

# Illinois' Peacekeepers Program

Neighborhood Impact Report

February 2026

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***For more information about CORNERS' research and evaluation of the Peacekeepers Program evaluation, please contact:***

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\*Le Penseur and Seeds of Roseland were de-contracted at the end of 2024; Acclivus is now implementing partner in Riverdale/Altgeld Gardens and G.O.D. is taking on South Deering.

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# Executive Summary

## Key Report Findings

1. The presence of the Peacekeepers Program in designated hot spots is associated with a **significant sustained reduction in shooting victimizations** within those areas.
2. The implementation of the Peacekeepers Program is associated with a **significant sustained downward shift in shooting victimizations in the greater community**, suggesting that there may be a diffusion of shooting reduction benefits dispersed outside of hot spots.
3. There is evidence that there is **no displacement of violence on the community-area level**—suggesting that the Peacekeepers Program is associated with a true reduction in shootings, rather than simply relocating incidences of violence within the community.

The Peacekeepers Program originally launched in Chicago in the summer of 2018 as the Flatlining Violence Inspires Peace (FLIP) Strategy, a summer-based community violence intervention (CVI) program designed to address gun violence in community “hot spots”—specific areas with disproportionately high rates of shootings and gun-related victimizations. For the first five years of implementation, from 2018 through 2022, FLIP was fully funded with private philanthropic support.<sup>1</sup> In January 2023, the Illinois Office of Firearm Violence Prevention (OFVP), housed within the Illinois Department of Human Services (IDHS), supported FLIP’s transition into a year-round initiative, piloting their involvement and investment in the re-branded Peacekeepers Program (the Program). Today, 98% of total Peacekeepers Program funding is public and, as of October 2025, the Program operates in 41 communities across Chicago and Suburban Cook County.<sup>2</sup>



Source: Breakthrough Urban Ministries

1 Private supporters: The Partnership for Safe and Peaceful Communities, The Steans Family Foundation, the McCormick Foundation, Crown Family Philanthropies, Anonymous Foundation, Chicago CRED, the Pritzker Pucker Family Foundation, and the Fry Foundation.

2 The Peacekeepers Program is currently primarily publicly funded by the Illinois OFVP. In addition, in 2025 the Chicago Department Public Health (CDPH) for the first time invested in the Program by providing funding to enhance Peacekeeper coverage throughout summer 2025 (June 1, 2025 – September 30, 2025).

The underlying assumption of the Peacekeepers Program model is that, as violence within hot spots declines, overall community violence will also decrease. To reduce violence in hot spots, the Program – with the support of street outreach workers – recruits community members close to community violence, known as Peacekeepers, and trains them to become street outreach apprentices. The Program seeks to create pathways to employment opportunities for Peacekeepers to transition into stable careers within the CVI field and other industries.

Beginning in July 2023, the start of the state’s Fiscal Year 2024 (FY’24), the Program began expansion, significantly increasing its reach with OFVP support. The Program was implemented in phases, with new sites launching between October 2023 and April 2024. This phased rollout further expanded the Program by including 13 additional CCAs and eight Cook County suburbs.

A key focus of CORNERS’ current impact evaluation is assessing what impact, if any, the Peacekeepers Program has on reducing violence at the neighborhood-level. **The analyses presented in this report highlight, for the first time, the association between the implementation of the Peacekeepers Program and reductions in violence in program hot spots and community areas.**

CORNERS’ analyses show that Peacekeepers Program sites launching in January 2023 experienced an immediate and sustained decline in shooting victimizations within program hot spots relative to pre-program levels. Similar declines were observed across broader community areas with CVI coverage, while areas without CVI presence showed no significant change. Further, separate spatial analyses found that in areas of the community without CVI coverage there is no significant relationship between the Peacekeepers Program launch and shooting rates, indicating that there is no evidence of displacement of violence.

In summary, key report findings are as follows:

- The presence of the Peacekeepers Program in designated hot spots is associated with a significant sustained reduction in shooting victimizations within those areas.
- The implementation of the Peacekeepers Program is associated with a significant sustained downward shift in shooting victimizations in the greater community, suggesting that there may be a diffusion of shooting reduction benefits dispersed outside of hot spots.
- There is no evidence of displacement of violence, suggesting that the Peacekeepers Program is associated with a true reduction in shootings, rather than simply relocating incidences of violence within the community.

**For more information about the Peacekeepers Program evaluation, please contact:**

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# Introduction



Source: Government Alliance for Safer Communities

The Peacekeepers Program (the Program) is a community violence intervention (CVI) initiative in Chicago and Suburban Cook County designed to address gun violence in community “hot spots”—specific areas with disproportionately high rates of shootings and gun-related victimizations. With the support of street outreach workers, the Peacekeepers Program recruits community members with unique insights into their neighborhoods and connections to those close to community violence. Peacekeepers are trained as street outreach apprentices, leveraging their lived experiences to identify key drivers of violence and mediate conflicts. This recruitment strategy recognizes that those who are deeply embedded in the community are often the best positioned to engage individuals driving violence and build trust within the community.

Beyond violence intervention, the Peacekeepers Program also serves as a workforce development initiative, particularly for individuals who face systemic barriers to employment, such as re-entering citizens or those without prior work history. Peacekeepers are trained as street outreach apprentices—with some transitioning into full-time street outreach work—and are also exposed to skill-building resources which help position them for employment opportunities beyond CVI.<sup>3</sup> This dual-purpose strategy seeks to address both the immediate drivers of gun violence and the structural inequities that contribute to its persistence.

<sup>3</sup> Since the Program’s initial launch in 2018 through the end of Fiscal Year 2025 (June 30, 2025), a total of at least 180 Peacekeepers have transitioned into full-time positions in the CVI field.

As the Peacekeepers Program’s research and implementation partner, the Center for Neighborhood Engaged Research & Science (CORNERS) at Northwestern University is conducting an independent evaluation of the Program, tracking both its implementation and impact. While CORNERS regularly provides violence trends and related evaluation reports to program stakeholders, **this report marks an important program milestone as it is the first time CORNERS has formally reported on the impact of the Program at the hot spot and community level.**

## Program Development & Expansion

The Peacekeepers Program originally launched in Chicago in the summer of 2018 as the Flatlining Violence Inspires Peace (FLIP) Strategy. FLIP began as a summer-based community violence intervention program and grew to provide services in 16 Chicago community areas (CCAs) that held the lion’s share of violence in the city of Chicago. The program theorized that if gun violence could be reduced in these spatial pockets within a given community, it would create extended periods of peace across the broader community, ultimately contributing to a sustained citywide decline in gun violence victimizations.

In January 2023, the Illinois Office of Firearm Violence Prevention (OFVP), housed within the Illinois Department of Human Services (IDHS), supported FLIP’s transition into a year-round initiative, piloting their involvement and investment in the re-branded Peacekeepers Program. At the conclusion of the pilot period, two critical milestones occurred: the Program was integrated into the Reimagine Public Safety Act (RPSA) portfolio and, for the first time, received public funding to operate year-round. Moreover, with this funding, the Program was required to expand into RPSA priority communities, allowing the intervention to extend beyond Chicago and into surrounding Suburban Cook County.

Implementation of the Peacekeepers Program relies on two state providers, Metropolitan Peace Initiatives (MPI) and Acclivus. Additionally, Chicago CRED serves the dual role of implementing partner to two CCAs and pro-bono consultant to OFVP regarding the Program. In this latter role, CRED provides general implementation oversight and technical assistance, conducts site visits to assess model fidelity, and makes program recommendations. These organizations manage and support at least 17 implementing organizations, ensuring that Peacekeepers are resourced and deployed across 228 hot spots in Chicago and Suburban Cook County.

Since the beginning of 2023, the Peacekeepers Program has expanded significantly, increasing its reach from 14 CCAs in the summer of 2022 to 41 communities across Chicago and Suburban Cook County as of October 2025.

## Program Model

According to the Peacekeepers Program model, as violence within hot spots declines, particularly gun violence stemming from group-related conflicts, overall community violence will also decrease. The Program strategically deploys Peacekeepers into gun violence hot spots to achieve reductions in violence within those hot spots, and thereby broader reductions across communities. Leveraging their License to Operate (LTO) and deep embeddedness within communities, Peacekeepers build relationships with community members, mediate conflicts, and directly intervene in situations that may escalate into gun violence.

The current Peacekeepers Program model builds on the original FLIP theory that “flatlining” violence within hot spots will inspire broader peace (see Figure 1). As periods of non-shooting are prolonged in hot spots, the expectation is that these stretches of calm will have a ripple effect—reducing the frequency of shooting incidents at the community level over time. The Program contends that the implementation of mediations and management of non-aggression agreements (NAAs) extends the duration between shooting events in hot spots, resulting in improvements in perceived safety and, in turn, a betterment of community wellbeing.<sup>4</sup>

In other words, as shootings decrease in program hot spots, the overall atmosphere of violence will diminish as peace grows, leading to a measurable decline in gun violence throughout the wider community area. **The analyses presented in this report assess, for the first time, the association between the implementation of the Peacekeepers Program and reductions in violence in program hot spots and community areas.**



*Figure 1: Peacekeepers Program model*

<sup>4</sup> See CORNERS' [recent evaluation reporting](#) for more information about conflict mediations in the Peacekeepers Program.

## Parsing Community-Level Impact of the Peacekeepers Program

Since the COVID-19 pandemic and consequent spike in gun violence in 2021, cities across the US have experienced an overall downward trend in shootings, some of which has been attributed to the growth of CVI.<sup>5</sup> In our previous reporting on the Peacekeepers Program, we have described promising declines in shootings in both hot spots and community areas that suggest a possible relationship between the Program and declines in gun violence.<sup>6</sup> However, we have not yet disentangled the Peacekeepers Program's direct association with declines in community gun violence from the greater influence of other CVI efforts.

The intention of this report is to begin to parse apart the effect of the Peacekeepers Program on community gun violence by isolating the association between the Peacekeepers Program intervention (the Program intervention) and shooting victimizations, outside of non-programmatic factors that may influence the observed broader trends in violence reduction.

5 Pierce, Olga. (October 23, 2025). A Trace analysis of 150 U.S. cities shows one of the greatest drops in gun violence – ever. The Trace. [https://www.thetrace.org/2025/10/gun-violence-dropping-why-us-cities-data/?utm\\_source=The+Trace+mailing+list&utm\\_campaign=e61a0ca772-trace\\_briefing\\_oct\\_24\\_2025&utm\\_medium=email&utm\\_term=0\\_-5944086ba2-379825081](https://www.thetrace.org/2025/10/gun-violence-dropping-why-us-cities-data/?utm_source=The+Trace+mailing+list&utm_campaign=e61a0ca772-trace_briefing_oct_24_2025&utm_medium=email&utm_term=0_-5944086ba2-379825081)

6 Center for Neighborhood Engaged Research and Science (CORNERS). April 2025. Evaluating Illinois' Peacekeepers Program: July 1, 2023 – December 31, 2024. [https://cdn.prod.website-files.com/634dd45091db1de63b7112d9/67ffdcbe728fe830be5886c0\\_Peacekeeper%20Eval%20Report\\_FINAL.pdf](https://cdn.prod.website-files.com/634dd45091db1de63b7112d9/67ffdcbe728fe830be5886c0_Peacekeeper%20Eval%20Report_FINAL.pdf)

# Methods

This analysis is structured to directly assess the Peacekeepers Program model through a sequence of spatially defined research questions. Our methodological approach rigorously assesses the association between the Program intervention and violence at progressively larger geographic areas, from hot spots to the entire community.

The Peacekeepers Program launched in multiple staggered cohorts beginning in January 2023 (Table 1). To estimate program effects with statistical confidence, our analyses described below required a sufficient number of post-intervention observations—at least 24 months (or eight quarters) of data following program launch. Among all cohorts, only the 14 community areas that initiated implementation in January 2023—referred to as Cohort 1—currently meet this requirement (Figure 2). Accordingly, Cohort 1 serves as the focus of the analyses presented in this report, as it provides the necessary data length to reliably model post-intervention trends in community gun violence. Future analyses will be applied to additional cohorts, as enough data becomes available.

Cohort	Community Areas Launched	Launch Month	Number of Post-Intervention Monthly Observations
1	North Lawndale, Woodlawn, West Garfield Park, West Englewood, South Shore, South Lawndale, New City, Humboldt Park, Englewood, East Garfield Park, Austin, West Pullman, Roseland, and Greater Grand Crossing	January 2023	24
2	Washington Park, Fuller Park, Albany Park, Belmont Cragin, and Hermosa	October 2023	21
3	Riverdale/Altgeld Gardens	November 2023	20
4	Burnside, Chatham, and Chicago Lawn	December 2023	19
5	Auburn Gresham, Calumet City, Dolton, Markham, South Chicago, and South Deering	January 2024	18
6	Chicago Heights, Park Forest, and Sauk Village	February 2024	17
7	Ashburn	April 2024	15
8	Berwyn, Cicero, Uptown, Rogers Park, and Near West	October 2024	9
9	Harvey	November 2024	8
10	Near North and West Town <sup>7</sup>	April 2025	3

Table 1: Peacekeepers Program cohorts and launch dates between January 2023 and April 2025.

<sup>7</sup> Community areas in purple are those which contain active Peacekeepers Program hot spots that have shut down across the entire community area. Hot spots in Berwyn and Cicero stopped operating after Oct. 2024. Hot spots in Uptown and Rogers Park stopped operating in Spring 2025. Hot spots in Near North, Near West, and West Town, stopped operating after September 2025. Suburban Bellwood, Maywood, Lansing, Riverdale, and South Holland operated hot spots in FY'25, but their start dates are unknown at this time of this report's publication.

## All Peacekeepers Program Hot Spots

Between Jan 01, 2023 and Jun 30, 2025

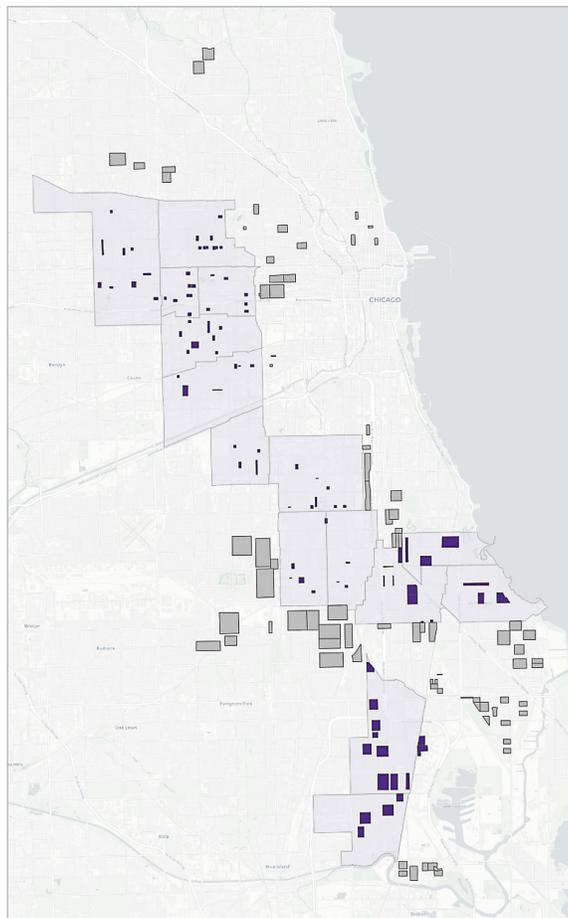


Figure 2: Comparing Peacekeepers Program cohort hot spots

The following **three research questions (RQs)** guide the methods in this report:

1. **RQ1:** Was the Program intervention associated with a statistically significant change in shooting victimizations within the designated hot spots?
2. **RQ2:** Was the Program intervention associated with a change in shooting victimizations at the broader community level, as well as in parts of the community with other CVI coverage and parts without any CVI?
3. **RQ3:** Was the Program intervention associated with significant community-wide displacement of shooting events?

### Peacekeepers Program Hot Spot Cohorts

-  Cohort 1, Start Date: Jan. 1, 2023
-  Other Cohorts
-  Cohort 1 Community Areas

RQ1 seeks to understand whether the Program's presence is associated with statistically significant reductions in shooting victimizations within this report's smallest geographic unit—the hot spots. RQ2 assesses whether violence reductions at the hot spot-level will be felt in the larger community. To understand whether the impact of the Program diverges from overall city trends, we test both areas of the community with non-Peacekeepers Program CVI coverage and areas without any CVI presence (Figure 3). Finally, to begin to understand whether spatial patterns of violence are impacted by the Peacekeepers Program (e.g. whether the findings answering RQ1 and RQ2 indicate changes in violence or simply a relocation of it), RQ3 is a robustness check to determine whether the Program's intervention was associated with a community-wide change in the locations of shootings.

## Spatial Units of Analysis

CVI Coverage, Non-CVI Coverage, and Hot Spots in Cohort 1 Community Areas

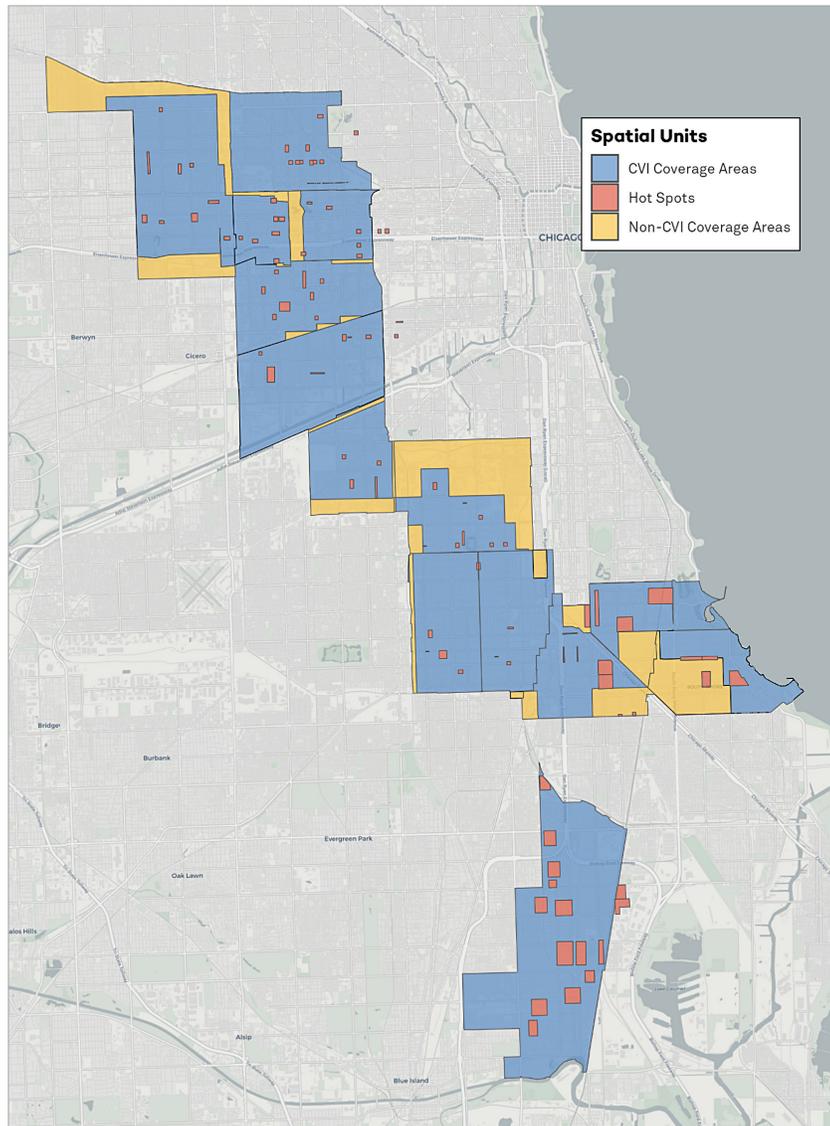


Figure 3: Illustration of the different levels of spatial units considered in this analysis in all Cohort 1 community areas

To test whether implementation of the Peacekeepers Program is associated with changes in the pre-intervention trend of shooting victimizations within the targeted hot spots (RQ1), other sub-areas in Program community areas (RQ2, Figure 3), as well as the Cohort 1 community areas as a whole (RQ2), CORNERS employed an autoregressive integrated moving average (ARIMA) model.<sup>8</sup>

ARIMA is a powerful temporal method that analyzes the pre-intervention and post-intervention trends of shootings and then assesses whether the post-intervention trend deviates significantly from what would have been expected in the same geographic space without the intervention.<sup>9</sup> In this case, the start of the intervention is when Peacekeepers Program Cohort 1 communities launched in January 2023. This method advances our prior analyses by controlling for factors outside of the influence of the Program itself that may muddle findings of violence reduction.

Such factors include the pre-intervention trend, seasonality (e.g., there is a higher frequency of shootings in the warmer months and lower during the colder months), and autocorrelation (e.g., the influence of the prior month's shooting value on the current month's shooting value) inherent to time series datasets.

<sup>8</sup> All hot spots that launched in Cohort 1 are included in the hot spot-specific ARIMA models. There were a total of 7 hot spots in Cohort 1 that fall outside of the Cohort 1 community area boundaries. Two Roseland & West Pullman hot spots fall in Pullman, two Little Village / South Lawndale hot spots fall in Lower West Side, two East Garfield Park hot spots fall in Near West, and one Humboldt Park hot spot falls in West Town. Pullman, Lower West Side, Near West, and West Town are not considered in the Cohort 1 community area ARIMA models.

<sup>9</sup> Schaffer, A.L., Dobbins, T.A. & Pearson, S.A. Interrupted time series analysis using autoregressive integrated moving average (ARIMA) models: a guide for evaluating large-scale health interventions. *BMC Med Res Methodol* 21, 58 (2021). <https://doi.org/10.1186/s12874-021-01235-8>

ARIMA further allows for the testing of many statistically significant intervention effects, including “step”, “ramp”, and “pulse” effects, that can describe the behavior and significance of potential changes in shooting victimizations, in addition to quantifying an estimate of the magnitude of any significant changes over time. A step effect is an immediate shift in the level of shootings starting at intervention. For example, a negative step means that shootings instantly (i.e. this change is evident within the first time unit in the time series post-intervention) drop to a new, sustained level following intervention, and a positive step means the opposite. The ramp effect is a gradual change where the effect grows over time after intervention, such as a significant trend of shootings continuously decreasing or increasing in the post-intervention period. A pulse effect is a temporary one-time change that lasts for a short period before returning to the previous level, such as a sharp drop or uptick for a month, then a return to the old trend. After testing each of these possible effects, results showed that only the step effect meaningfully explained changes in shootings over time. The ramp and pulse effects did not account for any additional variation in the data, so the analyses focused on the step effect as the primary measure of intervention impact.

We apply this ARIMA framework to a set of nested spatial units within the 14 Cohort 1 community areas. The four core spatial units being tested in Cohort 1 community areas are depicted in Figure 3 and include:

1. Peacekeepers Program Hot Spots: The core intervention areas. A significant negative effect of the Program on shooting victimizations here is a prerequisite for the remaining changes.
2. CVI-Coverage Areas Without Hot Spot Coverage: Parts of the Cohort 1 community areas served by other, non-Peacekeepers CVI programs. Analyzing this unit helps control for the effect of other violence intervention efforts outside of the Peacekeepers Program.
3. Non-CVI Coverage Areas: Sections of the Cohort 1 community areas with no dedicated Peacekeepers programming or other CVI programming. This allows us to control for trends in areas of the community where there is no CVI coverage.
4. Whole Community Area: The combined geographic areas of Cohort 1 neighborhoods, to measure the overall effect of the Peacekeepers Program on community violence.

The first three units are mutually exclusive and, when combined, fully overlap with the total area of the Cohort 1 community areas.<sup>10</sup> Analyzing them separately allows us to isolate the specific association of the Peacekeepers Program coverage from other CVI efforts and broader trends. Information on model testing and diagnostics can be found in the Technical Appendix.

## Hot Spot and Community-Level Impact

To construct the time series for our analysis, we integrated data from multiple sources. Monthly shooting victimizations from August 2020 to June 2025 were sourced from the City of Chicago's Violence Reduction Dataset and domestic shooting victimizations were filtered out using data from the Chicago Police Department.<sup>11</sup> Geographic boundaries for hot spots and CVI coverage areas were provided by CVI community partners, while the boundaries for Cohort 1 community areas were sourced from the City of Chicago Public Data Portal.<sup>12</sup> Shooting victimization rates were calculated using 2020 U.S. Census block-level population data, with areal interpolation used to estimate populations within the census blocks of each hot spot.

The outcome variable is a 3-month moving average of the shooting victimization rate in geographic units per 100,000 people. Considering 3-month moving averages allows us to control for the general seasonality of gun violence as well as the volatility of gun violence across time within space; street conflicts, especially in micro-spaces, have the potential to be unpredictable and small changes in violence can cause large swings in statistical estimates. To construct this time series, the total number of shootings for each spatial unit (i.e. hot spot, non-Peacekeepers Program CVI coverage area, non-CVI area, whole community) for each month in the study window was determined, and these values were divided by the estimated population of the geographic unit in aggregate to create a monthly shooting rate. Next, these monthly rates were multiplied by 100,000 to normalize for population.

A 3-month moving average for each month was constructed by determining the mean value of rates adjacent to any given month (Figure 4). For instance, to create the time series value for September 2022, the normalized shooting values of August 2022, September 2022, and October 2022 were averaged. Finally, to ensure that pre- and post-intervention data do not influence each other in the statistical estimates, the time series values for three months surrounding the launch of Cohort 1 (December 2022, January 2023, and February 2023) were filtered out of the data before fitting an ARIMA model to the time series.

10 A small amount of Cohort 1 Peacekeepers Program hot spots fall outside of Cohort 1 community areas. Specifically, 2 hot spots assigned to Roseland & West Pullman are directly adjacent to Roseland but technically fall into the Pullman CCA, 2 hot spots assigned to South Lawndale / Little Village fall in Lower West Side, 2 hot spots assigned to East Garfield Park fall into Near West, and 1 hot spot assigned to Humboldt Park falls into West Town. While these hot spots and the events happening within them are factored into the hot spot-specific ARIMA, these are not considered in the Cohort 1 community areas ARIMA. Of these hot spots, only 1 shooting victimization occurred throughout the study period on October 31st, 2020. In light of this, the exclusion of these hot spots from the Cohort 1 community area analysis is unlikely to meaningfully change overall results.

11 The City of Chicago Violence Reduction Dashboard

12 The City of Chicago Data Portal <https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-Community-Areas-Map/cauq-8yn6>

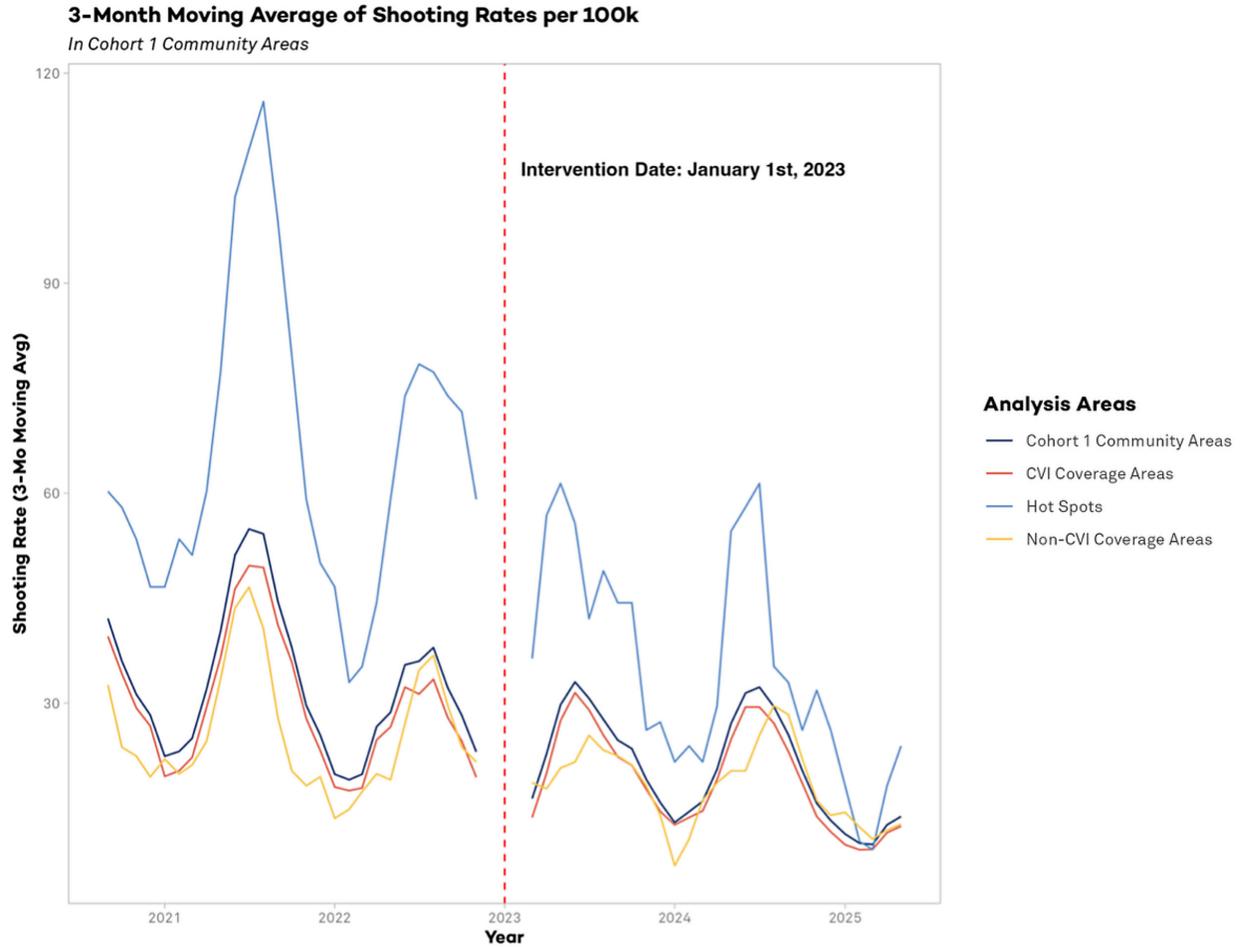


Figure 4: 3-Month moving average of shooting rates in each spatial unit<sup>13</sup>

## Displacement of Shooting Events

The analyses testing RQ1 and RQ2 focus on measuring changes in the frequency of shootings within specific spatial units of analysis. To complement the ARIMA models and provide a robust assessment of the Program model, we investigate the possibility of an alternative scenario where the Program’s efforts merely displaced shootings, relocating them from one part of the community to another without creating a net community-wide benefit. If a significant reduction in shootings is found in hot spots or community areas, it is crucial to determine whether this represents a genuine decrease or a simple shift in the geography of violence within the study area of Cohort 1.

<sup>13</sup> Each spatial unit of analysis has a different amplitude because each covers areas of different size, with hot spots, non-cvi coverage areas, and cvi coverage areas covering 7.89, 12.17, and 38.48 square miles, respectively. Although shooting events may not be evenly distributed across space, areas covering more space are capturing more events relative to their populations.

The following analysis is in service of answering RQ3, which asks: “Was the Program’s intervention associated with significant community-wide displacement of shooting events?” To accomplish this, we employed a spatial analysis method that moves beyond aggregated time series data. This technique, a Monte Carlo Simulation of a Point-to-Event Nearest Neighbor Distance analysis adapted from Ratcliffe (2005), tests for systematic shifts in the spatial pattern of shootings before and after the intervention.<sup>14</sup> The core question is whether the spatial relationship between shooting events remained stable or significantly changed.

In practice, this involved generating 1,000 random points across the Cohort 1 community areas. For each point, we calculated its distance to the nearest pre-intervention shooting and the nearest post-intervention shooting, to determine whether these two sets of distances are correlated. This correlation metric is called a “point to event nearest neighbor distance” calculation. A positive correlation or high similarity in value between the two distances indicates a stable spatial pattern, meaning the areas of concentrated shooting events were more-or-less located in the same places before and after intervention. A correlation value between 0 and –1 indicates that the pattern of violence has significantly reconfigured, suggesting displacement. To ensure reliability, this process was repeated 1,000 times, and the similarity of the distance rankings was quantified using the Spearman’s Rank Correlation Coefficient.

The Spearman’s Rank Correlation Coefficient can range from –1 to +1. A value close to -1 would indicate a strong, negative correlation between point to event nearest neighbor distances before and after, or a perfect reversal of the pattern. This would be powerful evidence of displacement, showing that areas that were previously low in shooting victimization became hot spots for shooting victimizations, and vice-versa. A value close to 0 indicates no correlation, which would also suggest that the pattern of violence has been significantly displaced. A value close to +1 indicates a strong, positive correlation, signifying that the spatial pattern of shootings remained stable. In our context, this would be evidence that displacement did not occur and that the spatial configuration of violence in Cohort 1 communities is essentially unchanged from before the start of the intervention.

14 Ratcliffe, J. (2005). Detecting spatial movement of intra-region crime patterns over time. *Journal of Quantitative Criminology*, 21(1), 103–123. <https://doi.org/10.1007/s10940-004-1786-5>

# Results

## Finding 1: Peacekeepers Program Impact in Hot Spots

The fitted ARIMA model, which controlled for the underlying pre-intervention trend and autocorrelation in the shooting victimization data, identified **a statistically significant intervention effect associated with the launch of the Peacekeepers Program in Cohort 1 hot spots.**

Results indicate a statistically significant negative step effect (CI: -33.62 to -28.16) at the point of the Program intervention (Figure 5). This means that, controlling for the pre-existing trend, **the implementation of the Peacekeepers Program in January 2023 was associated with an immediate, permanent, and statistically significant drop in the rate of shooting victimizations within the targeted hot spots.** More specifically, there was an estimated **decline in shooting rates between 1008.6 and 844.8 per 100,000 residents** during the post-intervention period. The other statistical terms tested for the hot spot ARIMA model were insignificant.

## Finding 2: Peacekeepers Program Impact in Larger Community Areas

The ARIMA models fitted to time series for CVI-coverage areas and Cohort 1 community areas, in aggregate, revealed a significant step downwards in 3 month moving average values of shooting victimization rates (Figure 5). This finding means that, controlling for the pre-existing trends, **the implementation of the Peacekeepers Program in January 2023 was associated with an immediate and statistically significant drop in the rate of shooting victimizations within the CVI coverage areas and Cohort 1 community areas.** Conversely, no significant association was found between the start of implementation of the Peacekeepers Program and shooting victimizations in areas of the community without CVI or Peacekeepers Program coverage, **suggesting that the Program's effect on community-wide gun violence may not yet translate to areas of the community that lack CVI presence.**

No other intervention effects were found to be statistically significant. This suggests that the Program's primary impact on relevant units of spatial analysis was an abrupt and sustained reduction in violence rather than a gradual or temporary one.

In summary, the analysis provides quantitative evidence supporting several facets of the Program model. First, it finds that the presence of Peacekeepers in designated hot spots is significantly associated with a sustained reduction in shooting victimizations within those areas. Additionally, it finds that the Peacekeepers Program intervention is associated with a significant sustained downward shift in shooting victimizations in the greater community, suggesting that there may be a diffusion of shooting reduction benefits dispersed outside of hot spots. However, we find no evidence for the same relationship between the Peacekeepers Program launch and shooting rates in areas of the community without CVI coverage.

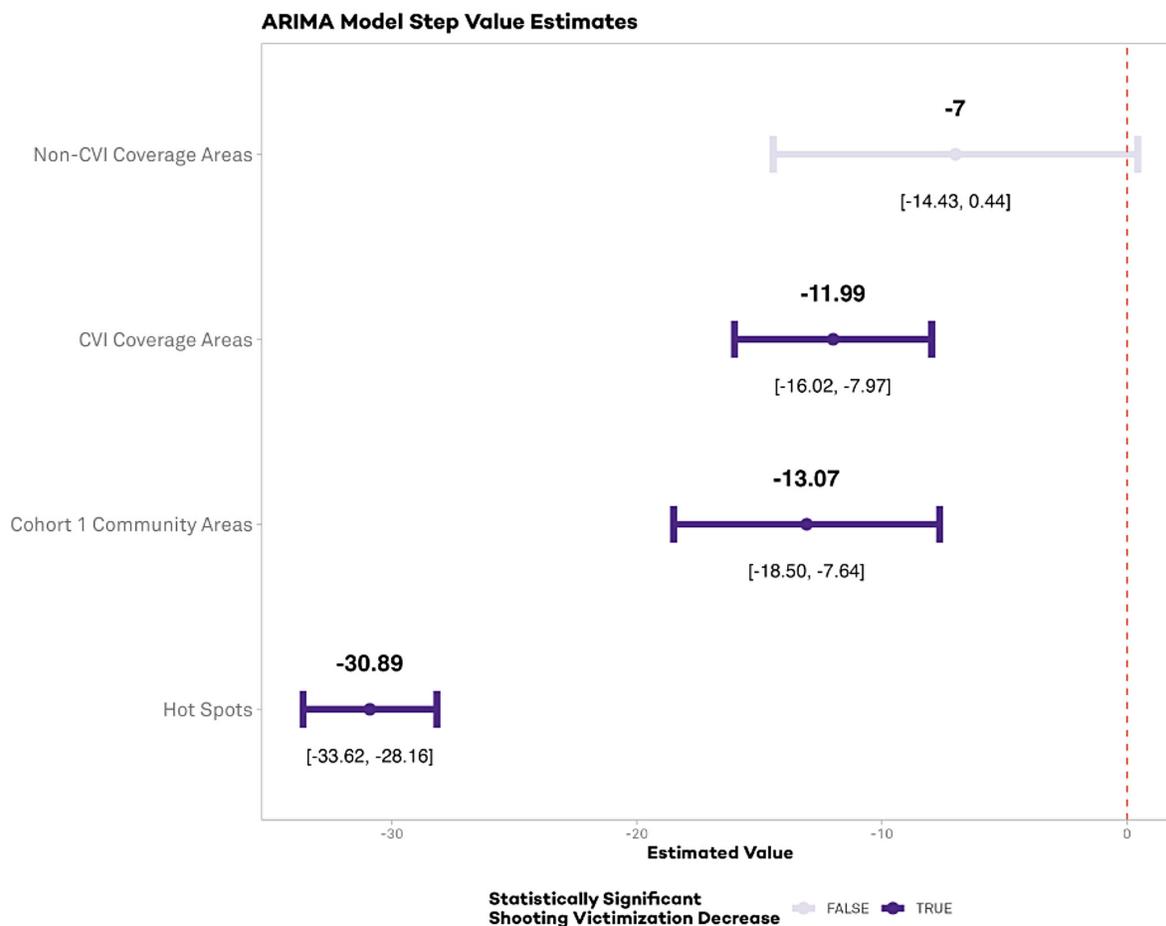


Figure 5: Confidence intervals of the ARIMA step estimate for each spatial unit of interest. Confidence intervals that do not include 0 indicate a significant step change in shootings associated with the Peacekeepers Program intervention in that geographic area.

### Finding 3: Displacement of Violence within Peacekeepers Program Community Areas

When tested for changes in point-to-event nearest neighbor distances, **no evidence was found of displacement of violence within Peacekeepers Program Cohort 1 community areas.** Figures A9 and A10 in the Methods Appendix show the statistical calculations, including the positive Spearman’s Rank and normal distribution of the correlation coefficients in the point to event nearest neighbor distances. The lack of evidence of displacement suggests that **the Peacekeepers Program is associated with a true reduction in shootings in implementing community areas,** rather than simply a change in the spatial pattern of violence throughout the community.

# Conclusion

The underlying assumption of the Peacekeepers Program model is that, by placing influential individuals at the “hottest” micro-sites of group-related violence within a community to mediate conflict before it erupts into shootings, gun violence will decline at both the hot spot and in the larger community area. The analyses presented in this report set out to evaluate the program model by statistically testing for associations between the start of implementation in the largest group of Peacekeepers Program neighborhoods and declines in gunshot victimizations at various spatial units of interest.

Our findings suggest preliminary evidence for a sustained downward shift in shootings in program hot spots as well as in parts of the community area with other CVI coverage and in the community area as a whole that is associated with the launch of Cohort 1 (January 2023). We did not find evidence for a similar association between reductions in violence and the launch of the Peacekeepers Program in parts of program community areas that lacked CVI coverage, indicating that the effect of the Program may not yet be felt in all corners of Peacekeepers Program community areas. Finally, the spatial pattern of where shootings occur in community areas is not shifting significantly, suggesting a lack of displacement within Cohort 1 community areas and benefits from the diffusion of violence reduction throughout those areas.

Several limitations to our analysis must be considered:

First, while the three spatial units comprising Cohort 1 community areas (Peacekeepers Program hot spots, non-Peacekeepers CVI coverage areas, and areas without any CVI coverage), were designed to spatially isolate the Program’s implementation areas from other areas receiving CVI interventions, these areas are not formal control groups and should not be interpreted as such. These spatial units vary greatly in size and have not been tested for similarity in population, socioeconomic status, etc., rendering direct statistical comparisons between them inappropriate. The purpose of slicing Cohort 1 community areas in this way and fitting ARIMA models to them individually was to provide a more nuanced picture of violence trends within parts of Cohort 1 communities receiving various layering of CVI coverage, in relation to the temporal launch of the Peacekeepers Program.

Second, these analyses do not establish direct causation between the Peacekeepers Program and gun violence reduction. Instead, the findings presented indicate a strong statistically significant temporal association between the launch of the Program and sustained reductions in shooting victimizations. The ARIMA models control for pre-existing trends and seasonality within the areas tested, but other unmeasured confounders such as additional CVI and violence reduction programming, shifts in policing strategies, or economic changes, could influence violence trends and are not accounted for in these analyses.

Third, the results presented are specific to Cohort 1 and the specific time window of the study (August 1st, 2020 – June 30th, 2025) and the Program’s association with violence reduction may not be generalizable to other areas studied.

Additionally, the spatial displacement analysis has particular constraints, as the Cohort 1-wide spatial displacement test was designed to detect large-scale reconfigurations in gun violence locations, but does not necessarily detect hyperlocal displacement within Cohort 1. For example, this test does not specifically identify if violence was displaced from an individual hot spot to a nearby area. Future analyses must be done to assess the presence of displacement at the micro-place.

Finally, the spatial designation of CVI coverage areas is based on a snapshot of CVI organization coverage within Cohort 1 as of January 1st, 2023. This analysis does not account for how spatial coverage of CVI organizations may have changed throughout the study period (August 1st, 2020 – June 30th, 2025), nor does it capture any variation in CVI service provision within those designated areas. Any expansion, contraction, or cessation of this coverage is an unmeasured aspect that could influence observed trends.

Future research will continue to explore the impact of the Peacekeepers Program on communities and individuals. Once more time has passed, we can apply the same statistical models used in this report to other implementing communities. We also plan to further refine our evaluation of displacement to determine if gun violence is being diffused out of individual hot spots. This would further strengthen our findings of associations between the Program and reductions in violence. Also, at the community-level, we plan to explore additional public safety outcomes, such as 911 calls, to determine if the Peacekeepers Program is associated with changes in calls for service in the same or differing ways than it is associated with reductions in violence. Finally, future research will evaluate the impact of participation in the Peacekeepers Program on peacekeepers themselves, investigating whether the Program’s association with reductions in community violence also apply to the individuals who participate in the peace-building process.

# Technical Appendix

## Fitting Process for Each ARIMA Model

### Cohort 1 Hot Spots

The selection of the final ARIMA model for the hot spot analysis followed a structured process to ensure robustness. We began by testing the 3-month moving average time series of shooting rates for seasonality and stationarity. A Kruskal-Wallis test found a significant seasonal pattern ( $p = 0.0368$ ), confirming that a seasonal ARIMA model was appropriate. An Augmented Dickey-Fuller (ADF) test indicated the series was stationary ( $p = 0.02425$ ), though we evaluated models with and without differencing during the fitting process. For this and all subsequent ARIMA models fit for this report, the ADF test was applied to the complete time series—inclusive of the months contaminated with pre- and post-intervention data—as this test cannot be applied to time series with null values.

Initial insights from Autocorrelation (ACF) and Partial Autocorrelation (PACF) plots, suggesting an AR(2) process, combined with a suggestion from the `auto.arima()` from the forecast package in R, led us to test several candidate models. While `auto.arima()` suggested an ARIMA(5,0,0) model, a SARIMA(4,0,3)(1,0,1) model was ultimately selected as it was the superior model through visual and statistical inspection of the autocorrelation of residuals (Ljung-Box test:  $p = 0.2499$ ), as well as the distribution of residuals (Shapiro-Wilk normality test:  $p = 0.2671$ ). This model also aimed to account for the seasonal nature of the time series, as reflected in the Kruskal-Wallis test results. The AIC (376.6154) and BIC (400.4832) was also deemed adequate.

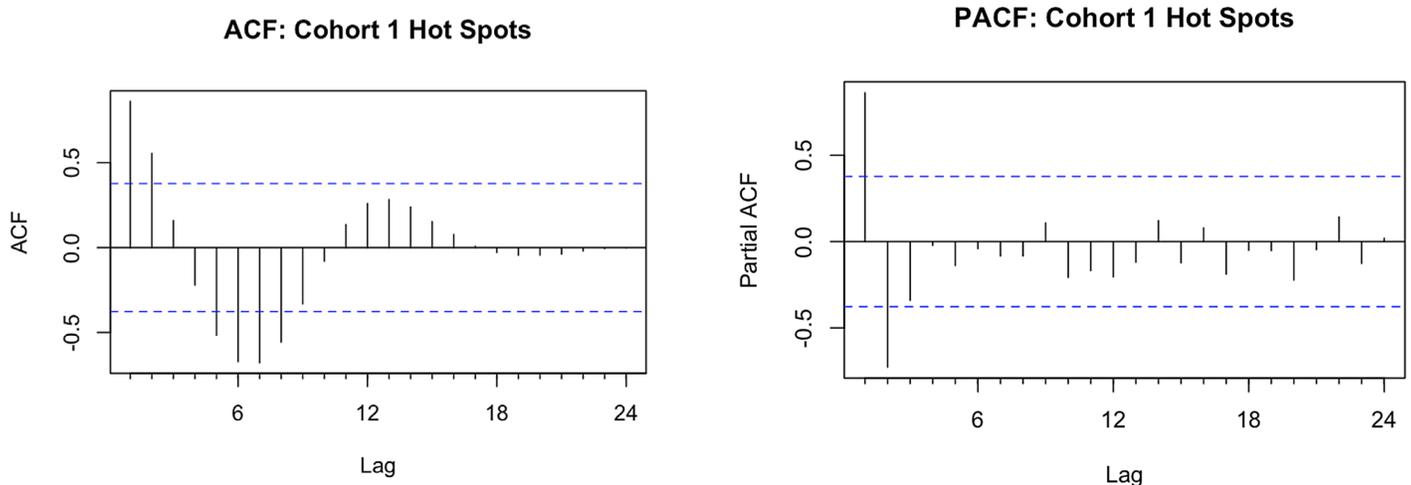


Figure A1: Autocorrelation tests for Cohort 1 hot spots

## Residuals from ARIMA(4,0,3)(1,0,1)[12] with non-zero mean

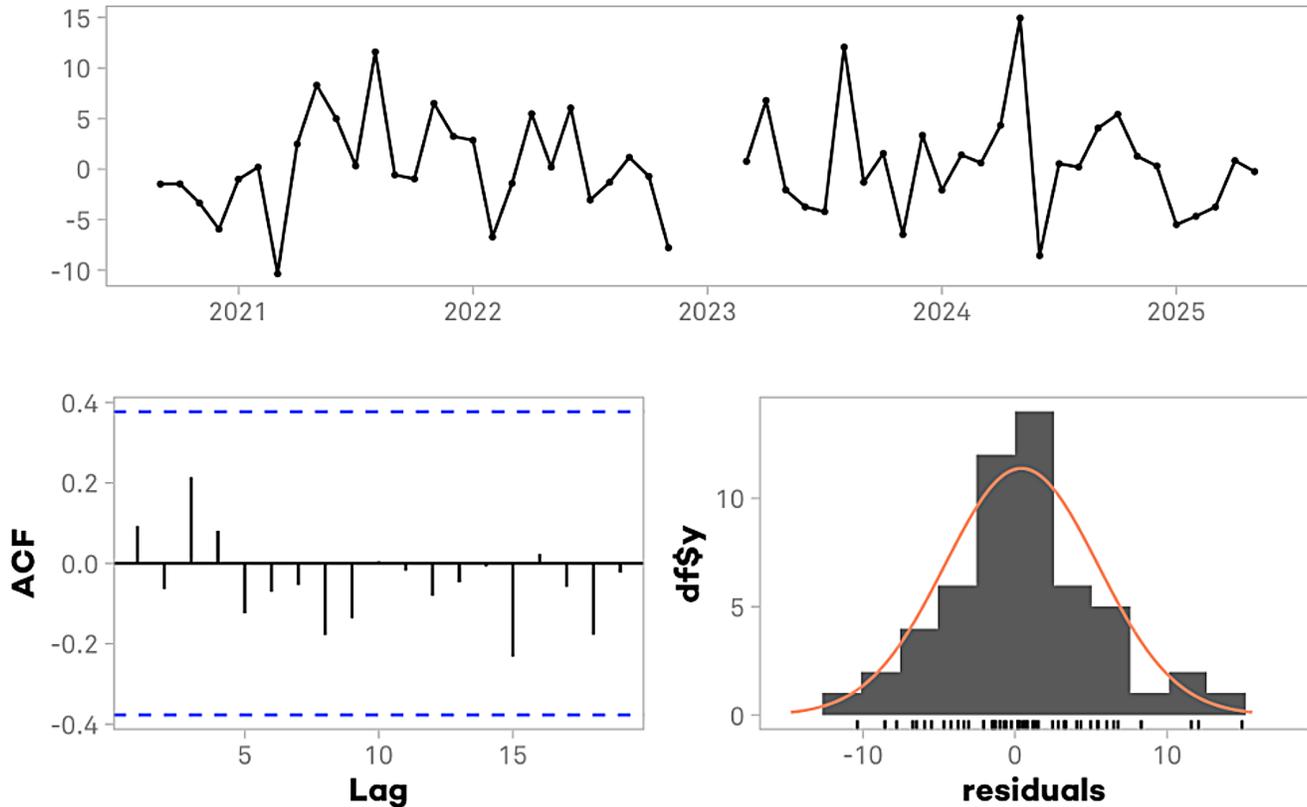
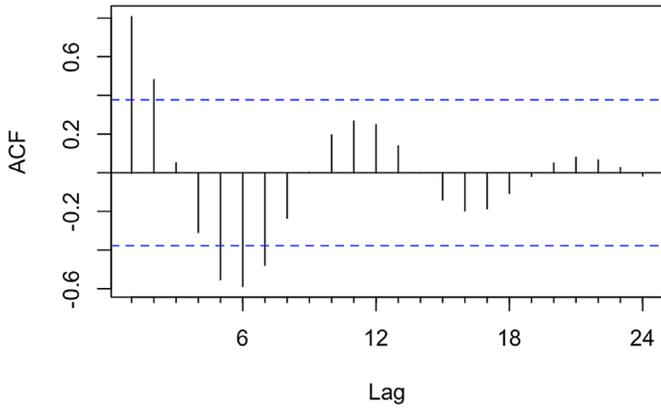


Figure A2: ARIMA residual fit testing for Cohort 1 hot spots

## Cohort 1 CVI Coverage Areas

The modeling process for the CVI coverage areas followed the same process as the hot spot analysis. A Kruskal-Wallis test on the 3-month moving average time series confirmed significant seasonality ( $p = 0.00131$ ), and an Augmented Dickey-Fuller test indicated stationarity ( $p < 0.01$ ). Analysis of the Autocorrelation (ACF) and Partial Autocorrelation (PACF) plots suggested a potential AR(3) process, while the `auto.arima()` function suggested a seasonal ARIMA model, SARIMA(4,0,0)(1,0,0). After evaluating several candidate models, the SARIMA(4,0,1)(1,0,0) model was selected. This model demonstrated a strong fit, with residual diagnostics confirming its adequacy, with a Ljung-Box test showing no significant residual autocorrelation ( $p = 0.4218$ ), and a Shapiro-Wilk test indicating the residuals did not deviate significantly from a normal distribution ( $p = 0.9843$ ). The model's AIC (248.705) and BIC (266.6059) were deemed favorable compared to alternative models. The 95% confidence interval for the step change variable was  $[-16.02, -7.97]$ , confirming a statistically significant negative association between the Program's launch and shooting rates in these CVI-covered areas.

**ACF: Cohort 1 CVI Areas**



**PACF: Cohort 1 CVI Areas**

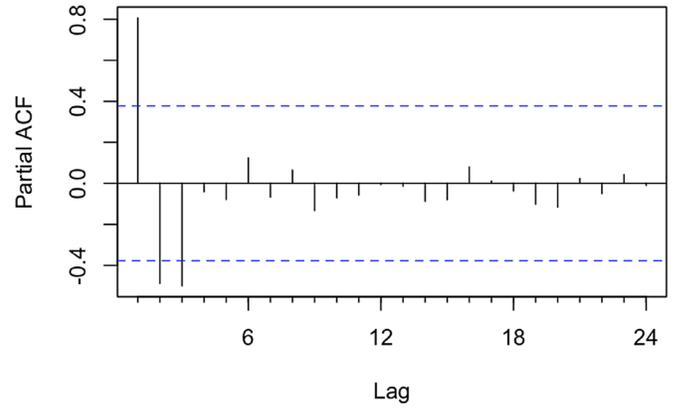


Figure A3: Autocorrelation tests for Cohort 1 CVI coverage areas

**Residuals from ARIMA(4,0,1)(1,0,0)[12] with non-zero mean**

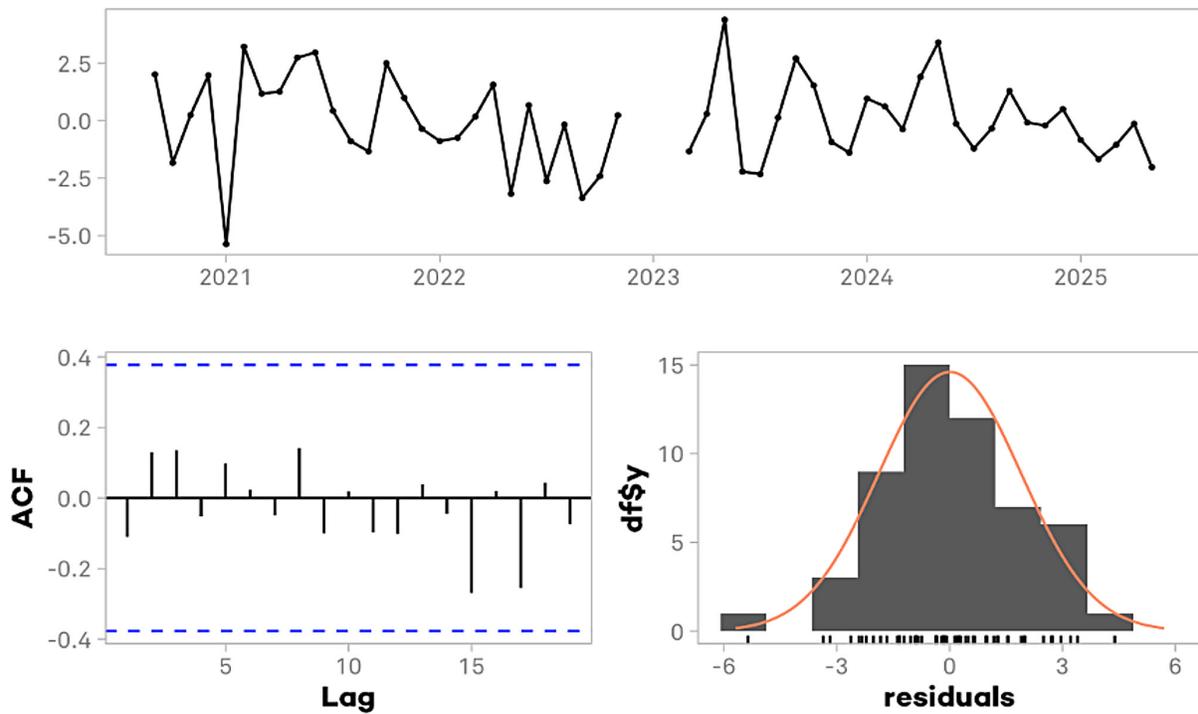


Figure A4: ARIMA residual fit testing for Cohort 1 coverage areas

## Cohort 1 Non-CVI Areas

The modeling approach for the non-CVI coverage areas detected significant seasonality via a Kruskal-Wallis test ( $p = 0.0002376$ ). Additionally, an Augmented Dickey-Fuller test confirmed stationarity ( $p = 0.02416$ ). Analysis of the ACF and PACF plots suggested an AR(4) process, and while `auto.arima()` suggested a seasonal model, SARIMA(1,0,2)(1,0,0). The final selected model was what `auto.arima()` suggested, SARIMA(1,0,2)(1,0,0), which provided the best fit. Diagnostic checks confirmed the model's validity, with the Ljung-Box test indicating no significant residual autocorrelation ( $p = 0.4927$ ), and the Shapiro-Wilk test showing the residuals did not deviate from a normal distribution ( $p = 0.9862$ ). The model's AIC (290.9037) and BIC (304.8266) were acceptable. Crucially, the 95% confidence interval for the step change variable [-14.43, 0.44] included zero, indicating that the observed change in shooting victimizations in non-CVI areas was not statistically significantly associated with the launch of the Peacekeepers Program.

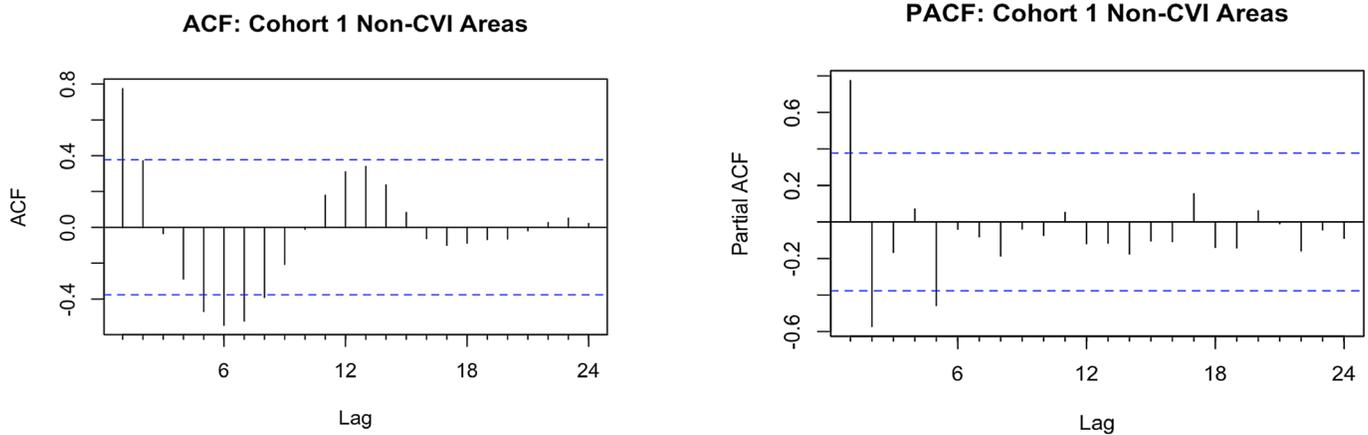


Figure A5: Autocorrelation tests for Cohort 1 non-CVI areas

### Residuals from ARIMA(1,0,2)(1,0,0)[12] with non-zero mean

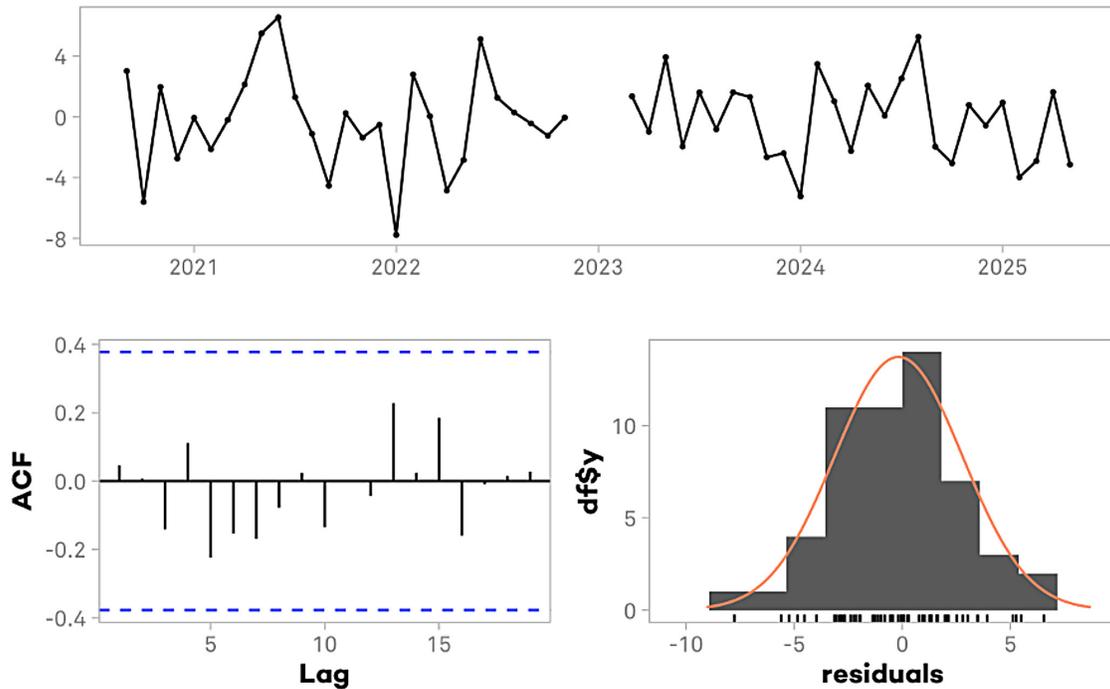


Figure A6: ARIMA residual fit testing for Cohort 1 non-CVI areas

## Cohort 1 Community Areas in Aggregate

The modeling process for the aggregate Cohort 1 community areas began with confirming the suitability of a standard ARIMA framework. A Kruskal-Wallis test indicated significant seasonality ( $p = 0.001048$ ), and an Augmented Dickey-Fuller test confirmed the series was stationary ( $p < 0.01$ ). Analysis of the ACF and PACF plots suggested a potential AR(3) process. The `auto.arima()` function suggested a SARIMA(4,0,0)(0,0,1) model, which was selected as the final model after evaluation. Diagnostic checks validated the model's good fit, with the Ljung-Box test showing no significant residual autocorrelation ( $p = 0.3551$ ), and the Shapiro-Wilk test confirming the residuals did not deviate from a normal distribution ( $p = 0.9669$ ). The AIC (253.4563) and BIC (269.3682) of the selected model was also deemed satisfactory. The 95% confidence interval for the step change variable was  $[-18.50, -7.64]$ , confirming a statistically significant negative association between the Peacekeepers Program launch and the overall shooting victimization rate across the entire Cohort 1 community areas.

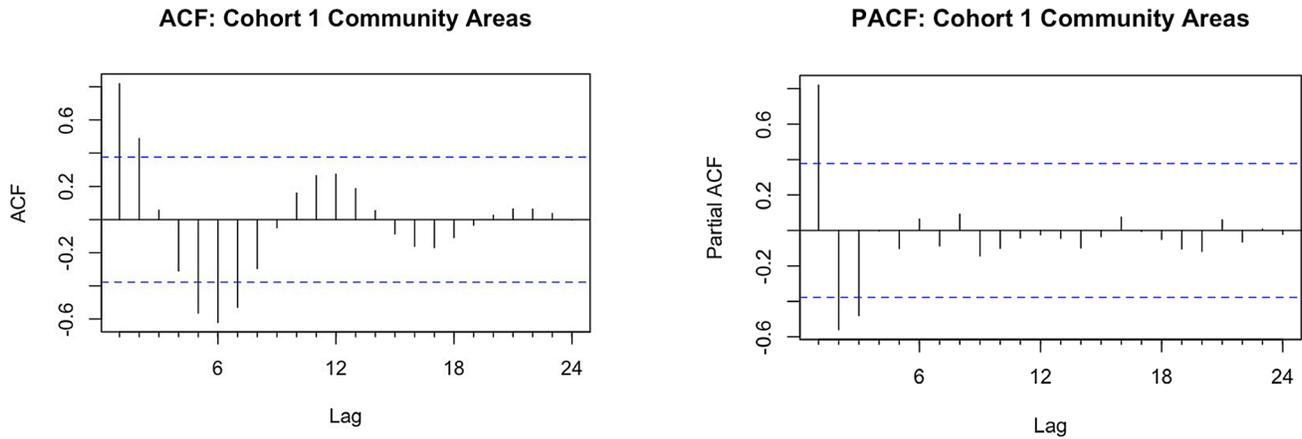


Figure A7: Autocorrelation tests for Cohort 1 community areas

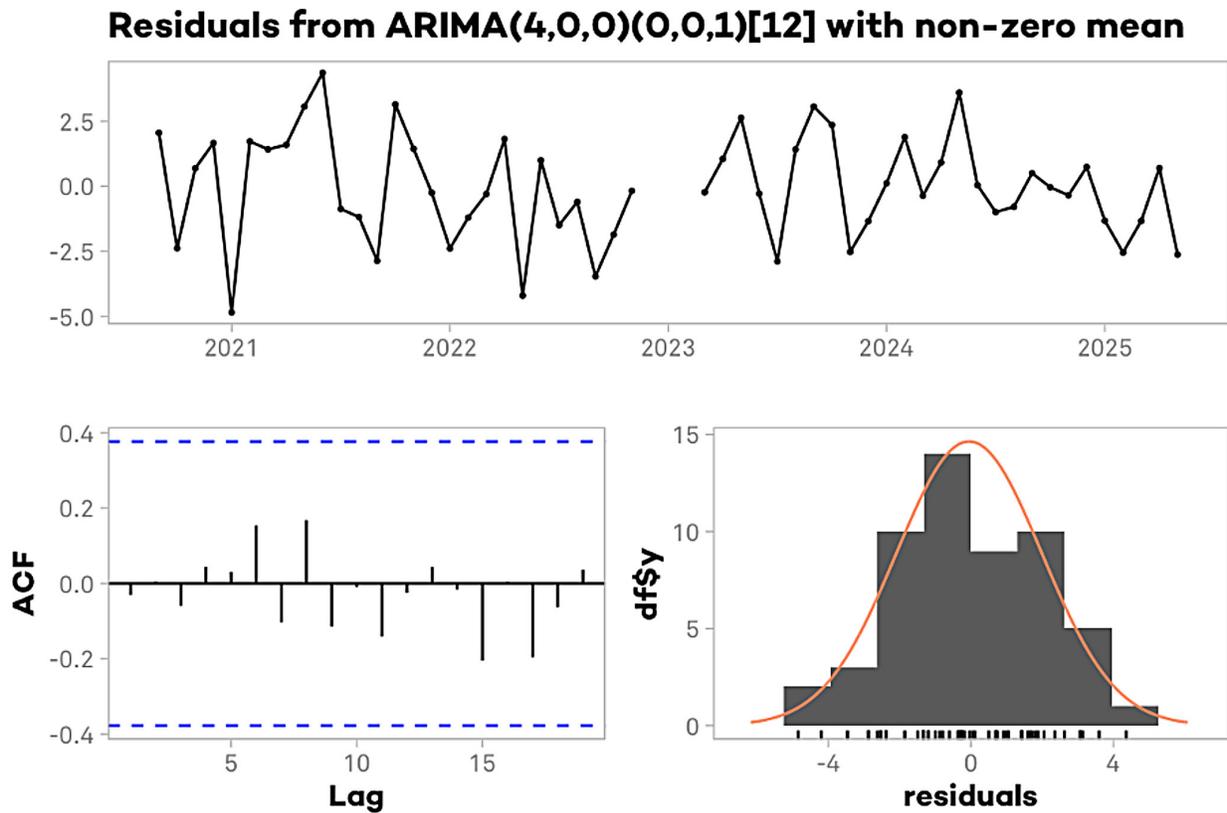


Figure A8: ARIMA residual fit testing for Cohort 1 community areas

# Point to Event Nearest Neighbor Distance Monte Carlo Simulation

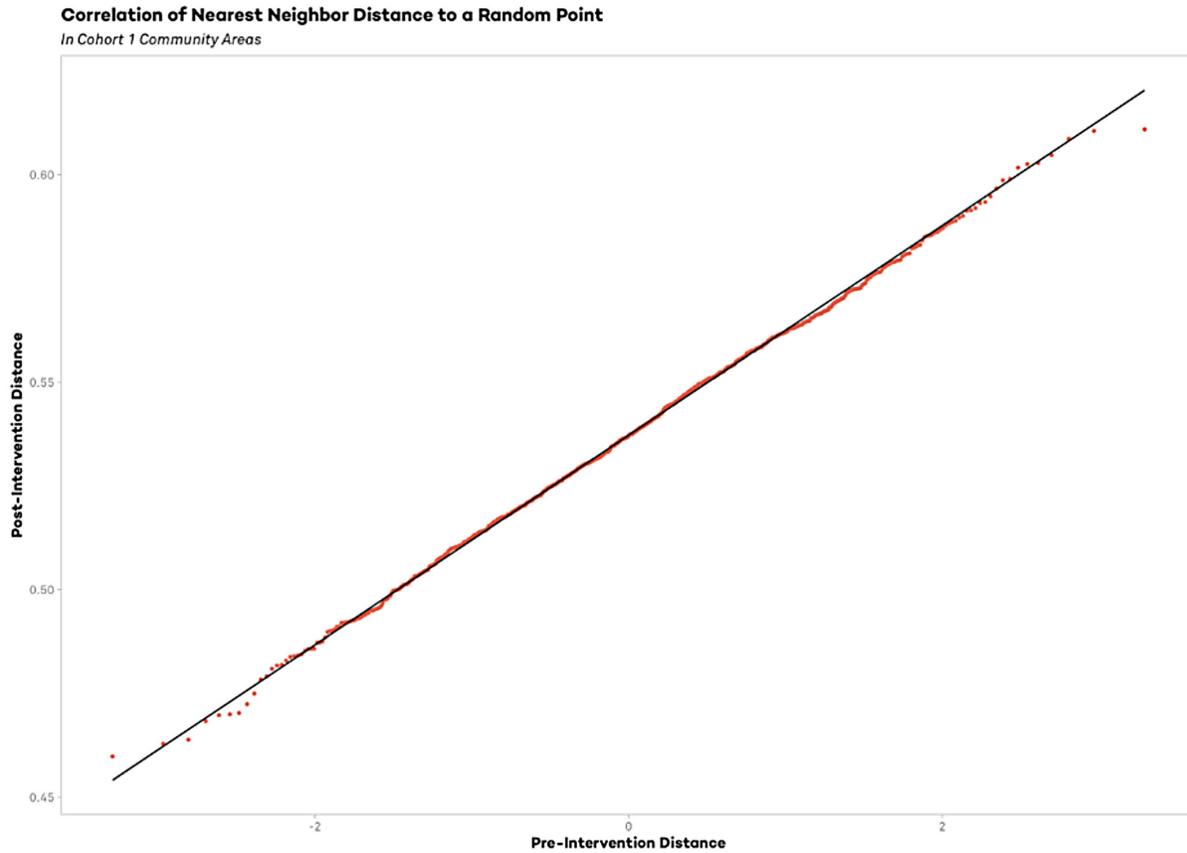
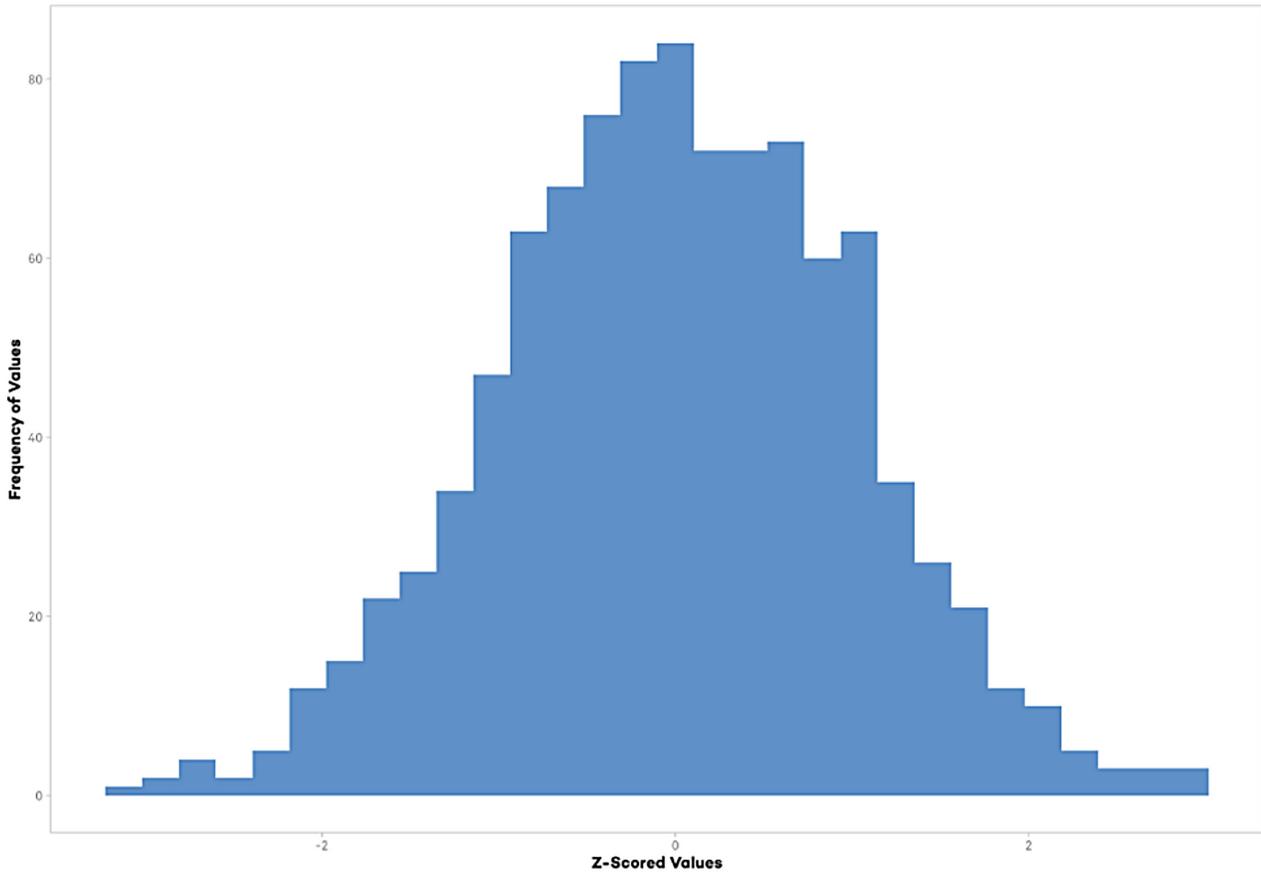


Figure A9: Spearman's Rank correlation coefficient for the nearest neighbor distances displacement simulation

Figure A9 depicts the pre and post Spearman's Rank correlation coefficients for the nearest neighbor distances in relation to each randomly generated point, on the x and y axes, respectively, and depicts just how similar these values are. Additionally, the mean Spearman's Rank Correlation Coefficient for this analysis is 0.54, thus indicating an average positive correlation and suggesting that displacement did not occur in Cohort 1 community areas. However, the mean value of the Spearman's rank may not accurately indicate what the typical Spearman's rank value was. To be confident in our conclusion that our mean Spearman's Rank Correlation Coefficient is indicative of the displacement, the z-scores for our coefficient values for each of the 1,000 randomly generated points must be normally distributed (Figure A10). Additionally, a normality test, in this case a Kolmogorov-Smirnov test is applied to ensure that the p value is greater than 0.05, which would also statistically indicate normality of the coefficients.

**Distribution of Z-Scored Correlation Coefficients**



*Figure A10: Z-scored correlation coefficients for displacement analysis*

Visually we can conclude that the distribution is normal (Figure A10). Additionally, the Kolmogorov-Smirnov test value is 0.80, which also indicates that normality. With all of this information, we can conclude that displacement of shooting events did not occur in Cohort 1 community areas, thus suggesting that there may have been a diffusion of violence reduction benefits in this study area. Further investigation is required to assess the nature of displacement and diffusion of shooting events at the individual hot spot level, which will allow the evaluation team to more robustly evaluate the impact of the Peacekeepers Program at on shooting victimizations at the micro-place level.

The Center for Neighborhood Engaged Research & Science (CORNERS), housed at Northwestern University's Institute for Policy Research, leverages the transformative power of networks to help community and civic partners build safer, healthier, more equitable neighborhoods.

For more information about this report or CORNERS, please contact Andrew Papachristos at [avp@northwestern.edu](mailto:avp@northwestern.edu).

