

**Violent Crime Reduction Plan
Hot Spot Intervention Evaluation: Period 2**

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Executive Summary

This report is the second in a series of interim reports that will outline the implementation and impacts of the Dallas Police Department's Violent Crime Reduction Plan (Crime Plan) and its constituent components. The evidence-based plan, including a near-term hot spots strategy, was developed in collaboration with criminologists from the University of Texas at San Antonio (UTSA) who have been providing programmatic and analytic support to the DPD since the plan got underway in early May 2021. The results from the initial DPD hot spots intervention (Period 1) were detailed in a previous report. This evaluation covers Period 2 of the hot spots intervention, which began September 1, 2021 and spans an approximate 90-day period through November 29, 2021. This report also describes the impact of the hot spots strategy from its inception in early May 2021 through the end of 2021. The final section of this report provides year-to-year crime comparisons, which are useful for comparing crime trends in 2021 when the Crime Plan began to previous years.

Methodology

As outlined in the Crime Plan, the UTSA research team analyzes the geographical occurrence of violent street crime (murder, robbery, aggravated assault) in Dallas every 90 days to identify violent crime hot spots in the City where police resources should be focused. Prior analyses revealed that a very small proportion of grids (approximately .05%) account for almost 10% of violent street crime in Dallas, and it is these $n \approx 50$ grids that are identified and targeted every 90 days based on crimes reported to the DPD in the previous 90 days. For the purposes of this evaluation, a "violent crime" is defined as any reported *incident* involving a murder/non-negligent manslaughter, robbery, or aggravated assault (not including family violence-related aggravated assaults) with at least one victim. Incidents with multiple offenses (e.g. a murder and a robbery) or multiple victims (three individuals assaulted) were counted as a single incident for the purposes of identifying hot spots and in the analyses reported below, unless otherwise noted.

Based on UTSA's analysis and available DPD resources, the DPD targeted a new set of 51 grids for treatment in Period 2 (Sep-Nov 2021) under the hot spots strategy. The strategy involves two different treatments. Twenty-seven grids received a high visibility treatment that involved placing patrol cars in grids with their emergency lights illuminated during peak crime times and days of the week. Twenty-four grids received an offender-focused treatment that involved targeting repeat and high-risk violent offenders by specialized, Division-based Crime Response Teams (CRTs).

To check for possible crime displacement or diffusion of treatment benefits, catchment areas were defined surrounding all treated grids. Catchment areas extend three grids outward in every direction from the treatment grids. In some areas, catchment areas overlap, and in a few areas the catchment area for a treatment grid contained another treated grid.

The results reported below detail the impact of the hot spots strategy (1) during intervention Period 2 (Sep-Nov 2021), (2) since the inception of the hot spots strategy and through the end of the calendar year (May-Dec 2021), and (3) on crime city-wide in 2021 compared to previous years.

Period 2 Treatment Evaluation (Sep-Nov 2021)

The Period 2 hot spots evaluation examined changes in violent crime, arrests, and calls for service during the second hot spots intervention period (Sep-Nov 2021) compared to the three months leading up to the intervention (Jun-Aug 2021). Compared to the pre-intervention period, violent crime *decreased* 13.7% city-wide and 52.8% in the treatment grids during Period 2, and similar crime reductions were seen across both treatment types. In most DPD divisions, crime displacement was not observed in the catchment areas surrounding the treatment grids, although three of the divisions showed some evidence of displacement. Subsequent analyses are underway to identify possible causes for the displacement in these three divisions when the other four divisions saw an associated crime reduction in the catchment areas. These crime reduction benefits observed city-wide and within the Period 2 treatment grids did not come at the cost of increased arrests. In fact, arrests were down 11.3% city-wide and almost 53% in the treatment grids during the Period 2 intervention. Only warrant-related arrests were up, and then only in the treatment grids, which was expected given the focus of the strategy on repeat offenders and those with outstanding warrants. Finally, violence-related calls for service were down 15.2% in the treatment grids and up slightly city-wide, which may portend an increased willingness by the public to report violent crime as the community members see evidence of reduced levels of violence across the city and particularly within the treated areas.

Hot Spot Intervention to Date – Periods 1 & 2 (May-Dec 2021)

In this section of the report, we began our analysis by examining the “fidelity” of the treatment plan, or the extent to which the DPD deployed officers to the designated high visibility treatment grids during the appropriate days and times as identified by the hot spots analysis. Our analysis of DPD computer-aided dispatch (CAD) data revealed that officers marked out in the treatment grids during 60-70% of the expected days and times, which leaves some room for improvement in the fidelity of the high visibility treatment. While the overall results of the strategy are robust and suggest strong crime suppressive effects in and around the hot spots, and even city-wide, DPD is putting in place new tracking methods to improve alignment between future hot spot deployment schedules and actual treatment delivery in the field.

From a violent crime perspective, crime was cut approximately in half in the treated hot spot grids during the Period 1(May-Aug) and Period 2 (Sep-Dec) interventions. Note that in this section of the report below, the period interventions were extended by one month each because the DPD continued to treat the same grids in the fourth month following each 90-day intervention period while new grids were being identified and impacts assessed. In the Period 1 grids (May-Aug),

crime remained suppressed even after treatment ceased and remained at lower post-intervention levels for the next four months. In the catchment areas, crime increased by about 25% during the Period 1 intervention and decreased by about 10% in Period 2. Thus, Period 1 showed some evidence of crime displacement, which was largely driven by three divisions, while Period 2 showed an average reduction in catchment area crime, also with some variation by division.

Part 1 arrests declined substantially, and in proportion to observed crime reductions, in the treatment hot spots during both intervention periods, but rose again in the Period 1 grids in the four months after treatment ended. Future analyses will explore longitudinal arrest patterns in the Period 2 grids once treatment was removed. At the same time that Part 1 arrests declined in the treated areas, warrant-based arrests increased by 27% and 42% respectively during Period 1 and Period 2. These increases were expected given the focus on repeat offenders and clearing outstanding warrants in the hot spots. Finally, violence-related calls for service decreased 14% in the Period 1 treatment grids and 10% in the Period 2 grids. Calls remained at lower than pre-intervention levels in the Period 1 grids four months after treatment ended, although they began rising slowly again during those months.

Year-to-Year Comparison (2019-2021)

This section of the report examined city-wide changes in reported violent crime incidents and victims from 2019 to 2021. Violent incidents and the number of violent crime victims fell more than 14% in 2021 compared to 2020 and even more (about 18%) compared to 2019. The drop in violent crime recorded in 2021 compared to the previous year largely coincided with implementation of the Crime Plan in May 2021, and the gap continued to widen throughout the remainder of 2021 as the hot spots interventions took place. Reductions were seen in 2021 across all violent street crime types – murder, robbery, and non-family violence aggravated assault – with large reductions seen in robberies and a smaller but still significant reduction of 12% in murders during 2021 compared to 2020.

Background

In early May 2021, the Dallas Police Department presented to the Public Safety Committee of the Dallas City Council a strategic plan to reduce violent crime in the city. The plan outlined near, mid, and long-term strategies to reverse the rising trend of violence in Dallas and lower the number of victims of violent crime. The near-term approach involved implementation of a hot spots policing strategy to increase police visibility in micro-locations characterized by high levels of violent street crime and to target repeat violent offenders in those locations. The evidence-based plan, including the hot spots strategy, was developed in collaboration with criminologists from the University of Texas at San Antonio who have been providing programmatic and analytic support to the DPD as the plan got underway in early May.

This report is the second in a series of interim reports that will outline the implementation and impacts of the overall Violent Crime Reduction Plan (Crime Plan) and its constituent components. The results from the initial DPD hot spots intervention (Period 1) were detailed in a previous report. This evaluation covers Period 2 of the hot spots intervention, which began September 1, 2021 and spans an approximate 90-day period through November 29, 2021. This report also describes the impact of the hot spots strategy from its inception in early May 2021 through the end of 2021. The final section of this report provides year-to-year crime comparisons, which are useful for comparing crime trends in 2021 when the Crime Plan began to previous years.

Methodology

As outlined in the Crime Plan, the UTSA research team analyzes the geographical occurrence of violent street crime (murder, robbery, aggravated assault) in Dallas every 90 days to identify violent crime hot spots in the City where police resources should be focused. Utilizing an existing Dallas map layer of 330'x 330' grids, the UTSA team, working with DPD crime analysts and managers, identified a subset of grids that accounted for a disproportionate amount of violent crime in the previous 90-day period. Prior analyses revealed that a very small proportion of grids (approximately .05%) account for almost 10% of violent street crime in Dallas, and it is these $n \approx 50$ grids that are identified and targeted every 90 days based on crimes reported to the DPD in the previous 90 days. For the purposes of this evaluation, a “violent crime” is defined as any reported *incident* involving a murder/non-negligent manslaughter, robbery, or aggravated assault (not including family violence-related aggravated assaults) with at least one victim. Incidents with multiple offenses (e.g. a murder and a robbery) or multiple victims (three individuals assaulted) were counted as a single incident for the purposes of identifying hot spots and in the analyses reported below, unless otherwise noted.

Based on UTSA’s analysis and available DPD resources, the DPD targeted a new set of 51 grids for treatment in Period 2 (Sep-Nov 2021) under the hot spots strategy. The strategy involves two

different treatments. Twenty-seven grids received a high visibility treatment that involved placing patrol cars in grids with their emergency lights illuminated during peak crime times and days of the week. Twenty-four grids received an offender-focused treatment that involved targeting repeat and high-risk violent offenders by specialized, Division-based Crime Response Teams (CRTs).

To check for possible crime displacement or diffusion of treatment benefits, catchment areas were defined surrounding all treated grids. Catchment areas extend three grids outward in every direction from the treatment grids. In some areas, catchment areas overlap, and in a few areas the catchment area for a treatment grid contained another treated grid.

The results reported below detail the impact of the hot spots strategy (1) during intervention Period 2 (Sep-Nov 2021), (2) since the inception of the hot spots strategy and through the end of the calendar year (May-Dec 2021), and (3) on crime city-wide in 2021 compared to previous years.

Period 2 Treatment Evaluation (Sep-Nov 2021)

As noted above, the Period 2 hot spots analysis ran from September 1 through November 29, 2021 and involved a new set of grids (n=51) identified at the conclusion of Period 1. Collectively, these 51 grids represented those with the highest number of reported violent crime incidents in the city over the previous three months and together accounted for approximately 10% of all reported violent crime incidents city-wide.

Violent Crime

Table 1 and Figure 1 below summarize the change in violent crime during the Period 2 intervention (Sep-Nov) compared to the previous three months (Jun-Aug). The pre-intervention and intervention periods each consist of 13 weeks. As shown in Table 1, the average weekly number of reported violent crimes decreased by 13.7% city-wide after the Period 2 hot spots strategy went into effect. We also measured change in the 51 treatment grids, the catchment areas immediately surrounding the treated grids, and in the grids outside of the treatment and catchment areas. *Importantly, reported weekly violent crime averages decreased by more than half (-52.8%) in the treated grids after the hot spots intervention, while weekly averages outside the treatment and catchment areas decreased by 11.9%. Crime in the catchment grids decreased 1.2%, suggesting that the Period 2 intervention did not, on average, result in the displacement of crime to the areas immediately surrounding the treated grids.*¹ Finally, as shown in Figure 1 below, we measured pre- and post-intervention change in Period 2 hot spots by crime type. Large reductions can be seen in all violent street crimes measured, including murder, robberies (overall, individual and business), and non-family violence aggravated assaults.

¹ Figure 4 below shows displacement effects by division, and some variation across the divisions can be seen.

Table 1: Violent Crime Summary

	Pre-Intervention (Jun 1-Aug 31)		Post-Intervention (Sep 1-Nov 29)		Percent Change
	Total Incidents	Ave. per week (N=13)	Total Incidents	Ave. per week (N=13)	
City-Wide	1,780	136.9	1,536	118.2	-13.7%
Non-Treatment/Catchment Grids	1,488	114.5	1,311	100.8	-11.9%
Treatment Grids	123	9.5	58	4.5	-52.8%
Catchment Grids	169	13.0	167	12.8	-1.2%
Treatment Grids Only					
Offender Focused Grids	69	5.3	31	2.4	-55.1%
High Visibility Grids	54	4.2	27	2.1	-50.0%

Figure 1: Pre- and Post-Intervention Violent Crime

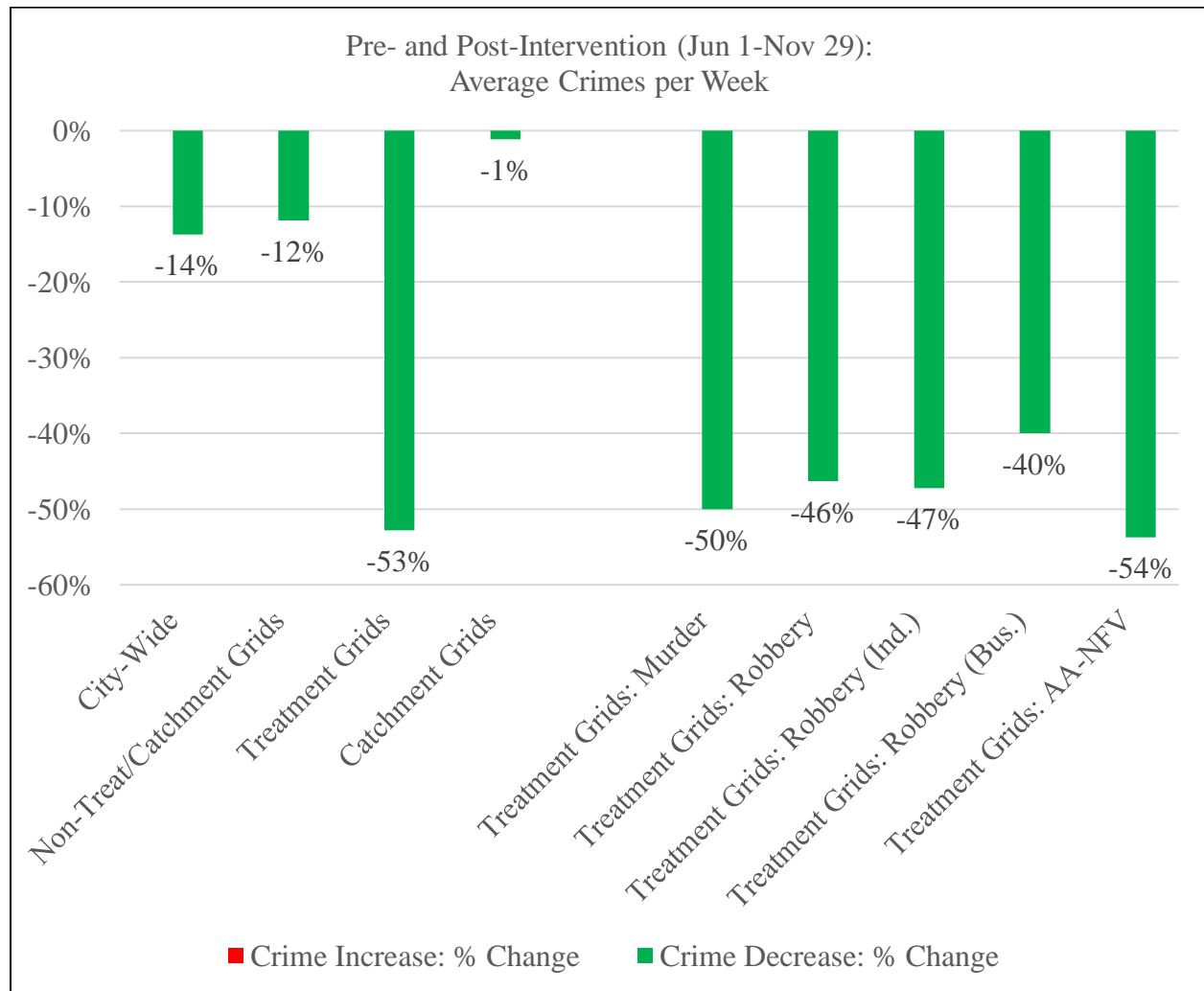
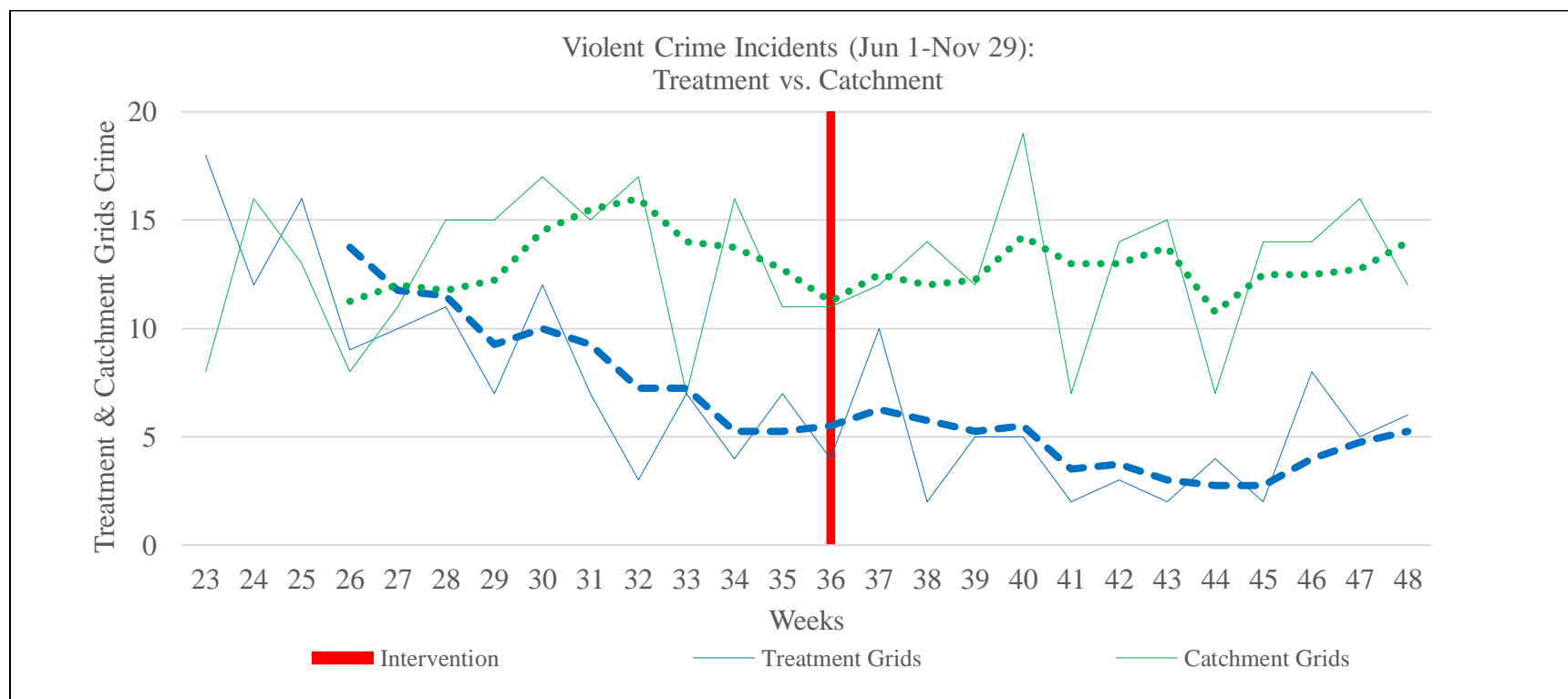


Figure 2 shows the longitudinal trends in weekly reported violent crime before and after the Period 2 hot spots intervention. The solid lines represent counts of violent crimes per week in the treatment grids (in blue) and counts of violent crimes in the surrounding catchment grids (in green). The dashed lines represent the four-week moving average of these counts in their corresponding colors, while the red vertical line shows the start of the Period 2 intervention (first week of September). Consistent with the decreases previously reported in the Period 1 treatment grids, the Period 2 grids were trending downward in the weeks leading up to the intervention, and that decrease continued through week 45 before ticking up slightly by week 48. The downward trend seen in the pre-intervention period (weeks 26-36) for the treated grids is a partially explained by the fact that 11 grids treated during Period 1 carried over and also were treated in Period 2. With some week-to-week variation, crime in the catchment grids remained relatively flat before and after the Period 2 intervention began.

Figure 2: Violent Crime Incidents in Treatment vs. Catchment Grids



We also examined pre-post changes in weekly crime averages across treatment types – high visibility grids compared to offender-focused grids. Figure 3 shows the decreases in reported weekly averages of violent crime pre- and post-intervention by intervention type. Across both the high visibility (blue dashed line) and offender-focused (black dashed line) interventions, crime has gone down in the treated grids, and those decreases have been maintained post-intervention. Both treatment types were successful at reducing weekly violent crime averages by approximately 50%, although the offender focused grids showed about a 10% greater treatment effect than the high visibility grids.

Figure 3: Treatment Intervention Types

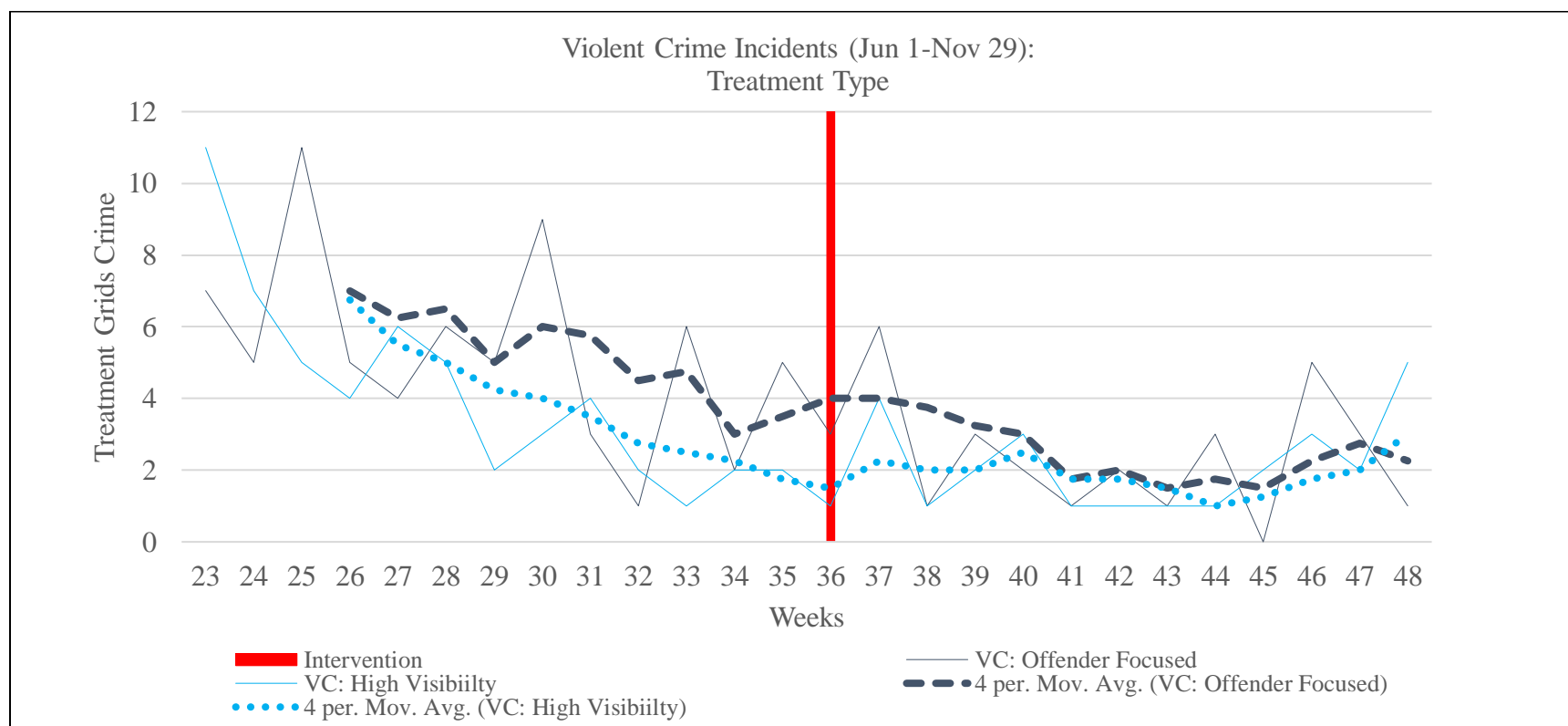
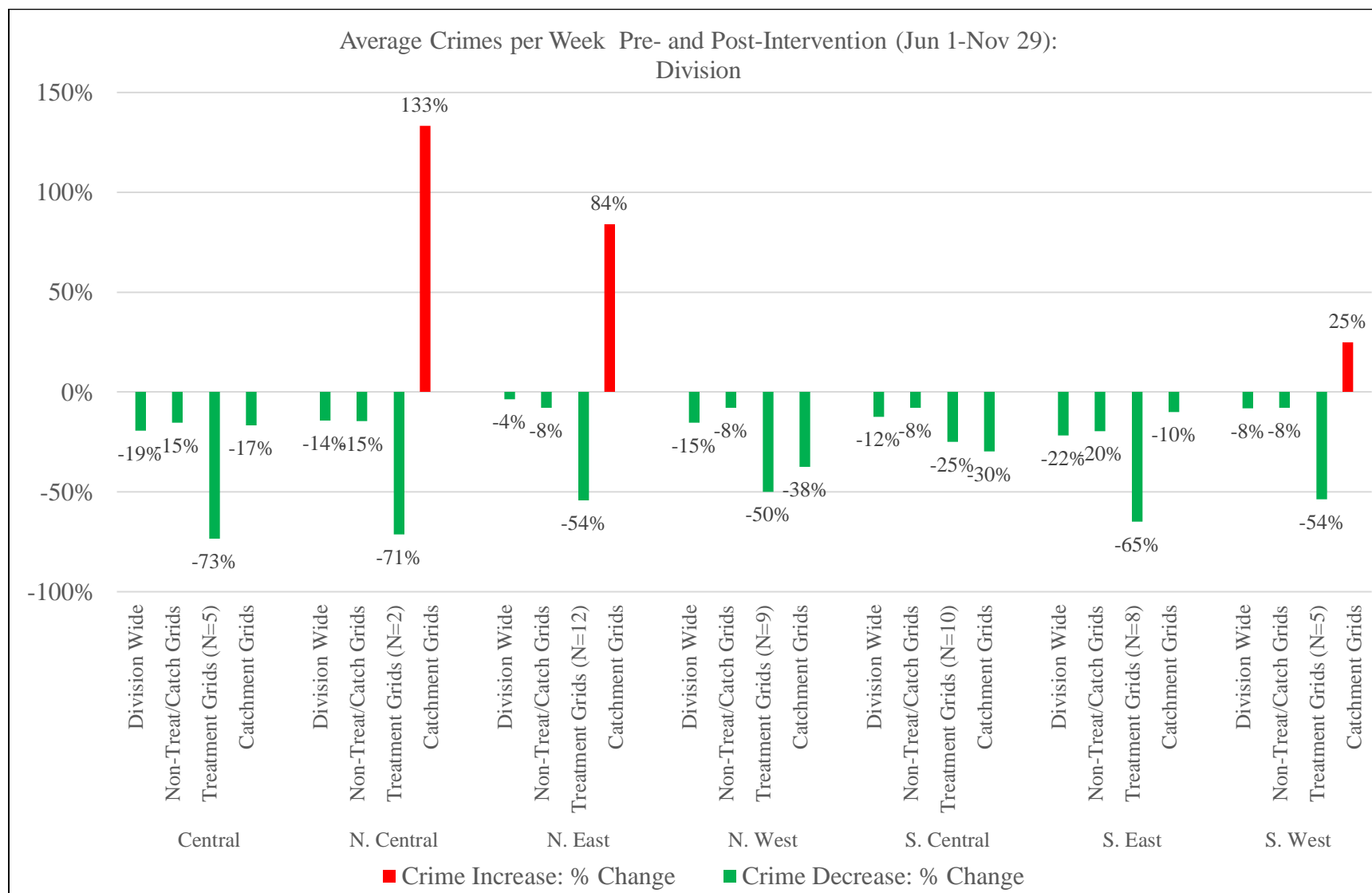


Figure 4 shows changes in average weekly violent crime counts within the seven patrol divisions *before and after* the hot spots strategy was implemented. Changes are shown division-wide and within non-treatment/catchment grids, treatment grids, and catchment grids for each division. For example, average weekly violent crime was down 19% across the entire Central Division post-intervention, a result largely driven by the 73% decrease seen in the five treated grids in this division. These treatment grids helped suppress overall violent crime counts across the entire division. Even the catchment grids in the Central Division benefited from the intervention as they showed a 17% decrease in violent street crime post-intervention. Similarly, violent crime was down significantly in the treatment grids across all divisions and in most of the catchment areas. Notable deviations from this pattern occurred in the North Central, North East, and to a lesser degree, South West division, where displacement into the catchment areas was observed. Additional analyses are being conducted to help diagnose why displacement seemed to have occurred in these three divisions while a diffusion of treatment benefits was seen in the catchment areas of the other four divisions.

Figure 4: Division-Percentage Change in Violent Crime



Arrest

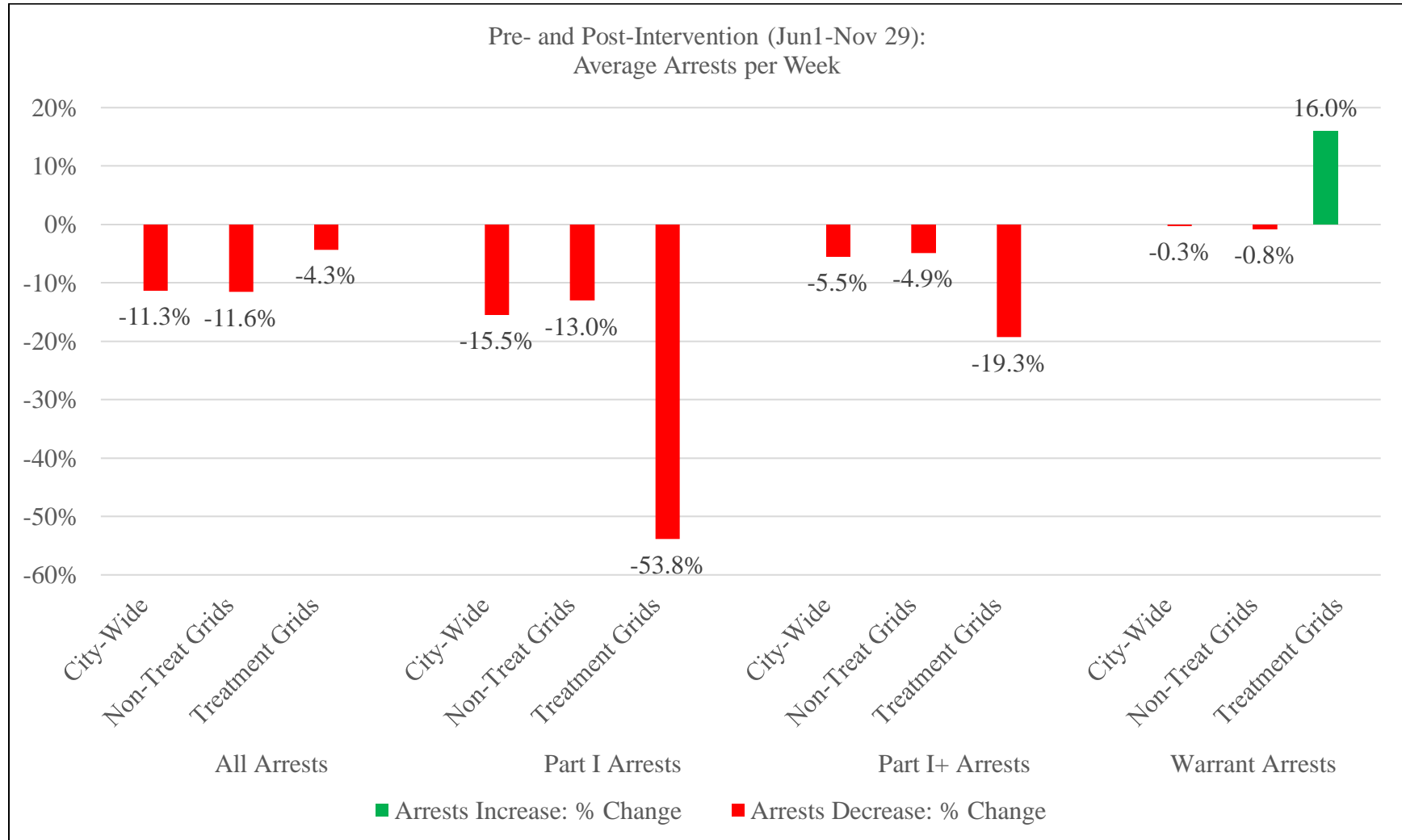
Using NIBRS crime categories, arrest data were evaluated using four measures prior to the intervention (June 1-August 31) and after the Period 2 intervention (September 1-November 29, 2021):

1. All arrests
2. Part 1 arrests (murder & nonnegligent manslaughter; robbery of individuals; robbery of businesses; and aggravated assault without family violence)
3. Part 1+ arrests (murder & nonnegligent manslaughter; robbery of individuals; robbery of businesses; aggravated assault without family violence; simple assault; and weapons violations)
4. Warrant arrests (all warrant arrests)

Figure 5 below shows changes in the average number of weekly arrests city-wide and in treatment and non-treatment grids and by arrest type pre- and post- intervention. Post-period 2 intervention, arrests decreased 11.3% city-wide and 4.3% in the treatment grids. This is a remarkable success story for the hot spots strategy, which was purposely designed to avoid heavy-handed policing in the targeted grids. While violent crime was driven down by more than 50% (on average) in the targeted grids, it did not come at the cost of a large increase in overall arrests. Instead, the DPD made *fewer* Part I arrests for serious violent crimes and *fewer* “Part 1+” arrests² city-wide, in the non-treatment grids, and in the treatment grids themselves. In fact, Part 1 arrests were down more than 50% in the treatment grids, which likely represents a deterrent effect and thus the need for fewer Part I arrests because violent crime was reduced so much in those areas. Consistent with the strategy, however, warrant-based arrests were up by 16% in the treatment grids as the DPD concentrated on arresting offenders in those areas with outstanding warrants.

² Part 1+ arrests include Part 1 violent offenses *plus* arrests for simple assault and weapons-related offenses.

Figure 5: Pre- and Post-Intervention Arrests



Calls for Service

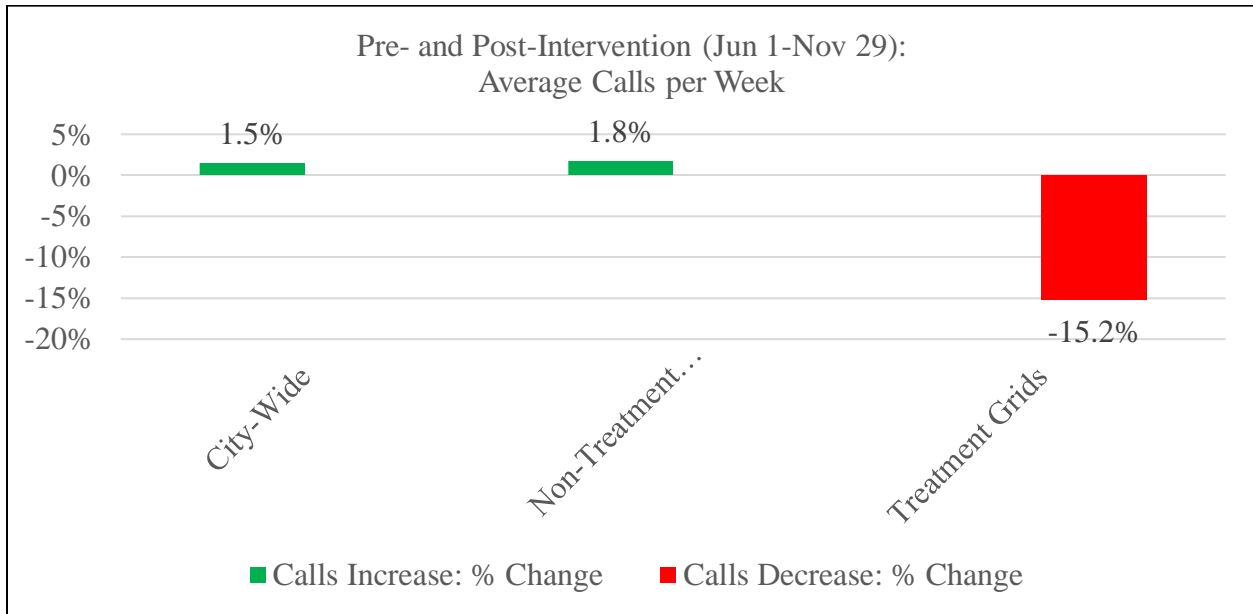
In evaluating the impact of the hot spots strategy on calls for service, we examined changes in violence-related calls for service³ by the public pre- and post-intervention. Consistent with the violent crime reductions seen in the Period 2 treatment grids so far, violence-related calls for service also decreased by 15.2% in the treated grids post-intervention. However, they increased slightly city-wide and in the non-treatment grids (see Table 2 and Figure 6 below). Given that violent crime also was down city-wide and in the non-treated areas during the Period 2 intervention, this slight rise in violence-related calls city-wide may signal an increased willingness by the public to call the police. One of the stated goals of the Crime Plan was to increase community trust and engagement in helping the DPD solve crimes of violence. Future analyses will explore whether this pattern of increased calls to the police outside the treated areas holds during subsequent treatment periods.

Table 2: Calls for Service Summary

	Pre-Intervention (Jun 1-Aug 31)		Post-Intervention (Sep 1-Nov 29)		Percent Change
	<i>Total CFS</i>	<i>Ave. per week (N=13)</i>	<i>Total CFS</i>	<i>Ave. per week (N=13)</i>	
City-Wide	8,929	686.8	9,062	697.1	1.5%
Non-Treatment Grids	8,784	675.7	8,939	687.6	1.8%
Treatment Grids	145	11.2	123	9.5	-15.2%

³ 14 - Stabbing, Cutting; 17 - Kidnapping in Progress; 19 – Shooting; 41/20 - Robbery - In Progress; 41/25 - Criminal Aslt -In Prog; 6G - Random Gun Fire; 6XE - Disturbance Emergency; 6XEA - Disturbance Emerg Amb; DAEF-Dist Armed Encounter Foot; DAEV-Dist Armed Encounter Veh; DASF-Dist Active Shooter Foot; DASV-Dist Active Shooter Veh.

Figure 6: Pre- and Post-Intervention Calls for Service



Summary

This Period 2 hot spots evaluation examined changes in violent crime, arrests, and calls for service during the intervention period (Sep-Nov 2021) compared to the three months leading up to the intervention (Jun-Aug 2021). Coming out of the summer months, the UTSA research team re-analyzed violent crime patterns in Dallas and identified 51 grids that showed the highest levels of violent crime in the previous three months, including 11 carry-over grids that had been treated during the Period 1 intervention. These 51 grids became the focus of the Period 2 hot spots intervention, which, consistent with the Crime Plan strategy, assigned hot spots to one of two treatments – high visibility patrol cars in treatment grids during peak crime days and times *or* an intelligence-driven, offender-focused treatment that concentrated on repeat offenders and others engaged in criminal activity within the grids.

Compared to the pre-intervention period, violent crime *decreased* 13.7% city-wide and 52.8% in the treatment grids during Period 2, and similar crime reductions were seen across both treatment types. In most DPD divisions, crime displacement was not observed in the catchment areas surrounding the treatment grids, although three of the divisions showed some evidence of displacement. Subsequent analyses are underway to identify possible causes for the displacement in these three divisions when the other four divisions saw an associated crime reduction in the catchment areas. These crime reduction benefits observed city-wide and within the Period 2 treatment grids did not come at the cost of increased arrests. In fact, arrests were down 11.3% city-wide and almost 53% in the treatment grids during the Period 2 intervention. Only warrant-related

arrests were up, and then only in the treatment grids, which was expected given the focus of the strategy on repeat offenders and those with outstanding warrants. Finally, violence-related calls for service were down 15.2% in the treatment grids and up slightly city-wide, which may portend an increased willingness by the public to report violent crime as the community members see evidence of reduced levels of violence across the city and particularly within the treated areas.

Hot Spot Intervention to Date – Periods 1 & 2 (May-Dec 2021)

This section of the report focuses on crime and related measures across the two treatment periods plus two additional months. The first set of hot spot grids were treated from May 7 through August 31, 2021 (Period 1 plus one month), while the second set of grids (Period 2 plus one month) were treated from September 1 – December 31, 2021. Note that the treatment periods are designed to last 90 days, but while new grids are being identified for the next intervention period and the impact of the just-completed intervention period is being evaluated, DPD remains active in the current set of grids. Thus, while the intervention periods themselves are evaluated over their designated 90-day period (see Period 2 evaluation above), an additional month is tacked onto the end of each 90-day period while the impact assessment and new grid analysis is conducted. In effect, each set of treatment grids received four months of treatment, and the analyses reported below provide an assessment of this entire eight-month period.

Implementation Evaluation

We begin our analysis of the hot spots intervention to date by evaluating how the strategy was implemented by the DPD. The key question here is how closely the DPD adhered to the strategy as it was designed and operationalized. The strategy called for the deployment of DPD officers in identified hot spots (grids) during days of the week and times of the day when crime peaks occurred based on an analysis of violent crime patterns in the previous months. Deployment at the right places and at the right times is particularly important in the high visibility grids when lighted patrol cars are scheduled to be deployed for 15-minute intervals during targeted days of the week and hours of the day. The offender-focused grids were treated by DPD Crime Response Teams (CRTs) made of up two, 10 person teams (dayshift and nightshift) in each patrol division. While efforts initially were made to deploy these teams during peak crime times in the offender-focused grids, particularly during the Period 1 intervention, it became apparent to the DPD leadership and the UTSA research team that these teams were operating constantly within the targeted grids during all hours of the day and night. Moreover, the nature of the offender-focused work done by these groups did not align well with a rigid deployment schedule based on temporal crime patterns. By the Period 2 intervention, these units were singularly focused on the hot spot treatment grids but they were not limited solely to being present in the treatment grids and often worked within the catchment areas as well. In addition, they were not restricted to certain peak crime hours of the day since they were able to maintain nearly 24-hour coverage in around the hot spots with the day and night shift teams.

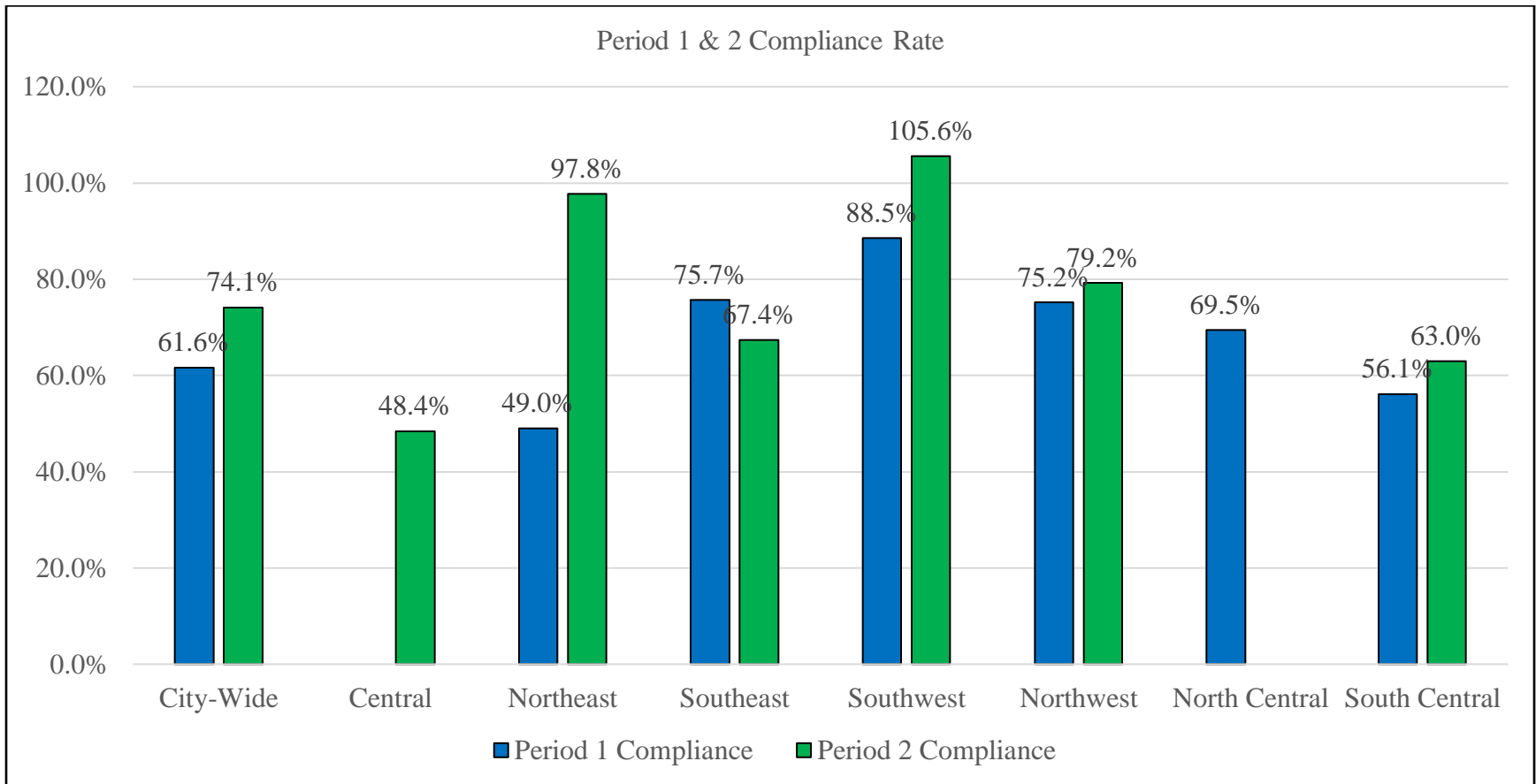
Consequently, the analysis focused exclusively on how closely the DPD deployment schedules adhered to the *high visibility* deployment plans within the two intervention periods. The methodology to assess compliance with high visibility treatment protocols involved comparing the total number of hours across the weeks when lighted patrol cars were scheduled to be present during a 15-minute period to the number of unit mark-outs in the targeted grids during the

intervention period.⁴ Figure 7 summarizes the compliance rate city-wide and by division during treatment Periods 1 and 2.

Overall, compliance increased from 61.6% in Period 1 to 74.1% in Period 2. This trend is also evident in all Division with the exception of Southeast. While no definitive compliance threshold was established or applied to these efforts, the level and improvement from Period 1 to Period 2 indicate a commitment by DPD to execute the high visibility, hot spot strategy of the Crime Plan as outlined.

⁴ For each intervention period, DPD created a treatment schedule based on the peak crime day/time analysis provided by the UTSA research team. 911 dispatchers were instructed to dispatch officers to the target grids during these times, and officers also were given the option of “marking” themselves out in the grids. In either case, officers were instructed to stay stationary in the grids with the lights of their patrol cars illuminated for at least 15 minutes. DPD developed a unique dispatch code that officers and dispatchers used to denote when an officer was marked out in targeted grid based on the period deployment schedule. The UTSA team obtained and analyzed these CAD records for the two treatment periods.

Figure 7: Period 1 & 2 Compliance



Violent Crime

Figure 8 below provides a longitudinal assessment of changes in reported crime across both periods, keeping in mind that 11 grids carried over into Period 2 from the initial set of Period 1 grids. The Period 1 grids are shown in blue. They averaged 8.5 violent crimes per week prior to the Period 1 intervention (Jan-Apr 2021) and 4.2 offenses per week during the intervention (May-Aug 2021). Significantly, violent crime continued to trend downward in the Period 1 grids during the three months after the intervention ended (Sep-Dec 2021), again recognizing that 11 of the original 47 grids continued to be treated in Period 2.

The Period 2 grids began at an average of about 10 violent crimes per week before the hot spots intervention and dropped to 4 violent crimes per week averaged across the 51 grids by the conclusion of the treatment. In the next report, the continued 90-day trend in both sets of grids – Periods 1 and 2 – will be evaluated.

For now, it is clear that the Period 1 treatment continued to have beneficial crime reduction effects in the treated grids even after the treatment was removed, and the hot spots strategy induced powerful crime reduction effects during Period 2 in the treated grids. Please see Tables 4 and 5 in the Appendix for details on crime count changes in each treatment grid and across both intervention periods.

Figure 8: Treatment Grids in 2021: Average Weekly Violent Crime Incidents

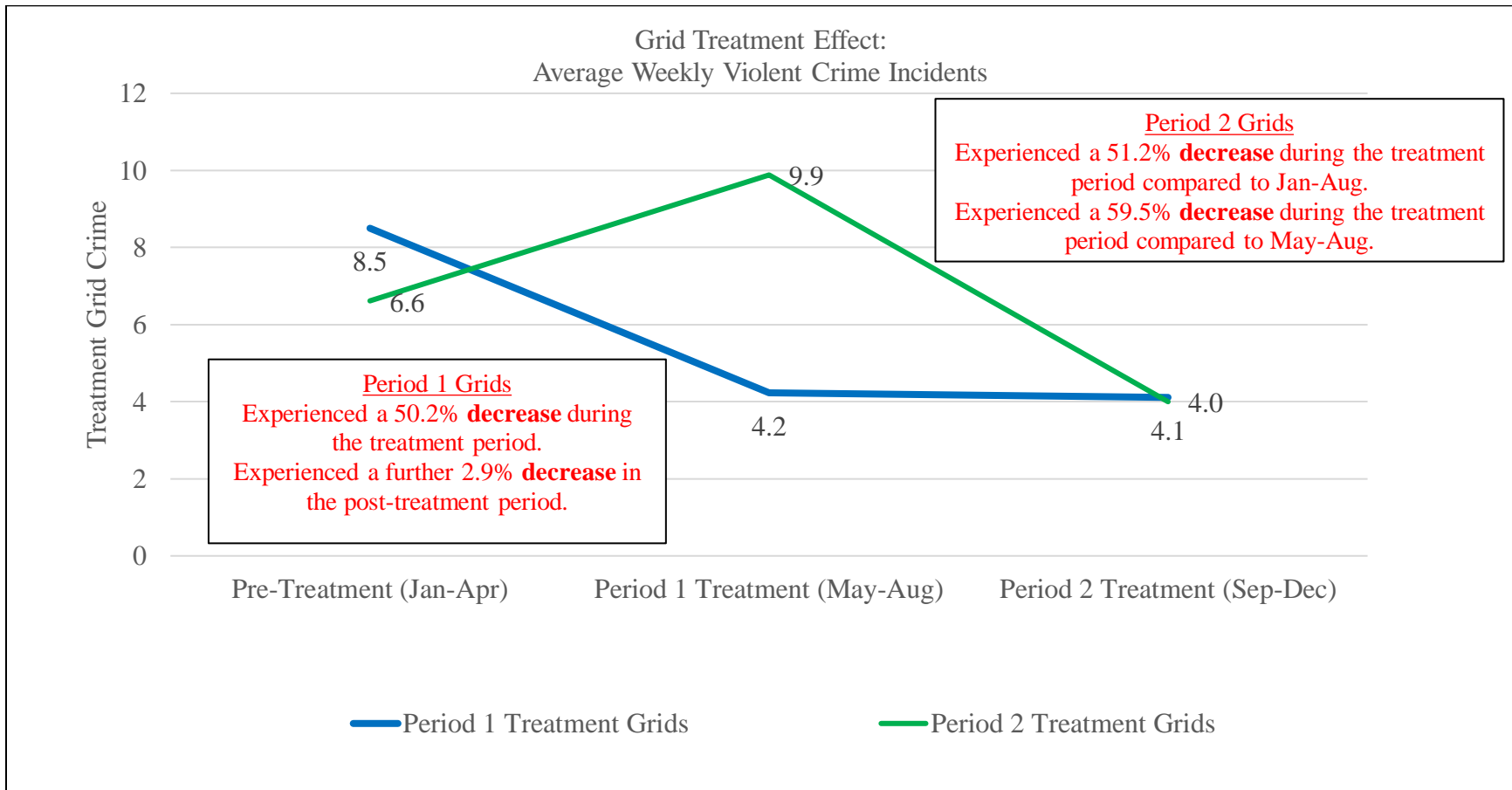
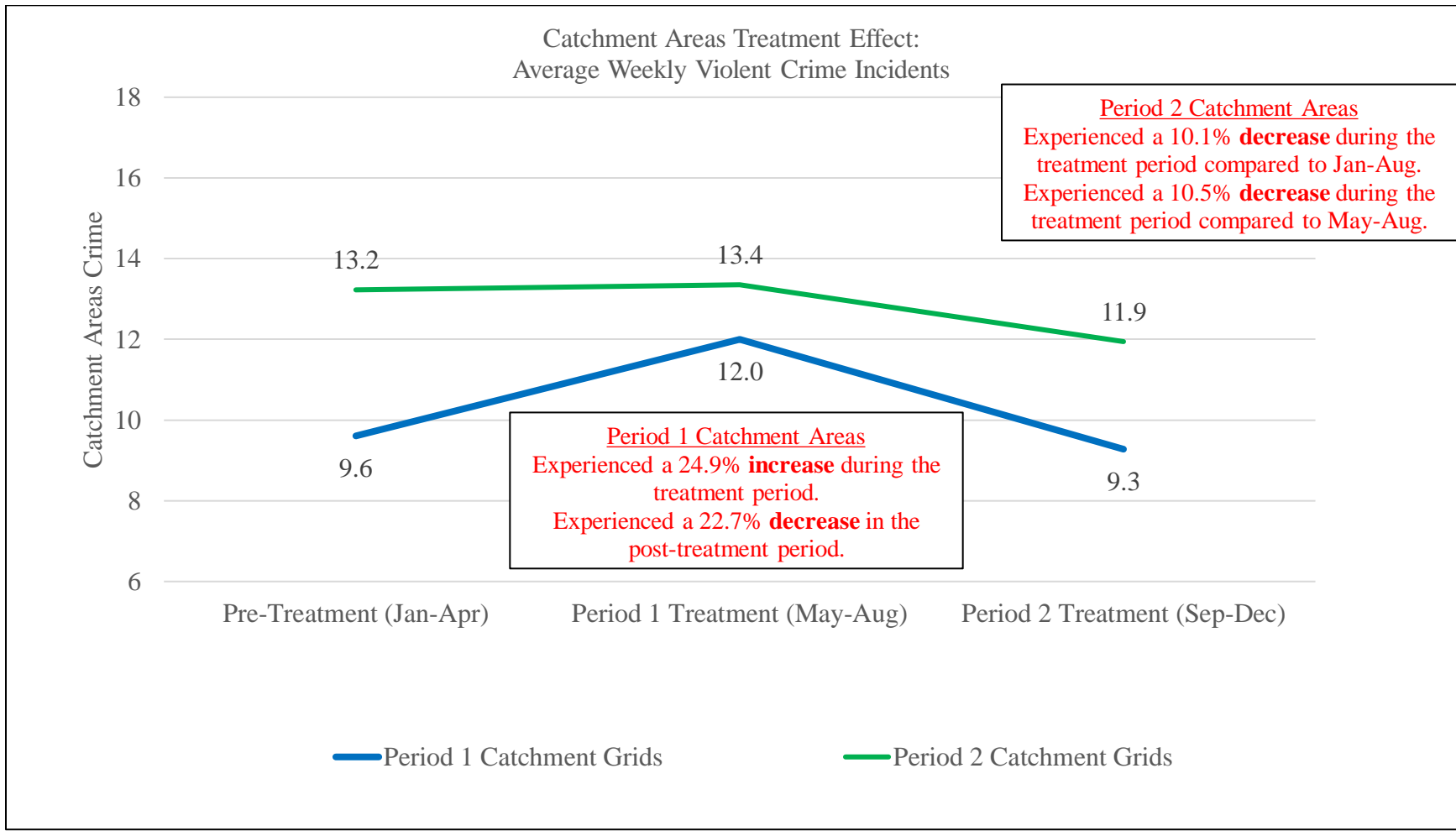


Figure 9 examines possible displacement into catchment grids surrounding the treated areas and across the two treatment periods. The story differs by treatment period. In Period 1 (blue line), catchment grids experienced a 25% *increase* in reported violent crime during the treatment period (May-Aug 2021), while crime went down by half in the Period 1 treatment grids. This suggests a clear displacement effect averaged across all grids, although displacement varied by division, and some divisions saw decreases in catchment area crime. Interestingly, once the treatment ended, the Period 1 catchment grids experienced a 23% *reduction* in violent crime in the four months after treatment ended (Sep-Dec 2021). Since some of the Period 1 grids also were treated in Period 2, the Period 1 catchment grids might have experienced a benefit from the Period 2 treatment that occurred in close proximity to some of them, which might account for the crime reduction effects seen in the Period 1 catchment grids during Period 2 when they were not treated. Violent crime incidents in the Period 2 catchment grids declined slightly (on average) during the Period 2 treatment (Sep-Dec 2021). Unlike the Period 1 catchment grids, the Period 2 catchment areas did not experience an average displacement effect, although as reported above, there was some variation across divisions and a few seemed to experience displacement.

What accounts for the different displacement effects seen between the two treatment periods? Following the displacement seen in some divisions during Period 1, the UTSA research team recommended that the DPD expand its treatment to adjacent grids (catchment) during Period 2 when the catchment grids were part of a contiguous environment. For example, Dallas has many large apartment complexes that generate a disproportionate amount of violent crime. Many treatment grids are situated within these complexes. To try and minimize displacement into other areas of the complexes, DPD instructed its officers to consider the entire apartment complex as a hot spot rather than merely the 330'x 330' treatment grid identified through crime analysis. As a result, Period 2 saw more treatment of adjacent catchment grids than in Period 1. This might have accounted for the diffusion of benefits seen in the catchment areas during Period 2 compared to the average displacement seen in Period 1.

Figure 9: Catchment Grids in 2021: Percentage Change



Arrest

Figure 10 examines the change in Part 1 arrests from January through December 2021 across the two treatment periods. Both treatment periods showed a substantial decrease in Part 1 arrests during the interventions (by more than half), which suggests the hot spots treatment had a deterrent effect that reduced the need or opportunity for arrests during the treatment periods. Once treatment was removed from most of the Period 1 grids, arrests increased substantially (+105% on average) in those grids. Recall that crime continued to fall in the Period 1 grids after treatment was removed, so the increase in arrests in the post-Period 1 intervention is at odds with the pattern of reduced crime *and* arrests seen during the treatment periods themselves. More work is needed to understand these differences.

Figure 10: Treatment Grids in 2021: Part I Arrests

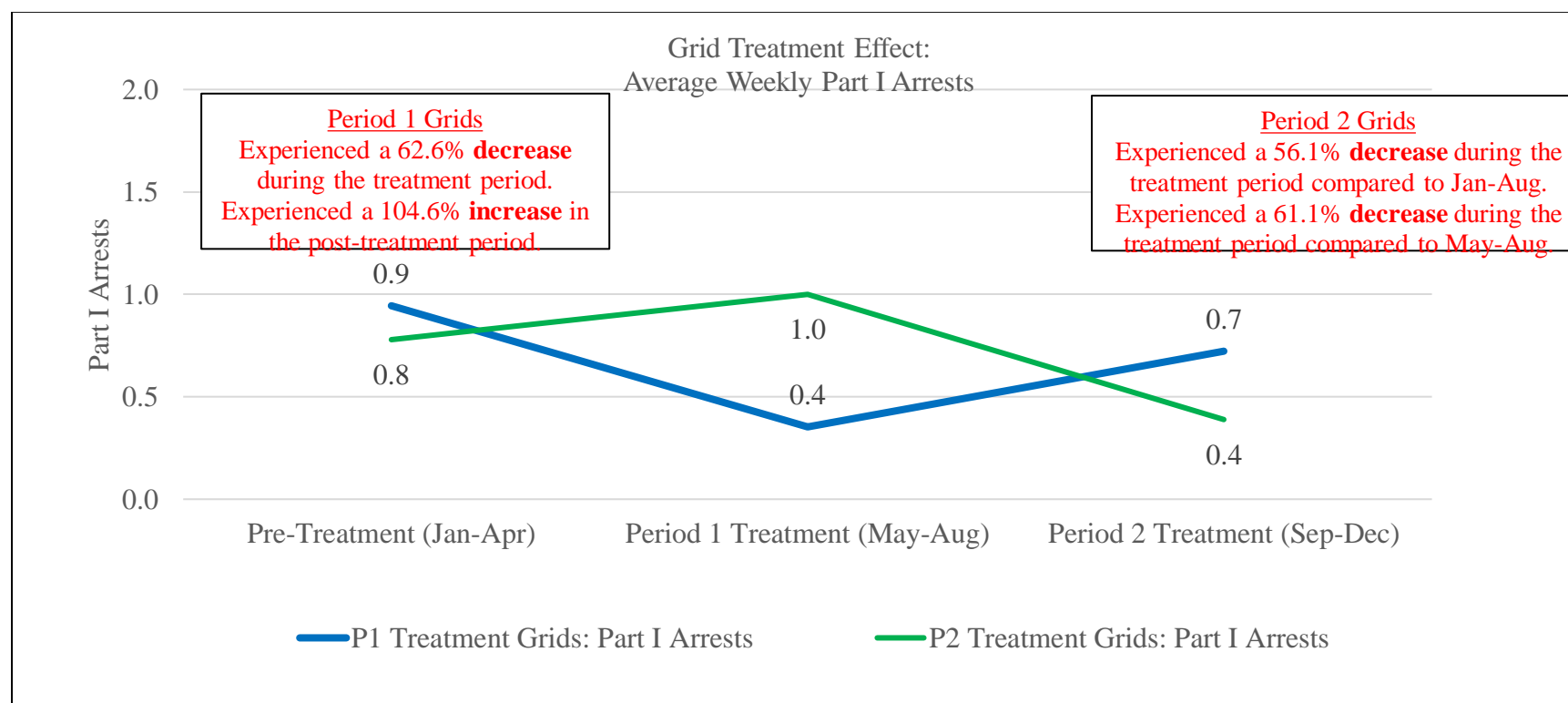
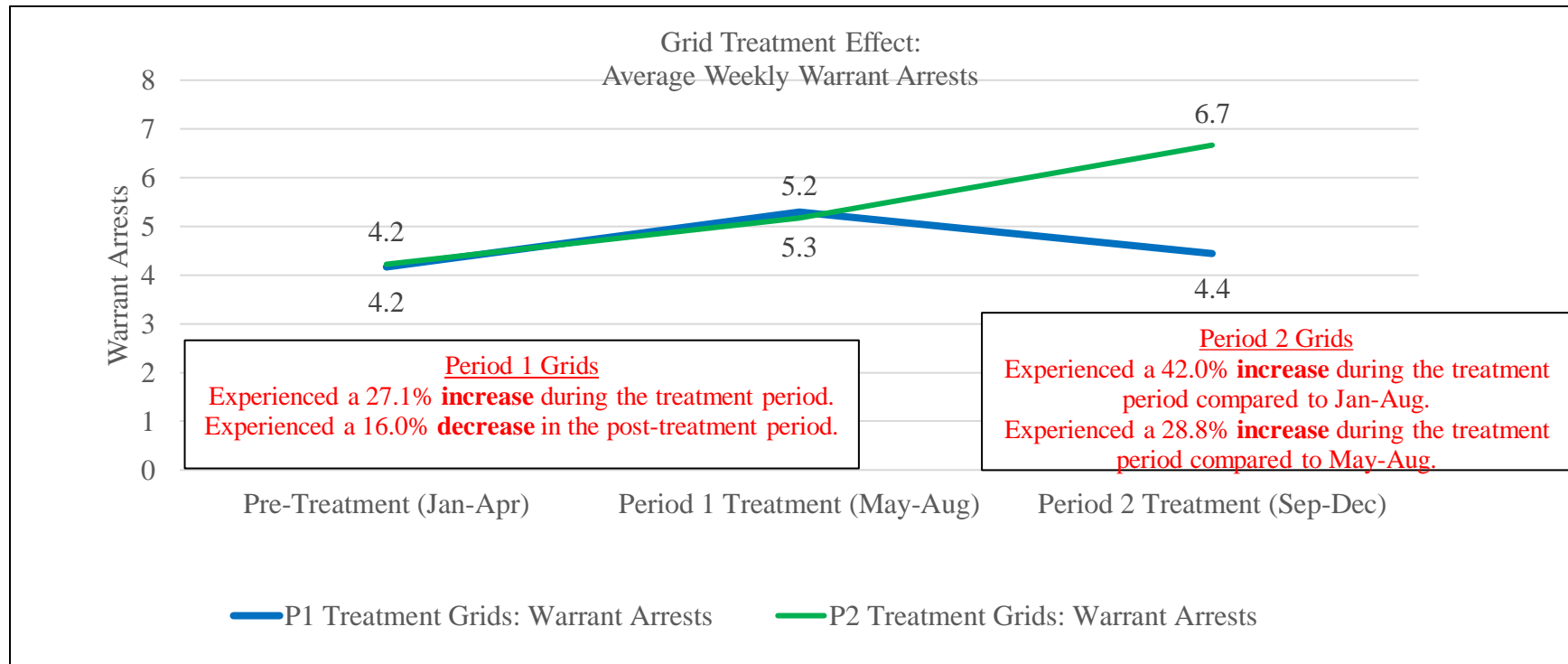


Figure 11 analyzes the subset of warrant-based arrests across the two treatment periods. Since the hot spots strategy employs an offender-focused approach in approximately half the treatment grids, we would expect warrant arrests to increase in the treatment grids during the treatment periods as the DPD focuses on clearing outstanding warrants in those grids. In the months leading up to the interventions, both sets of grids (Periods 1 & 2) experienced an increase in warrant-related arrests, but the trajectory of those increases steepened significantly, as expected, during the treatment periods. And as expected, once the treatment was removed from most of the Period 1 grids, warrant-based arrests declined. It remains to be seen if a similar pattern holds for the Period 2 grids now that a new set of grids (Period 3) has been identified and treatment has been removed from the Period 2 grids.

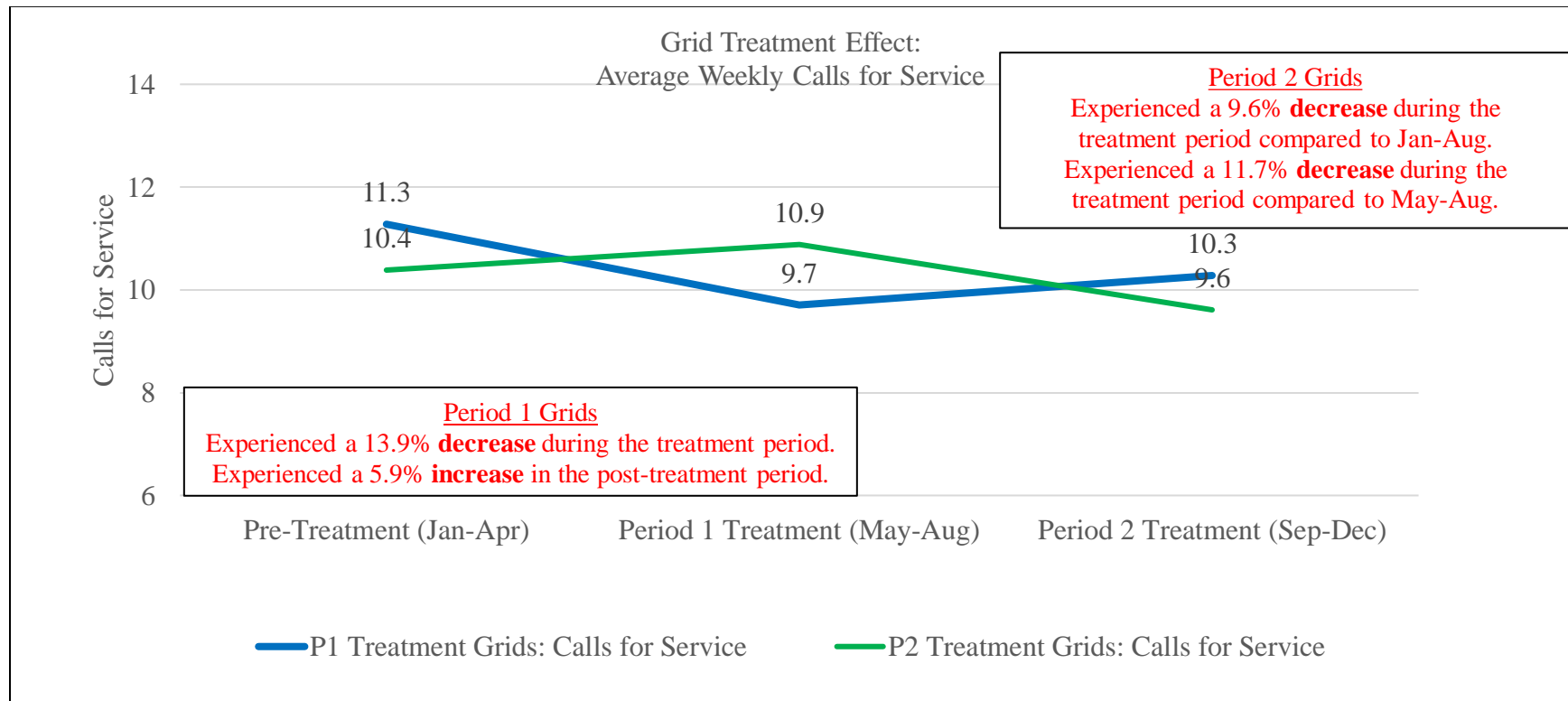
Figure 11: Treatment Grids in 2021: Warrant Arrests



Calls for Service

In Figure 12, we examine changes in violence-related calls for service across the two treatment periods. Period 1 saw a 14% decrease in these calls during the treatment period compared to the months prior, and in the months subsequent to the treatment calls went back up, albeit to a lower level than before treatment. Similarly, in Period 2, violence-related calls went down about 10% compared to pre-treatment levels. Future analyses will explore whether calls in these treated grids also rose post-treatment. Clearly, though, the hot spots strategy is having a beneficial impact on public demand for police services related to violent crime in the treated areas and during the treatment periods.

Figure 12: Treatment Grids in 2021: Calls for Service



Summary

This section first evaluated the implementation of the DPD hot spots strategy across the two intervention periods to date, and it also examined changes in crime, arrests, and calls for service across the entire eight-month implementation period – May through December 2021. Our analysis of DPD computer-aided dispatch (CAD) data revealed that officers marked out in the treatment grids during 60-70% of the expected days and times, which leaves some room for improvement in the fidelity of the high visibility treatment. While the overall results of the strategy are robust and suggest strong crime suppressive effects in and around the hot spots, and even city-wide, DPD is putting in place new tracking methods to improve alignment between future hot spot deployment schedules and actual treatment delivery in the field.

From a violent crime perspective, crime was cut approximately in half in the treated hot spot grids during the Period 1 (May-Aug) and Period 2 (Sep-Dec) interventions. Note that in “Hot Spot Intervention to Date” section of the report, the period interventions were extended by one month each because the DPD continued to treat the same grids in the fourth month following each 90-day intervention period while new grids were being identified and impacts assessed. In the Period 1 grids (May-Aug), crime remained suppressed even after treatment ceased and remained at lower post-intervention levels for the next four months. In the catchment areas, which themselves received a great deal of treatment (see Implementation discussion above), crime increased by about 25% during the Period 1 intervention and decreased by about 10% in Period 2. Thus, Period 1 showed some evidence of displacement, which was largely driven by three divisions (see *Violent Crime Reduction Plan Hot Spot Intervention: Phase 1* report), while Period 2 showed an average reduction in catchment area crime, also with some variation by division.

Part 1 arrests declined substantially, and in proportion to observed crime reductions, in the treatment hot spots during both intervention periods, but rose again in the Period 1 grids in the four months after treatment ended. Future analyses will explore longitudinal arrest patterns in the Period 2 grids once treatment was removed. At the same time that Part 1 arrests declined in the treated areas, warrant-based arrests increased by 27% and 42% respectively during Period 1 and Period 2. These increases were expected given the focus on repeat offenders and clearing outstanding warrants in the hot spots. Finally, violence-related calls for service decreased 14% in the Period 1 treatment grids and 10% in the Period 2 grids. Calls remained at lower than pre-intervention levels in the Period 1 grids four months after treatment ended, although they began rising slowly again during those months.

Year-to-Year Comparison (2019-2021)

This section of the report shows year-to-year changes in crime and victimization metrics from 2019 through 2021. Its purpose is to compare crime and victimization in 2021 when the Crime Plan went into effect to crime trends in the previous two years. These comparisons are useful for evaluating the potential city-wide impact of the hot spots strategy, which again focused on only about 90 grids during Periods 1 and 2 (.09%) out of the more than 101,000 grids in Dallas.

Violent Crime

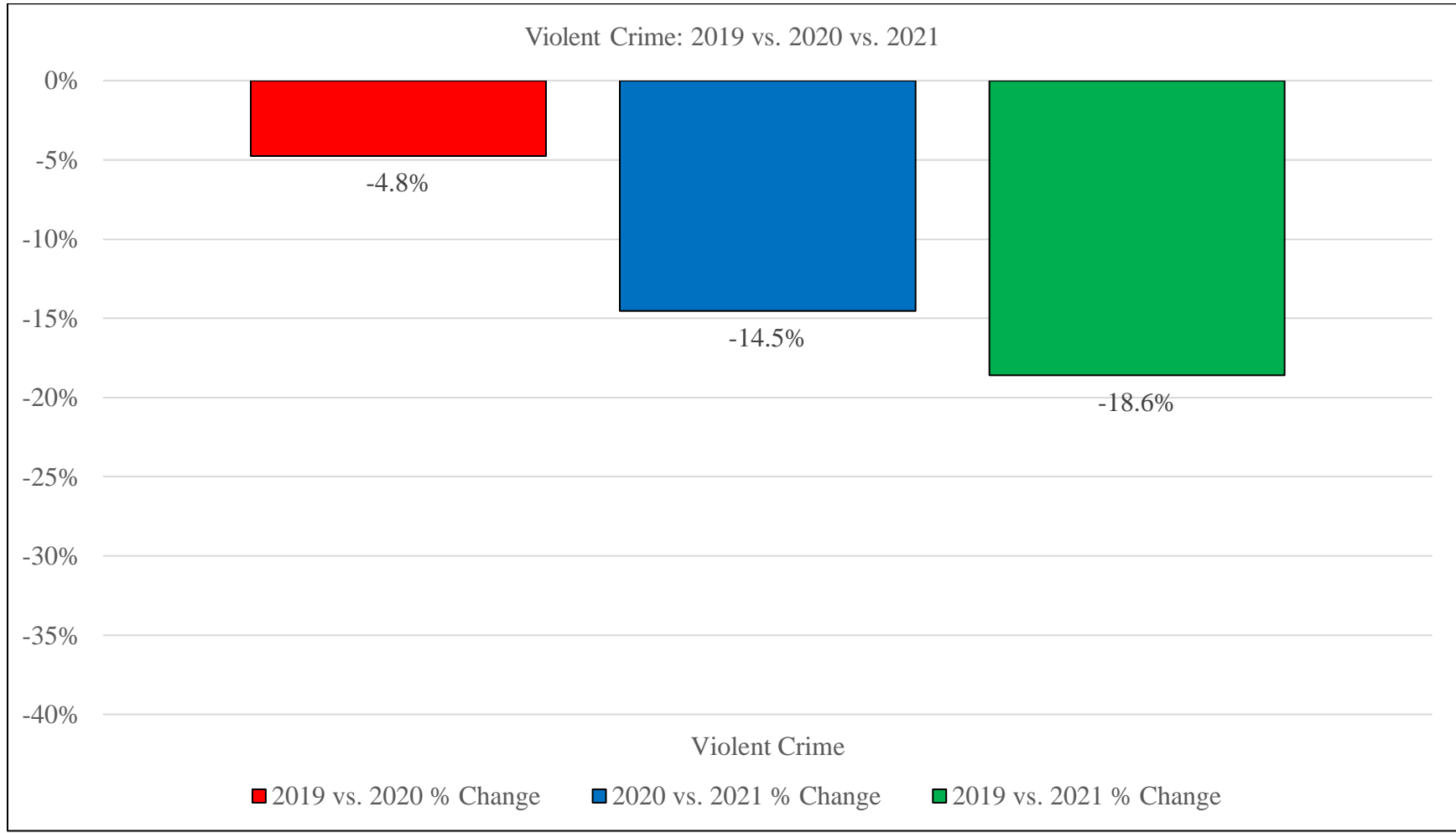
Table 3 and Figure 13 below compare violent crime trends throughout the city during the most recent three-year period. The data cover all months from January 1, 2019 through December 31, 2021. Overall, violent crime in Dallas fell 4.8% from 2019 to 2020 and fell even more steeply (14.5%) from 2020 to 2021. Most significantly, violent crime was down 18.6% in 2021 compared to 2019 – this is largely driven by the reductions in robbery and, to a lesser extent, murder.

Changes in individual street crimes varied by crime type. For example, murders increased from 196 in 2019 to 242 in 2020 (+23.5%) but then fell 12% from 2020 to 2021. Robberies (business and individual) dropped substantially from 2019 to 2020 and dropped even more steeply in 2021 compared to 2020. The impact of the Crime Plan is most evident for murders and aggravated assaults, which were both up considerably in 2020 over 2019 levels, but then dropped in 2021 when the Crime Plan went into effect.

Table 3: Year to Year Violent Crime Comparison

	Totals			Percent Change		
	2019	2020	2021	2019 vs. 2020	2020 vs. 2021	2019 vs. 2021
All Violent Crime	8,133	7,746	6,621	-4.8%	-14.5%	-18.6%
Murder	196	242	213	23.5%	-12.0%	8.7%
Robbery: Individual	3,675	2,804	2,052	-23.7%	-26.8%	-44.2%
Robbery: Business	989	693	437	-29.9%	-36.9%	-55.8%
Aggravated Assault	3,314	4,071	3,978	22.8%	-2.3%	20.0%

Figure 13: Year-to-Year Change in Overall Violent Crime City-Wide



The effect of the Crime Plan is evident in the 12-month view of annual violent crime counts by year (Figure 14). In May 2021 when the Crime Plan began, violent crime was at about the same level as it was in May 2020. From there, and with some seasonal variation, the 2021 monthly crime levels (green line) began to drop and diverge from the slope of the monthly 2020 and 2019 levels (red and blue lines respectively). The late summer crime drop evident across all three years was steeper in 2021 than in the previous years, and after a slight uptick in October, crime continued to fall through the end of 2021. By the end of the year, the gap in December 2021 violent crime and compared to the previous two years had widened to its largest of the year as the Period 2 hot spots intervention (Sep-Dec 2021) came to a close.

Figure 14: 2019 to 2021 Violent Crime (12-Month View)

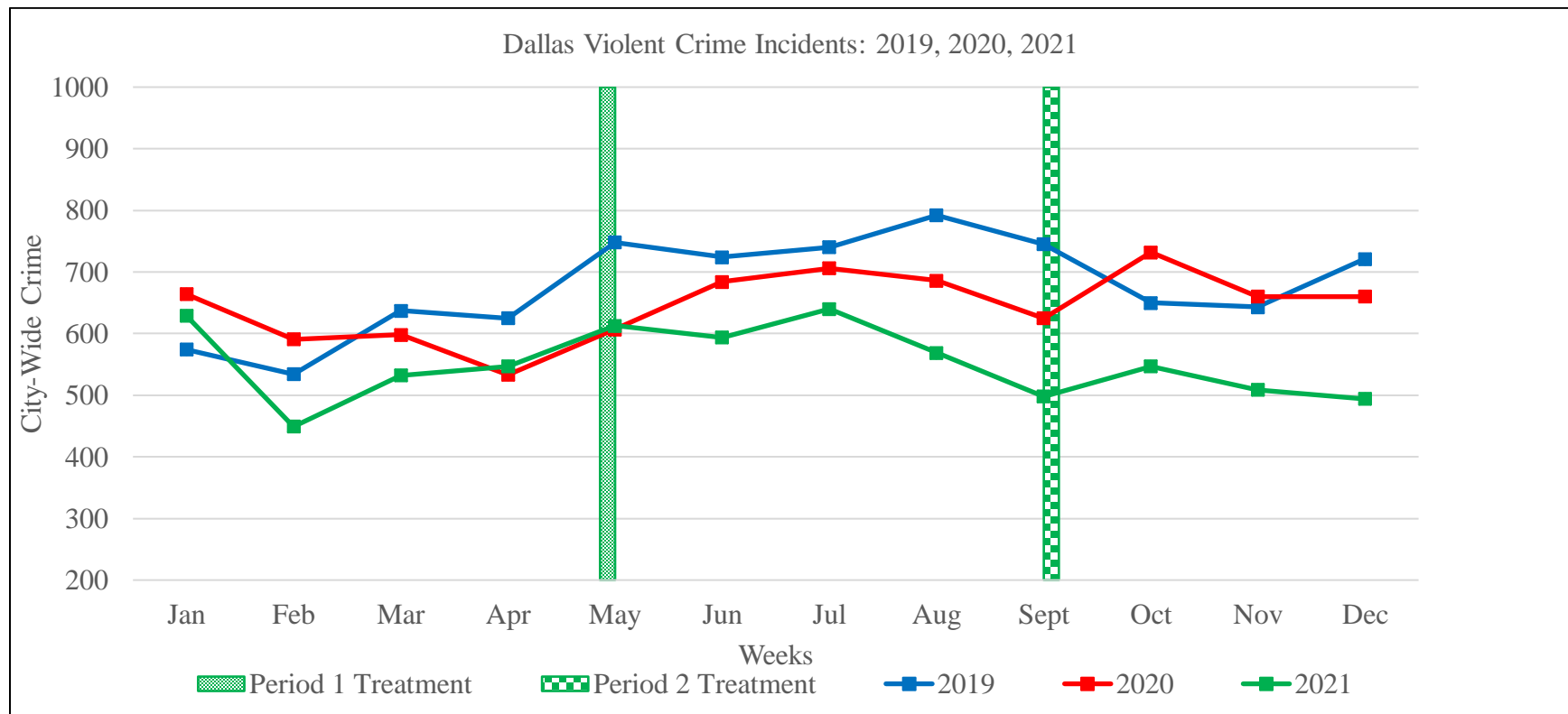
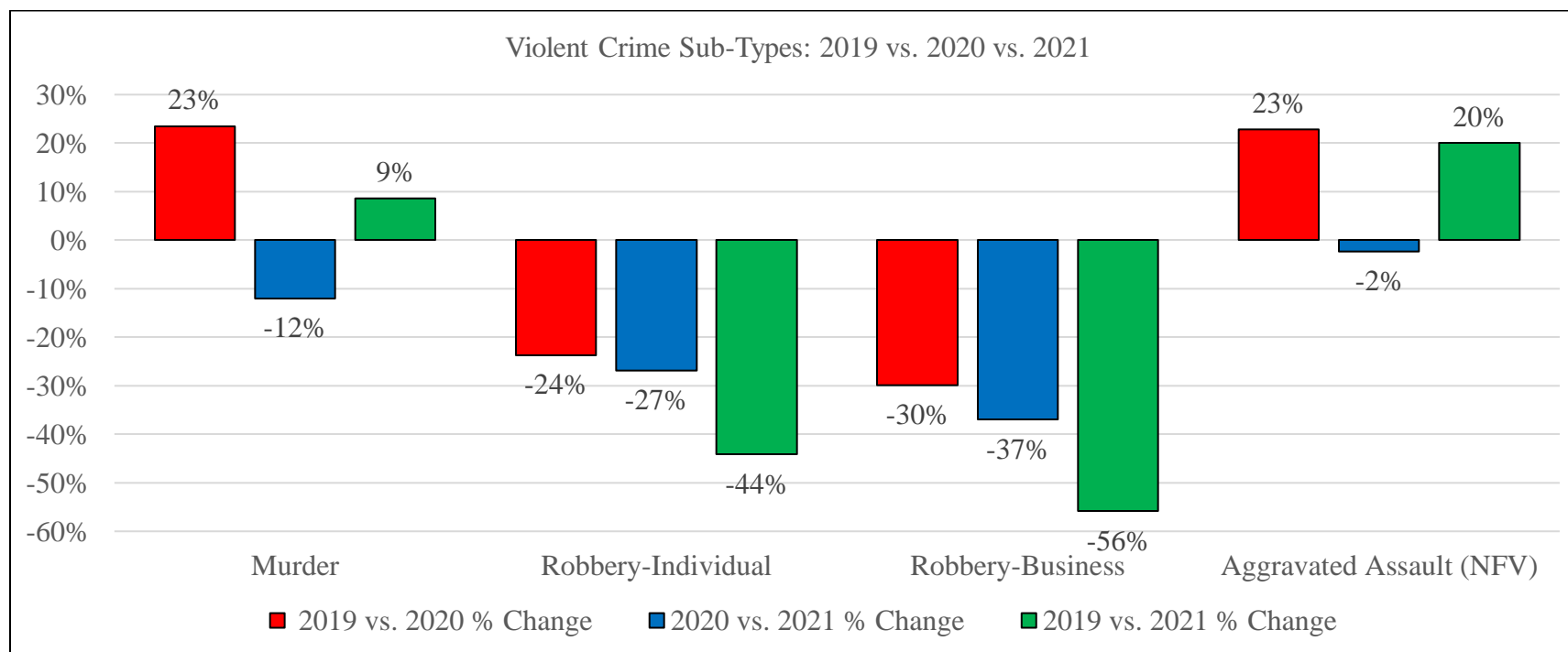


Figure 15 shows year-to-year changes in violent crime types in Dallas. As noted previously, all categories of street-level violent crime dropped in 2021 compared to 2020 (blue bars). Murder was down 12%, robbery was down steeply across both subtypes (individual and business), and even non-family violence aggravated assaults were down slightly at -2% compared to 2020. Two-year change (green bars) varied by crime type with 2021 robberies down dramatically compared to 2019 and murders and aggravated assaults higher in 2021 than in 2019, suggesting more work still needs to be done in reducing violence and the conditions that give rise to it in Dallas. The declining trends across all crime types in 2021 compared to 2020 are cause for cautious optimism heading into 2022 and implementation of the place-network investigations (PNI) and focused deterrence components of the Crime Plan.

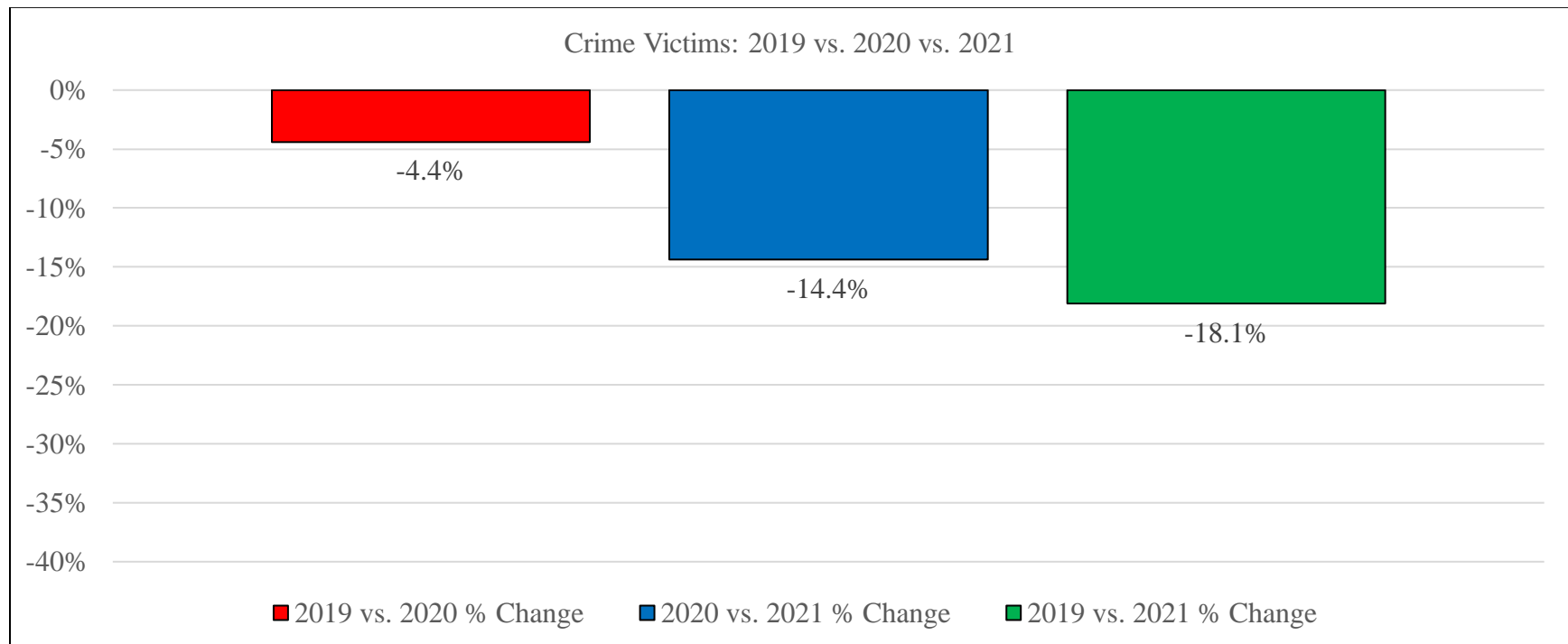
Figure 15: Year-to-Year Change by Violent Crime Type



Victims

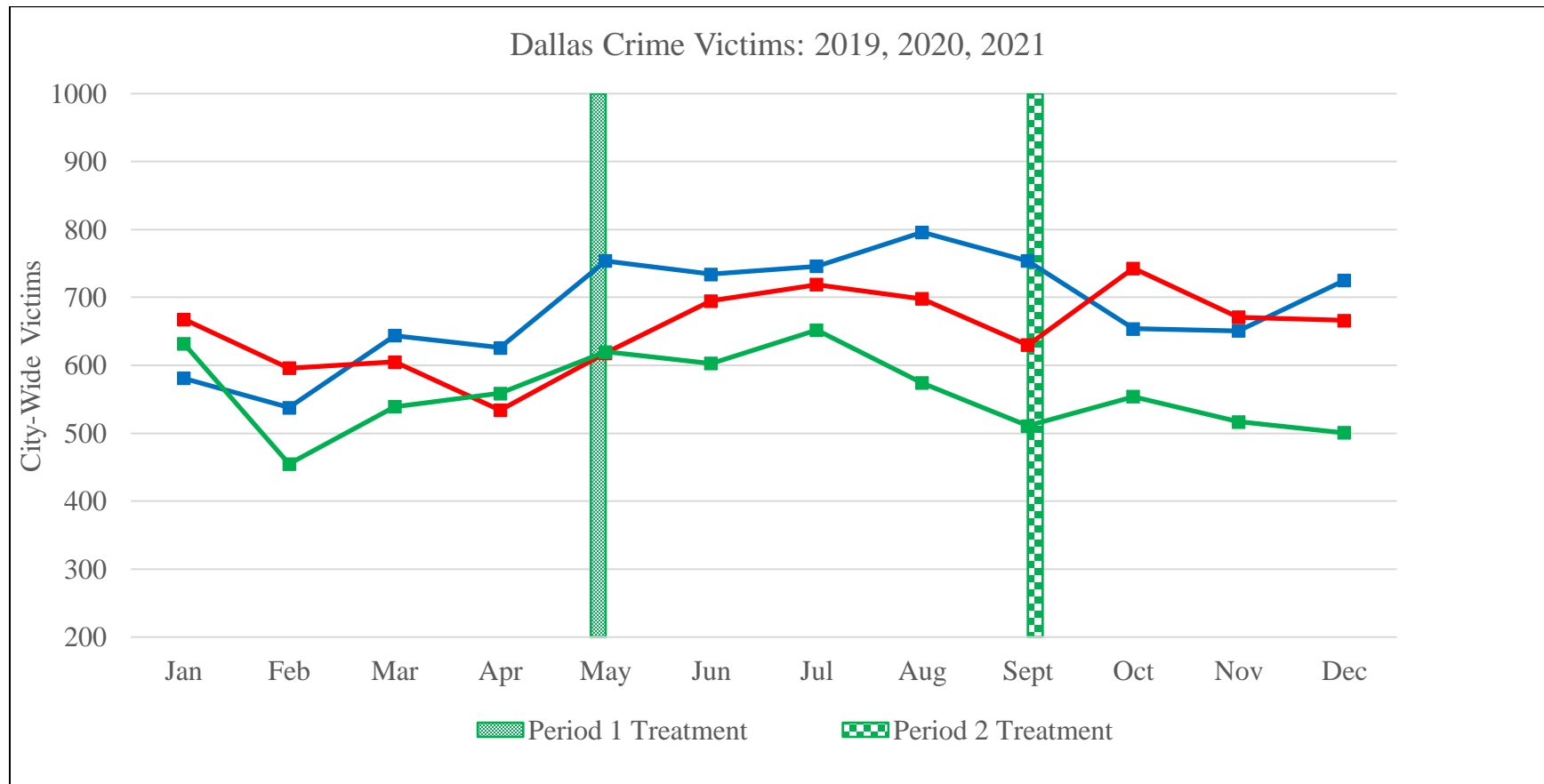
Figures 16 and 17 below examine year-to-year changes in the number of violent crime victims in Dallas. One of the stated goals of the DPD Crime Plan is to reduce the number of violent crime victims. Thus, these analyses mirror the incident-level results reported above in Figures 13 and 14 but focus specifically on the number of reported victims of violent crime during 2019-2021. Figure 16 indicates a 14.4% reduction in the number of violent crime victims in 2021 compared to 2020 (blue bar). Comparing 2021 to 2019 shows an even larger reduction – 18.1% - across the two-year period (green bar).

Figure 16: Year-to-Year Change in Victims City-Wide



Finally, Figure 17 shows the drop in violent victimization that coincided with the implementation of the Crime Plan. In May 2021 when the Crime Plan went into effect, the number of violent victims recorded up to that time was almost identical to the number of victims recorded in 2020. But after the Crime Plan began, the 2021 victimization rate (green line) began to fall relative to 2020 (red line). By the end of the year, the gap between the number of violent crime victims in 2021 had widened to its largest point of the year compared to 2020 and 2019 (blue line).

Figure 17: 2019 to 2021 Victims (12-Month View)



Summary

This section of the report examined city-wide changes in reported violent crime incidents and victims from 2019 to 2021. Violent incidents and the number of violent crime victims fell more than 14% in 2021 compared to 2020 and even more (about 18%) compared to 2019. The drop in violent crime recorded in 2021 compared to the previous year largely coincided with implementation of the Crime Plan in May 2021, and the gap continued to widen throughout the remainder of 2021 as the hot spots interventions took place. Reductions were seen in 2021 across all violent street crime types – murder, robbery, and non-family violence aggravated assault – with large reductions seen in robberies and a smaller but still significant reduction of 12% in murders during 2021 compared to 2020.

Appendix

Table 4: Period 1 Grids – Pre and Treatment Period Crime Levels

Grid ID	Division	Treatment	Pre Treatment Crime (Jan-Apr)	Treatment Crime (May-Aug)	P1 Crime Change
49873	CE	OF	3	2	-1
73540	NC	HV	2	3	1
86832	NC	HV	3	3	0
92380	NC	OF	3	0	-3
100143	NC	OF	3	0	-3
68486	NE	HV	2	1	-1
68527	NE	HV	2	1	-1
73557	NE	HV	1	0	-1
73868	NE	HV	2	1	-1
75170	NE	HV	3	0	-3
85891	NE	HV	2	0	-2
87123	NE	HV	3	1	-2
90118	NE	HV	2	0	-2
53440	NE	OF	4	2	-2
57043	NE	OF	6	2	-4
69878	NE	OF	4	1	-3
74193	NE	OF	3	2	-1
74842	NE	OF	3	1	-2
86628	NE	OF	2	2	0
87585	NE	OF	3	2	-1
87810	NE	OF	1	0	-1
88980	NE	OF	9	5	-4
73438	NW	HV	3	2	-1
86232	NW	HV	1	0	-1
61838	NW	OF	5	2	-3
70562	NW	OF	3	0	-3
71996	NW	OF	5	1	-4
71999	NW	OF	4	1	-3
72554	NW	OF	3	3	0
18876	SC	HV	4	2	-2
22467	SC	HV	3	2	-1
33746	SC	HV	3	0	-3
5646	SC	OF	2	3	1
14142	SC	OF	3	3	0
19338	SC	OF	2	0	-2
22411	SC	OF	2	1	-1
28917	SC	OF	3	1	-2

30826	SC	OF	7	3	-4
6161	SC	OF	2	3	1
40543	SE	HV	2	1	-1
42431	SE	HV	7	7	0
43203	SE	OF	5	1	-4
14095	SW	HV	2	0	-2
6663	SW	OF	3	1	-2
6913	SW	OF	5	3	-2
7184	SW	OF	3	3	0
21621	SW	OF	5	0	-5

Table 5: Period 2 Grids – Pre and Treatment Period Crime Levels

Grid ID	Division	Treatment	Pre Treatment Crime (May-Aug)	Treatment Crime (Sep-Dec)	P2 Crime Change
45299	CE	HV	3	2	-1
49885	CE	HV	7	1	-6
50119	CE	HV	6	0	-6
49133	CE	OF	3	2	-1
55375	CE	OF	2	1	-1
90932	NC	OF	4	2	-2
97469	NC	OF	4	1	-3
53941	NE	HV	2	0	-2
56493	NE	HV	2	2	0
57818	NE	HV	5	2	-3
68527	NE	HV	1	2	1
77233	NE	HV	2	0	-2
77886	NE	HV	2	0	-2
83886	NE	HV	2	0	-2
75181	NE	OF	4	1	-3
86628	NE	OF	2	2	0
86878	NE	OF	3	3	0
87126	NE	OF	4	1	-3
88980	NE	OF	5	2	-3
61124	NW	HV	4	3	-1
61838	NW	HV	2	3	1
71142	NW	HV	4	0	-4
71390	NW	HV	3	1	-2
72516	NW	HV	3	0	-3
73438	NW	HV	2	0	-2
70845	NW	OF	2	2	0

71423	NW	OF	6	2	-4
85989	NW	OF	3	0	-3
2818	SC	HV	2	2	0
7749	SC	HV	2	0	-2
20516	SC	HV	4	3	-1
20844	SC	HV	4	4	0
4244	SC	OF	4	2	-2
5646	SC	OF	3	3	0
6161	SC	OF	3	0	-3
21689	SC	OF	7	1	-6
27964	SC	OF	2	0	-2
30826	SC	OF	3	6	3
27406	SE	HV	4	0	-4
27734	SE	HV	3	2	-1
40003	SE	HV	2	2	0
43854	SE	HV	2	1	-1
44917	SE	HV	3	2	-1
52546	SE	HV	3	2	-1
42431	SE	OF	7	1	-6
46649	SE	OF	2	0	-2
39874	SW	HV	3	0	-3
4422	SW	OF	4	2	-2
6408	SW	OF	3	0	-3
6913	SW	OF	3	4	1
7184	SW	OF	3	0	-3

Table 6: Violent Crime Specific Summary

	Pre-Intervention		Post-Intervention		Percent Change
	<i>Total Incidents</i>	<i>Average per week (N=13)</i>	<i>Total Incidents</i>	<i>Average per week (N=13)</i>	
City-Wide: Murder	52	4.0	57	4.4	9.6%
Non-Treat/Catchment Grids: Murder	45	3.5	47	3.6	4.4%
Treatment Grids: Murder	2	0.2	1	0.1	-50.0%
Catchment Grids: Murder	5	0.4	9	0.7	80.0%
City-Wide: Robbery	640	49.2	536	41.2	-16.3%
Non-Treat/Catchment Grids: Robbery	527	40.5	452	34.8	-14.2%
Treatment Grids: Robbery	41	3.2	22	1.7	-46.3%
Catchment Grids: Robbery	72	5.5	62	4.8	-13.9%
City-Wide: Robbery (Individual)	522	40.2	451	34.7	-13.6%
Non-Treat/Catchment Grids: Robbery (Ind.)	422	32.5	381	29.3	-9.7%
Treatment Grids: Robbery (Ind.)	36	2.8	19	1.5	-47.2%
Catchment Grids: Robbery (Ind.)	64	4.9	51	3.9	-20.3%
City-Wide: Robbery (Business)	118	9.1	85	6.5	-28.0%
Non-Treat/Catchment Grids: Robbery (Bus.)	105	8.1	71	5.5	-32.4%
Treatment Grids: Robbery (Bus.)	5	0.4	3	0.2	-40.0%
Catchment Grids: Robbery (Bus.)	8	0.6	11	0.8	37.5%
City-Wide: Aggravated Assault	1,099	84.5	965	74.2	-12.2%
Non-Treat/Catchment Grids: AA	927	71.3	829	63.8	-10.6%
Treatment Grids: AA	80	6.2	37	2.8	-53.8%
Catchment Grids: AA	92	7.1	99	7.6	7.6%

Crime specific total exceed the overall total as some incidents involved more than one crime.

Figure 18: Murder

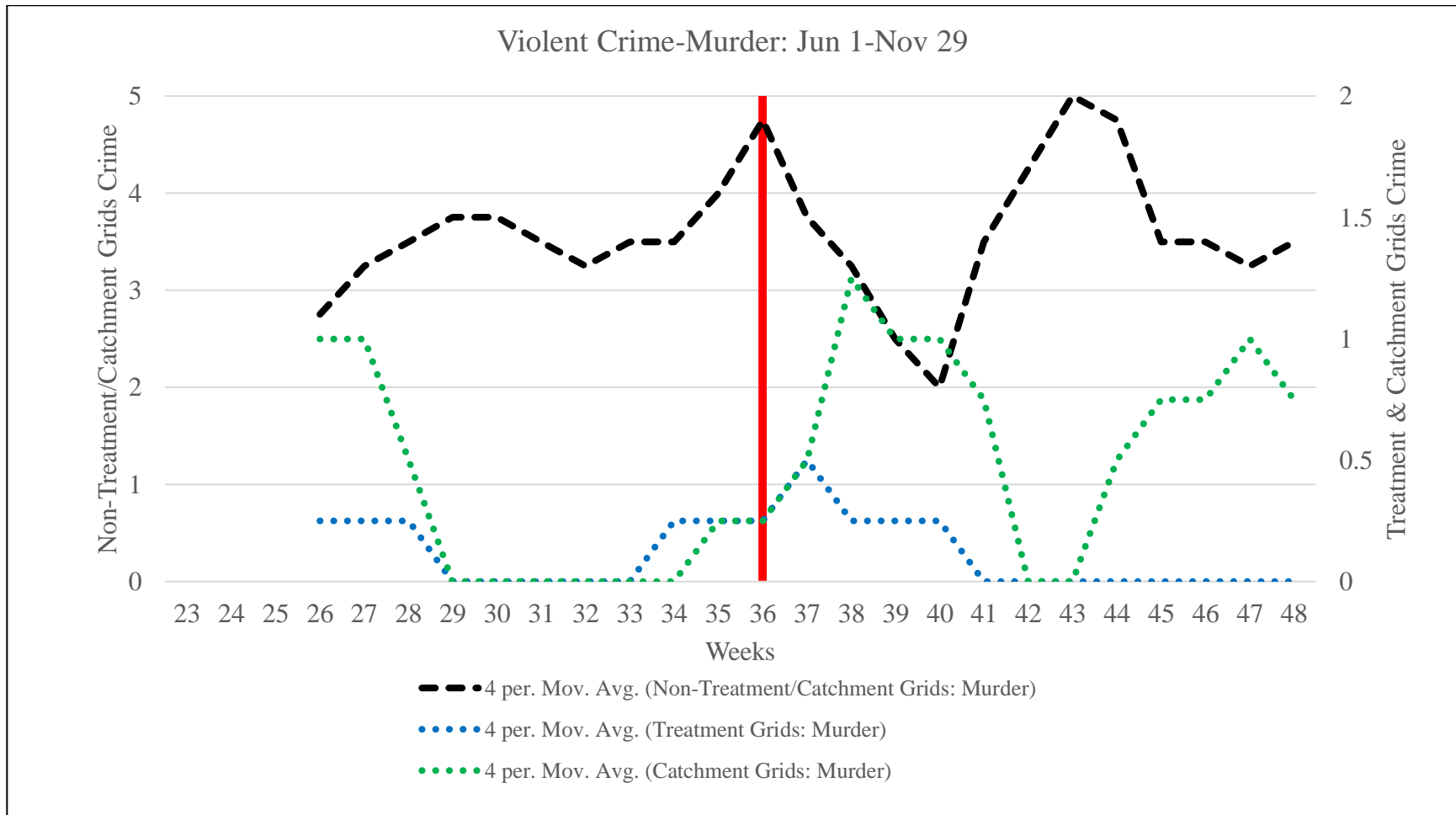


Figure 19: All Robbery

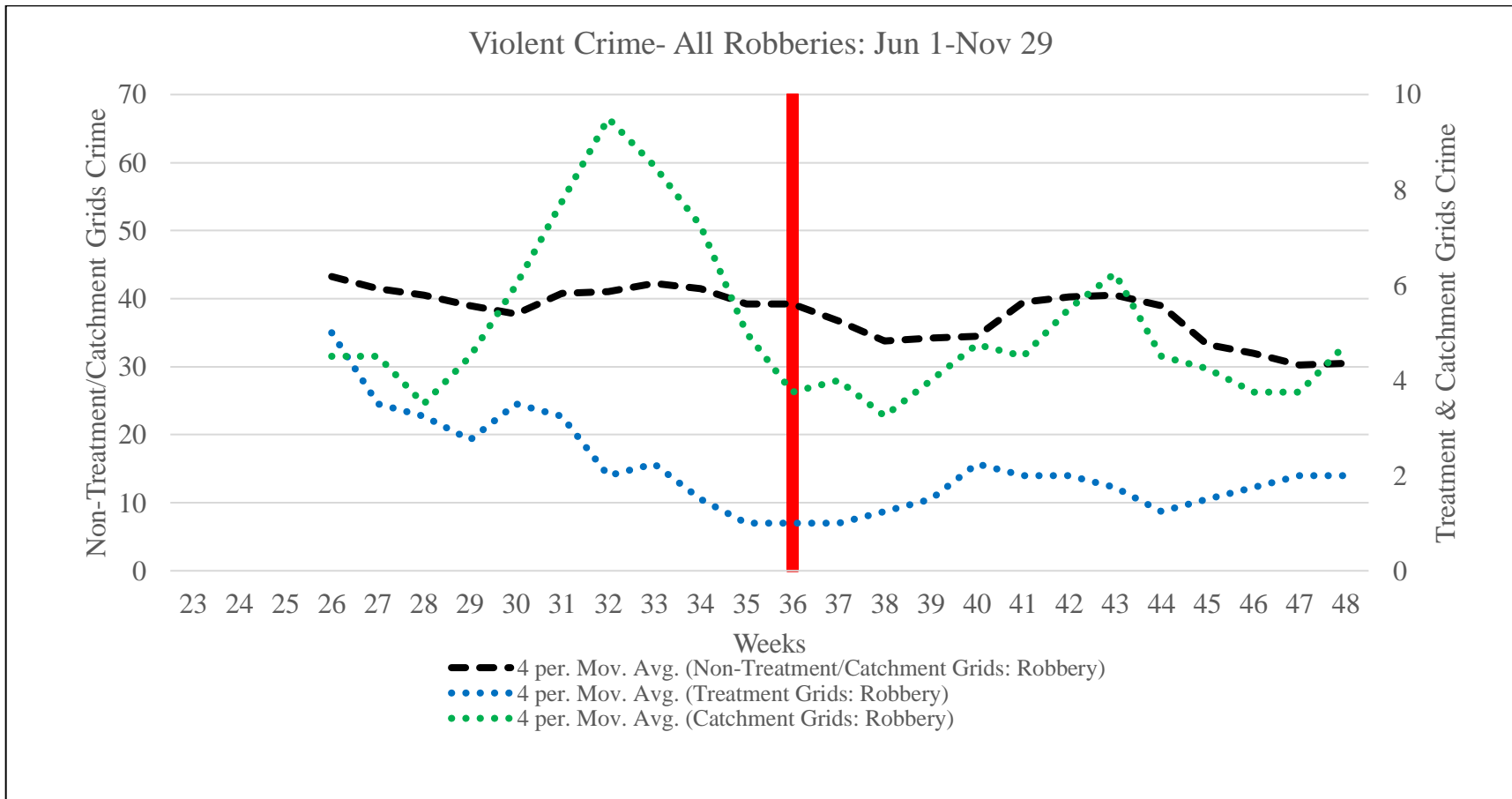


Figure 20: Robbery (Individual)

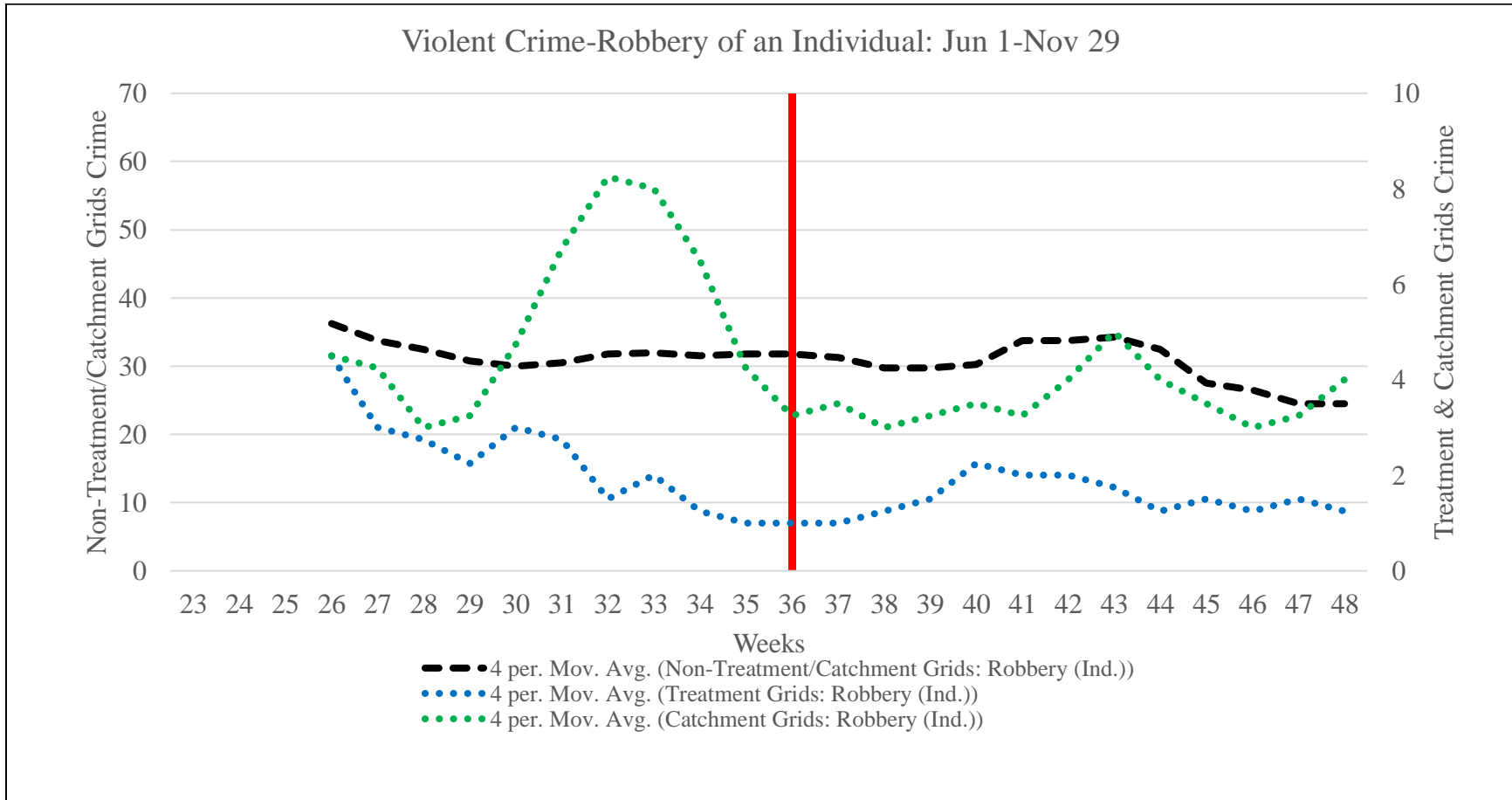


Figure 21: Robbery (Business)

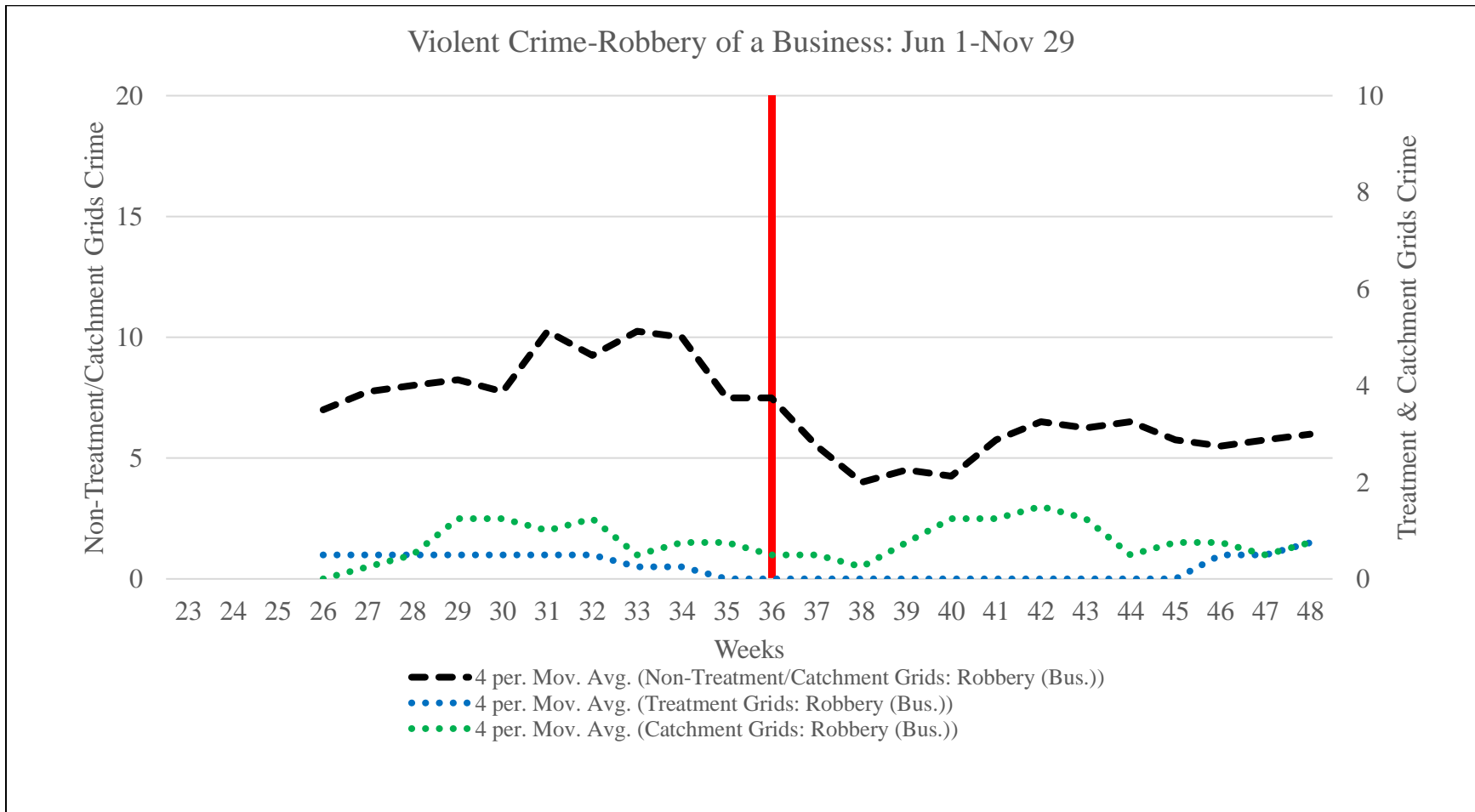


Figure 22: Aggravated Assault

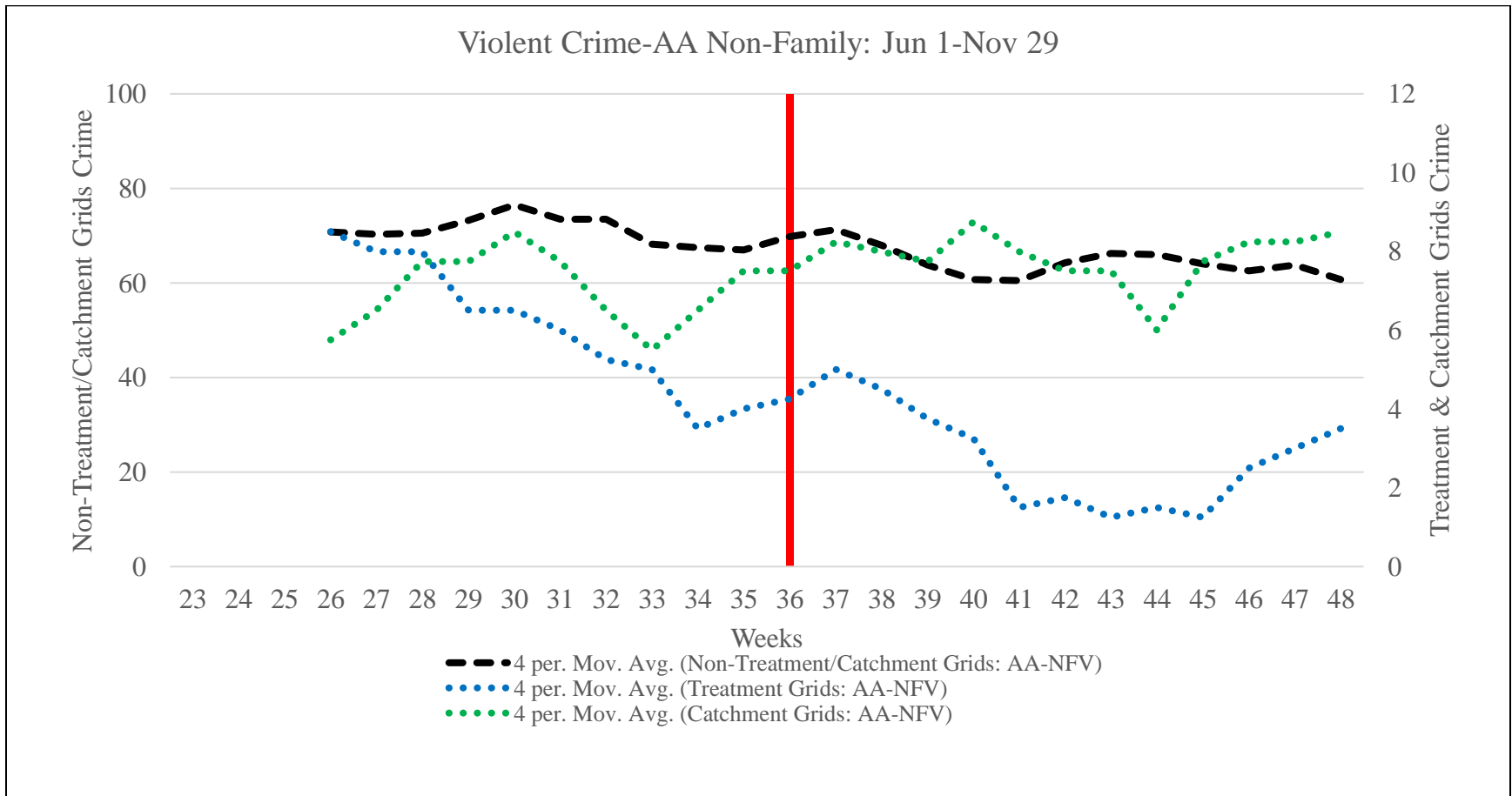


Table 7: Division Violent Crime Summary

	Pre-Intervention		Post-Intervention		Percent Change
	<i>Total Incidents</i>	<i>Average per week (N=13)</i>	<i>Total Incidents</i>	<i>Average per week (N=13)</i>	
Central: Division-Wide	232	17.8	187	14.4	-19.4%
Non-Treatment/Catchment Grids	181	13.9	153	11.8	-15.5%
Treatment Grids (N=5)	15	1.2	4	0.3	-73.3%
Catchment Grids	36	2.8	30	2.3	-16.7%
North Central: Division-Wide	133	10.2	114	8.8	-14.3%
Non-Treatment/Catchment Grids	123	9.5	105	8.1	-14.6%
Treatment Grids (N=2)	7	0.5	2	0.2	71.4%
Catchment Grids	3	0.2	7	0.5	133.3%
North East: Division-Wide	276	21.2	266	20.5	-3.6%
Non-Treatment/Catchment Grids	227	17.5	209	16.1	-7.9%
Treatment Grids (N=12)	24	1.8	11	0.8	-54.2%
Catchment Grids	25	1.9	46	3.5	84.0%
North West: Division-Wide	241	18.5	204	15.7	-15.4%
Non-Treatment/Catchment Grids	189	14.5	174	13.4	-7.9%
Treatment Grids (N=9)	20	1.5	10	0.8	-50.0%
Catchment Grids	32	2.5	20	1.5	-37.5%
South Central: Division-Wide	276	21.2	242	18.6	-12.3%
Non-Treatment/Catchment Grids	215	16.5	198	15.2	-7.9%
Treatment Grids (N=10)	24	1.8	18	1.4	-25.0%
Catchment Grids	37	2.8	26	2.0	-29.7%
South East: Division-Wide	355	27.3	278	21.4	-21.7%
Non-Treatment/Catchment Grids	315	24.2	253	19.5	-19.7%
Treatment Grids (N=8)	20	1.5	7	0.5	-65.0%
Catchment Grids	20	1.5	18	1.4	-10.0%
South West: Division-Wide	267	20.5	245	18.8	-8.2%
Non-Treatment/Catchment Grids	238	18.3	219	16.8	-8.0%
Treatment Grids (N=5)	13	1.0	6	0.5	-53.8%
Catchment Grids	16	1.2	20	1.5	25.0%

Table 8: Arrest Summary

	Pre-Intervention		Post-Intervention		Percent Change
	<i>Total Incidents</i>	<i>Average per week (N=13)</i>	<i>Total Incidents</i>	<i>Average per week (N=13)</i>	
City-Wide: All Arrests	9,134	702.6	8,100	623.1	-11.3%
Non-Treatment Grids: All Arrests	8,832	679.4	7,811	600.8	-11.6%
Treatment Grids: All Arrests	302	23.2	289	22.2	-4.3%
City-Wide: Part I Arrests	220	16.9	186	14.3	-15.5%
Non-Treatment Grids: Part I Arrests	207	15.9	180	13.8	-13.0%
Treatment Grids: Part I Arrests	13	1.0	6	0.5	-53.8%
City-Wide: Part I+ Arrests	1,901	146.2	1,796	138.2	-5.5%
Non-Treatment Grids: Part I+ Arrests	1,813	139.5	1,725	132.7	-4.9%
Treatment Grids: Part I+ Arrests	88	6.8	71	5.5	-19.3%
City-Wide: Warrant Arrests	2,328	179.1	2,321	178.5	-0.3%
Non-Treatment Grids: Warrant Arrests	2,253	173.3	2,234	171.8	-0.8%
Treatment Grids: Warrant Arrests	75	5.8	87	6.7	16.0%

Figure 23: Non-Treatment Grids vs. Treatment Grids: All Arrests

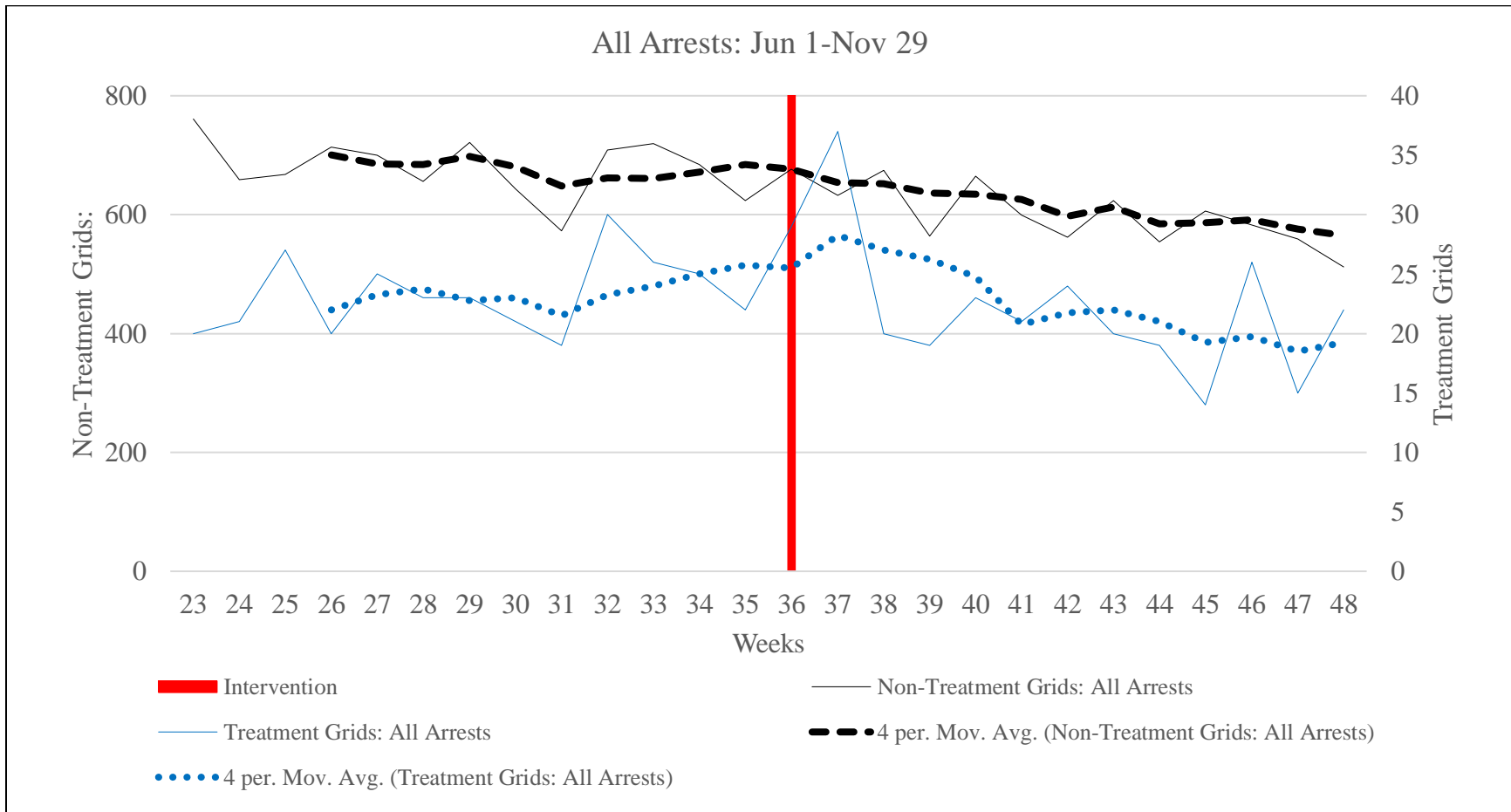


Figure 24: Non-Treatment Grids vs. Treatment Grids: Part I Arrests

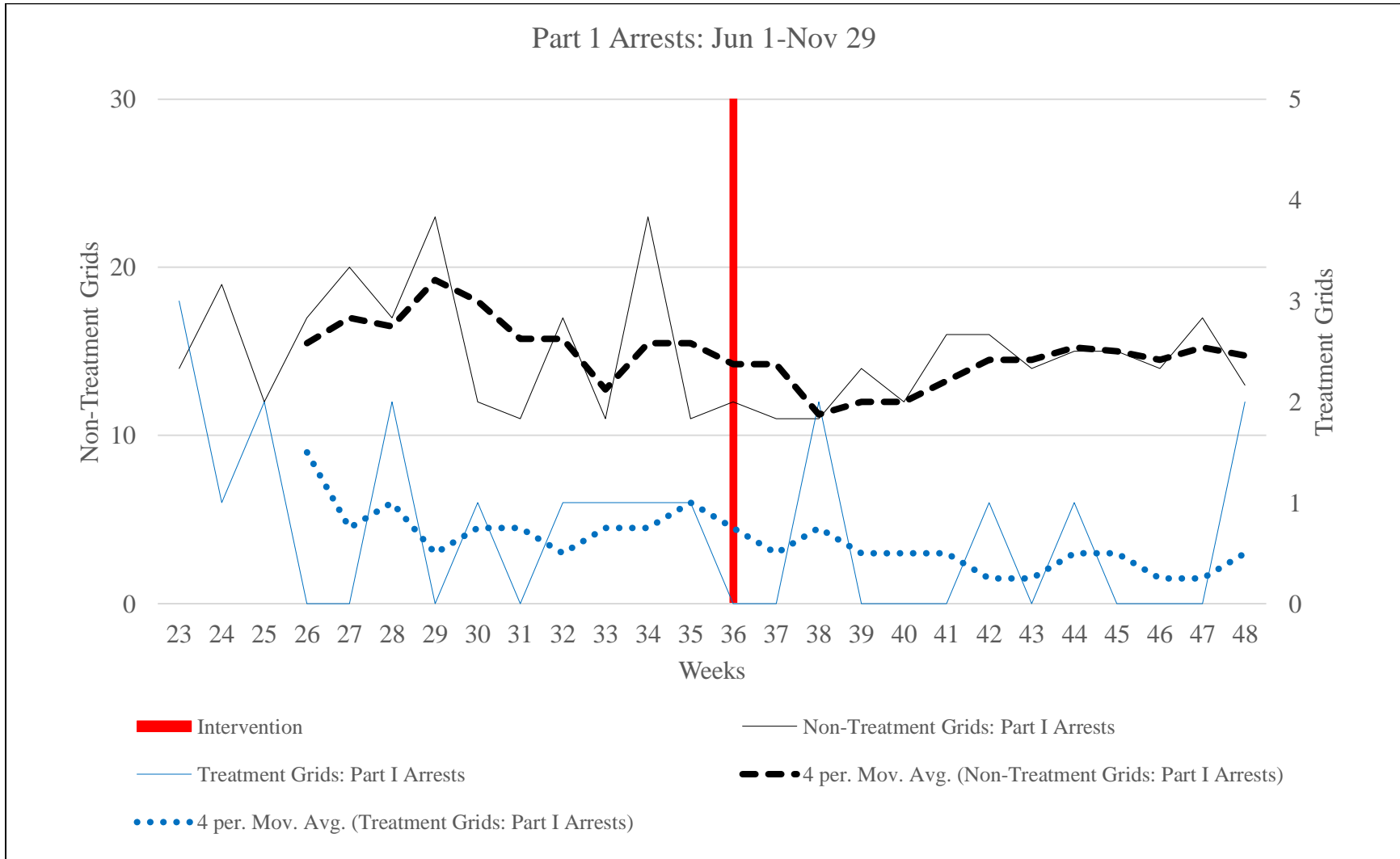


Figure 25: Non-Treatment Grids vs. Treatment Grids: Part I+ Arrests

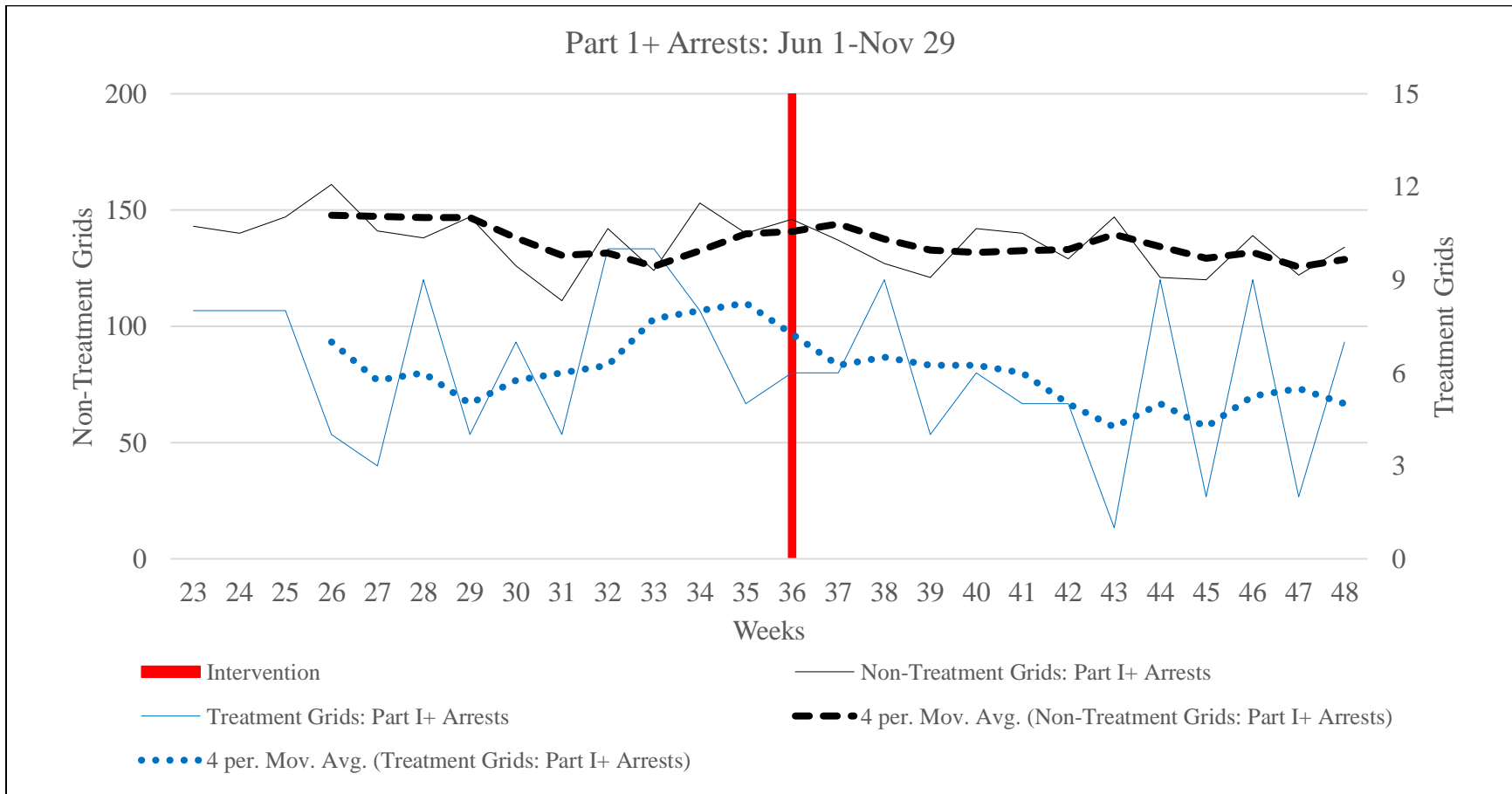


Figure 26: Non-Treatment Grids vs. Treatment Grids: Warrant Arrests

