



# DETROIT CEASEFIRE: FINAL EVALUATION REPORT

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## EXECUTIVE SUMMARY

Detroit Ceasefire has been a cornerstone of Detroit's violence reduction strategies. Ceasefire involves a focused deterrence model aimed at gang- and group- related violence. It involves direct communication of a deterrence message to high-risk individuals and groups, targeted enforcement and response to violent incidents, outreach and services, community partnerships and youth prevention. Detroit Ceasefire was initially developed and implemented in two East side precincts (5<sup>th</sup> and 9<sup>th</sup>). As the Ceasefire team developed expertise in the model, associated project management capacity, shared understanding and training in the model, and initial signs of success, Ceasefire expanded to West side precincts (6<sup>th</sup>, 8<sup>th</sup>, 12<sup>th</sup>) and more recently to the 4<sup>th</sup> and 7<sup>th</sup> precincts. This report describes the planning, development, initial implementation, and full implementation of Ceasefire and places the initiative in the context of national trends. This is followed by evaluation results at both the community and individual levels. Key findings include:

- **Detroit has experienced a significant decline in fatal and non-fatal shootings** since the implementation of Ceasefire in 2013 and particularly since 2015 when Ceasefire received the support of a project management team and associated capacity building that strengthened implementation of the Ceasefire focused deterrence model.
- These trends are **particularly impressive when contrasted with national trends in violent crime and with trends in other large Midwestern cities.**
- The evaluation employed a state-of-the-art “synthetic control” design that compares trends in the Ceasefire precincts with comparable parts of the city that have not participated in Ceasefire. For the original east side Ceasefire precincts, **we estimate an overall 13-14 percent decline in fatal and non-fatal shootings. For the specific age group of 15-24, the primary target for Ceasefire, the decline was 22 percent.**
- The trends in the West side precincts are more difficult to interpret. Simply observing the trends suggest declines following the implementation of Ceasefire. Yet, when using the synthetic controls we do not find evidence of declines. We suggest continued monitoring of the West side precincts to provide a longer implementation and observation period (as well as assessment of trends in the more recent 4<sup>th</sup> and 7<sup>th</sup> Ceasefire precincts).
- Although Ceasefire clients had a very similar time until re-arrest as a matched comparison group of probationers and parolees, **the Ceasefire clients had 23 percent fewer overall arrests and 23 percent fewer arrests for a violent offense.** Ceasefire clients did have more arrests for weapons offenses but this may reflect increased scrutiny and surveillance of Ceasefire clients, particularly when they or their associates are involved in violence.

## INTRODUCTION

Detroit Ceasefire is an evidence-based violence reduction strategy based on the focused deterrence model (Braga, Weisburd, Turchan, 2018; Crimesolutions.gov, 2018). Although the model has been adapted to address other crime problems including open air drug markets and domestic violence offenders, most commonly it has been used to address community level violence associated with gangs and violent street groups. Detroit Ceasefire was developed to address gang- and group-related violence.

The Ceasefire focused deterrence model uses street level intelligence and crime analysis to identify groups involved in serious gun-related violence and the individuals associated with these co-offending networks. A deterrent message is communicated in face-to-face meetings. These include call-in meetings where groups of individuals are typically required by probation and parole agents to attend as well as in custom notifications that are typically delivered to a specific individual. The message includes several key themes:

- Levels of violence are unacceptable
- Given your behavior and that of the gang/group you associate with, you are considered at high risk for involvement in future violence (as either a shooter or a victim)
- Local, state, and federal law enforcement are working together to remove perpetrators of violence from the community
- Any future violence by you or your group will result in a targeted law enforcement response in which all possible levers (sanctions) will be pulled
- Community representatives communicate the pain and impact of violence in the community
- Outreach workers and social service providers describe the desire to work with you and to offer support to get out of the “high risk life”

These themes are typically communicated by representatives of law enforcement, the community, and service providers.

The focused deterrence model is supported by community partnerships and prevention efforts. As will be described subsequently, the gang/group-focused Ceasefire model and the youth prevention components of Ceasefire have been supported by additional crime reduction strategies including Project Green Light Detroit, Project Safe Neighborhoods, Community COMPSTAT, GUNSTAT, Detroit One, as well as enhanced technology, crime analysis, and coordinated federal-county and vertical prosecution. Detroit Ceasefire has evolved over time and has been driven by strong partnerships among local, state, and federal law enforcement, federal and county prosecution, the Michigan Department of Corrections, the Mayor’s Office, Detroit Public Schools, a team of outreach workers, social service providers, numerous community groups, including the faith community, and a team of researchers from Michigan State University’s School of Criminal Justice.

This report presents the results as an evaluation of Detroit Ceasefire. Given the multiple components of Ceasefire and the numerous supporting strategies, it is not possible to evaluate every component of Ceasefire. The focus herein is to assess the impact on community levels of violence as well as on high-risk individuals invited to participate in call-in meetings. We begin with the development of Detroit Ceasefire from planning to full implementation with attention to key milestones that we consider in the evaluation. We then place Detroit Ceasefire in broader national context. The next two sections present the key outcome measures. First, we consider

the impact on levels of serious violence at the community level. Second, we examine re-offending patterns for individuals who were part of Ceasefire call-in meetings.

## **DEVELOPMENT AND IMPLEMENTATION OF DETROIT CEASEFIRE**

As noted above, Detroit Ceasefire is based on a violence reduction and prevention model originally developed in Boston (Kennedy, 2007) and successfully replicated in a number of cities including Cincinnati, High Point (NC), Indianapolis, and New Orleans. The strategy has become known as a focused deterrence model that is aimed at gangs and violent street groups involved in a significant amount of serious gun crime in particular jurisdictions. It is considered an “evidence-based practice” in that a series of evaluations have found that when effectively implemented it can reduce community levels of serious violent crime (Braga et al., 2001; Braga et al., 2018; Corsaro & Engel, 2015; Engel et al. 2013; McGarrell et al. 2006).

At the same time, the focused deterrence Ceasefire strategy has been found to be difficult to effectively implement and to sustain over time. This is likely due to complex nature of the criminal justice system that includes local, state, and federal law enforcement, local and federal prosecutors; as well as the need to engage community partners and social service providers. Additionally, most of the communities and agencies in cities experiencing high levels of violent crime face resource constraints. To be successful, the focused deterrence model at a minimum requires:

- Tactical and strategic intelligence on the gangs and groups driving violence
- A communication strategy delivered to high-risk individuals, gangs, and networks
- Enforcement action when violence occurs
- Credible social service options for high-risk individuals
- Sustained efforts to identify and respond in a timely manner to group related violence to reinforce the credibility of the deterrence message

Additionally, many Ceasefire initiatives include complementary youth prevention and community engagement activities to complement the focused deterrence strategy. The Ceasefire strategy is dependent on multi-unit and multi-agency communication and coordination. This has proven challenging in all cities that have attempted to implement the Ceasefire model. At its outset, it was particularly challenging in Detroit. Following several decades of economic decline associated with global shifts in the automobile industry and associated population loss, Detroit faced a fiscal crisis that resulted in bankruptcy in 2013. These large scale economic forces were accompanied with high levels of violent crime coupled with a loss in revenue for public services including for the police department. In 2011, homicides increased to 344 from 308 in 2010. This reflected a rate of 48.2 homicides per 100,000 that was ten times the national average (Uniform Crime Reports, 2011). Violence reduction strategies like Ceasefire were needed but also difficult to implement given the resource constraints.

It was in this context that Detroit Ceasefire was developed. Research from a number of public policy areas shows that implementation of new and innovative strategies is very difficult. Most commonly, strategies fail to be effectively implemented (Pressman & Wildavsky, 1973; Rosenbaum, 1986; National Implementation Research Network, 2018). Further, when effective implementation occurs, it takes a long time and typically progresses through the stages of exploration, installation, initial implementation, and full implementation (Bertram, Blase, and Fixsen (2015). As we consider the planning, development, implementation, and refinement of Detroit Ceasefire, we consider these stages (see Timeline).

**Figure 1: Detroit Ceasefire - STAGES OF IMPLEMENTATION**

<b>Exploration Stage</b>					
2011	Planning Meetings	Discussion of two models of Ceasefire			
2012	Proposal to OJJDP	Award to Detroit			
2013	Focus on 5th & 9th	OJJDP Site visit with tech assist on focused deterrence	Problem Analyses conducted- gang/group involvement in violence		
<b>Installation Stage</b>					
Summer 2013	Regular Ceasefire Meetings begin			Chief Craig appointed	
Aug 2013	First Call-in				
Oct 2013	Federal enforcement - Hustle Boys				
Dec 2013	Second call-in				
<b>Initial Implementation</b>					
Winter 2014	Call-ins continue				
Spring 2014	Technical assistance on custom notifications				
Summer 2014					
<b>Initial to Full Implementation</b>					
Winter 2015	1st quarter witnesses increases in violence in 5th & 9th precincts				
May 2015	New Ceasefire Leadership Team announced			Expansion of gang intelligence	
June- July 2015	Emphasis on greatly expanding custom notifications			Data tracking system implemented	
Aug 2015	1st call-in under new leadership			WCPO assigns prosecutor to Ceasefire	
Fall 2015	Decline in violence in 5th precinct observed; Bi-weekly meetings with Mayor and Chief initiated			Youth violence prevention coordinator hired; Goodwill Industries begins as service provider	
<b>Full Implementation</b>					
Jan 2016	Ceasefire Director appointed	Reinvestment in Crime Intelligence	Move to 2 weekly meetings (line level incident review; command staff strategy meeting)	Social network analyses expand significantly to complement gang intelligence	Begin to see declines in 5th and 9th

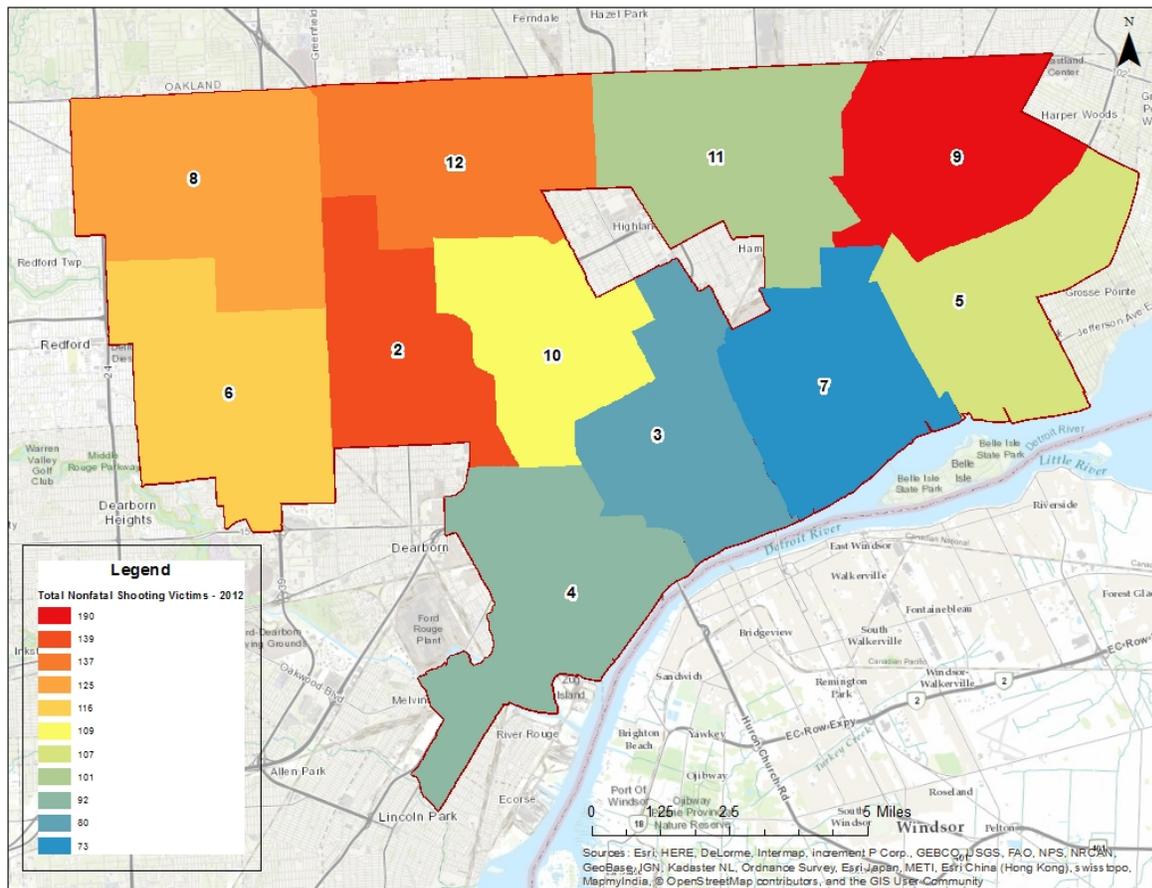
Spring 2016	2 DPD officers assigned to ATF firearms arrests review team		Series of federal indictments of gang/group members in late 2015 and into 2016	
Spring 2016	Planned expansion- training for disruption teams in 6th and 8th precincts		Gang Audit in 6th & 8th; training of disruption teams	
June 2016	Call-in includes clients from 6,8,12		Expansion to include 12th precinct	
July 2016	Analyses begin to include problem places		Restorative practices training aimed at schools	
Fall 2016	OJJDP Site Visit			
<b>Full Implementation &amp; Expanded Strategies</b>				
Jan- Mar 2017	List of problem properties demolished; Service providers expanded to include transportation & housing		Number of federal indictments announced (e.g., Band Crew)	
Summer 2017	Project Green Light Detroit increasingly discussed as response to problem places; LPRs being deployed		Continued federal indictments	
Fall 2017	GUNSTAT implemented; Continued expansion of service providers to include mental health services & resource counselors		Targeting 60 properties in one target area	
<b>Full Implementation &amp; Expanded Strategies</b>				
Winter-Spring 2018	4th and 7th precincts added to Ceasefire	Increased use technology - Project Green Light Detroit; polecams, license plate readers; NIBIN	Youth leadership summit	297 youths from 6 schools
Summer 2018	Renewed emphasis on Detroit One		After Action Reviews begin	

## Planning and Exploration

One of the assets for Detroit was a long history of local, state, and federal multi-agency collaboration. Among these efforts were Detroit's participation in the Department of Justice's Strategic Approaches to Community Safety Initiative in the late 1990s as well as Project Safe Neighborhoods throughout most of the prior decade. Confronted with the 2011 increase in homicides, discussions ensued among Detroit Police Department leaders, criminal justice partners, and community groups about potential strategies to address violent crime. Several of these meetings involved discussion of the Ceasefire strategy. However, it became apparent that two different models were being considered. One was the Boston Ceasefire model based on focused deterrence. The other was the Chicago Ceasefire model, now referred to as Cure Violence, based on a street outreach "violence interrupter" model.

Ultimately, the planning teams decided to follow the focused deterrence model and developed a proposal to the Office of Juvenile Justice and Delinquency Prevention (OJJDP) that was submitted in 2012. The proposal sought to leverage investment in youth prevention that had been supported by the Skillman Foundation. Detroit received the OJJDP award and initial planning meetings began late in 2012. The Ceasefire model would focus on two contiguous eastside precincts, the 5<sup>th</sup> and 9<sup>th</sup>, that experienced high levels of violent crime. This was particularly true for the 9<sup>th</sup> precinct that had the highest levels of violent crime in the city (see Figure 2).

**Figure 2: Non-fatal shootings victims, by precinct, 2012**



One of the challenges facing Ceasefire was that the financial crisis had resulted in cut-backs to the gang and crime analysis units. Additionally, DPD's records management system was outdated. As a consequence, gang intelligence was outdated and limited, and it was difficult to provide timely data on homicides and non-fatal shootings. As an initial response, DPD worked with a team from the University of Cincinnati that had been working with the Cincinnati Police Department on identifying gangs and violent street groups. In the fall of 2012 and early part of 2013, the Cincinnati team worked with DPD to conduct a gang audit in the 5<sup>th</sup> and 9<sup>th</sup> precincts and to extract data from the records management system to develop an initial picture of the gangs and groups involved in gun violence in the target precincts.

### **Installation**

In the summer of 2013, a multi-agency Ceasefire team began to meet regularly. Participants included DPD (5<sup>th</sup> and 9<sup>th</sup> precincts; gang unit), U.S. Attorney's Office, Wayne County Prosecutor's Office, Michigan Department of Corrections, Michigan State Police, and additional local, state, and federal partners. A team from Michigan State University began working as research partners that compiled weekly summaries of firearms crime incidents in the two precincts. Weekly meetings then began that attempted to identify incidents involving gangs or violent street groups that would be targets for Ceasefire interventions. An outreach worker was hired with the goal of working with Ceasefire clients and assisting them to connect with various services.

The summer of 2013 also witnessed the hiring of Chief James Craig. Chief Craig was familiar with the Ceasefire model from his time as Chief in Cincinnati. The initial call-in meeting occurred in August 2013 with a second meeting in December. Call-in meetings occurred on an approximate quarterly schedule since that time. The Ceasefire deterrence message was bolstered by a federal indictment involving the Hustle Boys, a group known to be involved in a number of shootings.

### **Initial Implementation**

Ceasefire continued in the 5<sup>th</sup> and 9<sup>th</sup> precincts during 2014 in what can be considered the initial implementation phase. Some of the challenges noted above continued. Specifically, there was limited information on the gangs and groups operating in the 5<sup>th</sup> and 9<sup>th</sup> precincts. The MSU research team assigned student analysts to the gang unit to move paper records of gangs and gang members to an electronic database. There was a sense that some firearms incidents involving gangs or groups were being missed because of the lack of a gang intelligence database as well as challenges in bringing street-level intelligence to the weekly incident review meetings. The issues related to identifying incidents involving gangs and groups created challenges in terms of rapidly responding to the groups involved in shootings. There also were not mechanisms to track cases through the prosecution stage. These types of challenges made it difficult to ensure that the deterrence message communicated during the call-in meetings was supported by targeted enforcement necessary to change the perceived likelihood of sanctions for being involved in gun violence among high-risk groups and individuals. On a positive note, the call-in meetings continued to deliver the Ceasefire message. Specifically, three call-in meetings occurred in 2014.

These activities continued in 2015 with the first call-in of the year held in March. The Ceasefire team became concerned because fatal and non-fatal shootings increased in the 5<sup>th</sup> and 9<sup>th</sup> precincts during the first quarter. In the summer of 2015, there was a re-organization of the

Ceasefire Leadership team. A new Ceasefire Director was appointed and a project management support team was created. This resulted in several changes during the summer. First, significant emphasis was placed on increasing the use of custom notifications. The custom notifications were seen as addressing several limitations. They offered a rapid response to situations that could involve retaliation or escalation of violence. They offered a mechanism for delivering the Ceasefire message to individuals who were not under probation or parole supervision and who therefore were unlikely to attend a call-in meeting. Second, the project management team developed data tracking tools to provide a mechanism to track Ceasefire activities. The data management tools served several purposes: sharing information; holding the Ceasefire team accountable; supporting implementation; and tracking progress.

Several additional steps occurred in late summer and into the fall. Goodwill Industries became a partner that outreach workers could use to refer clients for vocational and work skill training and job opportunities. The Wayne County Prosecutor's Office, that had been a partner since the outset, assigned a prosecutor who could support Ceasefire through improved communications and vertical prosecutions. Additionally, a Youth Violence Prevention Coordinator was hired to focus on youth prevention, particularly in connection with the school system. From an analytical support perspective, the MSU embedded crime analysts and the research team began conducting social network analyses, typically built around a specific shooting incident. The intent was to support the Gang Intelligence Unit as well as the precincts and add this network information to gang and street-level intelligence.

In the fall of 2015, there was evidence of a decline in fatal and non-fatal shootings in the 5<sup>th</sup> precinct.

### **Full Implementation**

In 2016, Ceasefire moved into full implementation. A key member of the project management team was appointed Director of Ceasefire. The Gang Intelligence Unit was expanded and assumed a leadership role in intelligence gathering and enforcement activities. Two DPD officers were assigned to ATF to assist in the daily review of shooting incidents. This complemented the joint federal-county prosecution screening of cases. The number of call-in meetings increased from 3 to 6 for the year. The format of weekly Ceasefire meetings changed. Instead of one meeting consisting of incident reviews and strategy planning, two separate meetings with overlapping but distinct personnel were launched. A street-level intelligence incident review meeting was coordinated by the Gang Intelligence unit and included local, state and federal partners, including prosecution and the Michigan Department of Corrections. The intent of this meeting was to "score" incidents in terms of the involvement of gangs and violent street groups as well as to share information and decide when immediate action was needed for either investigatory or violence prevention purposes. The second meeting became a strategy meeting. Initially, the focus was on ensuring action when gang and group member violence occurred. This continued to be a principal focus but over time the strategy meetings evolved to consider complementary strategies as well. These included place-based strategies (e.g., code enforcement; Project Green Light Detroit) as well as combined people- and place-based strategies (e.g., an enforcement action at a hotspot location), victim services, and other strategies as dictated by specific situations.

DPD also made a commitment to enhancing its crime analysis, information, and technology. This included expansion of the Crime Intelligence unit, planning for a Real Time Crime Center, and a new records management system. Daily intelligence briefings on shootings

and other critical incidents aided in intelligence sharing. Social network analyses were increasingly used and improved by integrating corrections information and other DPD information (e.g., prior arrests). The Project Green Light Detroit program involving DPD collaboration with small business owners was implemented and expanded throughout the year and into 2017 and 2018.

Additional developments included ongoing federal-local task force operations resulting in federal indictments of several key gangs. This was complemented with state prosecution of violent group members. These enforcement actions were used as examples during call-in meetings. Outreach activities increasingly were organized through review meetings to track the progress of specific Ceasefire clients.

All of these activities appeared to have an impact as the 5<sup>th</sup> and 9<sup>th</sup> precincts witnessed declines in homicides and non-fatal shootings. Consequently, DPD decided to expand the program to west side precincts. This began with the 6<sup>th</sup> and 8<sup>th</sup> precincts and later included the 12<sup>th</sup>.

### **Full Implementation and Expanded Strategies**

The full implementation of Ceasefire, and the increased use of complementary strategies and processes continued in 2017 and 2018. The group focus of Ceasefire was supported by place-based strategies that included Project Green Light Detroit, and code enforcement and demolition of abandoned properties in problem locations. A Gunstat process was developed. Borrowing from best practices in several other jurisdictions, a scoring system was developed to identify individuals who were arrested on gun-related charges and who were believed to be at highest risk for future involvement in serious violent crime. High risk individuals were identified and made a priority for pre-trial detention and prosecution.

The targeted enforcement component of Ceasefire was complemented with expanded services during 2017. Although Ceasefire outreach workers had previously been able to refer clients to services, the expanded services filled gaps and provided dedicated services and personnel who could quickly respond to referrals. These services included transportation and housing services, resource counselors, and mental health services. The goal was to make the promise of service delivery as credible as the deterrent message of enforcement.

These comprehensive efforts continued to develop in 2018. Ceasefire was expanded to include the 4<sup>th</sup> and 7<sup>th</sup> precincts. Federal indictments of key gangs and groups continued. Technology (e.g., pole cameras, license plate readers) was increasingly used to support intelligence gathering and targeted enforcement. DPD and ATF collaborated to invest in NIBIN technology with the goal of developing a Crime Gun Intelligence Center. An innovative police-prosecution initiative that had been piloted in the 10<sup>th</sup> precinct, using a special one-person grand jury to encourage victim and witness cooperation in non-fatal shooting cases, was planned and implemented in the 9<sup>th</sup> precinct. The police department worked with the schools in Ceasefire areas to plan leadership programs for students as a prevention strategy. Additionally, after action reviews of Ceasefire disruption activities were conducted to learn from prior experience and share lessons with other Ceasefire partners. All of these activities complemented ongoing core Ceasefire activities of incident reviews, strategy meetings, call-ins, custom notifications, enforcement, outreach and community engagement.

In summary, Detroit Ceasefire went through the stages of implementation common to complex interventions involving innovative practices and multiple levels of government, partners, and resource constraints. To its credit, the Detroit Ceasefire team exhibited persistence

and resiliency to overcome obstacles and challenges. For evaluation purposes, although we consider different project milestones, we consider the development of a project management team in mid- to late-2015 and into 2016 as the key point where the Ceasefire model was implemented with sufficient dosage and fidelity to the focused deterrence model to be likely to have an impact on community levels of violence. Particularly, in the 5<sup>th</sup> and 9<sup>th</sup> precincts that had the most experience identifying and responding to gang- and group-member violence.

## CONTEXT FOR EVALUATION

Detroit Ceasefire is a violence reduction strategy that was implemented during a period when the city of Detroit was developing a series of violence reduction initiatives. As described above, Ceasefire is a focused deterrence strategy aimed at reducing violence with a particular focus on gang- and group-related violence (Braga, Weisburd, Turchan, 2018; McGarrell, 2014). Detroit Ceasefire has been at the core of the city’s violence reduction efforts since 2013. It has been supported by complementary strategies including Project Safe Neighborhoods, Detroit One, Gunstat, Project Green Light Detroit, and related strategies and processes involving local, state, and federal criminal justice partners, other components of local government, neighborhood and community groups, and social service providers. Although these complementary strategies support public safety in Detroit, the multiple strategies also makes it complicated to assess the independent effect of Ceasefire on violent crime trends in Detroit.

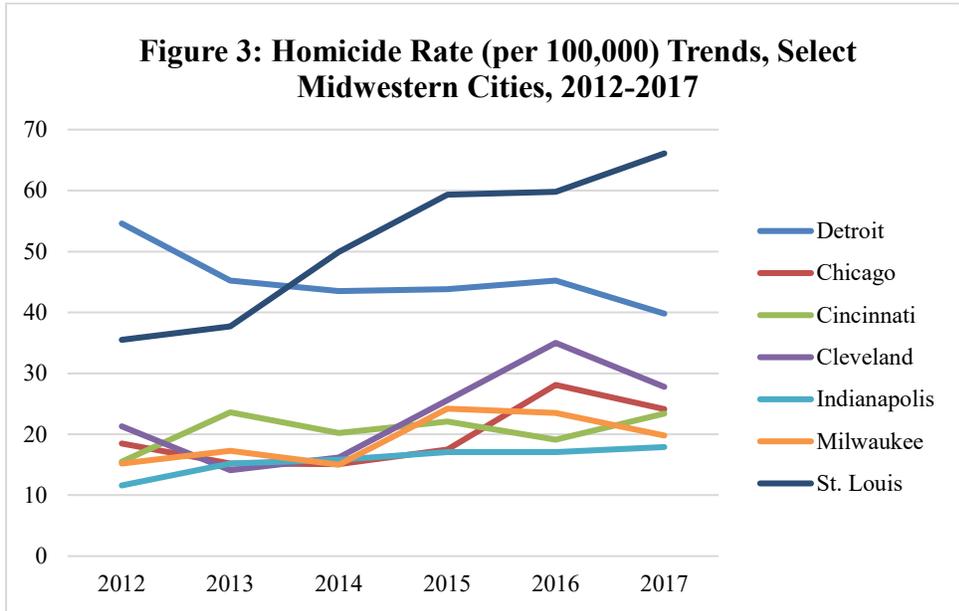
Also complicating the evaluation is that Detroit is influenced by macro-level factors that affect crime levels in the United States. During the period of this evaluation, the United States experienced increases in homicide and violent crime in 2015 and 2016. Specifically, in 2015 the nation experienced a 10.8 percent increase in homicides (Uniform Crime Reports, 2015). Over the two-year period of 2015 and 2016, the homicide rate increased 8.4 percent (Uniform Crime Reports, 2016a). The 17,250 homicides in 2016 represented an 8.6% increase over 2015 and a 16.1 percent increase over 2012 (Uniform Crime Reports, 2016b). The good news is that Detroit avoided these national trends in 2015 and 2016. Further, as Table 1 indicates, Detroit experienced a 2.3% decline in homicide in 2016-17 and its 2017 homicide rate reflected a near 15 percent decline since 2012. As Table 1 and Figure 3 indicate, Detroit was the only major Midwestern city that witnessed these types of declines in homicides during this period.<sup>1</sup>

**Table 1: Homicide Trends, Select Midwestern Cities (Uniform Crime Reports, 2012-2017)**

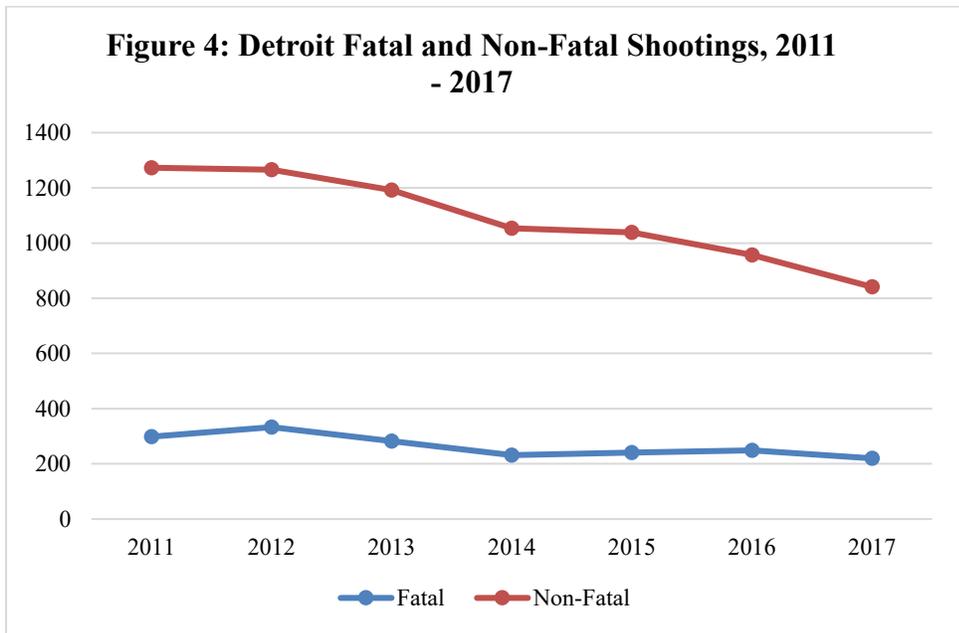
Homicide Rate	Detroit	Chicago	Cincinnati	Cleveland	Indianapolis	Milwaukee	St. Louis
2012	54.6	18.5	15.5	21.3	11.6	15.2	35.5
2013	45.2	15.2	23.6	14.1	15.2	17.3	37.7
2014	43.5	15.1	20.2	16.2	15.8	15	49.9
2015	43.8	17.5	22.1	25.6	17.1	24.2	59.3
2016	45.2	28.1	19.1	35	17.1	23.5	59.8
2017	39.8	24.1	23.4	27.8	17.9	19.8	66.1
% change 2012-2017	-14.8	5.6	7.9	6.5	6.3	4.6	30.6
% change 2014-15 to 2016-17	-2.3	19.6	0.2	21.0	2.1	4.1	16.7

<sup>1</sup> Similar trends were observed when including smaller Midwestern cities (Flint, Gary) that have experienced high levels of homicide and violent crime like Detroit and St. Louis.

Although these positive Detroit trends cannot directly be attributed to Ceasefire, they do suggest that the violence reduction strategies adopted by the city have aided in avoiding the national uptick in homicide and violent crime. In the following sections, we look more specifically at violent crime trends in Detroit and attempt to assess the impact of Detroit Ceasefire.



The positive trends in Detroit’s violent crime are also reflected when examining local data on both fatal and non-fatal shootings. Figure 4 displays the steady decline, particularly from 2014 forward (2018 is not included because the data are only complete through October).



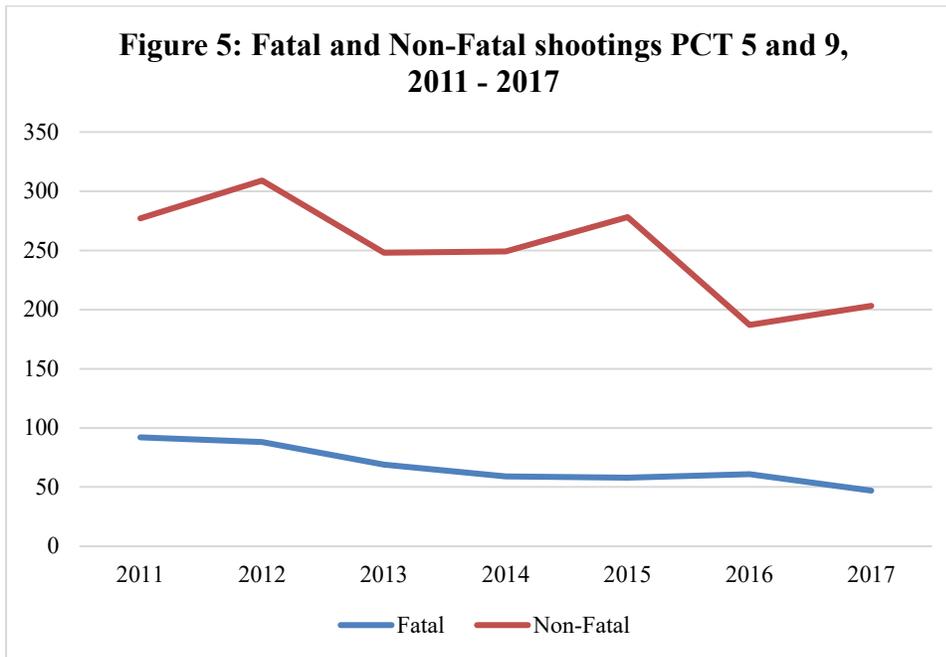
As Table 2 demonstrates, Detroit has experienced a significant decline in fatal and non-fatal shootings since the 2011 and 2012 period when Ceasefire was being planned. The data reinforce the points made above about Detroit avoiding the national increase in violent crime in 2015 and 2016. Indeed, Detroit’s monthly average of fatal and non-fatal shootings have declined 35 percent since the 2011-2012 period.

**Table 2: Fatal and Non-Fatal Shooting Trends, Detroit 2011-2018 (partial 2018)**

	2011	2012	2013	2014	2015	2016	2017	2018*	
Fatal	299	333	282	232	241	249	220	178	
Non-Fatal	1273	1266	1192	1054	1039	957	841	653	
Total	1572	1599	1474	1286	1280	1206	1061	831	
Per month	131	133.3	122.8	107.2	106.7	100.5	88.4	83.1	
								Percent change 2017-18 to 2011-12	-0.35

\*data for 2018 are complete through October

Similar trends are apparent in the two original Ceasefire precincts (see Figure 5). As Table 4 indicates, the 5<sup>th</sup> and 9<sup>th</sup> precincts have experienced a 33 percent reduction in monthly fatal and non-fatal shootings in 2017-18 compared to 2011-12.



**Table 4: Fatal and Non-Fatal Shooting Trends, PCT 5 and 9, 2011-2018 (partial 2018)**

	2011	2012	2013	2014	2015	2016	2017	2018
Fatal	92	88	69	59	58	61	47	50
Non-Fatal	277	309	248	249	278	187	203	169
Total	369	397	317	308	336	248	250	219
Monthly	30.8	33.1	26.4	25.7	28	20.7	20.8	21.9
Percent change 2017-18 to 2011-12								-0.33

\*data for 2018 are complete through October

These overall trends suggest that Detroit has taken important steps in reducing violent crime, victimization, and enhancing public safety. Ceasefire has been a cornerstone of these violence reduction efforts. However, the overall trends do not provide a measure of the extent to which Ceasefire has driven these trends. In the sections that follow, we look specifically at Detroit Ceasefire and estimate the impact of Ceasefire on community levels of violence and then at the individual level. Prior research suggests that the Ceasefire focused deterrence model can lead to reduced violence at the community or neighborhood level (Braga, Weisburd, & Turchan, 2018) but much less is known about the impact of Ceasefire at the individual level.

## COMMUNITY LEVEL IMPACT

### Evaluation Outcomes

Because the Ceasefire intervention eventually encompassed a large portion of the city of Detroit (notably its East and West-side neighborhoods, as well as other areas within the city) we were presented with a number of possible outcomes to evaluate, with several plausible “start dates” for the Ceasefire intervention. Given that all of these possible outcomes could not be examined, we chose ones which were most salient for Ceasefire. The primary crime outcomes we chose to examine were:

1. Fatal and Non-Fatal shooting victims (all victims)
2. Fatal and Non-fatal shooting victims (victims aged 15-24)

This choice reflected the anticipated outcomes of the Ceasefire program. First, the program was targeted specifically at young, group and gang-involved offenders<sup>2</sup>. Disproportionately young individuals in this age cohort were the subject of police attention and also predominately the target of Ceasefire “call-in” meetings. Therefore, this outcome focused on the anticipated decrease in shootings among this targeted group. We also chose to evaluate victims of all age categories as well. While the Ceasefire program was targeted primarily at young offenders, other gun-involved offenders were also the subject of focused deterrence. In addition, because young offenders contribute disproportionately to overall gun violence, we would expect that focused activity against them would have an impact on *overall* gun violence within the targeted precincts.

The data we utilized for this evaluation were provided to MSU researchers by the Detroit Police Department. These data comprised detailed notes and statistics about each fatal and non-fatal shooting incident from 2011 to 2018. Included in this data was the time, date, and location of each shooting as well as information about the suspect and victim(s). Victim information was

<sup>2</sup> The focus on youth aged 15-24 is consistent with the objectives of the original “Boston Gun Project”, as well as definitions from OJJDP (see: [https://www.ojjdp.gov/newsletter/251487/sf\\_4.html](https://www.ojjdp.gov/newsletter/251487/sf_4.html)).

present in the majority of incidents, and included age, race, sex, as well as other supplementary information. One significant issue with the evaluation of Ceasefire was the staggered implementation of the program, as well as changes in the leadership structure, meeting format, and intensity and fidelity to the core Ceasefire principles. In addition, Ceasefire was eventually implemented in three other police precincts on the West side of Detroit in mid-2016. To accommodate this, our analyses considered three separate intervention dates:

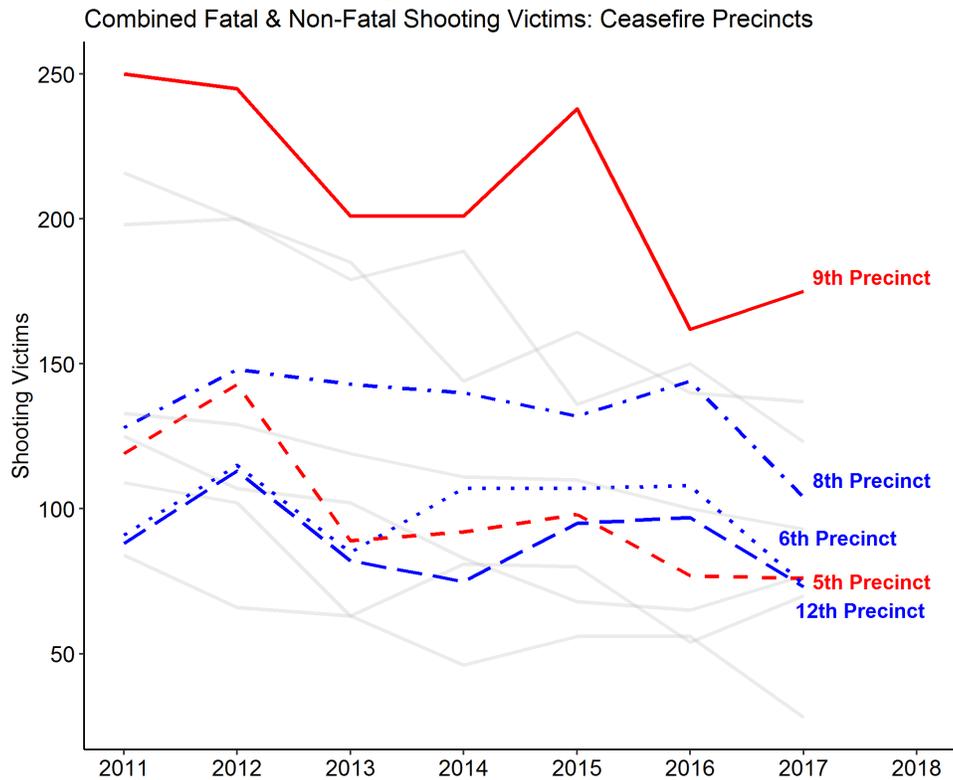
1. **August 29, 2013.** This was the initial call-in which began Ceasefire in Detroit. It focused on offenders in the 5<sup>th</sup> and 9<sup>th</sup> precincts.
2. **August 27, 2015.** This date reflected the first call-in after a substantial reorganization of the Ceasefire program. It was the first call-in under new leadership and included a new project management team supported by the Mayor's office, as well as increased support from DPD.
3. **June, 16, 2016.** This reflected the first call-in meeting for Ceasefire's implementation on the city's West side, which included the 6<sup>th</sup>, 8<sup>th</sup>, and 12<sup>th</sup> precincts.

The decision to consider three separate evaluation dates reflects the complexities of implementing Ceasefire throughout the city. This recognizes that program fidelity varied considerably from the beginning of the program in 2013, through the 2015 reorganization and the full implementation period from 2016 forward. In addition, implementation varied between the East side and West side precincts, given the amount of time each precinct had with the program. Therefore, rather than choosing a single arbitrary start date, we have attempted to consider as many relevant start dates as possible. This also allows the consideration of the sensitivity of our results to the choice of the intervention start date.

### **Trends in Non-Fatal and Fatal Shooting Victimization**

In order to determine the effect that Ceasefire had on non-fatal and fatal shooting victimization in Detroit, we first examined the trends in victimization throughout the city from 2011 through 2018. Figure 6 shows the change in annual combined fatal and non-fatal shooting victimizations for each police precinct. As seen in Figure 6, the 9<sup>th</sup> precinct comprised the largest number of shooting victims, and also saw the largest decrease during 2016 and 2017. Similarly, the 8<sup>th</sup> precinct observed a modest decrease in shootings during 2016 and 2017. Consistent with citywide trends discussed above, Figure 6 provides baseline support for Ceasefire's impact on violent crime.

**Figure 6: Fatal and Non-Fatal Shooting Victimization (2011 – 2017)**



Figures 7 and 8 show the number of combined fatal and non-fatal shootings by police precinct and by age group. Examining these plots, it is evident that the 9<sup>th</sup> precinct was responsible for the largest numbers of victimizations. Indeed, the number of victimizations increased precipitously in 2015, especially among those aged 15-24 and 35-44. Among the West side precincts (6<sup>th</sup>, 8<sup>th</sup>, and 12<sup>th</sup>) the change in victimizations were relatively stable. However, the 8<sup>th</sup> precinct observed modest increases in victimizations among those aged 25-34. On average, the number of non-fatal shooting victimizations in 6<sup>th</sup>, 8<sup>th</sup> and 12<sup>th</sup> precincts were lower than in the 5<sup>th</sup> and 9<sup>th</sup> precincts.

### Figure 7: Fatal and Non-fatal Shooting Victimization Precinct 5 and 9

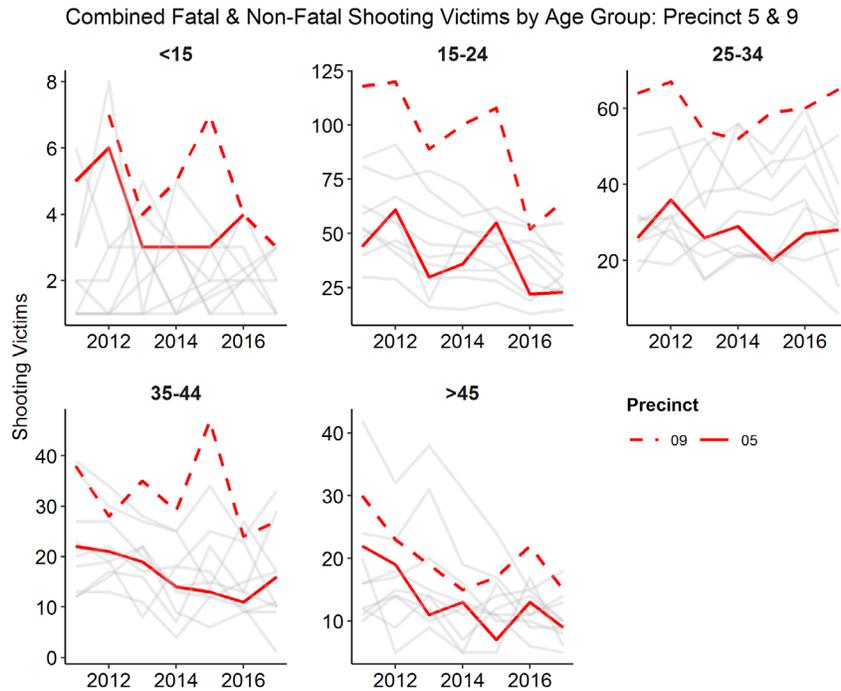


Figure 7 shows the annual change in combined fatal and non-fatal shooting victimization by police precinct and by age group. Highlighted in red are the first two Ceasefire precincts (5<sup>th</sup> and 9<sup>th</sup>) which began the program in late 2013. Lines in grey represent all other police precincts.

### Figure 8: Fatal and Non-fatal Shooting Victimization Precinct 6, 8, and 12

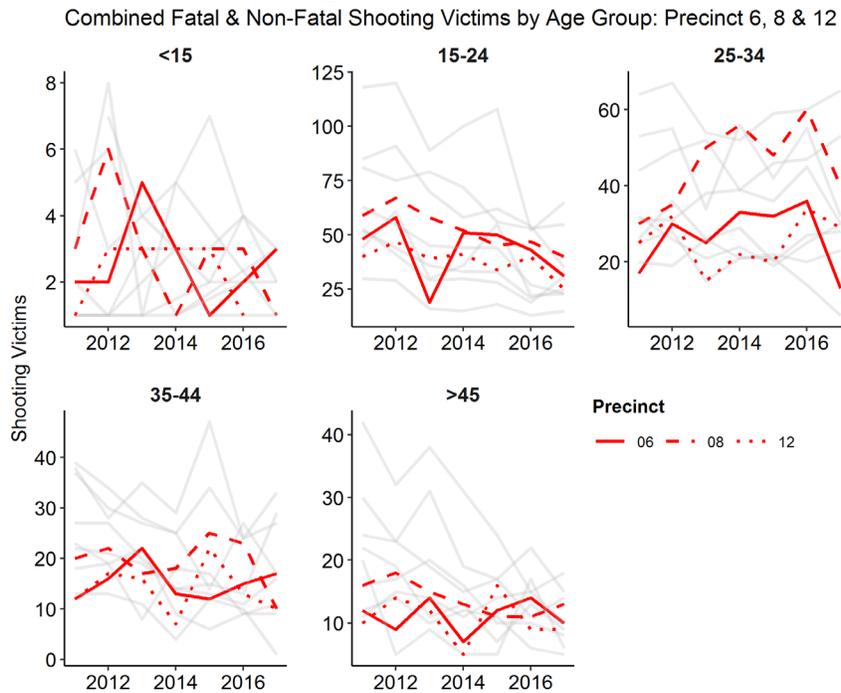


Figure 8 shows the annual change in combined fatal and non-fatal shooting victimization by police precinct and by age group. Highlighted in red are the West side precincts (the 6<sup>th</sup>, 8<sup>th</sup>, and 12<sup>th</sup>) which began the program in 2016. Lines in grey represent all other police precincts.

## Evaluation Strategy

An evaluation of the Ceasefire program presents some challenges due to the method in which it was carried out. First, because the intervention was not randomized (i.e. the precincts and targets were specifically chosen due to their involvement in violent crime) a quasi-experimental design was needed in order to account for possible selection biases. In particular, this evaluation needed to account for the fact that the precincts which had been chosen for Ceasefire were likely substantially different than other parts of the city. Specifically, the 5<sup>th</sup> and 9<sup>th</sup> precincts had among the highest number of fatal and non-fatal shootings throughout the entire city. Therefore, in order to estimate the impact of Ceasefire, we chose to utilize a synthetic control design to estimate *what would have happened* in the absence of the Ceasefire intervention.

A synthetic control design utilizes information about places or people which were not affected by an intervention to generate a plausible estimate of what might have occurred absent some intervention. In this case we used information about fatal and non-fatal shootings in other parts of the city which were not part of any Ceasefire intervention. This included the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 7<sup>th</sup>, 10<sup>th</sup>, and 11<sup>th</sup> precincts. Using a synthetic control design, we were able to construct a counterfactual estimate for each of the three separate intervention dates using information about these non-Ceasefire precincts. The program we used to construct the counterfactual estimates was the ‘gsynth’ package available in the R statistical package (Xu, 2017). The gsynth package utilizes information about observations which were not exposed to an intervention prior to the intervention taking place. It then constructs a weighted average of these comparison observations to match, as closely as possible, the behavior of the treated observations. By utilizing information about the treated observation before the intervention took place, the program is able to generate a counterfactual benchmark to compare the observed outcomes against. Uncertainty in the estimates are generated using a parametric bootstrap procedure to estimate standard errors, 95% confidence intervals, and corresponding “p-values” (Xu, 2017).

For this study we estimated weights using the number of quarterly non-fatal and fatal shootings for each police precinct, as well as data about the quarterly aggravated assaults and robberies using an additive model. We estimated separate models with intervention dates corresponding to the quarter in which they occurred (Q3, 2013, Q3, 2015, Q2, 2016). We then estimated models for each of the two relevant age categories (victims aged 15-24, and all victims). The discussion of these models and results are documented below.

## Effect of Ceasefire on Non-fatal and Fatal Shooting Victimization

### *Ceasefire East Side All Victims*

Figures 9 and 10 show the results from the synthetic control model for the East side Ceasefire precincts (precincts 5 and 9). Figure 9 shows the estimated effect assuming an intervention start date of Q3 2013, which corresponds to the historical start of Ceasefire in Detroit. Figure 10 shows the estimated effect assuming an intervention date of Q3 2015, which reflects the substantial reorganization of the Ceasefire program. In general, both models estimated that Ceasefire had an overall *negative* effect on fatal and non-fatal shooting victimization in the 5<sup>th</sup> and 9<sup>th</sup> precincts – that is, the models suggest that the Ceasefire interventions likely reduced fatal and non-fatal shooting victimization among all age categories.

**Figure 9: Estimated Effect of Ceasefire Precincts 5 and 9, Intervention Date Q3 2013 (All Victims)**

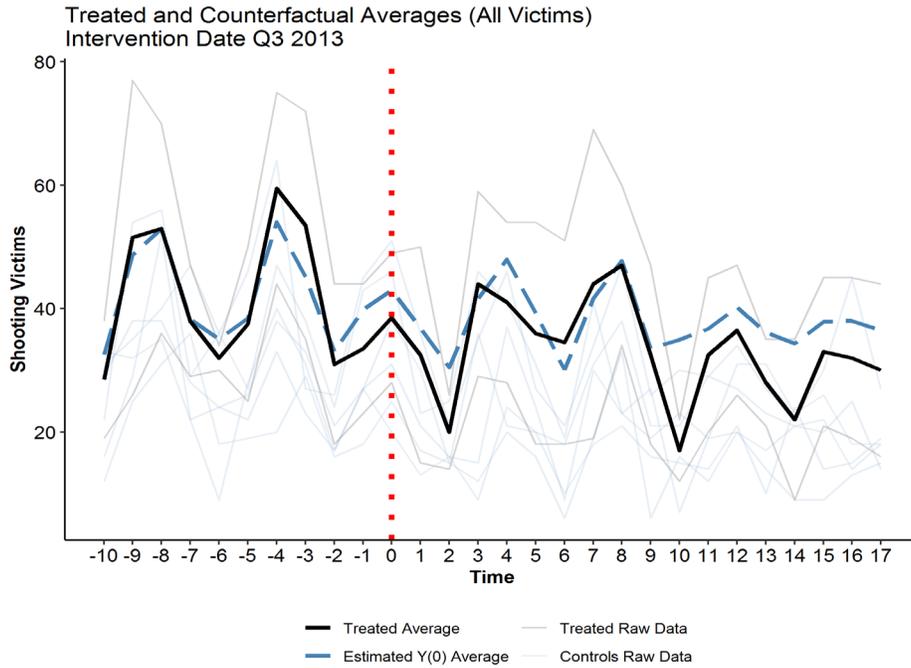


Figure 9 shows the quarterly number of fatal and non-fatal shooting victims (in black) compared to the counterfactual estimate (in blue). Time is indexed by quarter, relative to the intervention date (time = 0). The gray lines represent the raw observed data for all police precincts.

**Figure 10: Estimated Effect of Ceasefire Precincts 5 and 9, Intervention Date Q3 2015 (All Victims)**

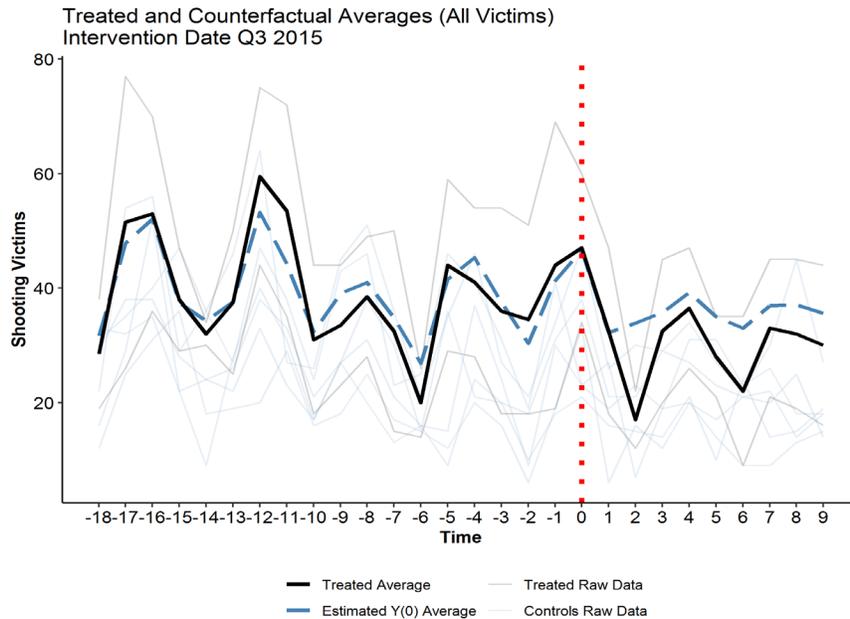


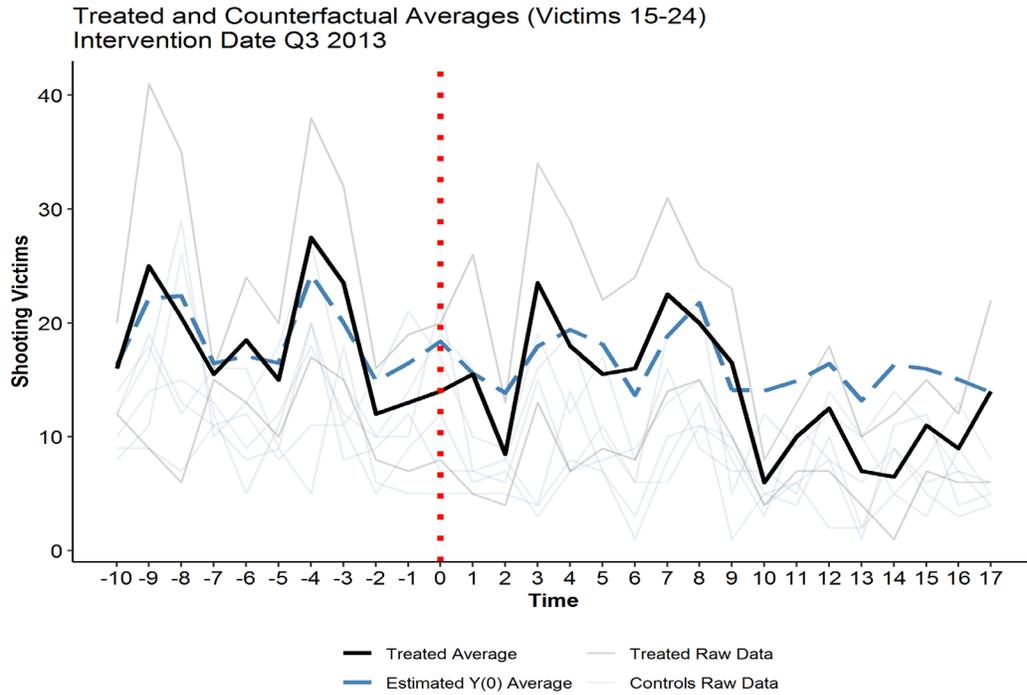
Figure 10 shows the quarterly number of fatal and non-fatal shooting victims (in black) compared to the counterfactual estimate (in blue). Time is indexed by quarter, relative to the intervention date (time = 0). The gray lines represent the raw observed data for all police precincts.

Assuming an intervention start date of Q3, 2013 the model estimated that Ceasefire was responsible for a decrease of approximately 4.7 (95% CI: -8.4, -1.4) fatal and non-fatal victimizations per-quarter, reflecting an overall 13% decrease. Constraining the analysis to the time following the restructuring of Ceasefire in Q3, 2015, the model estimated that Ceasefire was responsible for a decrease of approximately 5.5 (95% CI: -9.1, -1.7) fatal and non-fatal victimizations per-quarter, reflecting an overall 14% decrease. As shown in Figures 9 and 10, there was not a substantial difference observed between the synthetic control and the Ceasefire Precincts until mid-2015. The estimates from the model showed that the majority of the decreases occurred following the Ceasefire restructuring in Q3, 2015.

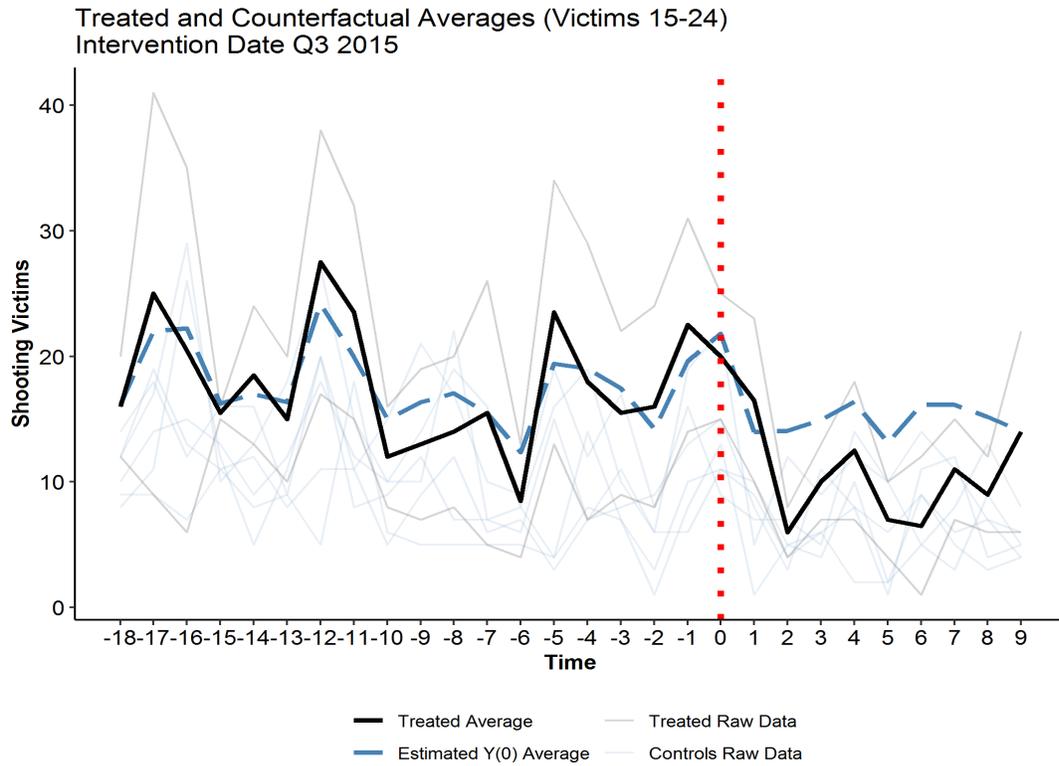
#### *Ceasefire East Side Victims 15 - 24*

While Ceasefire operated in some fashion as a general approach to gun violence, the primary focus of the program was on group and gang-involved youth between the ages of 15 and 24. This age group recognizes the disproportionate offending and victimization experienced by these individuals. Therefore, we chose to evaluate Ceasefire's effect on victimization among this highly specific group as well. We performed the same analysis as above, but constrained the outcome data to fatal and non-fatal victimizations among those aged 15-24. As before we considered two separate start dates corresponding to the historical start of Ceasefire in Q3 2013 and the reorganization in Q3 2015. Figures 11 and 12 show the differences between the synthetic control model and the East-side Ceasefire precincts. Consistent with the evaluation model considering all victimizations, Ceasefire was likely responsible for a significant decrease in fatal and non-fatal victimizations. Assuming an intervention date of Q3 2013, Ceasefire was responsible for about 2.5 (95% CI: -4.1, -0.95) fewer victimizations per-quarter which represented a decrease of about 15%. With an intervention start date of Q3, 2015 the estimates were more optimistic, suggesting that Ceasefire decreased victimizations by about 4.3 (95% CI: -6.5, -2.0) per-quarter, equaling a 22% decrease.

**Figure 11: Estimated Effect of Ceasefire Precincts 5 and 9, Intervention Date Q3 2013 (Victims 15-24)**



**Figure 12: Estimated Effect of Ceasefire Precincts 5 and 9, Intervention Date Q3 2015 (Victims 15-24)**



*Evaluating Ceasefire East Side*

On average, all four models indicated that the East-side Ceasefire intervention was responsible for a significant decrease in fatal and non-fatal shooting victimization (see Table 5). The most optimistic estimates indicated that the Q3 2015 Ceasefire intervention could have decreased victimization among those aged 15-24 by -22%. The other models, which considered earlier intervention start dates and included *all* victims (which were not necessarily the primary target of Ceasefire), still indicated the Ceasefire could have decreased victimization by between -13% and -15%. Combined with the visual analysis of victimization trends (see Figures 6 and 7) this analysis provides robust support that the implementation of Ceasefire on the East side of Detroit was largely successful in its goals. However, as the models showed, much of this decrease was likely attributed to substantial decreases in victimization between late 2015 and 2017, whereas little change was seen immediately after the first Ceasefire call-in meeting in Q3 2013. This likely reflects the Detroit Ceasefire project working through the implementation stages described above.

**Table 5: Model Estimates, Ceasefire East Side**

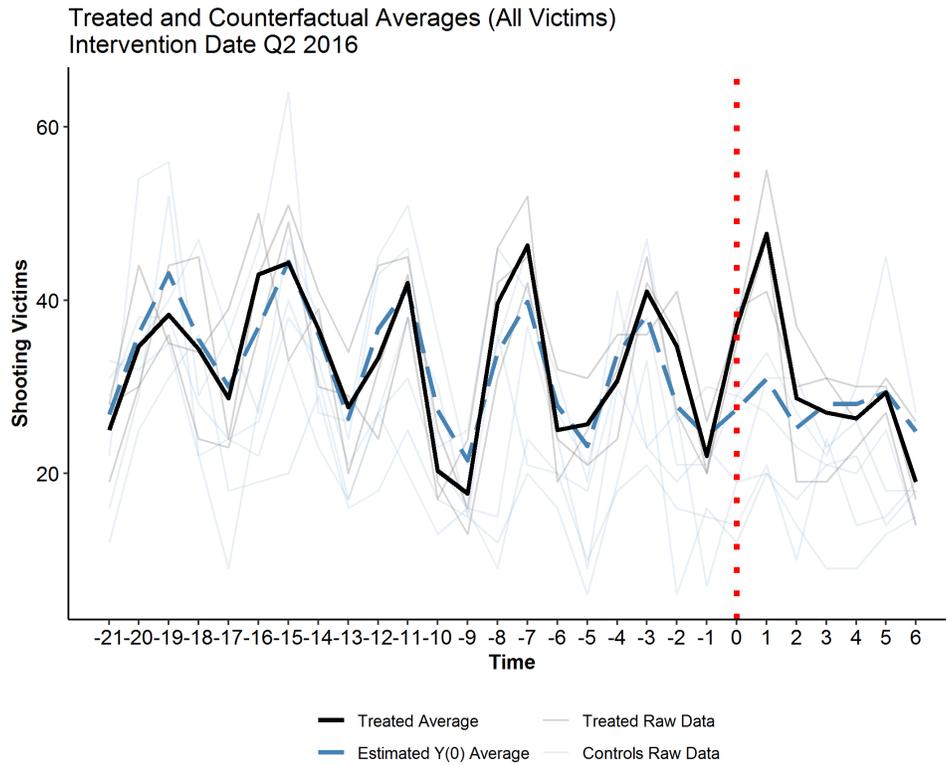
Age Group	Time & Region	Relative Effect	Absolute Effect	Standard Error	95 % CI	
All Ages	East Side, Q3 2013	-14%	-4.76**	1.80	-8.37	-1.41
All Ages	East Side, Q3 2015	-13%	-5.48**	1.91	-9.12	-1.73
15-24	East Side, Q3 2013	-15%	-2.52**	0.83	-4.11	-0.95
15-24	East Side, Q3 2015	-22%	-4.33***	1.18	-6.50	-2.02

\* p <.05; \*\* p < .01; \*\*\* p <.001

*Ceasefire West Side All Victims*

Figure 13 shows the estimated effect of Ceasefire for the West side, assuming an intervention start date of Q2, 2016 (corresponding to the first call-in meeting focusing on offenders in the 6<sup>th</sup>, 8<sup>th</sup>, and 12<sup>th</sup> precincts). The evaluation method used for the West-side was identical to the one utilized in the East side evaluation. Figure 13 shows the results from the synthetic control model for the West-side precincts. As shown in Figure 13, relative to the synthetic control there was a large increase in victimization two quarters following the initial Ceasefire call-in. This eventually decreased to levels relatively consistent with the synthetic control.

**Figure 13: Estimated Effect of Ceasefire Precincts 6, 8 and 12, Intervention Date Q2 2016 (All Victims)**

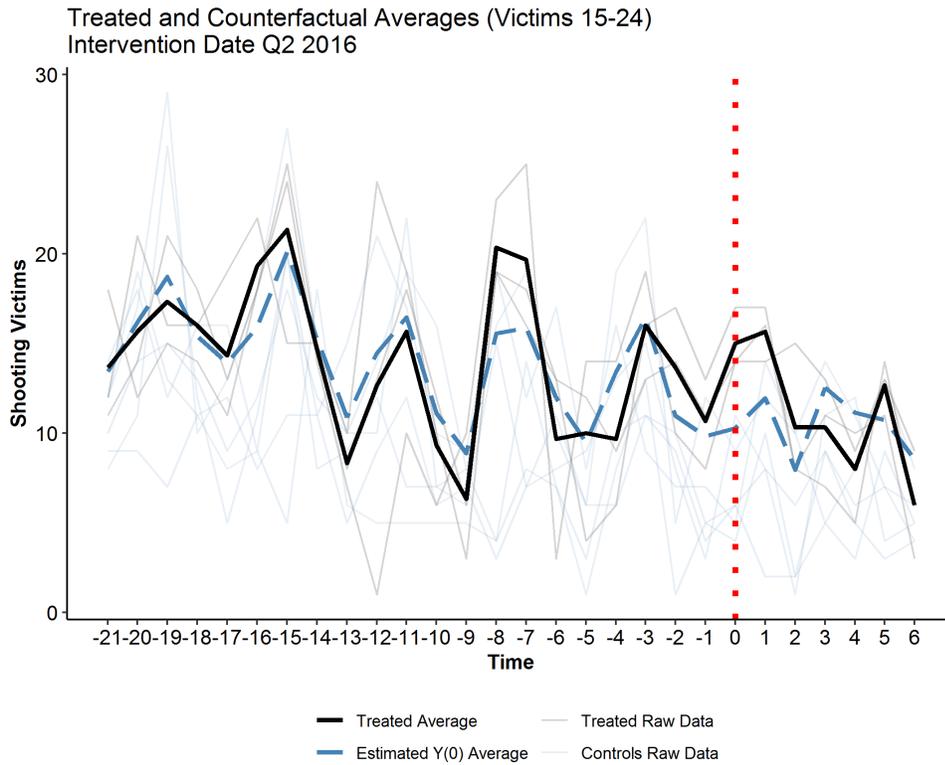


Compared to the synthetic control, the model estimated a relative *increase* in fatal and non-fatal victimization immediately following the intervention by approximately 3 victimizations per-quarter (95% CI: 0.03, 5.83), or an increase of about 11%. While the estimate suggested that there may have been an excess of violent victimizations attributable to the Ceasefire intervention on the West side, the 95% confidence intervals were wide and nearly included zero (the lower bounds of the estimate near 0.03 per-quarter). Therefore, this estimate suggests that the West side intervention may have had an inconsistent or slightly positive effect on victimizations.

#### *Ceasefire West Side Victims 15 – 24*

Evaluating the West side Ceasefire intervention focused on only victims aged 15 – 24 provided relatively similar results to the combined victimization models above (see Figure 14). On average, relative to the synthetic control, the model estimated an increase of victimization by about .7 (95% CI: -0.75, 2.03) per quarter or about 6%. However, this estimate was not significant by traditional thresholds and had a 95% confidence interval which could have plausibly been zero. Therefore, the results from this model generally suggest that the beginning of the Ceasefire intervention on the West side had relatively little effect on fatal and non-fatal victimization among those aged 15-24.

**Figure 14: Estimated Effect of Ceasefire Precincts 6, 8 and 12, Intervention Date Q2 2016 (Victims 15-24)**



*Evaluating Ceasefire West Side*

In contrast to the implementation of Ceasefire on the East side, the implementation of Ceasefire on the West side had a much more inconsistent effect on fatal and non-fatal victimization (see Table 6). There are several factors which complicate the evaluation of the West side Ceasefire. First, while victimization was generally decreasing among individuals aged 15-24 in the 3 precincts, victimization among those aged 25-34 was increasing a similar or higher rate. Therefore, much of the increase in victimization observed in 2016 (which was predominately observed in the 8<sup>th</sup> precinct) may have “washed-out” any benefits when examining victimization in the aggregate. However, even when evaluating the effect of victimization among the 15-24 age group, there was not a substantial difference relative to the synthetic control.

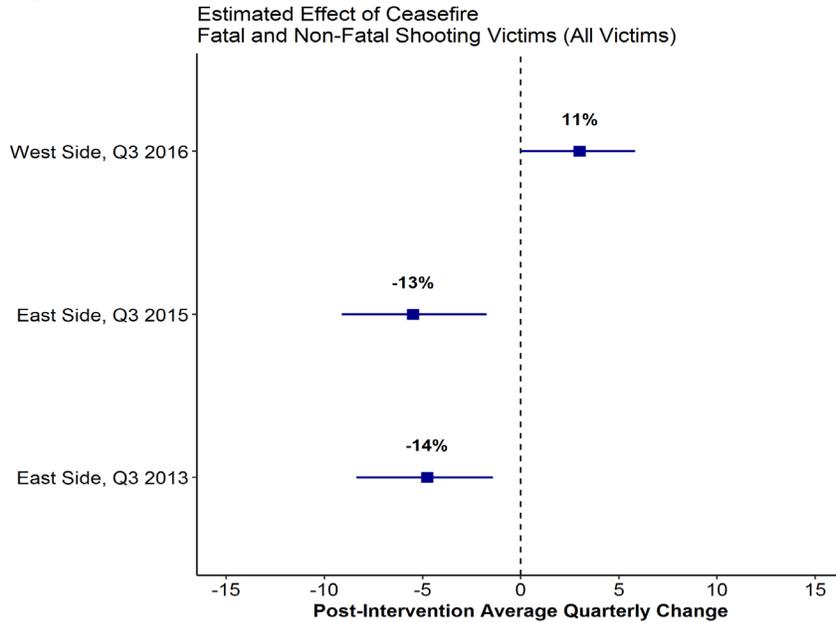
**Table 6: Model Estimates, Ceasefire West Side**

Age Group	Time & Region	Relative Effect	Absolute Effect	Standard Error	95 % CI	
All Ages	West Side, Q2 2015	11%	3.01*	1.48	0.03	5.83
15-24	West Side, Q2 2015	6%	.691	0.71	-.754	2.04

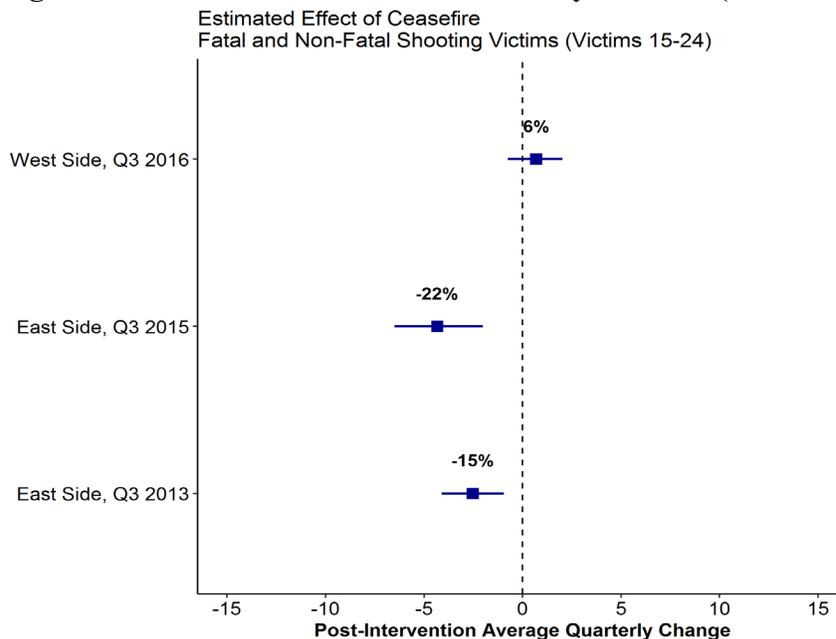
\* p <.05; \*\* p <.01; \*\*\* p <.001

Figures 15 and 16 summarize the overall findings. The data support the conclusion that Ceasefire had a clear impact in the desired direction in the 5<sup>th</sup> and 9<sup>th</sup> precincts. The West side results are more difficult to interpret. It is important to recall that it took two to three years of implementation in the East side precincts (5 and 9) before seeing declines in fatal and non-fatal shootings. Further, in order to observe consistent statistically significant declines, it takes a longer observation period to assess whether the declines are stable. This suggests caution in drawing conclusions about the trends in the West side precincts and that a longer observation period will allow more confidence in drawing conclusions.

**Figure 15: Estimated Effect of Ceasefire by Precinct (All Victims)**



**Figure 16: Estimated Effect of Ceasefire by Precinct (Victims 15-24)**



## **INDIVIDUAL LEVEL IMPACT**

### **Pre Call-In Descriptive Analysis**

Table 7 displays the basic summary statistics concerning the 315 Ceasefire call-in clients who were invited to call-in meetings between 8/29/13 and 12/1/16. While Ceasefire clients who were currently under correctional supervision were warned that they would face arrest if they did not attend the meeting, a modest proportion of individuals did not show. Of the 315 clients invited, 258 actually attended one of the call-in meetings. Attendance was lower at meetings earlier in the program, while call-ins in 2015 and 2016 saw a greater proportion of clients attending. This is likely due to improved communication with the Michigan Department of Corrections (MDOC), improved procedures for notifying clients, and follow-up with people who did not attend. On average, clients had been arrested about 6 times prior to attending a call-in meeting for any offense (excluding traffic offenses). This ‘all arrests’ category reflects the general level of contact an individual had with the criminal justice system prior to the call-in. A subset of the ‘all arrests’ category was calculated for specific crimes: violent crimes, property crimes, disorder crimes, and weapons offenses. Most clients had been arrested at least once for all of these categories, with fewer having been arrested for weapons offenses. After three years just under half (49%) of all call-in clients had been rearrested for at least one offense – however this varied between 33 percent and 67 percent by call-in cohorts (see Figure 17). The median time to arrest, post-call in was about 258 days, however this also varied between call-in cohorts by between 121 days and 454 days.

**Table 7: Ceasefire Call-In Cohort Descriptives (2013 - 2016)**

Call-in Date	Clients Invited	Clients Attended	Mean Age	Prior Arrest History (Mean)					Post Call-In	
				All	Violent	Property	Disorder	Weapon	Percent Arrested	Median Time
8/29/2013	34	16	23.9	5.3	1.3	1.2	1.3	0.4	44%	327
12/12/2013	14	13	23.5	5.7	0.9	0.8	1.7	0.5	46%	136
5/20/2014	15	9	24.7	4.4	0.4	1.7	1.0	0.1	22%	145
8/28/2014	19	15	24.5	5.6	0.8	1.0	1.8	0.5	53%	454
12/4/2014	17	14	26.1	4.7	0.6	1.1	1.0	0.7	57%	277
3/25/2015	20	17	24.2	5.9	1.1	1.1	1.5	0.4	59%	206
8/27/2015	16	16	25.3	5.6	0.8	0.9	1.5	0.4	50%	369
11/14/2015	24	24	23.5	6.3	1.0	1.4	1.5	0.4	63%	261
1/26/2016	23	19	25.3	6.8	0.7	1.3	2.3	0.4	47%	147
5/18/2016	28	24	25.0	5.0	0.8	1.1	1.0	0.6	46%	219
6/16/2016	26	22	24.6	6.5	0.6	1.3	1.3	0.4	45%	370
8/25/2016	27	21	24.1	5.5	0.8	1.0	1.3	0.5	57%	169
9/29/2016	26	22	24.5	5.8	1.5	0.8	1.5	0.5	36%	324
12/1/2016	26	26	25.4	5.5	0.5	1.2	1.0	0.5	54%	203
All	315	258	24.6	5.6	0.8	1.1	1.4	0.5	0.5	257.6

**Figure 17: Three Year Re-arrest Rates by Call-in Cohort (Any Arrest)**

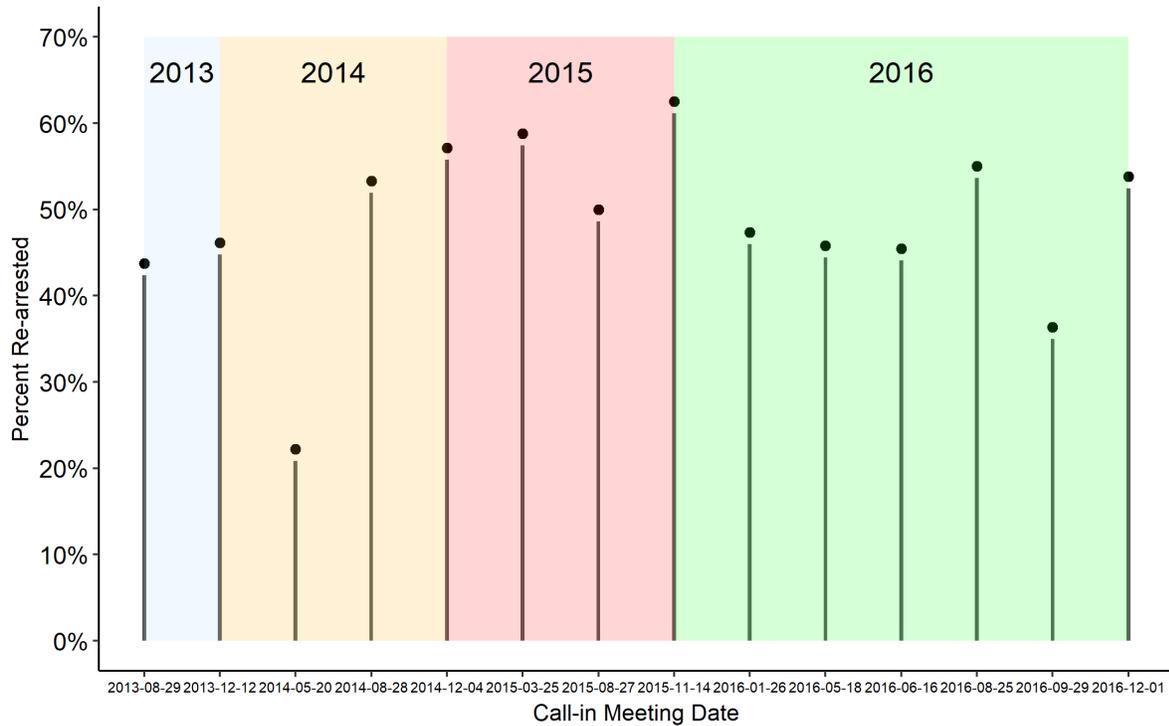


Figure 17 shows the percent of clients re-arrested for any non-traffic offense post-call-in, separated by call-in meeting. On average 50% of clients were rearrested after 3 years. Note, some clients of later call-ins had not yet been observed for the full three years.

### Analysis Strategy

The primary dependent variable, post call-in recidivism, was operationalized as any arrest following that individual’s call-in meeting. State-wide information on arrests was obtained from the Michigan State Police, which included information about all individuals’ prior criminal history up to 1/1/2018. For this analysis the three-year recidivism rates were calculated for three relevant categories: any arrests, violent crime arrests, and weapons arrests. Any arrest represented an arrest for *any* crime. Violent crimes included arrests for assaults (simple and aggravated), robbery, sexual assault, and homicide. Weapons offenses represented arrests for the illegal possession of a firearm. Furthermore, this analysis also considered the *cumulative* number of re-arrests post-call in, in contrast to estimates of time to *first* arrest.

A comparison group was generated by performing 1:1 Mahalanobis distance matching on the clients’ prior arrest history. The matching procedure was performed by minimizing the metric distance on all the covariates between call-in invitees and matched controls. Specific restrictions were placed on especially important variables – such as age, prior violent arrests, and prior weapon arrests. In these cases, the matches were constrained such that each control individual’s age was within at least 2 years of a treated individual, and their prior violent and weapon arrests were within 1 of a treated individual. Control individuals were drawn from a list of approximately 50,000 Detroit and Wayne County residents who had been under correctional supervision. Therefore, the comparison group comprised individuals who, at the time of each client’s call-in, were exactly the race, and sex, with a very similar age and prior arrest history. Table 8 shows the distribution of covariates for the call-in group and the matched control group. Residual differences in prior arrest history were controlled for in the regression models.

**Table 8: Distribution of Covariates – Call-in Clients vs. Matched Controls**

Group	Demographics			Prior Arrest History					
	Age	Black	Male	All	Violent	Property	Disorder	Drugs	Weapons
Matched Control	24.7	100%	100%	4.2	0.7	1	1.1	0.6	0.4
Call-in Clients	24.6	100%	100%	5.7	0.9	1.1	1.4	1	0.5

**Time to First Arrest**

Kaplan-Meier survival curves were calculated for each crime category, along with a Cox proportional odds regression in order to estimate the impact of the Ceasefire call-in on the time to arrest. Values were right censored when individuals were observed for the maximum study length (1096 days). Because matching was performed within call-in cohorts, this censoring was also equally applied to the matched controls. The minimum amount of time an individual was observed at censoring was 386 days, for the 12/1/16 call-in cohort. Figures 18, 19, and 20 on the following pages display the non-parametric Kaplan-Meier survival curves for each category with the associated 95 percent confidence intervals. Based on a visual assessment, the time to first arrest for any arrest, violent arrests, or weapons arrests were highly similar in the call-in group versus the matched control group. About 50 percent of call-in clients and matched controls were re-arrested for at least one offense after three years. Similarly, about 20 percent of call-in clients and matched controls were re-arrested for a violent offense after three years. About 10 percent of call-in clients and matched controls had been re-arrested for a weapons offense after 3 years.

Table 9 displays the results of the Cox proportional hazards regression predicting time to re-arrest following a call-in. These models estimate the effect that a call-in had on the time to re-arrest, controlling for the individual’s age and their prior arrest history. Consistent with the visual assessment, after controlling for age and prior arrest history, call-in clients were roughly equally likely to be re-arrested within three years for any offense, a violent offense, or a weapons offense compared to the matched controls. This suggests that individuals who attended a call-in were no more likely to be arrested or not arrested in the three years following the meeting compared to a highly-similar group of matched individuals.

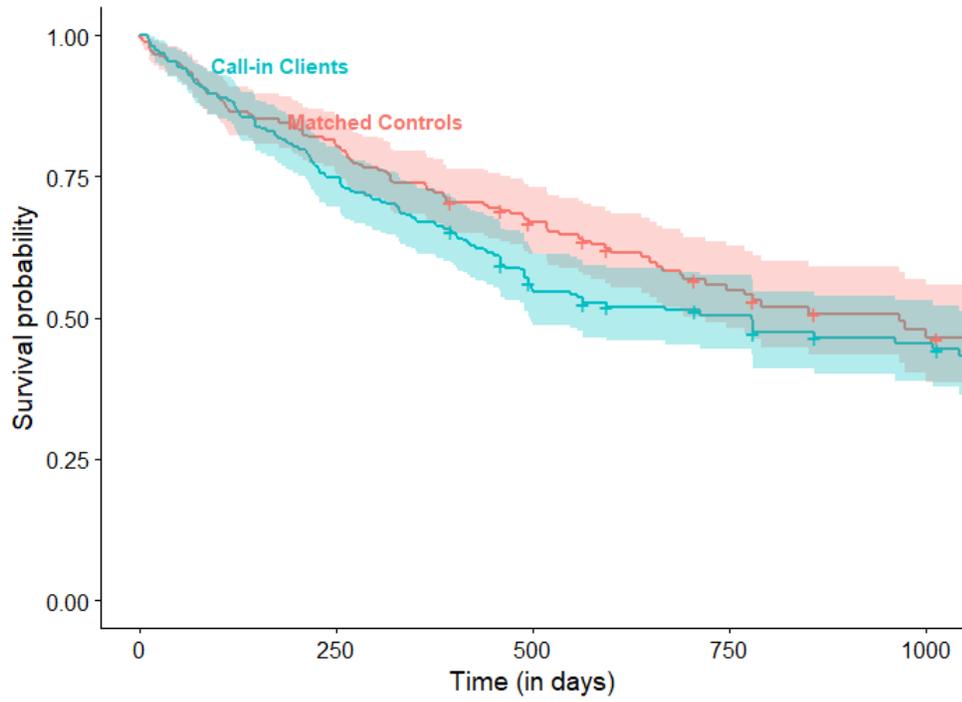
**Table 9: Cox Regression Predicting Re-Arrest Time**

	$\beta$	Error	95% CI	
<b><u>All Arrests</u></b>				
Call-in	-0.01	0.15	-0.30	0.28
log(Age)	-2.47***	0.51	-3.47	-1.48
Violent	0.02	0.07	-0.13	0.16
Property	0.12*	0.05	0.02	0.23
Disorder	0.13**	0.05	0.04	0.22
Drugs	0.11†	0.06	-0.01	0.23
Weapon	0.15	0.10	-0.05	0.35
<b><u>Violent Arrests</u></b>				
Call-in	-0.12	0.26	-0.64	0.39
log(Age)	-2.63**	0.97	-4.54	-0.72
Violent	0.18	0.12	-0.05	0.42
Property	0.07	0.11	-0.14	0.28
Disorder	0.03	0.10	-0.17	0.23
Drugs	-0.06	0.13	-0.31	0.19
Weapon	0.34*	0.17	0.01	0.67
<b><u>Weapons Arrests</u></b>				
Call-in	0.18	0.23	-0.62	0.97
log(Age)	-4.48***	0.78	-7.49	-1.47
Violent	0.19	0.12	-0.15	0.53
Property	-0.03	0.09	-0.34	0.28
Disorder	0.06	0.08	-0.20	0.33
Drugs	0.08	0.13	-0.25	0.40
Weapon	0.32	0.17	-0.14	0.78

\*  $p < .05$  \*\*  $p < .001$  \*\*\*  $p < .001$

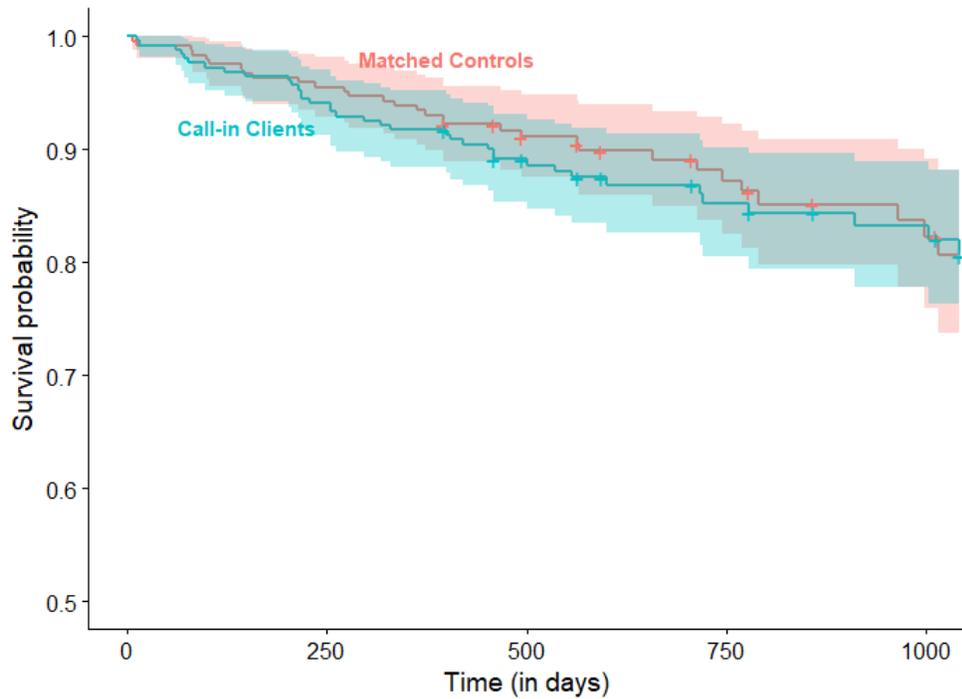
**Figure 18: All Arrests**

Three-Year Recidivism, Any Arrest

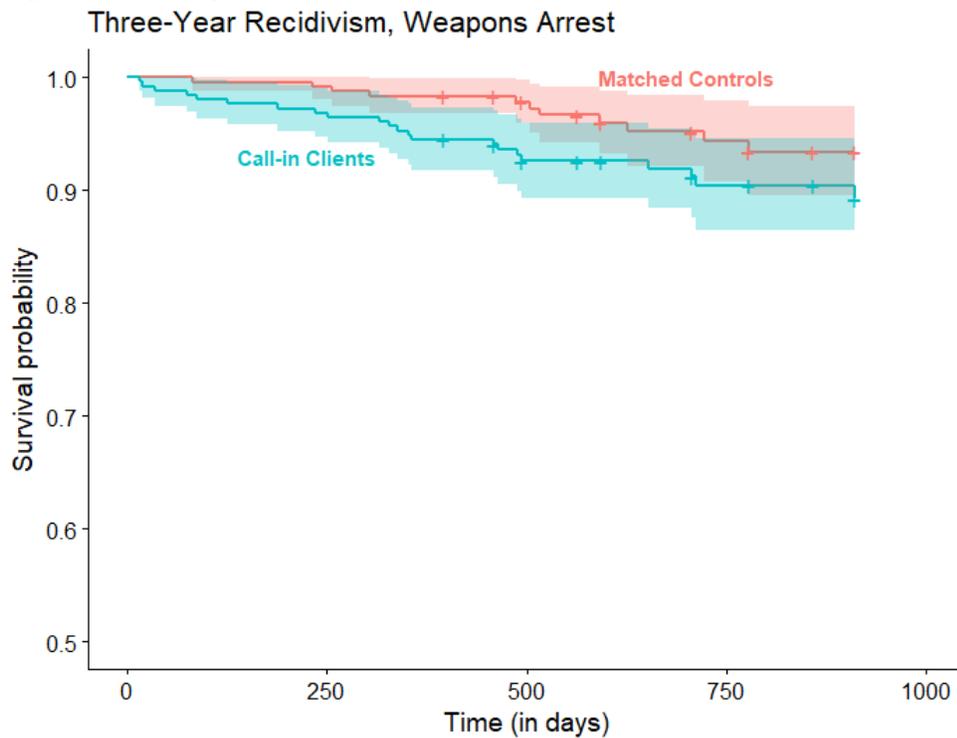


**Figure 19: Violent Arrests**

Three-Year Recidivism, Violent Arrest



**Figure 20: Weapons Arrests**



### Cumulative Number of Arrests

In contrast to the analysis which considered the time to *first* arrest following a call-in meeting, this analysis considered the *cumulative* number of arrests during the full three-year follow-up period. Because individuals may be arrested for minor offenses and then subsequently re-released, this analysis takes into account the full arrest history during the entire three-year period. Rather than using a Cox proportional hazards regression, which is used when the outcome variable is the time to an event, we utilize a hierarchical Poisson regression. A Poisson regression is useful when the outcome variable is represented as discrete counts. We use random intercepts for each call-in cohort, which allows the within-cohort variation to be appropriately partitioned. In addition, each cohort was weighted by the number of days “at-risk” by setting the observation time as the offset variable. This was estimated using a Bayesian methodology. Table 10 shows the results from the Poisson regressions estimating cumulative number of arrests post-call-in. Because this analysis was estimated using a Bayesian method, there are no p-values, rather interpretations of the estimates come from the size of the main effect and the variability in the credible intervals.

After controlling for age and prior arrest history, Ceasefire clients were estimated to have been arrested for about 23 percent fewer crimes (in any category) than the matched controls. Similarly, Ceasefire clients were arrested for 23 percent fewer violent crimes – however this estimate was substantially more variable and included 0 in the 95 percent credible interval. In contrast to these estimates, Ceasefire clients were arrested at twice the rate for weapons offenses compared to the matched controls.

**Table 10: Bayesian Hierarchical Poisson Regression Predicting Number of Post-Call-In Arrests**

	$\beta$	Error	95% CI	
<b><u>All Arrests</u></b>				
Intercept	-5.08	0.30	-5.54	-4.59
Call-in	-0.26	0.10	-0.42	-0.09
Age	-0.07	0.01	-0.09	-0.05
Violent	0.06	0.05	-0.01	0.14
Property	0.12	0.04	0.06	0.18
Disorder	0.06	0.03	0.01	0.11
Drugs	0.05	0.04	-0.02	0.13
Weapon	0.09	0.07	-0.03	0.20
SD Intercept	0.33	0.08	0.22	0.49
<b><u>Violent Arrests</u></b>				
Intercept	-6.51	0.72	-7.67	-5.34
Call-in	-0.26	0.20	-0.61	0.06
Age	-0.09	0.03	-0.14	-0.05
Violent	0.18	0.11	-0.01	0.36
Property	0.16	0.08	0.02	0.29
Disorder	-0.07	0.09	-0.22	0.08
Drugs	0.01	0.12	-0.19	0.21
Weapon	0.15	0.17	-0.12	0.41
SD Intercept	0.23	0.16	0.02	0.50
<b><u>Weapons Arrests</u></b>				
Intercept	-6.15	1.27	-8.26	-4.00
Call-in	0.69	0.38	0.10	1.33
Age	-0.17	0.06	-0.26	-0.08
Violent	0.13	0.15	-0.13	0.38
Property	-0.14	0.16	-0.40	0.12
Disorder	-0.01	0.12	-0.20	0.17
Drugs	0.12	0.15	-0.14	0.36
Weapon	0.25	0.21	-0.09	0.61
SD Intercept	0.79	0.74	0.06	2.25

**Summary and Conclusion**

The results here support two different but related conclusions. The time to first arrest post-call-in was no longer or shorter for Ceasefire clients versus the matched controls. This suggests individuals who attended the meetings were arrested for their first offense at roughly the same speed as individuals who had not attended. However, when considering the entire number of arrests during the three-year observation period, Ceasefire clients were arrested for about 23% *fewer* incidents than the matched controls. This effect included violent crimes as well – but it varied considerably more. In addition, Ceasefire clients were arrested for twice as many weapons offenses. It is possible that the additional scrutiny given to Ceasefire call-in clients partially explains this effect. For example, Ceasefire clients may experience probation or parole home visits when Ceasefire enforcement actions occur.

This study provides a mixed, but somewhat positive review of the effect of Ceasefire call-ins. While the meetings may have not affected the time to which individuals were arrested, it may have affected their offending *trajectory* by reducing the cumulative number of crimes committed. It is also possible that Ceasefire clients were punished more harshly after arrest, or less likely to receive bail. In this case, the additional incapacitation might account for the decrease in cumulative offending. However, this hypothesis was not examined for this portion of the study.

## DISCUSSION AND IMPLICATIONS

As noted above, Ceasefire is a strategy for reducing levels of gang and group violence that has received support in prior research. It is also a strategy that requires local, state, and federal coordination; continual identification of high-risk groups and individuals; enforcement follow-up; federal-local prosecution coordination and system tightening; outreach; service provision to high-risk populations; community partnerships, and more. The Detroit Police Department and its numerous Ceasefire partners have made a significant commitment to Ceasefire. The results of this evaluation suggest that the Ceasefire strategy has played a role in violence reduction over the last four to five years. This is evident in overall trends in Detroit, comparisons to national trends and other major Midwestern cities, and in the community level impact observed in the 5<sup>th</sup> and 9<sup>th</sup> precincts compared to non-Ceasefire areas of the city. It is also suggested by the finding that Ceasefire clients, had fewer cumulative overall arrests and violent crime arrests. This is notable given the fact that Ceasefire clients were selected for call-in meetings based on their connection to gang and group violence.

Thus, the findings suggest the need and value for continued implementation of Ceasefire. They also suggest the value in complementing Ceasefire with additional crime and violence reduction strategies. The weekly Ceasefire review of shooting incidents indicates that approximately 20 percent of shooting incidents are gang- or group-related (Group Member Incident). Even if this is a conservative estimate, it reflects a consistent finding that most of the shootings in Detroit are not Group Member Incidents. This suggests the need for complementing Ceasefire with strategies aimed at other factors driving shootings. Fortunately, Detroit has embraced and continues to develop a number of these approaches. Suggested strategies include:

- Strategies to increase the certainty of arrest and prosecution for non-fatal shootings, homicides, and illegal gun possession (e.g., Special Grand Jury; Crime Gun Intelligence Center and NIBIN; GUNSTAT; integrated surveillance technology)
- Place-based strategies to address the micro places associated with gun violence (e.g., Project Green Light Detroit; integrated and layered surveillance technology; code enforcement, blight removal, demolition)
- Combined people- and place-based strategies (targeted enforcement actions at hot spot locations; police-probation-parole collaboration)

There are also limitations and issues related to the evaluation that can be addressed through the continued partnership of the research partners with the Ceasefire team. Examples include:

- Even with the sophisticated matching procedures, Ceasefire clients are different than the comparison group. Specifically, Ceasefire clients are selected due to the gang and group connections. This is a known risk factor. The comparison group likely has fewer members with gang and group connections. In future research, we may be able to identify a subset of the comparison group that has group connections. This may provide a better test of the individual level impact of Ceasefire.
- Similarly, in future stages of the research we will consider the impact of participation in Ceasefire services as well as develop an assessment of receiving a custom notification.
- Future evaluation will continue to assess the impact in the West side precincts as well as in the 4<sup>th</sup> and 7<sup>th</sup> precincts.
- Future research will examine the criteria being used to “score” gun crime arrestees in the GUNSTAT program.
- Future research will also examine the nature of social networks involved in gun crime incidents with an eye toward identifying risk factors for being involved in future shootings.

As noted above, although there are lingering questions, overall the evidence suggests that Ceasefire has been an important factor in reducing violence in Detroit. Leveraging Ceasefire and related public safety strategies carries significant promise for continuing to reduce violence and victimization and enhancing public safety. When combined with related efforts, and progress, in economic and community revitalization, these efforts to enhance public safety in Detroit are both very promising and important to the city’s future.

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