience	2	0.73
Total	382	100

162

**TABLE 2. Reasons Cited for Turning in Firearm: Worcester Gun Buyback Program**

	N	%*
Reason*		
Didn't need the firearm	51	47%
Miscellaneous reason**	17	16%
A family member asked you to	15	14%
Concerned that children had access	14	13%
Wanted gift certificates	10	9.2%
Cannot store it properly	7	6.4%
Afraid of the firearm	7	6.4%
Did not answer	7	6.4%
Concerned might be used against you	4	3.7%
No longer being used	3	2.8%
Old gun	2	1.8%

\*Participants were able to choose more than one answer, percent adds up to more than 100%.

\*\*Miscellaneous reasons cited for turning in gun: didn't want it, turning in for a friend, too many guns, it would be stolen, gun not accurate, inherited, owner passed.

163

## Hot Spots Policing

It is a generally known fact that hot spots policing is effective at reducing crime. The effectiveness of hot spots policing bears out in the extensive body of research that includes numerous experimental and quasi-experimental studies.<sup>164</sup>

<sup>162</sup> Kasper, R. E., Green, J., Damle, R. N., Aidlen, J., Nazarey, P., Manno, M., Borer, E., & Hirsh, M. P. (2017). And the survey said.... Evaluating rationale for participation in gun buybacks as a tool to encourage higher yields. *Journal of Pediatric Surgery*, 52(2), 354–359. <https://doi.org/10.1016/j.jpedsurg.2016.08.009>

<sup>163</sup> Violano, P., Driscoll, C., Chaudhary, N. K., Schuster, K. M., Davis, K. A., Borer, E., Winters, J. K., & Hirsh, M. P. (2014). Gun buyback programs: A venue to eliminate unwanted guns in the community. *Journal of Trauma and Acute Care Surgery*, 77(3), S46–S50. <https://doi.org/10.1097/TA.0000000000000319>

<sup>164</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>



Braga (2007) stated, “extant evaluation research seems to provide fairly robust evidence that hot spots policing is an effective crime prevention strategy”.<sup>165</sup>

Hot spots policing originated out of the widespread acknowledgement that crime, including gun violence, is clustered heavily around very small geospatial units within a city. It is a strategy that focuses prevention resources on specific locations where crime is highly concentrated.<sup>166</sup> It is widely accepted that a very small percentage of units of analysis of place is responsible for a majority of crime incidents.<sup>167</sup> Simply stated, when focused on small units of geography with high rates of crime, police can effectively tackle crime and disorder.<sup>168</sup>

Instead of larger units, hot spots policing can adopt a range of responses focused on street segments and intersections. This contrasts with the traditional policing strategy which focuses on individuals.<sup>169</sup> Police records can be analyzed to identify gun violence concentration in such places and how that concentration changes – or is stable – over time.

There is the question of what activities officers should undertake while in these hot spots. Just increasing officer presence at a hot spot has a deterrent effect on crime.<sup>170</sup> In the Minneapolis Hot Spots Patrol Experiment, police were not given specific instructions other than to increase patrol at hot spots. Increased police presence alone had a statistically significant effect on deterring crime.<sup>171</sup> The theory of change here is that criminals will note the police presence and be deterred due to the increased cost of offending. Analysis by Koper (1995) concluded that the ideal time spent at each hot spot is 15 minutes. After that interval, police presence has diminished marginal returns. This phenomenon is known as the “Koper curve”.<sup>172</sup> “Survival time” is the amount of time it takes for crime or disorder to happen after an officer has departed. When officers are just present for 15 minutes, survival time increased by 23%.<sup>173</sup>

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<sup>165</sup> Braga, A. A., Turchan, B. S., Papachristos, A. V., & Hureau, D. M. (2019). Hot spots policing and crime reduction: An update of an ongoing systematic review and meta-analysis. *Journal of Experimental Criminology*, 15(3), 289–311. <https://doi.org/10.1007/s11292-019-09372-3>

<sup>166</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>167</sup> Weisburd, D. (2015). The law of crime concentration and the criminology of place\*: The law of crime concentration. *Criminology*, 53(2), 133–157. <https://doi.org/10.1111/1745-9125.12070>

<sup>168</sup> Papachristos, A. V., Braga, A. A., & Hureau, D. M. (2012). Social networks and the risk of gunshot injury. *Journal of Urban Health*, 89(6), 992–1003. <https://doi.org/10.1007/s11524-012-9703-9>

<sup>169</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>170</sup> Braga, A. A., Turchan, B. S., Papachristos, A. V., & Hureau, D. M. (2019). Hot spots policing and crime reduction: An update of an ongoing systematic review and meta-analysis. *Journal of Experimental Criminology*, 15(3), 289–311. <https://doi.org/10.1007/s11292-019-09372-3>

<sup>171</sup> Sherman, L. W., & Weisburd, D. (1995). General deterrent effects of police patrol in crime “hot spots”: A randomized, controlled trial. *Justice Quarterly*, 12(4), 625–648. <https://doi.org/10.1080/07418829500096221>

<sup>172</sup> Koper, C. S. (1995). Just enough police presence: Reducing crime and disorderly behavior by optimizing patrol time in crime hot spots. *Justice Quarterly*, 12(4), 649–672. <https://doi.org/10.1080/07418829500096231>

<sup>173</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

Although mere presence produces crime control benefits, when police undertake tailored and specific interventions at each hot spot, the more effective the program at reducing crime after police depart and in the long-run.<sup>174</sup> The more diverse the intervention strategy at place, the greater deterrence it is shown to have in hot spots. This strategy is known as Problem-Oriented Policing and is described later in this report. Problem-Oriented Policing programs that incorporate these tailored responses produce effect sizes that are more than double those produced by hot spots studies focused only on police presence.

The “question of displacement versus deterrence is crucial to evaluation costs and benefits of the policies but also has implications for understanding criminal incentives and behavior.”<sup>175</sup> The larger body of literature on hot spots policing and displacement concludes that violent crime simply does not displace geospatially to neighboring areas. Displacement is the idea that interventions at a place will cause crime to shift spatially to a neighboring or new area as offenders evaluate risks related to certain areas and relocate. If anything, hot spots policing actually sees a diffusion of crime control *benefits* to neighboring areas.

A large, city-wide study conducted in Bogotá, Colombia is an outlier. It did find displacement of property crimes but found no evidence of displacement for violent crimes. This is significant because, there is something specific about violent crimes (“crimes of passion”) that does not spill over into neighboring areas or other parts of the city. This is consistent with the idea that offenders with sustained motives (like theft) respond strategically to targeted police presence and choose to relocate. Crimes of passion might be easier to deter, given that they target a specific person in a specific place. This suggests that policymakers should consider carefully if the crime patterns in their city can be deterred by place-based hot spots policing.<sup>176</sup> Gun violence is usually a “crime of passion,” not one of convenience, and therefore it is likely that the hot spots policing model would effectively address such crimes.

Displacement that is not nearby or geospatial in nature, however, is understudied and not fully understood. Perhaps there is displacement of the crime type – the specific crime of gun violence does not occur but another type of crime is committed instead.<sup>177</sup> Or, displacement could occur but much farther away, although they did not find this for violent crime in Bogotá.<sup>178</sup>

There are three possible counter-effective outcomes of hot spots policing. First, increasing police presence in an area may lead residents to believe crime has increased, thereby producing fear. Out of fear, residents can retreat from the community and the social controls that deter crime can break down.<sup>179</sup> Second, if hot spots policing decreases collective efficacy, it could increase crime over the long run and any short-term crime control gains would be offset. “Collective

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<sup>174</sup> Braga, A. A., Turchan, B. S., Papachristos, A. V., & Hureau, D. M. (2019). Hot spots policing and crime reduction: An update of an ongoing systematic review and meta-analysis. *Journal of Experimental Criminology*, 15(3), 289–311. <https://doi.org/10.1007/s11292-019-09372-3>

<sup>175</sup> Blattman, C., Green, D. P., Ortega, D., & Tobón, S. (2021). Place-based interventions at scale: The direct and spillover effects of policing and city services on crime. *Journal of the European Economic Association*, 19(4), 2022–2051. <https://doi.org/10.1093/jeaa/jvab002>

<sup>176</sup> Id.

<sup>177</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>178</sup> Blattman, C., Green, D. P., Ortega, D., & Tobón, S. (2021). Place-based interventions at scale: The direct and spillover effects of policing and city services on crime. *Journal of the European Economic Association*, 19(4), 2022–2051. <https://doi.org/10.1093/jeaa/jvab002>

<sup>179</sup> Wilson, G. L. K., James Q. (1982, March 1). *Broken windows*. The Atlantic. <https://www.theatlantic.com/magazine/archive/1982/03/broken-windows/304465/>

efficacy” means the ability of a community to operate with common values and regulate behavior within it through strong relationships and mutual trust.<sup>180</sup> Weisburd et al. (2004) found that the “hotter” the spot, the lower the rates of collective efficacy.<sup>181</sup> Lastly, a concern of hot spots policing is that it may decrease police legitimacy. To do their job, police need support and cooperation from the public, and their willingness to defer to their authority. If this breaks down, long term, a community could become lawless and even attract crime from elsewhere.<sup>182</sup> Essentially, can simple everyday police methods produce long-term crime reductions at hot spots without deeper structural change to address inequities at the heart of crime?<sup>183</sup> Each of the above counter-effects could in the long-term offset the short-term gains made from hot spots policing.

While the theories underpinning the potential downsides of hot spots policing are valid, none have been studied to the degree where experts feel confident expressing that they ring true. In particular, there are conflicting studies regarding the impact of hot spots policing on police legitimacy. There is not enough research to make a judgment call on these concerns.<sup>184</sup> The police and criminal justice practitioners must monitor and evaluate their own community’s fear of crime, collective efficacy, and police legitimacy to understand the possible or likely impacts of a hot spots policing program in their city.

In addition to not knowing the full range of hot spots policing effects, we also do not fully understand the impacts of hot spots policing on rural areas or smaller cities.<sup>185</sup> Larger cities are almost always the focus of the literature with few exceptions. One study of San Bernardino County looked at hot spots in a suburban sprawl environment. While lower-activity places may still be “crime hot spots” in smaller jurisdictions, the ability of the police to influence crime at such places may be different. The number of events at each hot spot in San Bernardino County was too small to allow for statistically powerful outcomes. This is likely to be a serious barrier to evaluation in many smaller cities or in rural areas.

One study of Manhattan, Kansas evaluated their Operation Laser Point.<sup>186</sup> In it, the police targeted micro-hot spot locations and instituted regular, daily directed patrol visits, community engagement, and problem solving techniques. Crime decreased after the program began and held fairly steady throughout the program and afterward. Crime also declined in areas outside the hot spots, supporting prior research showing diffusion of crime control benefits. This study

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<sup>180</sup> Weisburd, D., Hinkle, J. C., Famega, C., & Ready, J. (2011). The possible “backfire” effects of hot spots policing: An experimental assessment of impacts on legitimacy, fear and collective efficacy. *Journal of Experimental Criminology*, 7(4), 297–320. <https://doi.org/10.1007/s11292-011-9130-z>

<sup>181</sup> Weisburd, D., Bushway, S., Lum, C., & Yang, S.-M. (2004). Trajectories of crime at places: A longitudinal study of street segments in the city of Seattle\*. *Criminology*, 42(2), 283–322. <https://doi.org/10.1111/j.1745-9125.2004.tb00521.x>

<sup>182</sup> Weisburd, D., Hinkle, J. C., Famega, C., & Ready, J. (2011). The possible “backfire” effects of hot spots policing: An experimental assessment of impacts on legitimacy, fear and collective efficacy. *Journal of Experimental Criminology*, 7(4), 297–320. <https://doi.org/10.1007/s11292-011-9130-z>

<sup>183</sup> Koper, C. S., Lum, C., Wu, X., & Hegarty, T. (2021). The long-term and system-level impacts of institutionalizing hot spot policing in a small city. *Policing: A Journal of Policy and Practice*, 15(2), 1110–1128. <https://doi.org/10.1093/police/paaa096>

<sup>184</sup> Weisburd, D., & Telep, C. W. (2014). Hot spots policing: What we know and what we need to know. *Journal of Contemporary Criminal Justice*, 30(2), 200–220. <https://doi.org/10.1177/1043986214525083>

<sup>185</sup> Id.

<sup>186</sup> Koper, C. S., Lum, C., Wu, X., & Hegarty, T. (2021). The long-term and system-level impacts of institutionalizing hot spot policing in a small city. *Policing: A Journal of Policy and Practice*, 15(2), 1110–1128. <https://doi.org/10.1093/police/paaa096>



shows that hot spots policing can be effective as a long-term crime control strategy in small cities – positive evidence for suburban areas and in lower crime areas of large cities.<sup>187</sup>

### Problem Oriented Policing

“Problem-Oriented Policing” or POP was developed by Herman Goldstein as an alternative method to traditional reactive efforts to address chronic problems.<sup>188</sup> It was his view that American policing had fallen ill with “means over ends” syndrome, placing more emphasis in their improvement efforts on organization and operating methods (number of arrests, average response time) than on the substantive outcome of their work”.<sup>189</sup> Essentially, they became so focused on means of policing, like staffing and management, that they were ignoring the things they were meant to solve. POP, he suggested, would refocus police on crime and disorder. This, he believed, would be a paradigm shift that would replace incident-driven, reactive “standard” policing with a model that required police to be proactive.<sup>190</sup>

POP emphasizes the analysis of crime trends and root causes of crime in a community. It can be applied in neighborhoods, non-residential areas, or whole cities. This approach requires police to take a proactive stance by closely examining violence trends and customizing interventions for specific issues. While law enforcement plays a significant role in overseeing and participating in POP, non-law enforcement entities such as community organizations, healthcare services, other city departments and municipal actors may also have a part to play in addressing some problems. These non-law enforcement partnerships were key to ameliorating crime and disorder, in Goldstein’s vision of POP. Additionally, POP demands that law enforcement evaluate their strategies and determine whether they have achieved their goals.<sup>191</sup> Because of this systematic method, Goldstein emphasized the importance of having personnel trained in research and assessment.<sup>192</sup>

Most traditionally, the S.A.R.A. method (Scanning-Analysis-Response-Assessment) is used when applying POP. Eck and Spelman developed the method in 1987 as a “framework for uncovering complex mechanisms at play in crime problems and for developing tailor-made interventions to address the underlying conditions that cause crime problems”.<sup>193</sup> “Scanning” involves the identification and prioritization of potential problems that may be causing crime within a jurisdiction. “Analysis” involves an in-depth evaluation of problems using a variety of data sources so the most appropriate response can be developed. This is not just about problem outcomes like traditional policing but concerned with the underlying processes that lead to problems. “Response” is the development and implementation of an intervention tailored to the nature of the problem distilled in the analysis phase. Response searches should be broad,

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<sup>187</sup> Koper, C. S., Lum, C., Wu, X., & Hegarty, T. (2021). The long-term and system-level impacts of institutionalizing hot spot policing in a small city. *Policing: A Journal of Policy and Practice*, 15(2), 1110–1128. <https://doi.org/10.1093/police/paaa096>

<sup>188</sup> Goldstein, H. (1979). Improving policing: A problem-oriented approach. *Crime & Delinquency*, 25(2), 236–258. <https://doi.org/10.1177/001112877902500207>

<sup>189</sup> Id.

<sup>190</sup> Id.

<sup>191</sup> Eck, J. E., & Spelman, W. (1987). Who ya gonna call? The police as problem-busters. *Crime & Delinquency*, 33(1), 31–52. <https://doi.org/10.1177/0011128787033001003>

<sup>192</sup> Hinkle, Joshua C., et al. “Problem-Oriented Policing for Reducing Crime and Disorder: An Updated Systematic Review and Meta-Analysis.” *CrimRxiv*, July 2021. *DOI.org (Crossref)*, <https://doi.org/10.21428/cb6ab371.5277ad69>.

<sup>193</sup> Eck, J. E., & Spelman, W. (1987). *Problem-solving: Problem-oriented policing in Newport News*. U.S. Dept. of Justice, National Institute of Justice.



involving law enforcement and non-law enforcement methods, other agencies, community groups and members. “Assessment” is the ongoing monitoring and evaluation of the response effect on targeted problem(s). This process is intended lead to continual improvements and refinement in further iterations of the response.<sup>194</sup>

The three musts in conducting POP are that problems must be defined specifically, information must be collected from sources outside the department, and agencies must engage in a broad search for solutions. The best solutions tend to involve public and private entities that have a stake in solving the problem. Officers tend to get a more satisfying experience doing POP than traditional police work because they directly observe the results of their work, although it does require additional training and management.<sup>195</sup>

Recently, it has been theorized that there are four “types” of crime-involved places that problem solving would benefit – crime sites, convergent settings, comfort spaces, and corrupting spots. Crime sites are those which analysts can identify on a map, through hot spot analysis or observation alone. Convergent settings are public places where people come together. For example, there is a bus depot in Cincinnati, Ohio where buses converge, and this space is a meeting spot for delinquent teenagers. Depending on the circumstances, there may or may not be crime occurring at a convergent setting. Third, comfort spaces are those which are private locations that offenders use for a variety of reasons, from hanging out to storing supplies to surveilling for the presence of law enforcement. Offenders prefer that crimes are not committed in comfort spaces.<sup>196</sup> Lastly, corrupting spots are those that are often businesses that allow for the facilitation of crime. An example is an auto repair shop that takes stolen car parts. Identifying these locations can, according to John Eck, Ph.D. and Lt. Matt Hammer, Ph.D., go a long way in dismantling place systems underlying crime.<sup>197</sup>

A meta-analysis of POP suggests a statistically significant average decline (-33.8%) in general crime and disorder in treatment areas as opposed to controls. The analysis did not find significant spatial displacement of crime to other areas, but it did find evidence of some diffusion of crime control *benefits* to neighboring areas.<sup>198</sup> In terms of cost-effectiveness, crime “crackdowns”, or person-based programs where services have to be continually delivered, are less effective at lasting crime decline than programs where lasting change is instituted. The former sees deterrent effects erode when a program ends.<sup>199</sup>

The greatest deterrence results are found when police combine hot spots policing with POP (situational prevention strategies). Disrupting situational dynamics that are catalysts to gun violence increases the necessary risk or effort in offending, or reduces attractiveness of possible victims. These interventions can range from an officer patrolling the block or city services creating green space or installing better street lighting. Razing abandoned buildings and cleaning

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<sup>194</sup> Chief Eliot Isaac, Lt. Matthew Hammer M.S., Blake Christenson M.A., & Dr. Tamara D. Madensen. (2017). *P.I.V.O.T. Place Based Investigations of Violent Offender Territories* (Herman Goldstein Award Submission). Cincinnati Police Department.

<sup>195</sup> Eck, J. E., & Spelman, W. (1987). Who ya gonna call? The police as problem-busters. *Crime & Delinquency*, 33(1), 31–52. <https://doi.org/10.1177/001128787033001003>

<sup>196</sup> Eck, J. (2023, March 24). *Professor of Criminal Justice at the University of Cincinnati* [Zoom].

<sup>197</sup> Chief Eliot Isaac, Lt. Matthew Hammer M.S., Blake Christenson M.A., & Dr. Tamara D. Madensen. (2017). *P.I.V.O.T. Place Based Investigations of Violent Offender Territories* (Herman Goldstein Award Submission). Cincinnati Police Department.

<sup>198</sup> Hinkle, Joshua C., et al. “Problem-Oriented Policing for Reducing Crime and Disorder: An Updated Systematic Review and Meta-Analysis.” *CrimRxiv*, July 2021. *DOI.org (Crossref)*, <https://doi.org/10.21428/cb6ab371.5277ad69>.

<sup>199</sup> Id.

up graffiti are also common implementations of POP in hot spots. Despite this, POP often addresses non-geographic crime concentration – repeat offenders, repeat victims, hot products etc. While POP can be a type of Hot Spots Policing, many hot spots programs do not use the systematic approach of POP, which itself does not favor any particular intervention.<sup>200</sup>

Potential pitfalls to POP implementation are similar to those for hot spot policing: increased fear of crime, and decreased collective efficacy and police legitimacy.

### Social Network Analysis as it Relates to Gun Violence

The epidemiological approach to behavior promises community leaders a better way to prevent gun violence – through Social Network Analysis (SNA) and identification of individuals vulnerable to perpetration and victimization.<sup>201</sup> A social network is a bounded number of social actors connected by various relationships (“ties”) – family, friendship, schooling, neighborhood, sexual relationships, etc.<sup>202</sup>. Theoretically, SNA refers to the statistical analysis of how actors, usually people, are connected and influence each other’s thoughts, feelings, and actions.<sup>203,204</sup> “As with other important health problems, most cases of firearm violence arise from large but low-risk subsets of the population”.<sup>205</sup>

Like many health phenomena, gun violence has been widely studied as a social contagion, in that it has been shown repeatedly to diffuse in a population, transmitted from person to person through social interaction.<sup>206</sup> This means that individuals that have been exposed to gun violence, or exposed to individuals that have been perpetrators or victims of gun violence, have greater risk of victimization or perpetration when compared to those that have not.<sup>207</sup> A study of homicides in Newark, NJ found that homicides were “not random but...moved [by a] similar process to an infectious disease, with firearms and gangs operating as infectious agents”.<sup>208</sup> Direct exposure has a larger positive relationship to involvement with gun violence, although even small amounts of exposure can increase the likelihood of future victimization.<sup>209</sup> One study of nonfatal gunshot victim social networks determined that a 1% increase in exposure to

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<sup>200</sup> Hinkle, Joshua C., et al. “Problem-Oriented Policing for Reducing Crime and Disorder: An Updated Systematic Review and Meta-Analysis.” *CrimRxiv*, July 2021. *DOI.org (Crossref)*, <https://doi.org/10.21428/cb6ab371.5277ad69>.

<sup>201</sup> McGee, Zina T., et al. “A Multivariate Analysis of Gun Violence among Urban Youth: The Impact of Direct Victimization, Indirect Victimization, and Victimization among Peers.” *Cogent Social Sciences*, edited by Jamie Halsall, vol. 3, no. 1, Jan. 2017, p. 1328772. *DOI.org (Crossref)*, <https://doi.org/10.1080/23311886.2017.1328772>.

<sup>202</sup> Wasserman, Stanley, and Katherine Faust. *Social Network Analysis: Methods and Applications*. Cambridge University Press, 1994.

<sup>203</sup> Id.

<sup>204</sup> Papachristos, Andrew V., et al. “Social Networks and the Risk of Gunshot Injury.” *Journal of Urban Health*, vol. 89, no. 6, Dec. 2012, pp. 992–1003. *DOI.org (Crossref)*, <https://doi.org/10.1007/s11524-012-9703-9>.

<sup>205</sup> Wintemute, Garen J. “The Epidemiology of Firearm Violence in the Twenty-First Century United States.” *Annual Review of Public Health*, vol. 36, no. 1, Mar. 2015, pp. 5–19. *DOI.org (Crossref)*, <https://doi.org/10.1146/annurev-publhealth-031914-122535>.

<sup>206</sup> Kadushin, Charles. *Understanding Social Networks: Theories, Concepts, and Findings*. Oxford University Press, 2012.

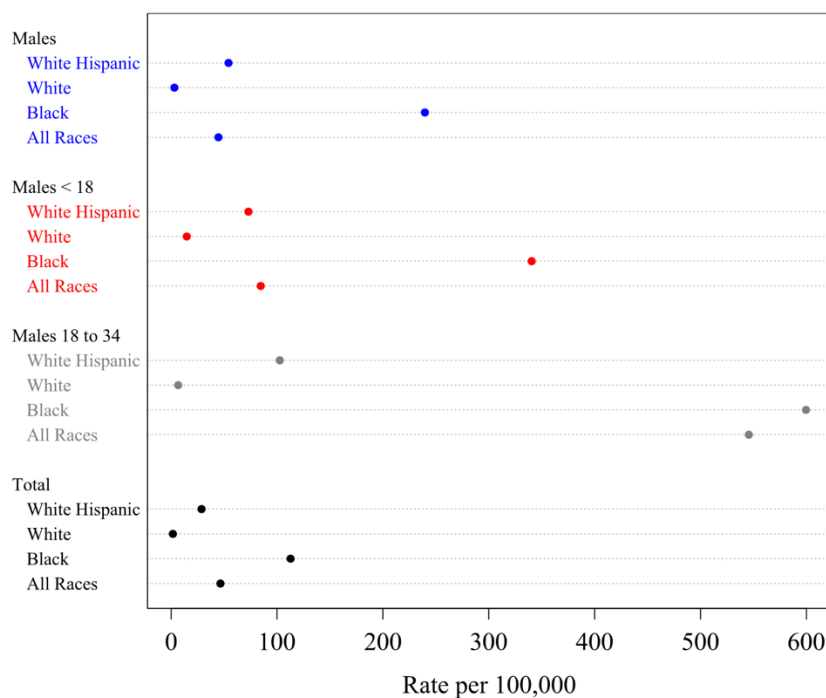
<sup>207</sup> Tracy, Melissa, et al. “The Transmission of Gun and Other Weapon-Involved Violence Within Social Networks.” *Epidemiologic Reviews*, Jan. 2016, p. mxv009. *DOI.org (Crossref)*, <https://doi.org/10.1093/epirev/mxv009>.

<sup>208</sup> Zeoli, April M., et al. “Homicide as Infectious Disease: Using Public Health Methods to Investigate the Diffusion of Homicide.” *Justice Quarterly*, vol. 31, no. 3, May 2014, pp. 609–32. *DOI.org (Crossref)*, <https://doi.org/10.1080/07418825.2012.732100>.

<sup>209</sup> McGee, Zina T., et al. “A Multivariate Analysis of Gun Violence among Urban Youth: The Impact of Direct Victimization, Indirect Victimization, and Victimization among Peers.” *Cogent Social Sciences*, edited by Jamie Halsall, vol. 3, no. 1, Jan. 2017, p. 1328772. *DOI.org (Crossref)*, <https://doi.org/10.1080/23311886.2017.1328772>.

gunshot victims in one’s immediate network increases the odds of becoming a victim by 1.1%. It also found that 10 percent exposure to victims at distances  $\leq 2$  ties increases the odds of gunshot victimization by 27.0 percent, and 25 percent exposure to victims increases the odds by 81.6 percent.<sup>210</sup>

While gun violence may seem random, studying the social network underlying it can shed light on just how connected exposure is to future perpetration or future victimization. For example, we know from empirical and anecdotal data that young minority males are the most likely victims of gunshot injuries. Homicide risk is concentrated to a remarkable degree among Black males over the life course. At ages 20 to 29 in 2012, the firearm homicide rate for Black males was at least five times higher than that for Hispanic males and at least 20 times that for White males.<sup>211</sup>



**Fig. 2.** Rates of nonfatal gunshot victimization in Chicago, 2006–2012.

212

But, we cannot know why, between two young men with identical risk factors, one ends up victimized and one does not. “Defining the at-risk population as including young, minority males living in disadvantaged neighborhoods is not refined enough to capture the extreme concentration of gun violence in urban environments. Urban gun violence trends may be best understood as generated by a very small number of high-risk individuals who participate in high-risk social networks

<sup>210</sup> Papachristos, Andrew V., et al. “Tragic, but Not Random: The Social Contagion of Nonfatal Gunshot Injuries.” *Social Science & Medicine*, vol. 125, Jan. 2015, pp. 139–50. DOI.org (Crossref), <https://doi.org/10.1016/j.socscimed.2014.01.056>.

<sup>211</sup> Wintemute, G. J. (2015). The epidemiology of firearm violence in the twenty-first century United States. *Annual Review of Public Health*, 36(1), 5–19. <https://doi.org/10.1146/annurev-publhealth-031914-122535>

<sup>212</sup> Papachristos, Andrew V., et al. “Tragic, but Not Random: The Social Contagion of Nonfatal Gunshot Injuries.” *Social Science & Medicine*, vol. 125, Jan. 2015, pp. 139–50. DOI.org (Crossref), <https://doi.org/10.1016/j.socscimed.2014.01.056>.

and perpetrate their shootings at a very small number of high-risk micro places”.<sup>213</sup> This is where social network analysis, rather than examining neighborhoods or census tracts, can be useful in identifying at-risk individuals. SNA theorists claim that violence prevention efforts accounting for social contagion, in addition to demographics, have the potential to prevent more shootings than efforts that focus only on demographics.<sup>214</sup>

Many studies on gun violence networks show that while all victims are in one very large and possibly additional smaller networks, gun violence is even more concentrated *within* networks. Only with SNA can we more precisely predict an individual’s risk within a certain network. One study of Boston shootings found that 85% of all gunshot injuries in a sample occurred within just one social network and that the closer one is to a gunshot victim (in number of ties), the greater the probability of one’s own victimization.<sup>215</sup> In the Newark, NJ study mentioned above, one third of all fatal and nonfatal shootings occurred in a network of less than 4% of the city’s population. This phenomenon has tremendous implications for public policy interventions aimed at reducing gun violence. If gun violence is affecting one very small subset of a larger network, police, along with city departments and social service organizations can most efficiently target those individuals for maximum violence prevention.

#### Gangs and Gang Membership

It has been widely studied and concluded that membership in a gang is highly associated with violent victimization.<sup>216</sup> Social Network Analysis (SNA) can provide mathematical understanding of gang-related networks and violent involvement in crime. Violence, specifically gun violence, can spread within co-offending networks from gang members to non-gang members.<sup>217</sup> A co-offending network is a network of individuals who have committed crimes together in the past, regardless of gang status. Some offenders in these networks are gang members and some are not, as not all criminal associates of gang members are necessarily in gangs.<sup>218</sup> Co-offending networks have been well documented in criminology as a base for the sociological processes underpinning crime and violence.<sup>219</sup> Co-offending as a mechanism to study gunshot violence has been used several times to understand the effect of past history of violent crime (or gang membership) on future risk of violent crime.

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<sup>213</sup> Braga, Anthony A., et al. “The Concentration and Stability of Gun Violence at Micro Places in Boston, 1980–2008.” *Journal of Quantitative Criminology*, vol. 26, no. 1, Mar. 2010, pp. 33–53. DOI.org (Crossref), <https://doi.org/10.1007/s10940-009-9082-x>.

<sup>214</sup> Green, B., Horel, T., & Papachristos, A. V. (2017). Modeling contagion through social networks to explain and predict gunshot violence in Chicago, 2006 to 2014. *JAMA Internal Medicine*, 177(3), 326. <https://doi.org/10.1001/jamainternmed.2016.8245>

<sup>215</sup> Papachristos, Andrew V., et al. “Social Networks and the Risk of Gunshot Injury.” *Journal of Urban Health*, vol. 89, no. 6, Dec. 2012, pp. 992–1003. DOI.org (Crossref), <https://doi.org/10.1007/s11524-012-9703-9>.

<sup>216</sup> Decker, S. H., Pyrooz, D. C., & Moule, R. K. (2014). Disengagement from gangs as role transitions. *Journal of Research on Adolescence*, 24(2), 268–283. <https://doi.org/10.1111/jora.12074>

<sup>217</sup> Papachristos, A. V., Braga, A. A., Piza, E., & Grossman, L. S. (2015). The company you keep? The spillover effects of gang membership on individual gunshot victimization in a co-offending network: gang membership, networks, & victimization. *Criminology*, 53(4), 624–649. <https://doi.org/10.1111/1745-9125.12091>

<sup>218</sup> Id.

<sup>219</sup> Warr, M. (2002). *Companions in crime: The social aspects of criminal conduct*. Cambridge University Press.



One co-offender network study of gang members in Newark, NJ found that gang membership increases the odds of gunshot victimization by 344%.<sup>220</sup> That study also concluded that one or more ties to a gang member, or the closer in proximity to a gang member (even when not direct) within the co-offending network significantly increases the probability that one will experience fatal or non-fatal gunshot victimization.<sup>221</sup> Almost one third of all fatal or non-fatal shootings occurred in a network comprised of less than 4% of the city's population. If a subset of a city's gun violence is gang related, it is clear that performing SNA and locating individuals most at risk for intervention would be an effective and logical step toward reducing gun violence.

### Domestic Violence and Firearm Accessibility

Nicholas Kristoff with the New York Times writes that we already bar felons from owning guns, and we should go a step further and bar violent misdemeanor offenders from possessing guns.<sup>222</sup> California has taken this step. In California, there is a domestic violence misdemeanor firearm prohibition, required firearm relinquishment for domestic violence misdemeanors, and required reporting of domestic violence misdemeanors to national databases.

Stalking, domestic violence, and alcohol abuse are particular warning signs of future violence. A study on femicide in intimate partner relationships states that “an abusive partner's access to a firearm is a serious threat to victims of domestic violence, making it five times more likely that [they] will be killed”.<sup>223</sup> States that bar those subject to active domestic violence restraining orders from accessing guns have seen a 13% reduction in intimate partner homicides involving firearms.<sup>224</sup> Removal of guns from domestic violence offenders is one of the most frequently used and effective strategies *as rated by local police* throughout the country.<sup>225</sup>

Those who have been an abuse victim of an intimate partner need intervention to “prevent further escalation of violence. Healthcare practitioners should question individuals not only about domestic violence but also about abusers' access to a gun and should provide appropriate referrals to services and information regarding serious risk in such

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<sup>220</sup> Papachristos, A. V., Braga, A. A., Piza, E., & Grossman, L. S. (2015). The company you keep? The spillover effects of gang membership on individual gunshot victimization in a co-offending network: gang membership, networks, & victimization. *Criminology*, 53(4), 624–649. <https://doi.org/10.1111/1745-9125.12091>

<sup>221</sup> Id.

<sup>222</sup> Kristof, N. (2023, January 24). Opinion | a smarter way to reduce gun deaths. *The New York Times*. <https://www.nytimes.com/2023/01/24/opinion/gun-death-health.html>

<sup>223</sup> Campbell, J. C., Webster, D., Koziol-McLain, J., Block, C., Campbell, D., Curry, M. A., Gary, F., Glass, N., McFarlane, J., Sachs, C., Sharps, P., Ulrich, Y., Wilt, S. A., Manganello, J., Xu, X., Schollenberger, J., Frye, V., & Laughon, K. (2003). Risk factors for femicide in abusive relationships: Results from a multisite case control study. *American Journal of Public Health*, 93(7), 1089–1097. <https://doi.org/10.2105/AJPH.93.7.1089>

<sup>224</sup> Zeoli, A. M., McCourt, A., Buggs, S., Frattaroli, S., Lilley, D., & Webster, D. W. (2018). Retracted: Analysis of the strength of legal firearms restrictions for perpetrators of domestic violence and their associations with intimate partner homicide. *American Journal of Epidemiology*, 187(7), 1449–1455. <https://doi.org/10.1093/aje/kwx362>

<sup>225</sup> Koper, C. S., Woods, D. J., & Kubu, B. E. (2013). Gun violence prevention practices among local police in the United States. *Policing: An International Journal of Police Strategies & Management*, 36(3), 577–603. <https://doi.org/10.1108/PIJPSM-06-2012-0052>

situations.<sup>226, 227</sup> The most important thing clinicians can do is inform a victim of domestic violence that Extreme Risk Protection Orders exist.

Police can only act on active restraining orders and Extreme Risk Protection Orders, so direction should be given to victims on how to obtain one. An Extreme Risk Protection Order (ERPO) is a civil order that temporarily prohibits individuals who pose a danger to themselves or others from purchasing and possessing firearms. In California, law enforcement or clinicians, a family or household member, employers, co-workers, and employees and teachers at secondary and post-secondary schools can petition for an individual to be under an ERPO.<sup>228</sup> In California, these laws can also apply to dating partners (not true in every state).

There is both objective and anecdotal evidence that these actions work when they happen and do reduce violence.

### Hospital Based Violence Intervention Programs (HVIPs)

The rationale for a Hospital-Based Violence Intervention Program is a public health one. Their goal is to improve the pre-existing social determinants of health (such as poverty, a low level of education, and substance abuse) that may have led to violent victimization and, in doing so, prevent reinjury.<sup>229</sup> One of the strongest predictors of future injury is past injury, and victims of violent injury are more than twice as likely to die a violent death compared to matched control subjects.<sup>79, 230</sup> Gunshot victims or victims of violent assault are almost always taken to trauma I hospitals. The window after an injury is considered a valuable time for intervention, while that patient is still being treated in the hospital. It has really been just over the last 20 years that these programs have emerged to take advantage of that time to break the cycle of violence.<sup>231</sup>

Hospital-Based Violence Intervention Programs identify violently injured patients and intervene at their bedside immediately following a violent victimization injury. Typically, the hospital assigns patients a case manager or social worker who evaluates patients based on the patient's perception of their own psychosocial, emotional, or financial needs and connects them with providers in the community that are capable of addressing those needs. Various models tend to emphasize that case workers need to be culturally competent and it is beneficial if they come from similar environments as patients.

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<sup>226</sup> Tracy, M., Braga, A. A., & Papachristos, A. V. (2016). The transmission of gun and other weapon-involved violence within social networks. *Epidemiologic Reviews*, mxv009. <https://doi.org/10.1093/epirev/mxv009>

<sup>227</sup> Campbell, J. C., Webster, D., Koziol-McLain, J., Block, C., Campbell, D., Curry, M. A., Gary, F., Glass, N., McFarlane, J., Sachs, C., Sharps, P., Ulrich, Y., Wilt, S. A., Manganello, J., Xu, X., Schollenberger, J., Frye, V., & Laughon, K. (2003). Risk factors for femicide in abusive relationships: Results from a multisite case control study. *American Journal of Public Health*, 93(7), 1089–1097. <https://doi.org/10.2105/AJPH.93.7.1089>

<sup>228</sup> *California code, penal code—Pen § 18100*. (n.d.). Findlaw. Retrieved March 27, 2023, from <https://codes.findlaw.com/ca/penal-code/pen-sect-18100/>

<sup>229</sup> Gorman, E., Coles, Z., Baker, N., Tufariello, A., Edemba, D., Ordonez, M., Walling, P., Livingston, D. H., & Bonne, S. (2022). Beyond recidivism: Hospital-based violence intervention and early health and social outcomes. *Journal of the American College of Surgeons*, 235(6), 927–939. <https://doi.org/10.1097/XCS.000000000000409>

<sup>230</sup> Juillard, C., Cooperman, L., Allen, I., Pirracchio, R., Henderson, T., Marquez, R., Orellana, J., Texada, M., & Dicker, R. A. (2016). A decade of hospital-based violence intervention: Benefits and shortcomings. *Journal of Trauma and Acute Care Surgery*, 81(6), 1156–1161. <https://doi.org/10.1097/TA.0000000000001261>

<sup>231</sup> Id.

Zuckerberg San Francisco General Hospital is the only Trauma I facility serving the whole city and county of San Francisco. Since 2005 the Wraparound Program has been implemented as its HVIP. They offer enrollment in the program to all victims of intentional injuries that are between 10-35 years old that they determine via a screening process to be at high-risk of reinjury. The victim must also be injured or live in San Francisco. Notably, patients excluded are those whose injuries are a result of domestic violence or child abuse, or if self-inflicted. Patients must consent to participation and then an initial intake and needs assessment is done. The program provides up to one year of intensive case management including mentorship, advocacy, and services from community providers. There are challenges in evaluating this program because bias is introduced by self-selection (which would likely decrease the rate of reinjury) and the fact that only patients screened to be high-risk are selected (which would likely increase the rate of reinjury). However, the injury recidivism rate decreased from 8.4% to 4.9% after its institution at Zuckerberg in 2006. A study of the Violence Intervention Advocacy Program at Boston Medical Center similarly finds that it effectively serves the population choosing the program.<sup>232</sup> The HVIP at University Hospital in Newark, New Jersey has also been studied and found achieve patient-stated short-term health and social goals in half of its enrollees during 2020.<sup>233</sup>

“Recidivism has been used as an outcome measure of HVIPs for several years. Although it adds a layer of complexity, its measurement has been linked to the cost–benefit ratio for hospitals and communities to use in obtaining grant funding and convincing administrators of the utility of HVIPs.”<sup>234</sup>

In Alameda County, a CBO program called Caught in the Crossfire does hospital bed interventions similar to the Wraparound Program but, it is not directly managed by hospitals; they rely on hospital buy-in.<sup>235</sup> Their stated goals are to convince the victims, their friends, and their family not to retaliate, to reduce hostilities, and provide victims pathways to a safer life.<sup>236</sup>

### Focused Deterrence (Custom Notifications)

The theory of change in focused deterrence is that violence can be prevented if individuals believe that the costs of violence outweigh its potential benefits.<sup>237</sup> The strategy identifies those most at risk of becoming a perpetrator of gun violence and delivers a “hard” message – that violence will not be tolerated and any of it will be met with swift arrests and criminal justice consequences. There is also the “soft” message delivery, that the police and (usually a CBO) are here to help connect the individual with resources that they can then leverage to transition away from violence.

Historically, custom notifications were delivered as part of a larger “call-in”, where group members are all called to the same place and a message is communicated that “affected communities want the violence to stop, there is help available to group members who want it, and meaningful legal consequences will follow if the violence does not stop.”

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<sup>232</sup> Pino, E. C., Fontin, F., James, T. L., & Dugan, E. (2021). Boston violence intervention advocacy program: Challenges and opportunities for client engagement and goal achievement. *Academic Emergency Medicine*, 28(3), 281–291. <https://doi.org/10.1111/acem.14162>

<sup>233</sup> Gorman, E., Coles, Z., Baker, N., Tufariello, A., Edemba, D., Ordonez, M., Walling, P., Livingston, D. H., & Bonne, S. (2022). Beyond recidivism: Hospital-based violence intervention and early health and social outcomes. *Journal of the American College of Surgeons*, 235(6), 927–939. <https://doi.org/10.1097/XCS.0000000000000409>

<sup>234</sup> Id.

<sup>235</sup> *Intervention*. (n.d.). Youth ALIVE! Retrieved March 28, 2023, from <https://www.youthalive.org/caught-in-the-crossfire/>

<sup>236</sup> Id.

<sup>237</sup> Braga, A. A. (2008). Pulling levers focused deterrence strategies and the prevention of gun homicide. *Journal of Criminal Justice*, 36(4), 332–343. <https://doi.org/10.1016/j.jcrimjus.2008.06.009>

These, however, assume group violence is at a certain height and also require a large amount of pre-work to be done to gather the right people and communicate the messages tailored to the full group as well as to the individuals. Therefore, they are not tactical because it is not possible to get one together to prevent violence likely to occur within a day or two.

Instead, it has been valuable instead to focus just on individuals in their homes with appropriate personnel, such as probation, parole, and police officers, as well as community voices and positive “influentials” such as family members. Custom notifications have many advantages on their own. They can be delivered to anyone, regardless of whether they are on parole, probation, or in a larger group. They can be delivered to a smaller number of impact players, who often are not under court supervision and cannot be mandated to attend a call-in. They are flexible and implemented with short notice and can be delivered by law enforcement alone, community figures alone, or a combination. They can incorporate an “influential”, someone close to the individual who represents a consistent, positive influence.

Incorporating influentials as partners with community members, law enforcement, and social service providers gives a strong message about making good choices and the consequences of violence. They are powerful tools for interrupting gang “beefs”, heading off retaliation after a violent event, calming down outbreaks of violence and bolstering the core gun violence program. They can incorporate highly specific information meaningful to the person being notified, such as the help they personally may need or particular legal vulnerabilities they face if they continue offending. These messages can be delivered to parolees or probationers as they prepare to reenter society.<sup>238</sup> Lastly, custom notifications can create spillover violence reduction effects on group members who are socially tied to others engaged in violence, so you reach more than just those individuals that were selected for direct contact. This is especially true if Social Network Analysis is used to identify them.

It is emphasized in the literature that partnering with a CBO, such as California Partnership for Safe Communities, is ideal. A social service provider, community group, faith-based organization, or street outreach worker can increase the credibility of law enforcement and connect more genuinely with the individual. Mobilizing such organizations is critical so that the “soft” message is extended, and the individual feels cared about, related to, and that someone wants to help them. They can deliver antiviolence messages on their own or alongside law enforcement. In Cincinnati, community representatives take the lead in the notification process, speaking to impact players on their own before police, social services, and street outreach workers visit. Street outreach workers often have history of being group-involved or incarcerated and can be able to reach impact players not easily located by law enforcement. Their personal histories better able them to relate to impact players on the falsehood of the street code and what the street code has cost them.

#### Street Outreach Teams/Violence Interrupters

“Street Outreach organizations do a lot more for public safety than just trying to stop gun violence: they are anchoring institutions for neighborhood safety and well-being, dealing with issues related to housing, mental health, education, and justice.”<sup>239</sup> Street Outreach Workers are credible messengers, often formerly incarcerated or have been involved in or affected by violence in the past, that help identify violence and interrupt or mediate it in real time. They have inroads

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<sup>238</sup> A New York initiative replicates the work of Chicago’s Project Safe Neighborhoods (PSN), which achieved large violence reductions selecting districts through delivery of individualized messages to parolees about legal exposure and services available. Chicago districts participating in PSN communication saw a 37% reduction in homicide and a 30% decrease in recidivism among notified offenders.

<sup>239</sup> *Op-ed: What we know (And don’t know) about street outreach and gun violence prevention.* (2021, October 25). Chicago Tribune. <https://www.chicagotribune.com/opinion/commentary/ct-opinion-chicago-gun-violence-street-outreach-20211025-6pylamxs5jzhhyya3x3nb3eya-story.html>



to vulnerable groups that police do not, act as a conduit between group members and other participants in a city's violence reduction program, and help people make the transition away from street violence.

The overall theory of change is a public health one – that violence is like a contagious disease and its spread can be interrupted.<sup>240</sup> Operating beneath this strategy is the aim to increasing informal social controls – or fortifying a community's collective norms and standards of conduct and encouraging community members to uphold them. When done well it “marries the goal of strengthening a community's moral voice against violence with the imperative to offer help to its highest risk population. It also lends itself to concrete violence interventions, such as controlling rumors during moments of conflict, calming people down to defuse potential retaliation, and mentoring people at high risk of hurting someone or being hurt”.<sup>241</sup>

“Safe Streets” in Baltimore, Maryland, and “Ceasefire” in Chicago, Illinois both used the same model and showed statistically significant decreases in the overall level of violence in treatment areas. Unfortunately, this is not a consistent outcome. While many programs do reflect the essential nature of credible messengers and violence interruption, others have either null or negative results. Often, those that have negative effects are programs that stand alone, not within broader violence reduction programs. It is also not useful to work with gangs *as gangs* – as that gives them recognition and can even increase gang cohesion. Also, programs that prioritize job or educational outcomes but don't focus primarily on street violence do not achieve their stated goal to reduce it. Even where street work has been successful and demonstrated positive effects, it has been too limited in scope and impact to reduce overall levels of violence in a city.<sup>242</sup>

Many street outreach programs do not work or communicate with law enforcement or other entities with the same goals. While they may have principled reasons for this, it undermines the interagency partnership that has been the “hallmark of effective violence interventions”. Understandably, Street Outreach workers can be wary of police – it could threaten their credibility with the population they serve and need access to. Cities have ameliorated much of this by working with street workers to establish clear boundaries and clear times when they do work in tandem. Both police and street workers establish protocols in advance of their work, about how and under what conditions they will collaborate, what information they will share, and how they will address the public concern about their working together. Street workers protect the names of people they work with and do not share information with police or help them build and solve cases. Both sides need training on these protocols to maintain accountability and partnership.<sup>243</sup> The “triangle protocol” in Los Angeles establishes the city violence reduction initiative as a partner to the LAPD and their streetwork agencies, linking victims with services, brokering peace, and communicating with police about incidents. New York City has a similar organization with the Mayor's Office to Prevent Gun Violence, working in tandem with streetworkers and the NYPD. Recent Evaluation has shown this structure to be highly effective in preventing retaliatory shootings.<sup>244</sup>

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<sup>240</sup> Butts, J. A., Roman, C. G., Bostwick, L., & Porter, J. R. (2015). Cure violence: A public health model to reduce gun violence. *Annual Review of Public Health, 36*(1), 39–53. <https://doi.org/10.1146/annurev-publhealth-031914-122509>

<sup>241</sup> Considering the place of streetwork in violence interventions. (n.d.). *National Network for Safe Communities (NNSC)*. Retrieved March 31, 2023, from <https://nnscommunities.org/guides/considering-the-place-of-streetwork-in-violence-interventions/>

<sup>242</sup> Id.

<sup>243</sup> Id.

<sup>244</sup> Id.

Andrew Papachristos, Ph.D. describes a pilot project where twice a week he and partners sit down and do network analysis *with* the outreach staff. He says that data is starting to be brought to outreach. “We do know,” he says, “that when police and outreach are doing their jobs right they’re actually working with the same people.” Including street outreach in shooting reviews where mapping is done has shown to be beneficial in Boston and Oakland.

Operation Peacekeeper in Stockton, California exemplifies these best practices when it comes to streetwork. At one time, they used to walk a neighborhood with the police after a shooting to offer care and services. They observed that this compromised their capital with the community and the Peacekeepers ended that with support from the police. Nevertheless, the two organizations still successfully navigate violence prevention in partnership and produce public safety. The Stockton Police Department does not expect or want information from Peacekeepers and believes that their clients need to be protected to preserve Peacekeepers’ legitimacy. After gun violence, Peacekeepers’ priority is stopping further violence or retaliation. They offer services and support but do not enter active crime scenes. Peacekeepers and police collaborate on “shooting reviews” to track recent violence and prevent new violence. Information is unidirectional, flowing only and carefully from police to streetworkers so they can focus on those most at risk. Sometimes, Stockton streetworkers accompany police to deliver in-person messages known as “custom notifications” to people with the highest risk of gun violence involvement. The process has been developed to warn high-risk individuals that violence will not be tolerated and to offer community resources to support them and keep them safe. Oakland, California also does this as part of their gun violence reduction work.<sup>245</sup>

Chicago CRED is a Street Outreach initiative that incorporates life skills training, as well as educational and employment programming.<sup>246</sup> Early evidence suggests that street outreach reduces gun violence or at least saves the lives of participants. 18 months after beginning the program, participants in the Chicago CRED and similar programs have victimization rates 50% lower than non-participants. 63% of CRED participants that did not have a high school diploma prior to the program received one while in the program. Participants were 79% less likely to be arrested for shootings and homicides.<sup>247</sup>

Chicago CRED, despite its success and more than 250 active employees on the street, hasn’t decreased the overall level of gun violence. At its scale in Chicago, for every participant in the program there are 20 more in the same neighborhood lacking equal services. Also, violence is entrenched in societies beyond the individual and their ties to others and violent situations. Although not a panacea, Dr. Papachristos of Northwestern University says that Street Outreach is a necessary component for any city looking to adopt a multi-pronged violence prevention program, but any program that doesn’t consider the full neighborhood context will fall short.<sup>248</sup>

In Oakland, YouthALIVE!, the same CBO that does Hospital-Based Violence Prevention, does violence interruption.<sup>249</sup>

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<sup>245</sup> Considering the place of streetwork in violence interventions. (n.d.). *National Network for Safe Communities (NNSC)*. Retrieved March 31, 2023, from <https://nnscommunities.org/guides/considering-the-place-of-streetwork-in-violence-interventions/>

<sup>246</sup> *A nonprofit for reducing gun violence in chicago*. (n.d.). Chicago CRED. Retrieved May 7, 2023, from <https://www.chicagocred.org/>

<sup>247</sup> *A nonprofit for reducing gun violence in chicago*. (n.d.). Chicago CRED. Retrieved May 7, 2023, from <https://www.chicagocred.org/>

<sup>248</sup> *Op-ed: What we know (And don’t know) about street outreach and gun violence prevention*. (2021, October 25). Chicago Tribune. <https://www.chicagotribune.com/opinion/commentary/ct-opinion-chicago-gun-violence-street-outreach-20211025-6pylamxs5jzjhyya3x3nb3eya-story.html>

<sup>249</sup> *Intervention*. (n.d.). Youth ALIVE! Retrieved March 28, 2023, from <https://www.youthalive.org/caught-in-the-crossfire/>

### Root Causes of Gun Violence

Contrary to popular thought, mental illness is not a primary contributor to interpersonal firearm violence.<sup>250,251</sup> Access to firearms and firearm ownership remain the most potent determinants of an individual's likelihood to engage in any type of gun violence.<sup>252</sup> Other predictors for future gun violence involvement are prior history of violence (especially domestic violence<sup>253</sup>) and substance abuse. The leading cause of death for teenagers and young adults is firearm violence, and homicide risk is extremely concentrated among Black males regardless of age, although it does diminish in later years.<sup>254</sup> The next most at-risk subset is Hispanic males, but the rate for Black men remains five times higher than for Hispanic men and 20 times higher than for white men.<sup>255</sup> The most common environment for gun violence is minority and economically disadvantaged neighborhoods. However, SNA reveals that the vast majority of Black and Hispanic men in these neighborhoods do *not* become victims or perpetrators, but rather the phenomenon is highly concentrated among people within a much larger network that includes, but is not limited to, that neighborhood.<sup>256</sup>

The Educational Fund to Stop Gun Violence (EFSGV) released a report in 2020 citing seven central root causes to gun violence – income inequality, poverty, underfunded public housing, under-resourced public services, underperforming schools, lack of opportunity and perception of hopelessness, and easy access to firearms by high-risk people.<sup>257</sup> Notably, only the last of these is something that police have any direct power over, and that power has been expressly curbed by the Fifth U.S. Circuit Court of Appeals in three states.<sup>258</sup> However, California officials remain able to confiscate firearms from domestic abusers unless that ruling is appealed and upheld by the U.S. Supreme Court. The remainder of these root causes must be the jurisdiction of community-based organizations and a long term partnership with their municipalities or counties. A police department could, however, lead the way for these partnerships.

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<sup>250</sup> Swanson, Jeffrey W., et al. "Mental Illness and Reduction of Gun Violence and Suicide: Bringing Epidemiologic Research to Policy." *Annals of Epidemiology*, vol. 25, no. 5, May 2015, pp. 366–76. DOI.org (Crossref), <https://doi.org/10.1016/j.annepidem.2014.03.004>.

<sup>251</sup> Wintemute, Garen J. "The Epidemiology of Firearm Violence in the Twenty-First Century United States." *Annual Review of Public Health*, vol. 36, no. 1, Mar. 2015, pp. 5–19. DOI.org (Crossref), <https://doi.org/10.1146/annurev-publhealth-031914-122535>.

<sup>252</sup> Id.

<sup>253</sup> The presence of a gun in a domestic violence situation increases the risk of homicide by 500%. A study of women in 67 California domestic violence shelters found that abusive intimate partners used handguns to harm, threaten, or scare 32.1% of study participants; long guns were used to harm, threaten, or scare 15.9% of participants. 39.1% reported that the abusive intimate partner owned a firearm during the relationship, almost twice the rate of gun ownership in California. Of participants in gun-owning households, 64.5% said a gun had been used against them. (National Coalition Against Domestic Violence)

<sup>254</sup> Wintemute, Garen J. "The Epidemiology of Firearm Violence in the Twenty-First Century United States." *Annual Review of Public Health*, vol. 36, no. 1, Mar. 2015, pp. 5–19. DOI.org (Crossref), <https://doi.org/10.1146/annurev-publhealth-031914-122535>.

<sup>255</sup> Id.

<sup>256</sup> Braga, A. A., Papachristos, A. V., & Hureau, D. M. (2010). The concentration and stability of gun violence at micro places in Boston, 1980–2008. *Journal of Quantitative Criminology*, 26(1), 33–53. <https://doi.org/10.1007/s10940-009-9082-x>

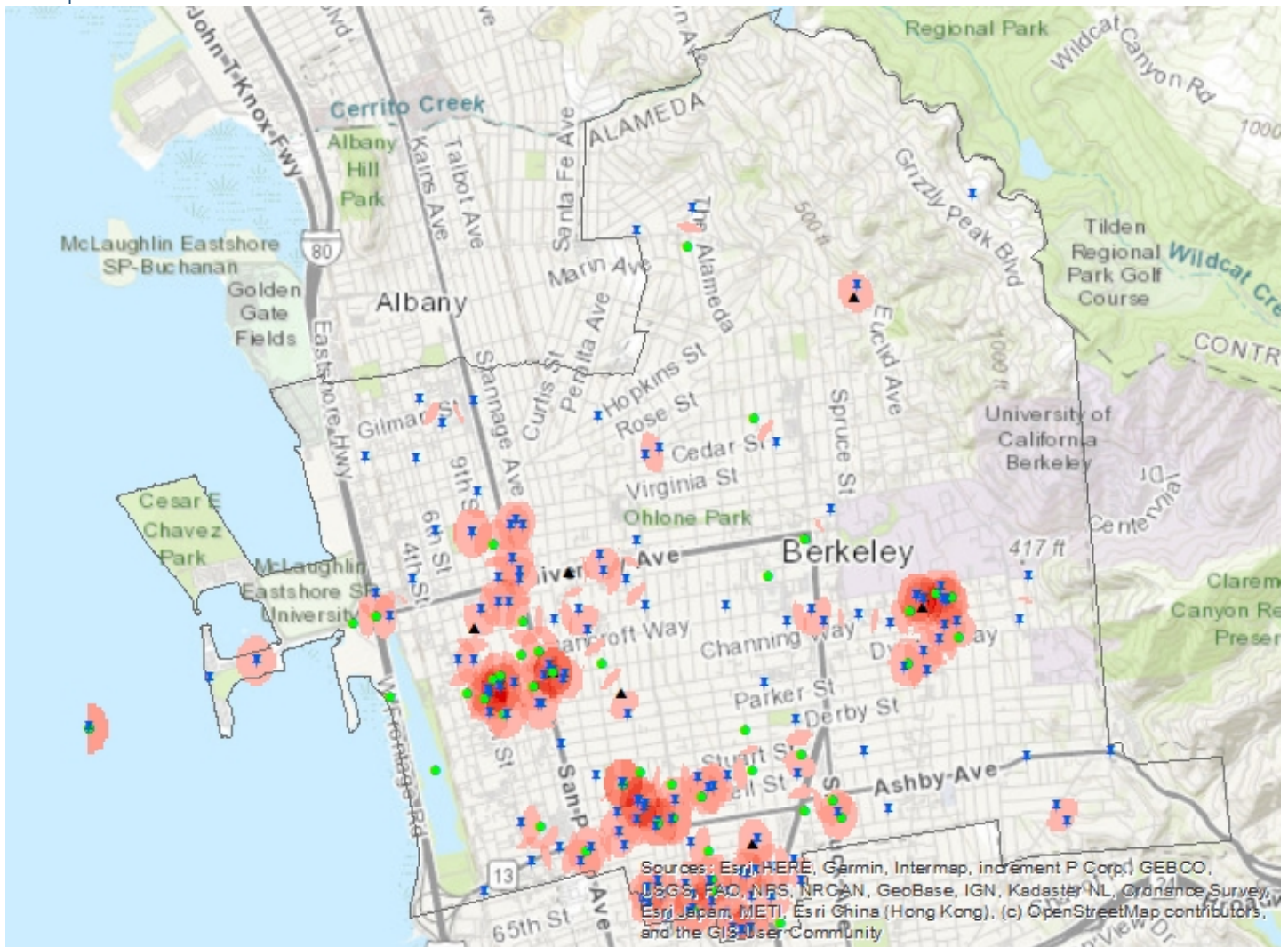
<sup>257</sup> "EFSGV." *Root Causes of Gun Violence*, The Educational Fund to Stop Gun Violence, <https://efsgv.org/>. Accessed 12 Feb. 2023.

<sup>258</sup> Sneed, Tierney. "Latest Supreme Court-Related Ruling Overturning Gun Regulations Worries Domestic Violence Survivor Advocates | CNN Politics." *CNN*, 12 Feb. 2023, <https://www.cnn.com/2023/02/12/politics/domestic-abuse-guns-5th-circuit-supreme-court/index.html>.



Appendix C Visualizations

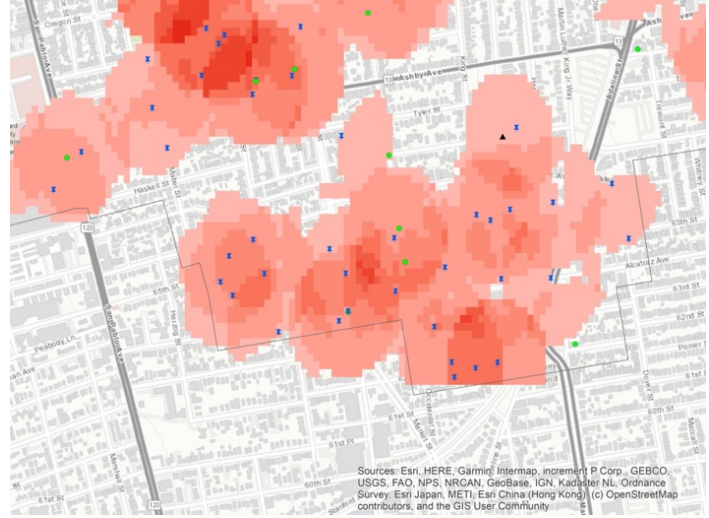
Hot Spot Visualizations



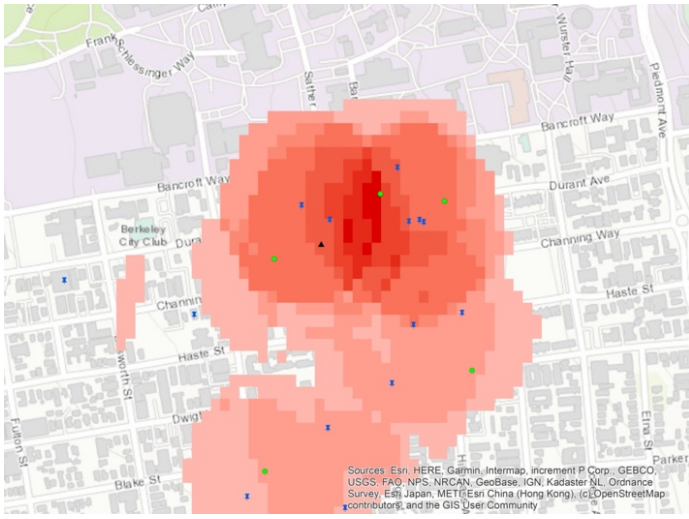




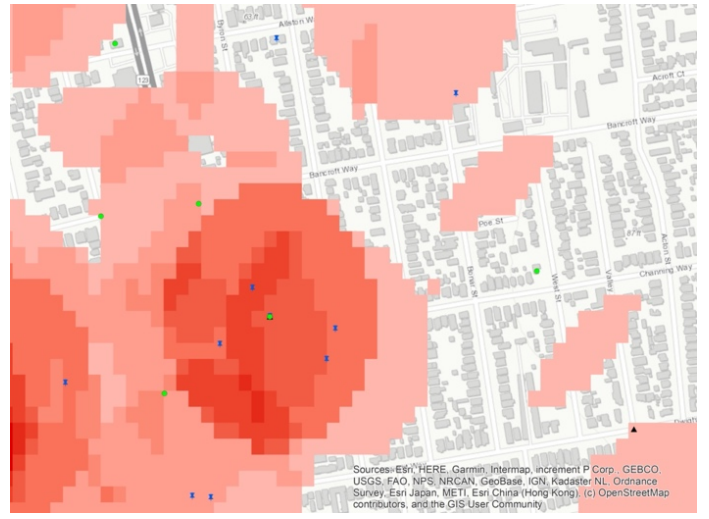
Acton Street & Russell Street



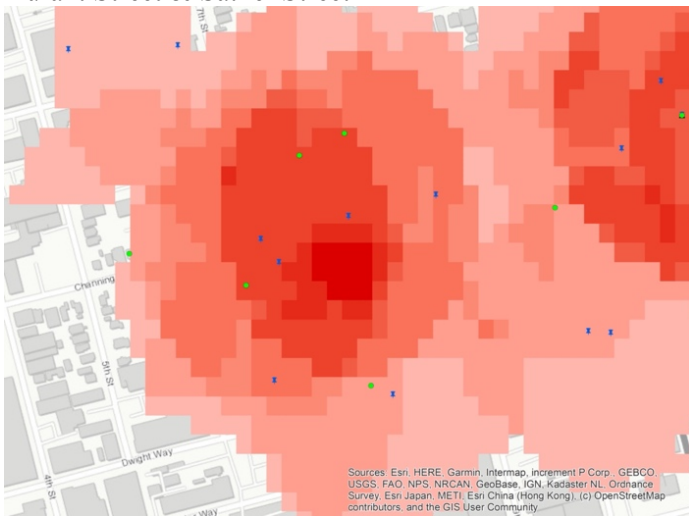
Harmon Street & Sacramento Street



Durant Street & Sather Street



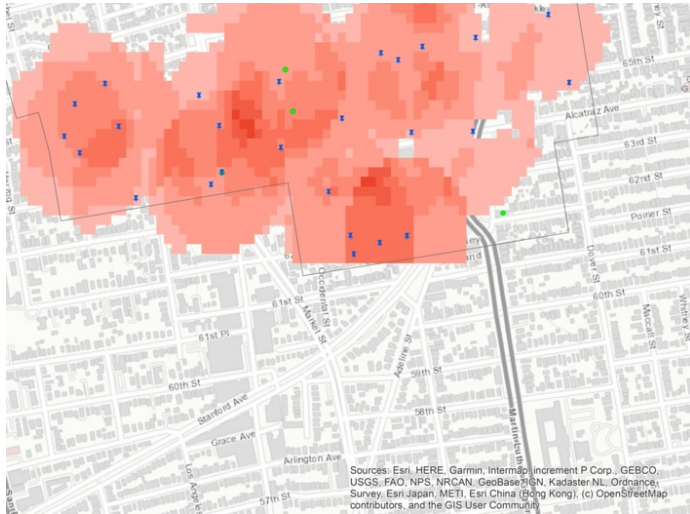
Channing Street & San Pablo Avenue



Channing Street & 8<sup>th</sup> Street

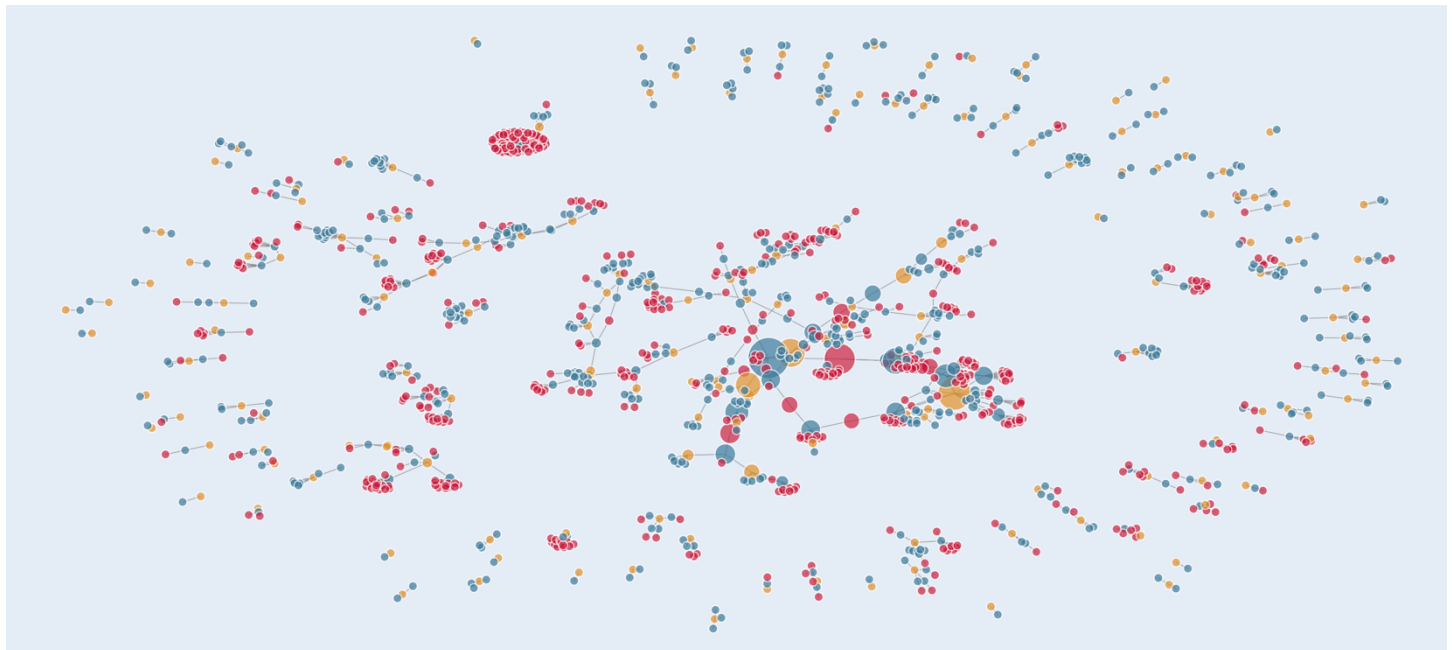


Oregon Street & Park Street (San Pablo Park)



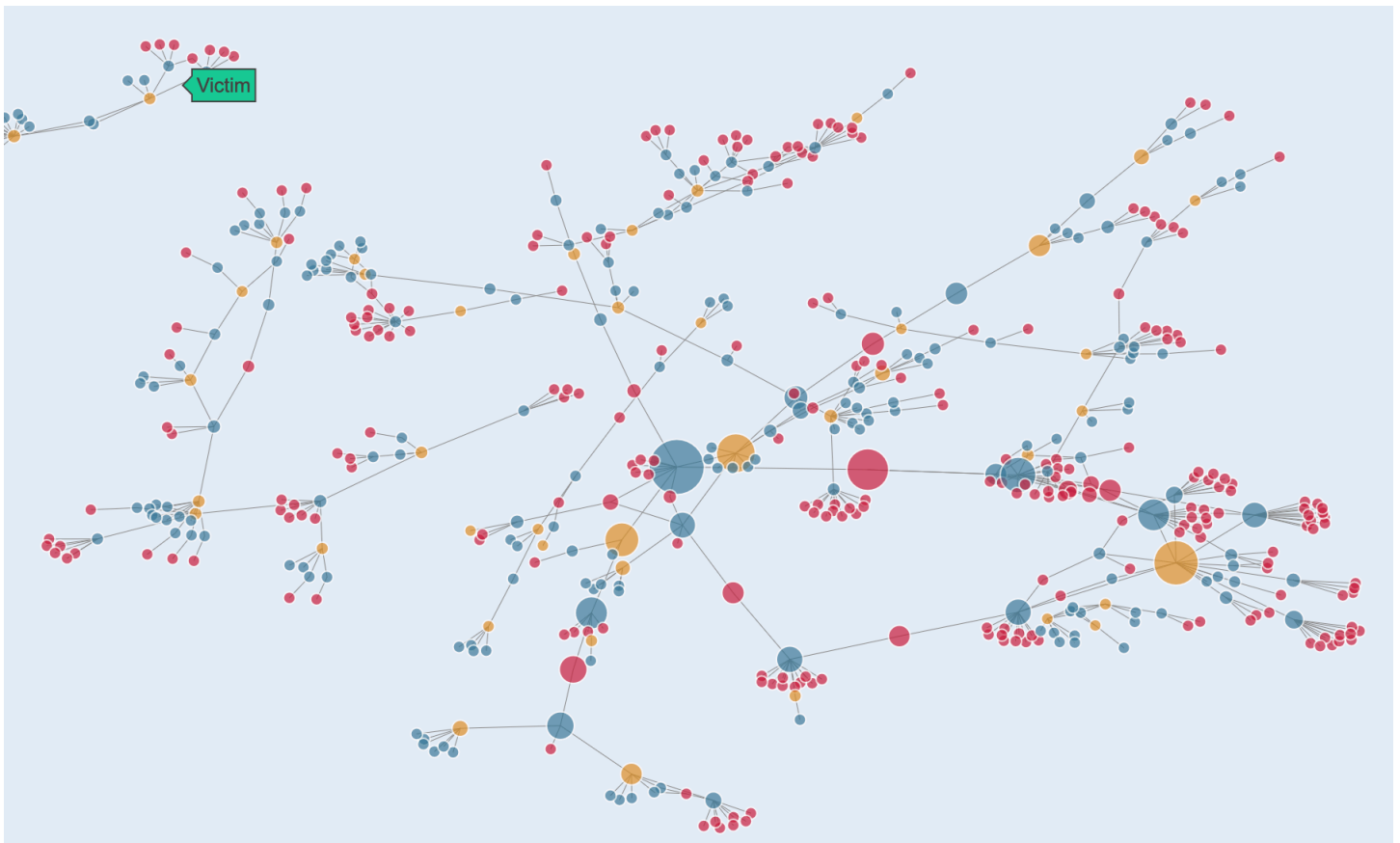
63<sup>rd</sup> Street & King Street

### Social Network Analysis Visualizations



- People of Interest/Incidents
- People (Suspects, victims, involved parties)
- Shooting Events (shots fired, firearm assault/injury, firearm fatality)





Denser, More Concentrated Network within Larger Network

Appendix D Criteria Matrix

Alternatives	Criteria						
	Cost Effectiveness: Stays under \$1M	Effectiveness: Reduces shootings by 10% annually <b>Weight = *3</b>	Political Feasibility (DCM will accept change)	Likelihood of long-lasting effects	Preserves police legitimacy	Keeps fear of crime from rising	Preserves neighborhood cohesion and collective efficacy
<b>Hot Spots Policing</b>  $7.5 + 2(4) + 3$ $18.5/24$ <b>.77</b> ✓	Very confident in assessment  N/A	Some confidence in assessment  HIGH first year MEDIUM ongoing $2.5(3)$ $7.5$	Some confidence in assessment  MEDIUM 2	Some confidence in assessment  MEDIUM 2	Some confidence in assessment  MEDIUM 2	Very confident in assessment  MEDIUM 2	Very confident in assessment  HIGH 3
<b>Problem-oriented Policing</b>  $6 + 2(2) + 3(3)$ $19/24$ <b>.79</b> ✓	Very confident in assessment  N/A	Some confidence in assessment  MEDIUM 2 $2(3)$ 6	Some confidence in assessment  MEDIUM 2	Some confidence in this assessment  HIGH 3	Some confidence in assessment  HIGH 3	Some confidence in assessment  MEDIUM 2	Some confidence in assessment  HIGH 3
<b>SNA and Focused Deterrence/Custom Notifications</b>  $9 + 2(5)$ $19/24$ <b>.79</b> ✓	Very confident in assessment  N/A	Some confidence in assessment  HIGH 3 $3(3)$ 9	Very confident in assessment  MEDIUM 2	Some confidence in assessment  MEDIUM 2	Some confidence in assessment  MEDIUM 2	Some confidence in assessment  MEDIUM 2	Some confidence in assessment  MEDIUM 2
<b>SNA and Social Services</b>  $1(2) + 3(4)$ $14/27$ <b>.52</b> Notably low, but goes with focused deterrence	Not confident in assessment  LOW 1	Some confidence in assessment  LOW 1 $1(3)$ 3	Very confident in assessment  HIGH 3	Some confidence in assessment  LOW 1	Very confident in assessment  HIGH 3	Very confident in assessment  HIGH 3	Very confident in assessment  HIGH 3
<b>Removing Firearms from</b>	Very confident in assessment	Very confident in assessment	Very confident	Very confident in assessment	Very confident	Very confident	Very confident in assessment



<p><b>Homes of Domestic Abusers</b></p> <p>3(6) + 1 19/27</p> <p><b>.70</b></p>	<p>HIGH 3</p>	<p>LOW 1 1(3) 3</p>	<p>in assessment</p> <p>HIGH 3</p>	<p>LOW 1</p>	<p>in assessment</p> <p>HIGH 3</p>	<p>in assessment</p> <p>HIGH 3</p>	<p>HIGH 3</p>
<p><b>Street Outreach Teams</b></p> <p>1 + 2 + 3(4) + 6 21/27</p> <p><b>.78</b></p> <p>✓</p>	<p>Some confidence in assessment</p> <p>LOW 1</p>	<p>Some confidence in assessment</p> <p>MEDIUM 2 2(3) 6</p>	<p>Very confident in assessment</p> <p>HIGH 3</p>	<p>Some confidence in assessment</p> <p>MEDIUM 2</p>	<p>Very confident in assessment</p> <p>HIGH 3</p>	<p>Very confident in assessment</p> <p>HIGH 3</p>	<p>Very confident in assessment</p> <p>HIGH 3</p>
<p><b>Hospital-based Violence Intervention</b></p> <p>3(5) + 1(2) 17/27</p> <p><b>.63</b></p> <p>X already happening</p>	<p>Very confident in assessment</p> <p>LOW 1</p>	<p>Very confident in assessment</p> <p>LOW 1 1(3) 3</p>	<p>Very confident in assessment</p> <p>HIGH 3</p>	<p>Some confidence in assessment</p> <p>LOW 1</p>	<p>Very confident in assessment</p> <p>HIGH 3</p>	<p>Very confident in assessment</p> <p>HIGH 3</p>	<p>Very confident in assessment</p> <p>HIGH 3</p>

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