

Tacoma Violent Crime Reduction Plan: Year 1 Evaluation

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Executive Summary

Beginning in July 2022, the Tacoma Police Department began executing a three-part strategic plan to reduce violent crime (hereafter referred to as the “Crime Plan”). As of June 2023, the first phase of the plan – hot spots policing – has been fully implemented, and the second phase is about to begin. The Crime Plan includes a short-term hot spots policing strategy, a mid-term problem-oriented, place-based policing strategy (POPBP), and a longer-term focused deterrence strategy, which has not yet begun. These three strategies were purposely designed to work together to help reduce violent crime in the City of Tacoma by focusing on the relatively few places where violent crime is prevalent and the relatively few individuals responsible for committing it.

This document serves as the Year 1 report on the results of the Tacoma Crime Plan. It summarizes the methodology and results of an independent, empirical assessment of the implementation and impact of the hot spots strategy during the first year of the Crime Plan: July 2022 through June 2023.

Hot spot treatment locations were evaluated based on three metrics: violent crime, arrests, and calls for service. The analyses examined crime in hot spots before and during treatment and included an assessment of crime in 1,000 foot catchment areas surrounding each hot spot to evaluate potential crime displacement effects. Police hot spot treatment involved the deployment of stationary, lighted patrol cars to high crime hundred blocks for 15-minute periods during peak crime hours and peak crime days of the week. Hot spots were reassessed and police resources redistributed every 60-90 days based on reported crime.

To measure the impact of the hot spots strategy on city-wide crime, linear trends and an interrupted time series analysis were used to compare crime before and after treatment began.

City-Wide Results

Overall, the **City of Tacoma experienced a 17.5% decrease in violent street crime incidents in Year 1 of the Crime Plan** compared to the previous 12 months (July 2021 to June 2022). At the same time, the number of individuals victimized by violent crime in Tacoma fell by a similar 17.1% compared to the previous year. The interrupted time-series analysis confirmed that the downturn in violent crime started with the onset of the Crime Plan, which likely was responsible for reversing what had been a three-year (2019-2021) rising trend in violent crime prior to implementation of the plan. However, yearly violent crime counts remain substantially higher in Tacoma than they were prior to the Covid 19 pandemic, and substantial work remains to be done to reduce violent crime in to pre-pandemic levels.

Hot Spot Results

Violent crime in treated hot spots was down more than 25% compared to the previous year, and it was down a similar amount in surrounding catchment areas, indicating that crime displacement did not occur as a result of the hot spots treatment. A difference-in-differences analysis, which compared pre- and post-treatment crime in treated hot spot grids to all untreated areas of the city, showed a 4.0% reduction compared to the prior year. This technique provides the most conservative estimate of the hot spots treatment effect. Additional analyses confirmed that the treated hot spots contributed less to overall levels of reported violent crime in Tacoma during Year 1 of the Crime Plan than they did the year before.

Other Measures

Total arrests were up slightly city-wide and in hot spots during Year 1 of the Crime Plan, but **violence-related arrests, drug arrests, and illegal weapons arrests were down 38%, 61%, and 7%, respectively, in the hot spot areas,** which is consistent with the expected treatment effect. Similarly, total calls for service to the police were up slightly city-wide and in the hot spots, but **violence-related calls were down nearly 20% in the treated hot spots** as expected. TPD officers were at their assigned hot spots in accordance with the treatment plan more than 96% of the time, on average, depending upon treatment period.

Conclusion

Taken together, the hot spot results, along with an interrupted time-series analysis of violent crime pre- and post-implementation of the Crime Plan, provide **strong evidence that the Crime Plan's focus on hot spots was likely responsible for a 17% reduction in city-wide violent crime compared to the previous year.** At the time this report was written, Tacoma city and community stakeholders were in the final stages of developing a POPBP plan for a site on South Hosmer Street that recorded some of the highest levels of violent crime, arrests, and calls for service over a three-year period. Implementation of this plan is expected to begin soon, and additional POPBP sites will be identified for treatment in Year 2. Future UTSA reports will continue to evaluate the impact of hot spots policing and also will assess the implementation and impact of the City's POPBP efforts.

Overview

Beginning in July 2022, the Tacoma Police Department began executing a three-part strategic plan to reduce violent crime¹ (hereafter referred to as the “Crime Plan”). The Crime Plan includes a short-term hot spots policing strategy, a mid-term Problem-Oriented Place-Based Policing (POPBP) strategy, and, a longer-term focused deterrence strategy. These three strategies were purposely designed to work together to help reduce violent crime in the City of Tacoma by focusing on the relatively few places where violent crime is prevalent (hot spots) and the relatively few individuals responsible for committing it. As of July 2023, the short-term hot spots policing strategy has been fully implemented and efforts have begun to execute the mid-term POPBP strategy.

This document serves as the Year 1 report on the results of the Tacoma Crime Plan. It summarizes the methodology and results of an independent, empirical assessment of the implementation and impact of the short-term strategy since the Crime Plan began in July 2022. Because the mid-term component of the Crime Plan just recently got underway, this report does not evaluate that phase of the Crime Plan. The mid-Year 2 report (anticipated in early 2024) will include a more thorough assessment of the POPBO strategy during its first six months of implementation (June through December 2023).

The report that follows is organized into several main sections. Following this Overview, we outline our Methodology, including the data we relied upon for this report and our analytic strategies. The City-Wide Analyses section examines overall city-wide trends in violent crime since the inception of the Crime Plan by examining violent crime incidents, violent crime victims, and specific violent crime offenses. The Hot Spots section examines crime, arrests, and calls for service in and around the treated hot spots across the initial year of the Crime Plan. In this section, we also analyze hot spots treatment fidelity, or the degree to which officers were present at designated hot spots in accordance with the treatment plans. The next section provides a summary of Period 5 results including an assessment of violent crime in and around the hot spots treated during this time period and provides and a summary of hot spot fidelity during Period 5. We wrap up the report with a Conclusion that summarizes the results of the Crime Plan to date and assesses lessons learned and future directions.

Methodology

The period of analysis is July 2018, four years before the crime plan began, through June 2023, one year after implementation. To date, there have been five completed hot spots treatment periods,

¹ Violent crime incidents are defined as murder, robbery (of individuals or businesses), and non-family, aggravated assault.

with a sixth period underway. During each period, locations received high visibility treatment which involved placing patrol cars in selected locations with their emergency lights illuminated during peak crime times and days of the week. In Period 5, an additional treatment modality was tested. The high visibility “plus” treatment involved the standard high visibility treatment augmented by officers leaving their parked cars to patrol on foot within the immediate vicinity of the selected location to check on suspicious circumstances or vehicles in the area and interact with community members.

Hot spots treatment locations were evaluated using three outcome measures: violent crime, arrests, and calls for service in the Year 1 sections of this report. Descriptive evaluations involved linear trends of violent crime city-wide over the five-year observation period; violent crime, arrests, and calls for service across the city and in treatment locations during the treatment periods in comparison to the previous year and for the same months during the year prior; and an assessment of violent crime trends in the catchment areas surrounding the selected hot spots to check for potential crime displacement or diffusion of treatment benefits.

More advanced statistical modeling included the use of an interrupted time series analysis to assess city-wide changes in violent crime before and after the Crime Plan began. Interrupted time series analysis is a statistical method used to evaluate the impact of an event or intervention over time. This approach explores crime in the City of Tacoma pre- and post-Crime Plan implementation to evaluate the impact of the Crime Plan on violent crime throughout the city. To assess the impact of crime reductions in hot spots treatment locations, specifically, we conducted difference-in-differences analysis. Using untreated locations within the City of Tacoma as a control group, difference-in-differences analysis measures the average difference in change in crime in the treated and untreated locations and is used to evaluate the effectiveness of the hot spots strategy at reducing crime in the treated locations.

Below is a summary of the months associated with each of the five treatment periods included in the Year 1 report. As the Department transitioned from one period to the next, some locations remained in the treatment protocol while new ones were added and those that were no longer ‘hot’ were removed.

- Year 1: July 2022-June 2023
 - Period 1: July 2022-September 2022
 - Period 2: October 2022-November 2022
 - Period 3: December 2022-February 2023
 - Period 4: March 2023-April 2023
 - Period 5: May 2023-June 2023

Appendix A further summarizes this information and also provides the comparison dates for each period. Of note, Periods 1-3 began and ended within a few days of the beginning and end of the

month, but for the purposes and consistency of the analyses in this Year 1 Report, the treatment periods were evaluated by month.

City-Wide Analyses

Crime Incident Trends

Figure 1 (below) shows the number of violent crime incidents per month in Tacoma beginning in July 2018 until June 2023. The graph includes five years of violent crime data. The start of the Crime Plan—July 2022—is delineated by the vertical blue bar. Overall, **Tacoma experienced a 17.5% decrease in average violent crime incidents** since the start of the Crime Plan (July 2022 – June 2023) compared to the previous year (July 2021 – June 2022).

Between 2018 and 2020, Tacoma’s average number of monthly crime incidents hovered around 80. During the summer of 2021, the city began to experience an increase in violent crime that peaked in early 2022 at more than 200 incidents per month. This crime increase is exemplified by the dotted red line, which shows a linear rise in violent crime between July 2018 and June 2022. Once the Crime Plan was instituted, the trend line for violent crime in Tacoma, notated with the green dotted line, reversed direction and crime began to fall. While violent crime remains elevated compared to historic averages, the average number of violent crime incidents since the Crime Plan began (143) again represents a 17.5% decrease from the year before. Significantly, the increasing trend in violence that began in the summer of 2021 has been reversed.

Figure 1: Violent Crime Incidents, July 2018- June 2023

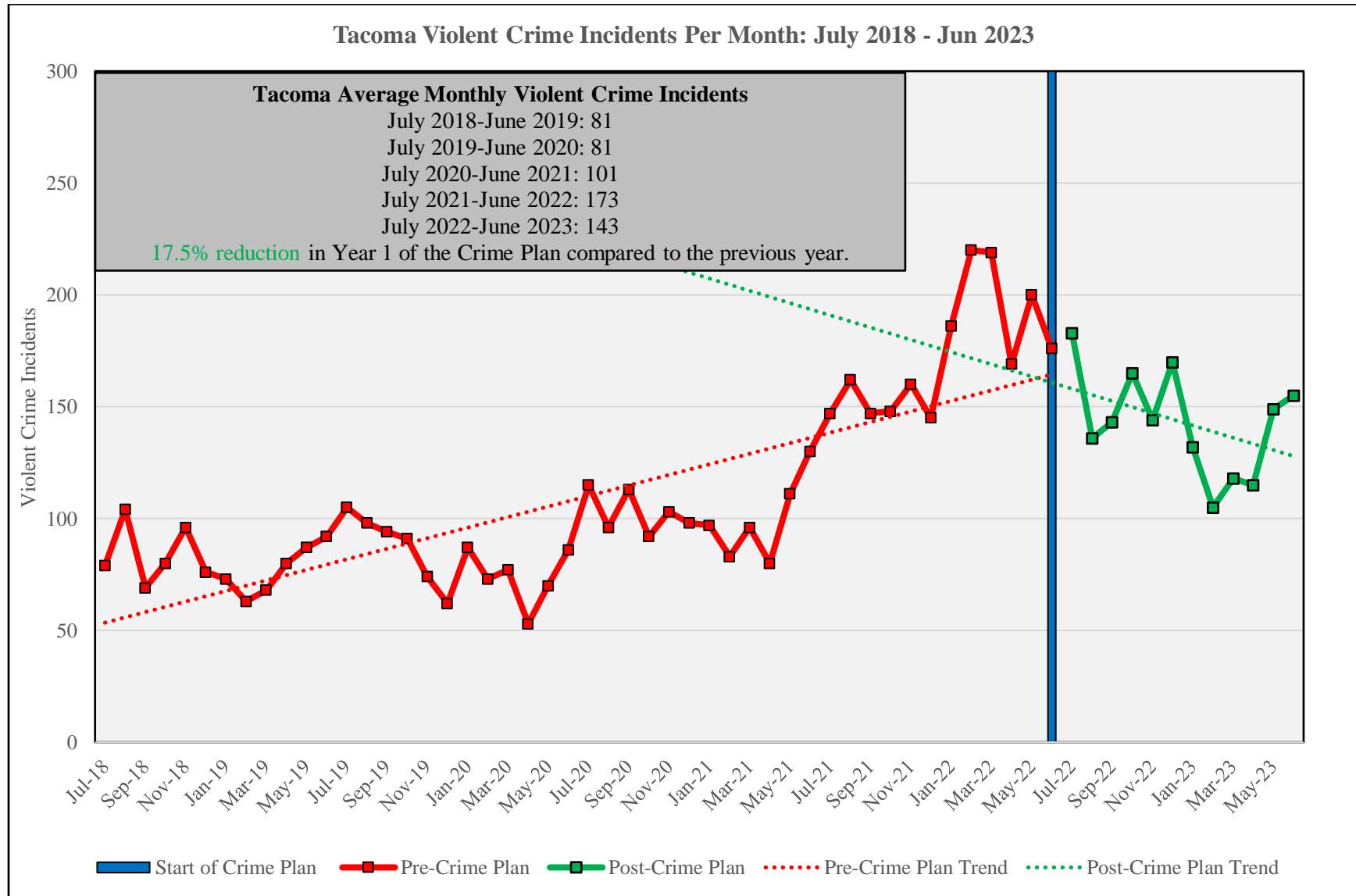


Figure 2, shown on the next page, considers the same time period as above (July 2018 – June 2023), but focuses on *victims* of violent crime rather than violent crime incidents. Similar to Figure 1, monthly counts of violent crime victims pre-Crime Plan are shown in solid red, while the trend line is dotted red. Monthly counts of crime victims after the Crime Plan began are shown in solid green with a dotted green trend line. Again, the start of the Crime Plan in Tacoma is marked by a vertical blue bar beginning in July 2022. Overall, **Tacoma experienced a 17.1% decrease in average monthly counts of violent crime victims since the start of the Crime Plan** compared to the previous year (July 2021 – June 2022).

Beginning in June 2018, the average number of violent crime victims in Tacoma hovered around 93 per month, with pronounced increases and decreases, and stood at approximately 202 violent crime victims in June 2022, the month before the Crime Plan started. During the pre-Crime Plan period, the highest number of victims was 264 in February 2022, and the pre-Crime Plan trend showed an increase in average violent victims per month of more than 100%. Again, once the Crime Plan got underway in July 2022, the trend reversed, and the average number of monthly crime victims began to fall. By the end of Year 1, the average stood at 167 violent crime victims per month, which is high by historic standards but approximately 17% lower than the year before the Crime Plan began.

Figure 2: Violent Crime Victims, July 2018- June 2023

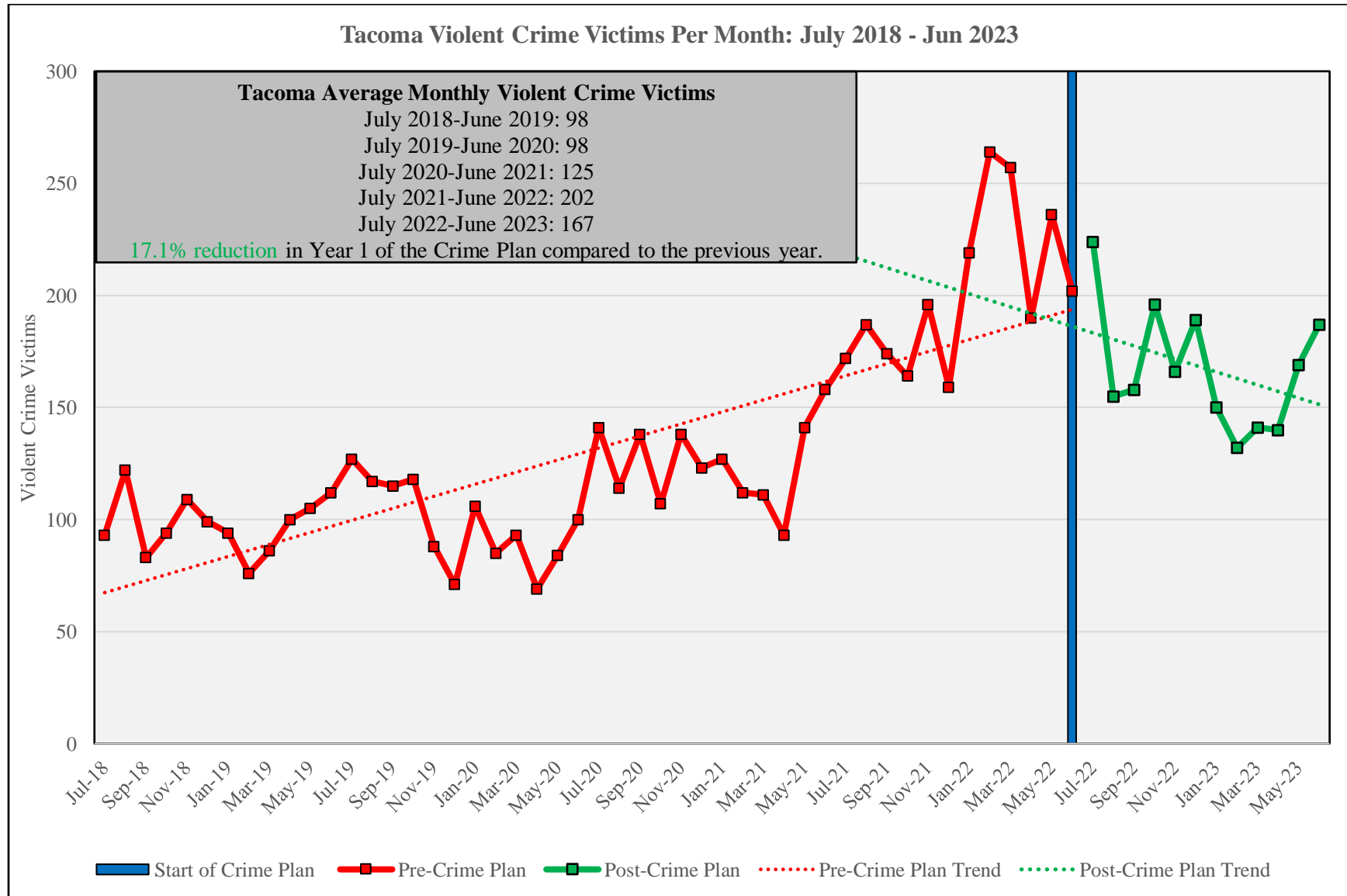


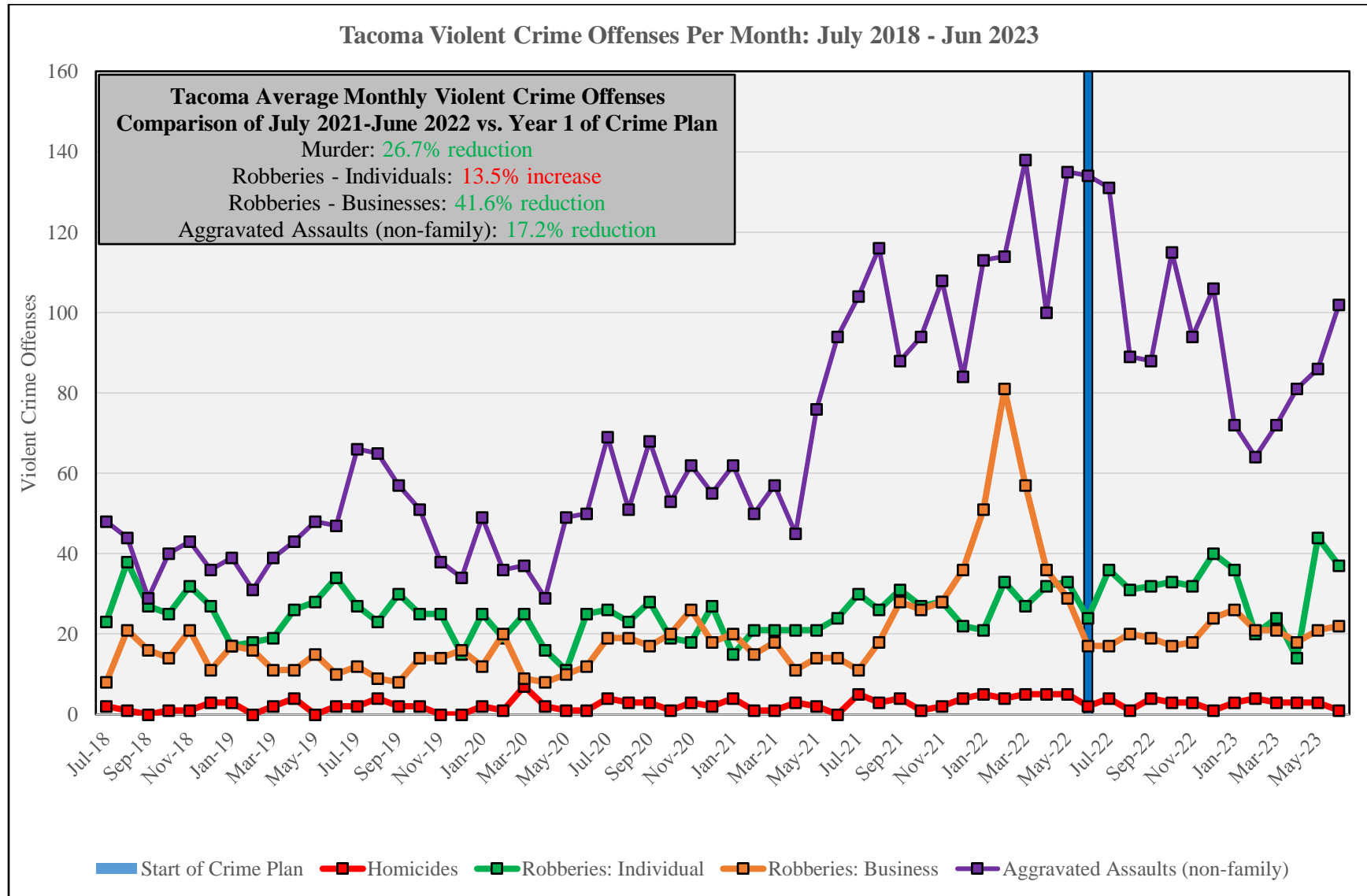
Figure 3, shown on the next page, displays the total number of violent *offenses* per month by crime type in Tacoma. As a reminder, multiple offenses can be subsumed under one incident. Since the start of the Crime Plan (July 2022) compared to the previous 12 months, **murders decreased by 26.7%, robberies of businesses fell by 41.6%, and aggravated assaults (non-family) dropped by 17.2%**. The only crime type to increase was robberies of individuals, which increased 13.5%.

Over the past five years, aggravated assaults, shown in the solid purple bar, began with about 48 offenses per month in July 2018, and as of June 2023, they stood at approximately 102 offenses. Importantly, though, they are now trending downward (-17.2%) compared to the year before. Similarly, robberies of individuals, shown in the solid green line, show a wide range of highs and lows throughout the past five years. Individual robberies hovered around 28 offenses per month in July 2018 and ended at 37 per month in June 2023, a trend that represents an average increase of about 14% compared to the year before. Unlike the other major categories of violent street crime, robberies of individuals have not yet reversed direction and begun to fall post-Crime Plan implementation.

Business robberies—shown in the solid orange line—started at around 8 offenses per month in July 2018 and ended with 22 per month by June 2023, which represents a large absolute increase from historic lows but a substantial decrease (-42%) from the prior year. Monthly counts of homicides, displayed at the bottom of the graph in the solid red line, remained relatively flat over the past five years but decreased by about 27% during Year 1 of the Crime Plan compared to the year before.

Overall, violent crime *incidents* and *victims* are down in Tacoma since the start of the Crime Plan compared to the year before the Crime Plan began. Additional analyses (below) further illuminate these trends, and while violent crime remains substantially elevated from historic averages in Tacoma, reported violent street crime has begun to trend downward with the implementation of the Crime Plan.

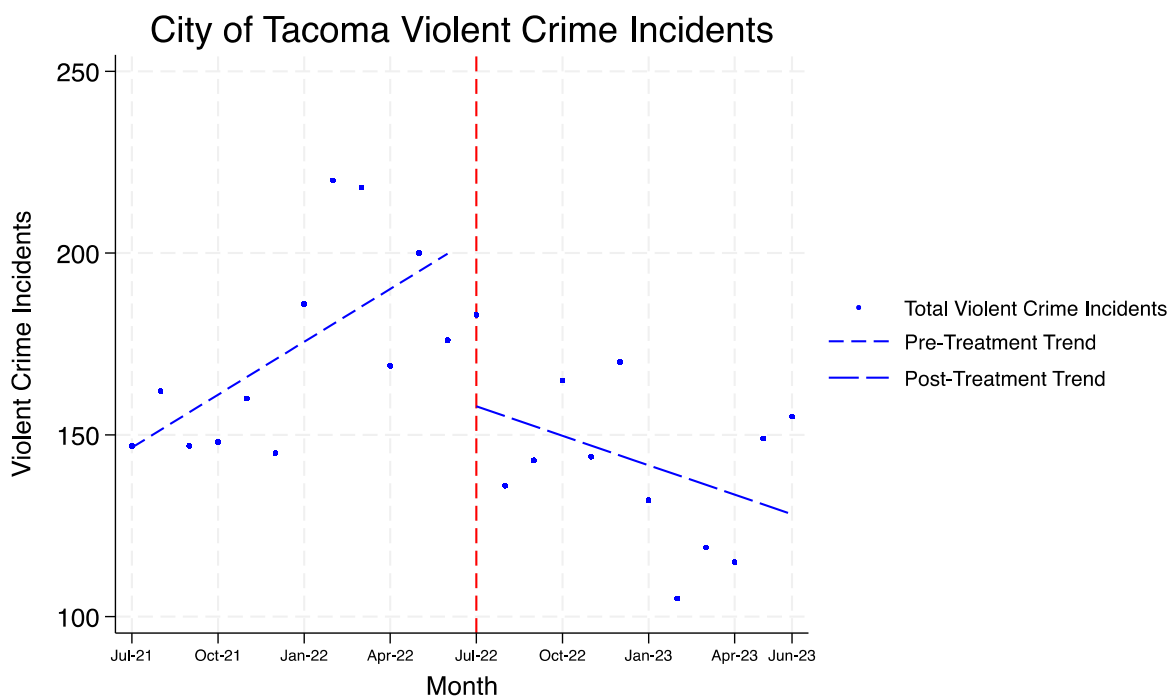
Figure 3: Violent Crime by Offense Types: July 2018-June 2023



Interrupted Time Series Analysis

To better understand overall treatment trends before and after the crime plan began, we used interrupted time series analysis (ITSA). ITSA is well suited for tracking and comparing data before and after treatment over long periods of time (Cook, Campbell, & Shaddish, 2002). The ITSA examined crime patterns in Tacoma from July 2021 through June 2023 with treatment beginning in July 2022. Figure 4 (below) shows violent crime trends during this time period. The start of treatment (July 2022) is indicated by the vertical dotted red line. Additional analyses (not presented here) demonstrate that **Tacoma experienced an average of 173 violent crime incidents in the 12 months before the crime plan began. After implementation, Tacoma averaged 143 violent crime incidents, a reduction of 17.3%, which closely tracks the descriptive results shown in Figure 1.**

Figure 4: Time Series Analysis of Violent Crime in Tacoma, July 2021-June 2023



While our research design is not experimental and does not allow for definitive cause-and-effect conclusions to be drawn, these ITSA results, coupled with the difference-in-differences findings from the hot spots analysis (detailed below), provide strong evidence that the Tacoma Crime Plan likely resulted in a city-wide reduction in violent crime.

Year 1 Hot Spots

This section of the report examines the impact of Phase 1 of the Crime Plan – the hot spots policing strategy – by focusing on crime changes within and around the treatment grids during the first year of the Crime Plan.

Methodology

As previously noted, Year 1 encompasses hot spot treatment Periods 1-5. Of note, some of the treatment period lengths, particularly in the earlier stages of the Crime Plan, were as long as 90 days whereas more recent treatment periods are 60 days in length. After examining crime trends during Year 1, the hot spot treatment periods were shortened to 60 days because most of the crime suppression benefits occurred in the first two months of treatment. Treatment period comparisons are two-fold. Treatment periods are compared against (1) their averages across the previous 12 months, and (2) averages during the same months in the previous year. For example, Period 1 covers July 2022 to September 2022, and the 12-months comparison runs from July 2021 to June 2021. The same months last year comparison period is July 2021 to September 2021.

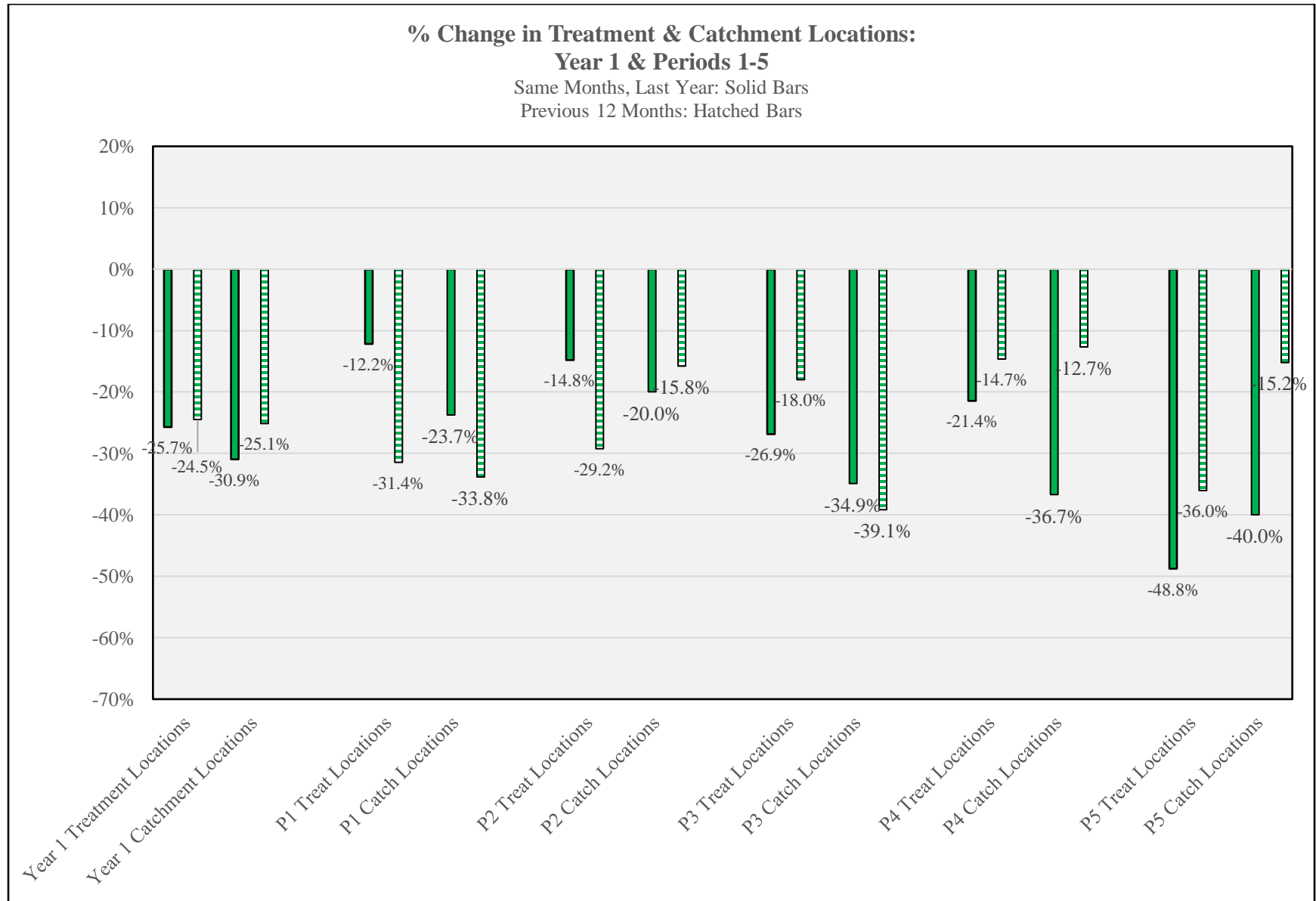
Comparative Analyses

Figure 5 examines hot spot treatment effects at the treated hot spots and surrounding catchment areas across the five treatment periods. The Year 1 comparison (far left bars) covers the entire first year of the Crime Plan since inception (July 2022 - June 2023) and shows changes in hot spot crime compared to the 12 months *before* the Crime Plan began (July 2021 - June 2022) and in the same months from the previous year². Previous 12-month comparisons are shown in the hatched bars, and the same months last year comparisons are shown in the solid bars.

Notably, there were large decreases in violent crime across all comparison periods in both treatment and catchment locations. Violent crime at treated hot spots and surrounding catchment areas fell between 25% and 30% depending on the comparison (previous 12 months or the same months in the previous year). The story is essentially the same for all treatment and catchment locations for Periods 1 through 5; violent crime in the treatment and catchment locations was lower compared to the same time last year and to the previous 12 months. **Collectively, the catchment area results show no evidence of crime displacement to areas adjacent to the treatment locations; rather, the results show consistent evidence of a diffusion of crime reduction benefits to the nearby catchment areas.**

² Change in violent crime here was calculated by assessing crime in the treatment and catchment locations in all five treated periods and then summing those to the Year 1 level for comparison to the previous 12 months and to the same months in the previous year.

Figure 5: Treatment & Catchment Location Violent Crime by Year: % Change



Difference-in-Differences Analyses

As part of the Year 1 evaluation, the UTSA research team conducted a difference-in-differences analysis that compared the change in crime levels in the treated locations to the change in crime levels in untreated locations. Difference-in-differences is a useful econometric technique for examining the change in hot spot crime following treatment relative to the change in other areas that were not treated (Goodman-Bacon, 2021; Wooldridge, 2010). Here difference-in-differences compares average violent crime in treated locations before and after treatment to average violent crime in non-treated locations during the same periods. This difference-in-differences analysis expands upon regular period-to-period analysis in three ways. First, it allows for the use of a control group (non-treated locations) within the City of Tacoma with which trends in treated hot spots can be compared. Second, it permits the UTSA research team to expand beyond providing changes in violent crime *within* each period and instead present changes in violent crime relative to other parts of the City of Tacoma. Finally, the approach controls for the regression to the mean effect that occurs when locations are selected for treatment at peak crime levels, recognizing that crime will likely return to lower levels regardless of treatment.

In selecting treatment locations within the City of Tacoma, the UTSA research team analyzes all reported violent crime incidents at the hundred-block level. This methodology is a well-accepted, evidence-based approach for identifying violent crime hot spots. However, it is not suited for difference-in-differences analyses. To define the control group, which consists of non-treated locations in the city, it is necessary to account for all potential treatment locations. Here, the comparison group ideally would be made up of all non-treated hundred blocks within the city. At this point, there is no available count of all hundred blocks within the City of Tacoma. As a solution, the research team used GIS to overlay a grid on the city, resulting in 300ft. x 300ft. grid squares. The treated hundred blocks were then mapped to their corresponding grids. Although this method introduced minor discrepancies in violent crime incident counts after the mapping, it assigned slightly *more* incidents to the treated locations because the grids were larger than the treated hundred blocks in some cases. Put another way, this analysis produces a *more conservative* estimate of change at treated hot spots because it attributes a higher count of violent crime incidents to treatment grids than might otherwise have been the case if the universe of all hundred blocks in the City of Tacoma was known. It also accounts for violent crime incidents that the TPD records management system assigns to intersections, which otherwise would have been missed using a hundred block analysis.

As is somewhat common in hot spots policing strategies, the UTSA research team uncovered a consistent pattern of large crime spikes in treated grids 60 – 90 days prior to treatment followed by a slight reduction in crime 30 days or less before treatment began. This phenomenon is known as regression to the mean. While regression to the mean is expected based on the selection of hot spots for treatment at their peak crime levels, the regression-based, difference-in-differences technique allowed us to control for any spikes in crime that occurred within the treated locations

in the 90 days before treatment began. These controls help isolate the treatment’s effects over and above the regression to the mean.

In conducting the difference-in-differences analyses, we expand on previously reported period-to-period analyses. Specifically, we considered the following research question:

1. Compared to the 12 months before treatment began, what was the overall average treatment effect in the treated hot spots in Year 1 relative to non-treated locations?

Table 1 shows the effect of the hot spots treatment on violent street crime in the treated locations compared to non-treated locations during Year 1 of the Crime Plan. For this analysis, the data were limited to the period of July 2021 to June 2023 which allows for the comparison to the 12 months preceding treatment. Additionally, controls were placed into the model to account for the rise in crime in the three months prior to treatment. Thus, this model provides a conservative estimate of the change in crime attributed to the hot spots treatment throughout Year 1 of the Crime Plan. The negative direction of coefficient shown in the table (-.036) suggests that, when compared to the 12 months before treatment began, hot spots treatment reduced the average expected monthly count of violent crime in the treated grids. The results approached traditional statistical significance ($p = .05$) with a p value of 0.067, which indicates a 93.3% probability that the reduction in violent crime at treated hot spots was the result of the treatment itself and *was not* attributable to chance.

Table 1: Difference in Difference Models – Year 1 Treatment Effect

	Coefficient	Robust Std. Err.	Impact on Crime
Average Treatment Effect	-.06	.012	-3.6%

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$. This model controls for 3 months of pre-treatment crime.

The **results from the difference-in-differences analysis again confirms the effectiveness of the hot spots strategy in reducing violent crime at the targeted hot spots.** Earlier this year, in consultation with UTSA research partners, the TPD began to experiment with the use of a high visibility “plus” treatment in randomly selected Period 5 grids (see Period 5 results below). The strategy augments the high visibility of a lighted patrol car with officers exiting their vehicles during the 15-minute treatment windows and foot patrolling in the immediate vicinity of the hot spot. Initial results are very promising, and future reports will further analyze the continuing impact of this augmented hot spots strategy on violent crime.

Grids Contributing to City-Wide Crime

Table 2 (below) displays the extent to which treatment and catchment locations contributed to *city-wide* violent crime before and during the Crime Plan. The Year 1 treatment locations contributed 10.5% of city-wide crime during the same months in the previous year before the Crime Plan began. During treatment, that percent contribution dropped to 9.4%. At the same time, the

contribution of catchment locations to city-wide crime over the same month last year was 11.4% and dropped to 9.5% during treatment. Table 2 also includes treatment period analyses on the contribution of treatment and catchment locations to city-wide violent crime compared to the same months in the previous year. Generally speaking, findings indicate that treatment and catchment locations contributed less to overall crime in the city during treatment than they did during the same months the previous year. By concentrating police resources in the most violence-prone hundred blocks in Tacoma, TPD reduced the contribution of those hot spots and their surrounding catchment areas to city-wide violent crime compared to the same months last year. The only exception to this pattern was Period 4, which saw an increased contribution to overall crime in the city (compared to the same period last year) made by the treatment and catchment areas during this period.

Along with difference-in-differences results and the city-wide ITSA analysis, these results provide additional evidence for the potential of hot spots policing implemented in the most crime-prone places to reduce what otherwise would be higher levels of violent crime in the treated and surrounding areas, thereby lowering violent crime counts across the entire City of Tacoma.

Table 2: % Treatment & Catchment Location Crime Contributing to City-Wide Crime

	Treatment/Catchment % of City-Wide Crime (Same Months, Last Year)	Treatment/Catchment % of City-Wide Crime (during Treatment)	Absolute Difference
Year 1 Treatment Locations	10.5%	9.4%	-1.0%
Year 1 Catchment Locations	11.4%	9.5%	-1.8%
P1 Treatment Locations	9.0%	7.8%	-1.2%
P1 Catchment Locations	12.9%	9.7%	-3.2%
P2 Treatment Locations	8.8%	7.4%	-1.3%
P2 Catchment Locations	13.0%	10.4%	-2.6%
P3 Treatment Locations	12.2%	12.0%	-0.1%
P3 Catchment Locations	7.8%	6.9%	-0.9%
P4 Treatment Locations	10.8%	14.2%	3.3%
P4 Catchment Locations	12.6%	13.3%	0.7%
P5 Treatment Locations	10.9%	6.9%	-4.0%
P5 Catchment Locations	12.0%	8.9%	-3.1%

Arrests

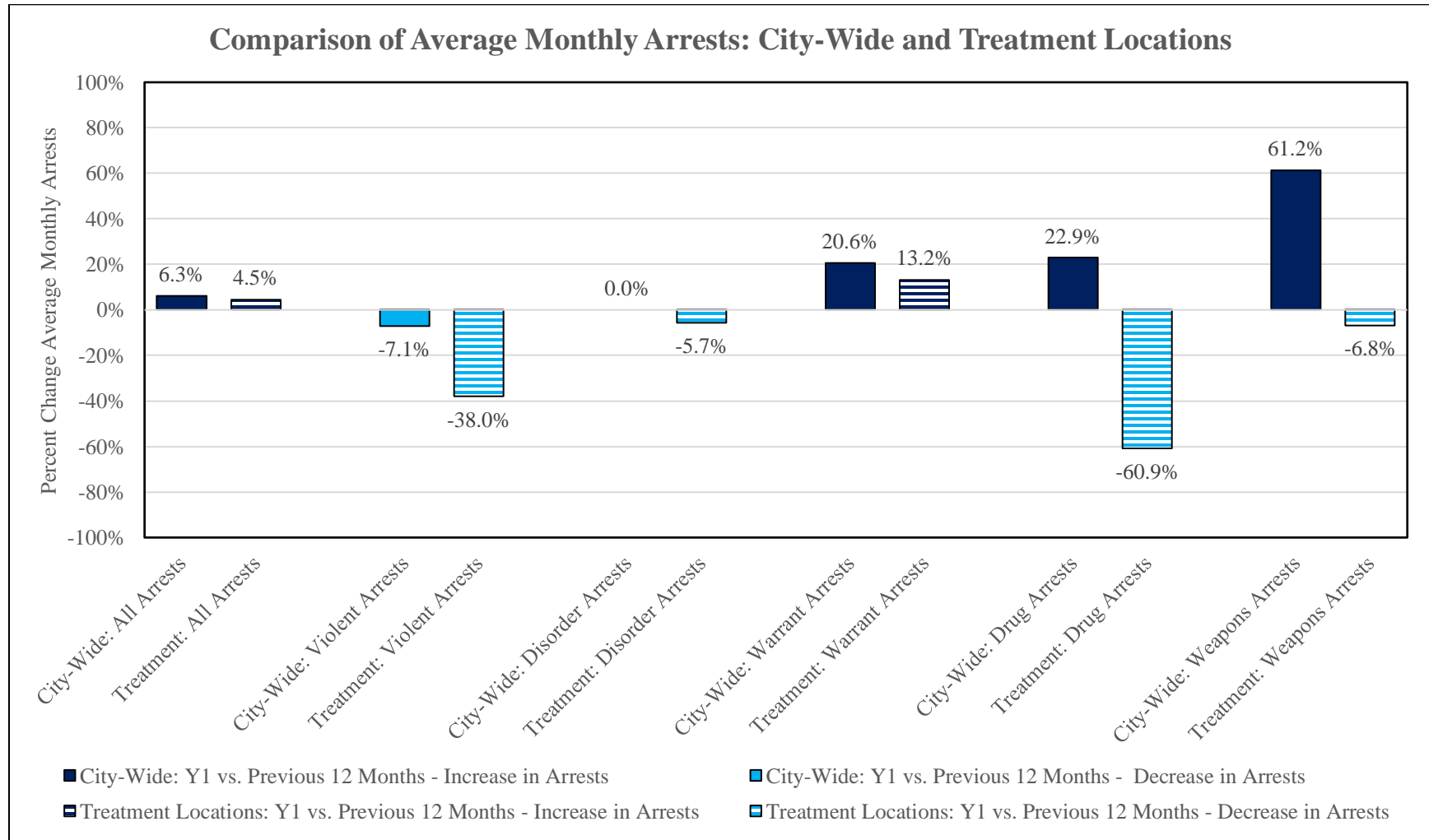
Figure 6, below, examines arrests during the Crime Plan in comparison to the previous 12 months. Average monthly arrest counts were calculated for all arrests, violent crime³ arrests, disorder⁴ arrests, warrant arrests, drug arrests, and weapon arrests. The solid blue bars indicate percent change in arrests *city-wide*, and the hatched blue bars indicate the percent change in *treatment locations* over the one-year treatment period compared to the 12 months prior to treatment.

Total arrests increased across the city by 6.3% and in the treatment locations by 4.5%. Violent crime arrests decreased 7.1% city-wide, but decreased a noticeable 38.0% in the treatment locations. This may be an indication that fewer violent crimes were occurring in the treated locations compared to averages in those areas over the previous year. Disorder-related arrests were largely unchanged across the city and in the treated locations. Warrant arrests increased by 20.6% across the city and 13.2% in the treated locations. Of note, drug arrests increased throughout the city by 22.9%, but decreased by a substantial 60.9% in the treatment locations. Again, this may indicate that the presence of TPD officers in the treated locations is depressing open air drug transactions and thereby leading to fewer drug arrests in these locations. Thus, the Crime Plan may be having an unintended but positive effect on non-violent criminal activity in the treated locations. More data would be needed to fully validate this hypothesis. Finally, weapon arrests were up by 61.2% across the city, but decreased by 6.8% in the treated locations. This is another piece of evidence suggesting that the presence of officers in the treated locations is exerting a suppressive effect on illegal behavior, including the presence and/or use of illegal weapons.

³ Murder; Robbery; Non-family, aggravated assault.

⁴ Sex crimes; Curfew/Loitering/Vagrancy violations; Destruction/Damage/Vandalism of property; Disorderly conduct; Liquor law violations; Public intoxication; Simple assault; Trespass on real property.

Figure 6: Average Monthly Arrests: City & Treatment Locations in Y1 vs. Previous 12 Months

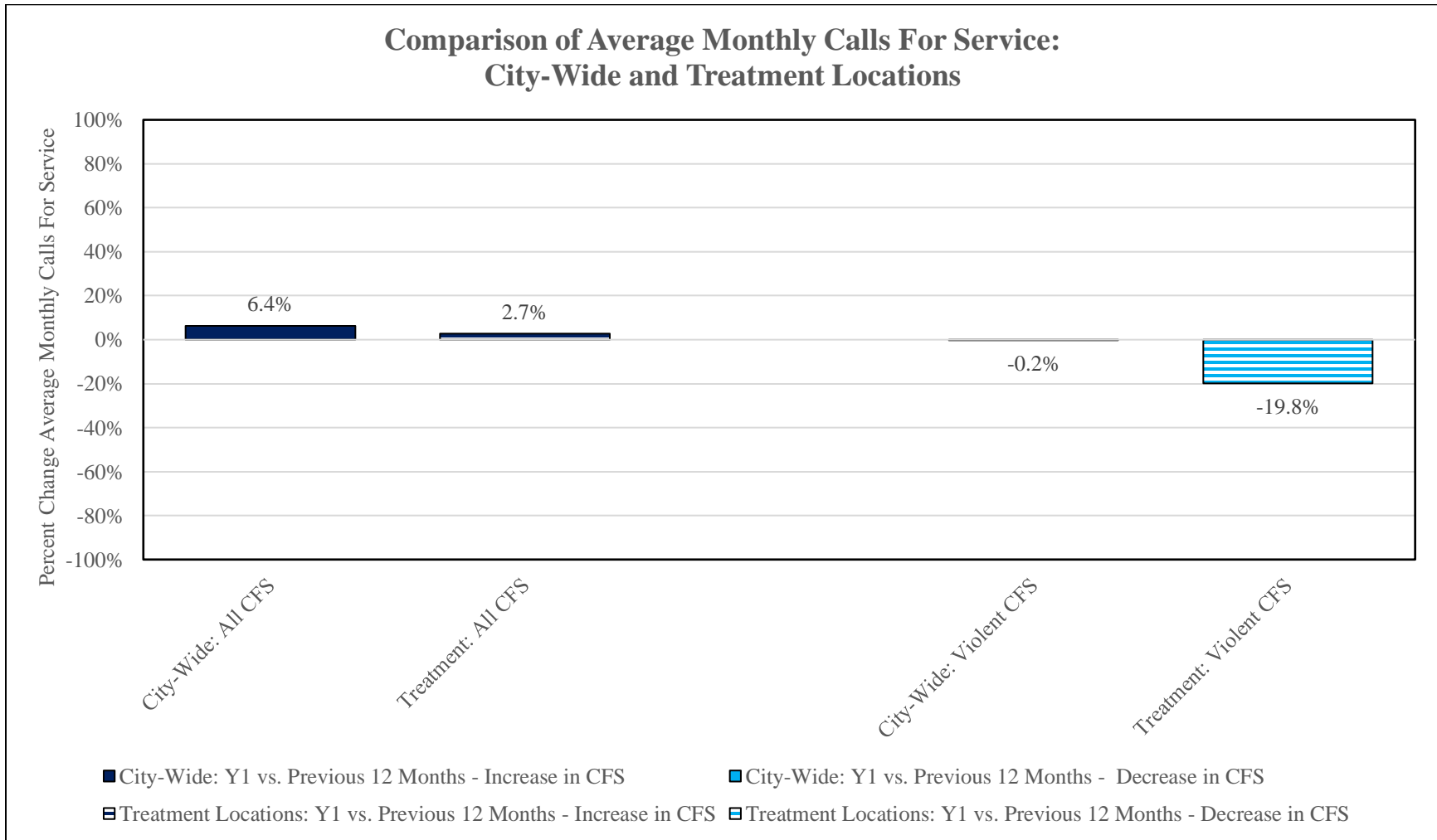


Calls For Service

Figure 7, on the following page, displays the percent change in the average number of calls for service (CFS) and violence-related calls for service⁵ (V-CFS) city-wide and in the treatment areas during Year 1 of the Crime Plan compared to the previous 12 months (July 2021-June 2022). City-wide, all CFS increased by 6.4% (solid blue bar) and by 2.7% in the treated locations (hatched blue bar). Violence-related calls for service were basically flat across the city but dropped by 19.8% in the treated locations. A decrease in violent CFS in the treated areas indicates a positive treatment effect since the start of the Crime Plan.

⁵ Armed robbery; Assault report with weapon; Death-homicide; Intimidation with weapon; Shooting-victim; Shots fired; Stabbing; Strong arm robbery; Person with weapon.

Figure 7: Average Monthly CFS: City & Treatment Locations in Y1 vs. Previous 12 Months



Fidelity

This section of the report examines treatment plan fidelity across the previous five periods, and signals the extent to which TPD officers were deployed to the designated treatment areas during the appropriate days and times identified by the hot spots analysis and treatment plan. Table 3 below displays the fidelity rates starting in Period 1 (91.8%) through Period 5 (98.1%). Overall, TPD officers have exhibited a high level of fidelity as the violent crime reduction plan moves forward.

Table 3: Fidelity Summary

Treatment Periods	Fidelity Rate
Period 1	91.8%
Period 2	96.9%
Period 3	97.0%
Period 4	98.2%
Period 5	98.1%

Period 5 Results

Figure 8 (next page) provides an overview of change in violent crime during Period 5 city-wide, in treatment locations, and in catchment areas. Average monthly changes are shown in the *solid* green bars compared to the same period last year (May 2022 – June 2022) and in the green *striped* bars compared to previous 12-month averages (July 2022 – June 2023).

City-wide, violent crime decreased 19.1% in Period 5 compared to the same period last year but was up slightly (2%) compared to the previous 12-month average. In the treatment locations, violent crime fell by 47.9% and 37.2%, respectively, compared to the same time last year and to the previous 12-month average. This graph also evaluates relative differences in violent crime at treated locations by treatment type. As discussed above, TPD implemented a high visibility “plus” (HV+) strategy⁶ in a randomly selected group of Period 5 hot spots. Violent crime was down substantially in both HV and HV+ locations, but the drop was greater in hot spots treated with HV+. Moving forward, TPD may want to transition all hot spots to HV+ based on these results and those from other cities in which the UTSA research team has found similar outcomes.

Finally, there were decreases in the catchment areas. Compared to the same time in the previous year, violent crime decreased in the catchment grids by 40% and decreased by 15.2% compared to the previous 12 months. With the exception of city-wide crime compared to the previous 12 months, TPD achieved violent crime reductions city-wide, in treatment locations, and in catchment areas during Period 5. Importantly, the large crime reductions in catchment areas are evidence of a diffusion of benefits. While TPD did not treat the catchment areas directly, these areas still experienced crime reductions, which are likely related to the presence of officers at adjacent treatment locations.

⁶ High visibility “plus” treatment involved the standard high visibility treatment augmented by officers leaving their parked cars to patrol on foot within the grid, check on suspicious circumstances or vehicles in the area, and interact with community members.

Figure 8: Violent Crime During P5 Treatment vs. Last Year and 12-Month Average

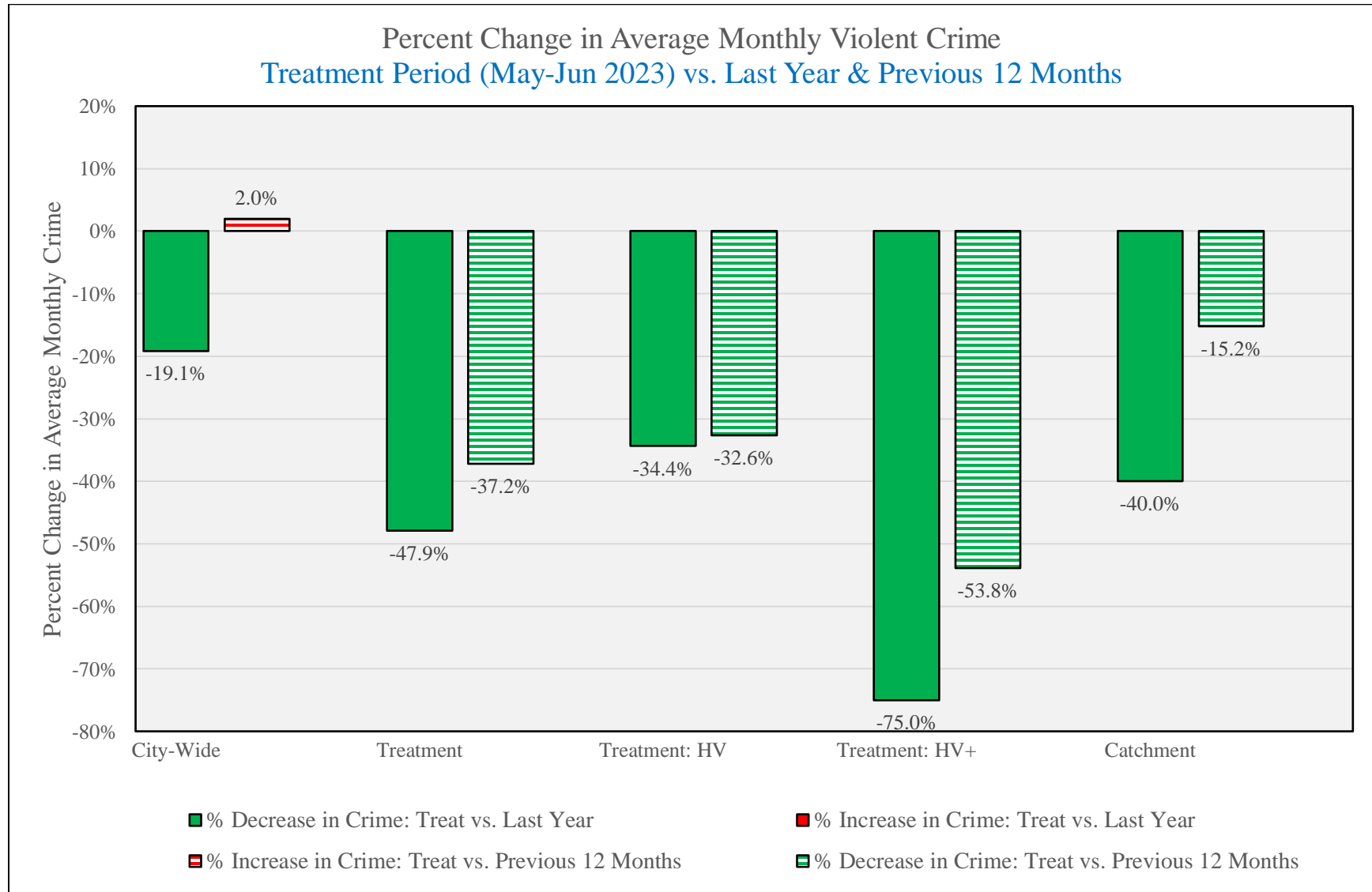


Figure 9 (next page) shows the monthly counts of violent crime incidents in the Period 5 treatment and catchment areas from May 1, 2022 through June 30, 2023. The blue line represents the treatment locations while the green line represents the catchment areas. The bolded portions of each line, starting at the end of April 2023 represent Period 5 treatment (May 1, 2023 – June 30, 2023); the beginning of Period 5 is also represented by the vertical red bar. Violent crime finished lower at the end of Period 5 treatment than it was prior to treatment in both treated hot spots and adjacent catchment areas.

Figure 9: Violent Crime During P5 Treatment vs. Previous 12 Months

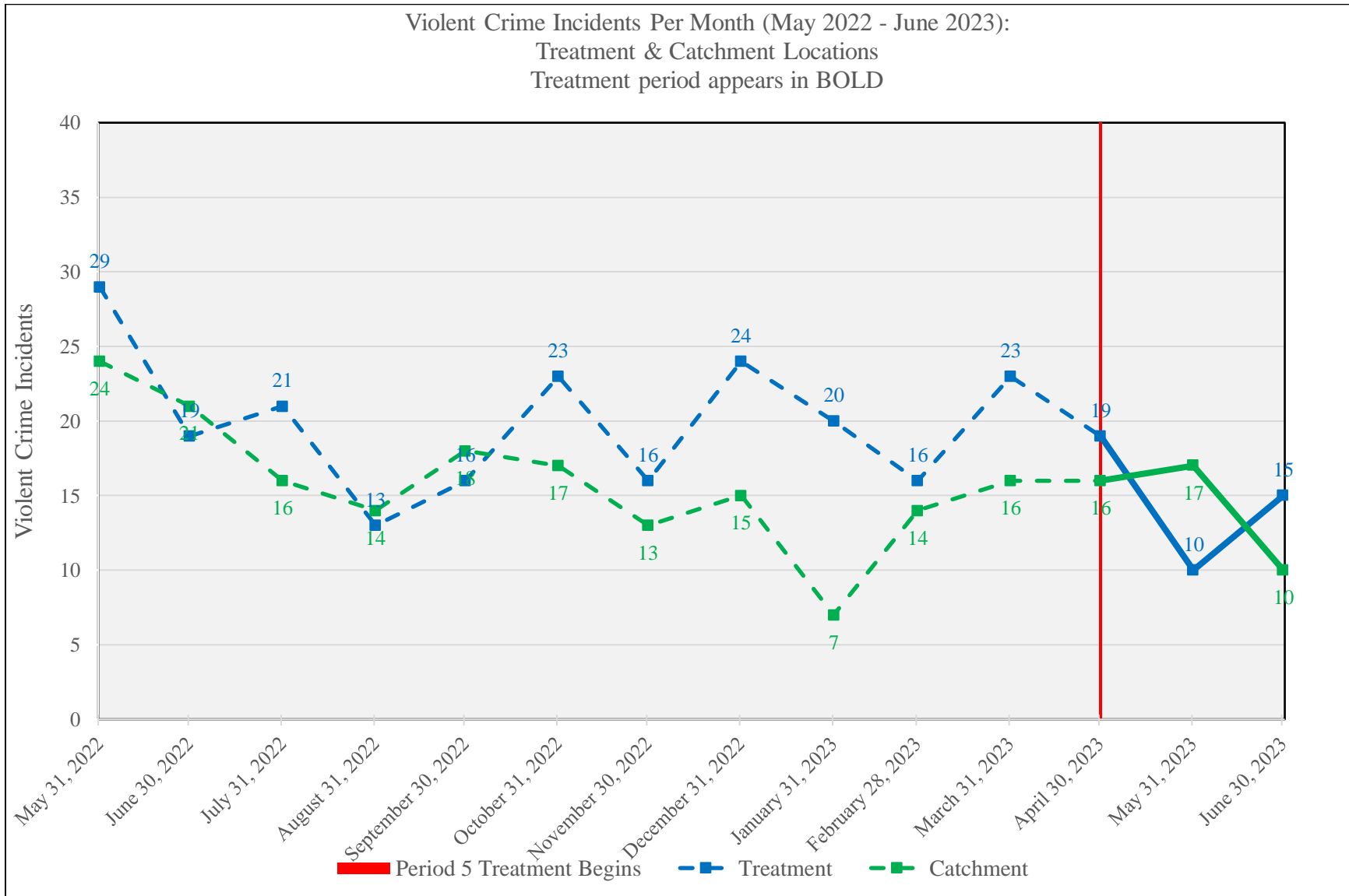


Figure 10 (next page) provides an overview of violent crime during Period 5 by crime sub-type. Again, average monthly percent changes are compared to the treatment period one year prior (May 2022 – June 2022) in the *solid* green or red bars and to previous 12-month averages (May 2022 – June 2023) shown in the green or red *striped* bars.

For murder, there was no change compared to last year's treatment period and an increase of 100.0% compared to the previous 12 months. **Because counts of individual crime sub-types in treatment locations are often small, a change of even one or two crimes in a month can produce substantial percentage increases or decreases.** For example, the 100% increase in murders compared to previous 12 months reflects 3 murders over the previous 12 months (average of 0.25 per month) and 1 murder during the two months of treatment (an average of 0.5 per month).

Robberies of individuals in the treatment locations decreased 33.3% and 46.7% compared to the same time last year and to the previous 12 months. Business robberies decreased by 47.6% compared to last year's treatment period and 22.4% compared to the previous 12 months. Finally, aggravated assaults decreased by 52.4% compared to the same period last year and 44.4% compared to the previous 12 months. Again, it is important to note that these percentage decreases are based on low incident counts.

Figure 10: Violent Crime During P5 Treatment vs. Two Comparisons – Crime Types

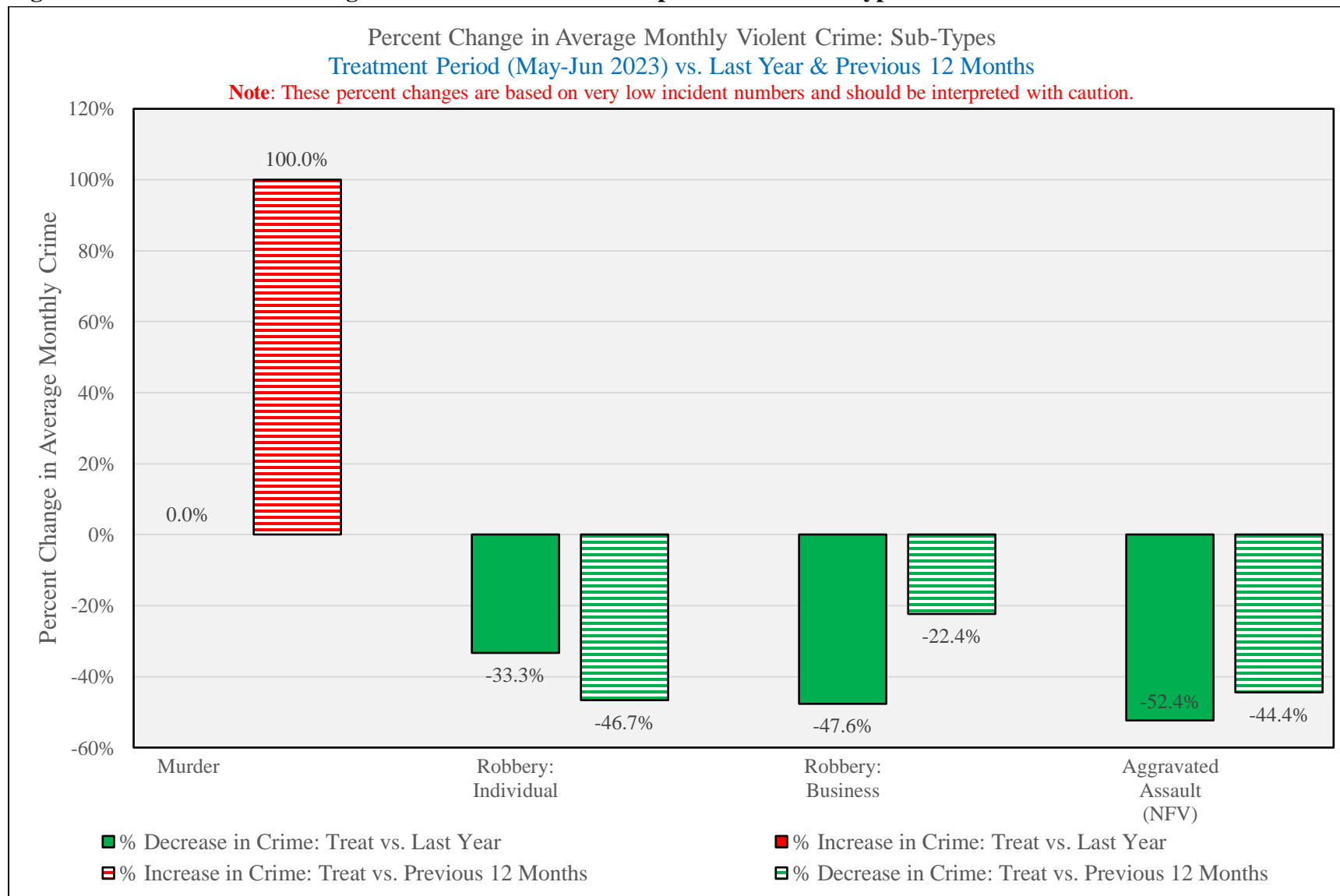
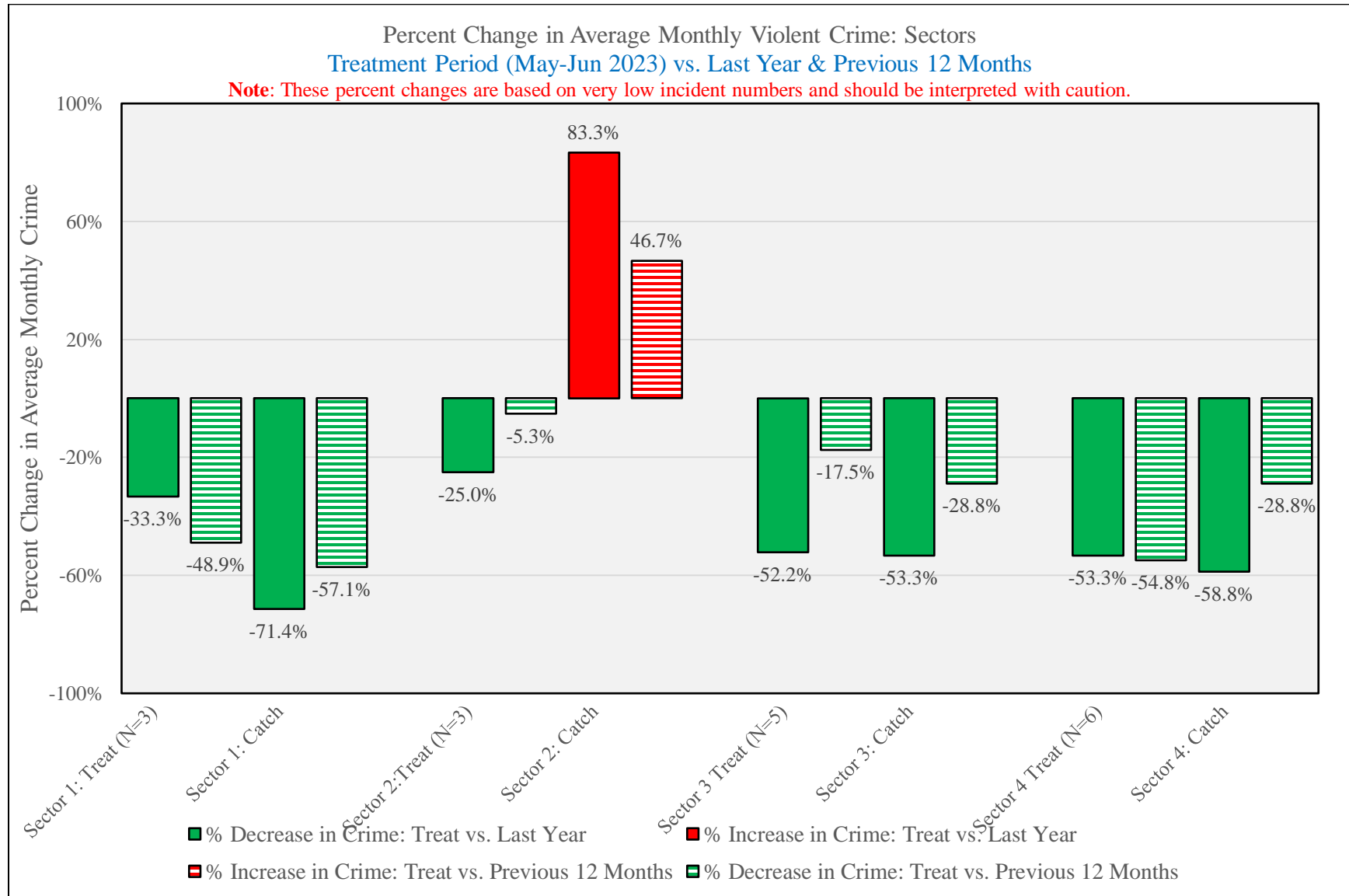


Figure 11 (next page) shows changes in the average number of monthly crimes as a percentage in the four TPD sectors during treatment compared to the same time last year (*solid* bars) and compared to 12-month averages (*striped* bars).

Compared to the same time period last year as well as the previous 12 months, violent crime fell substantially in treated hot spots and catchment areas across all sectors except for Sector 2 catchment areas where it increased by 83.3% compared to last year and by 46.7% compared to the previous 12 months. This pattern could be evidence of crime displacement in Sector 2 during this treatment period, or it could be caused by factors unrelated to the Crime Plan. Because crime displacement has rarely been seen in Tacoma in previous periods or in other sectors, including in the other three sectors this period, the increase in Sector 2 catchment area crime is probably not related to the hot spots treatment. The UTSA team will continue to monitor Sector 2 for potential displacement effects in future periods.

Changes in crime at the sector level can be volatile period-to-period due to low overall monthly crime counts. In addition, sectors may be assigned a low number of treatment locations during any given period. For this reason, single treatment period change in violent crime at the sector level should be interpreted with caution.

Figure 11: Violent Crime by Sector During P5 Treatment vs. Two Comparisons



P5 Fidelity Analysis

This section of the report examines treatment plan “fidelity” or the extent to which the TPD deployed officers to the designated high visibility treatment locations during the appropriate days and times as identified by the hot spots analysis. This assessment covers activity during Period 5 treatment (May – June 2023) and uses data from the Computer Aided Dispatch (CAD) system. The results are shown in Table 4 below. The two primary columns of interest report the *fidelity percentage* (overall correct dispatches) and the *average time on scene* (18:14 minutes), delineated by city-wide fidelity (98.1%) and across each treatment location. The fidelity rate varied slightly by location from a low of 93.3% at Location 9 to a high of over 100.0% at Locations 2, 3, 7, 16, and 17.

The *expected treatment* column refers to what the complete number of dispatches should have been if fidelity was at 100% (i.e., 6,290 dispatches). Additional information is provided for the number of *total dispatches* made by the TPD (6,323), the number of *correct dispatches* (6,170), the number of *incorrect dispatches* (153), and the *percentage of incorrect dispatches* (2.4%). Total dispatches refers to all TPD dispatches during the treatment period regardless of location, day, or time. The incorrect dispatches fields are those that did not match the proscribed location, day, and/or time according to the deployment schedule for Period 5. The percentage of incorrect dispatches column reflects the number of incorrect dispatches in relation to the total number of dispatches.

Collectively, these fields provide an assessment of how many dispatches occurred at the correct location, day, and time based on the treatment protocol. Comparison of the expected dispatches to the correct dispatches revealed an incorrect dispatch rate of 2.4%, which is quite low and within expected parameters. Overall, the TPD dispatched officers to the correct location at the allotted time periods during Period 5 in a manner that is largely compliant with the goals of the Crime Plan. Additionally, the total fidelity rate and separate location fidelity rates during Period 5 were quite good and continue to improve in each Period of the Crime Plan.

Table 4: P5 Fidelity Analysis

	% Fidelity	Average Time on Scene	Expected Treatment	Total Dispatches	Correct Dispatches	Incorrect Dispatches⁷	% Incorrect Dispatches
P5 Fidelity	98.1%	18:14	6,290	6,323	6,170	153	2.4%
Location 1	90.2%	18:18	377	383	340	43	11.2%
Location 2	101.5%	18:31	327	341	332	9	2.6%
Location 3	101.9%	18:37	377	388	384	4	1.0%
Location 4	97.7%	17:50	175	176	171	5	2.8%
Location 5	98.7%	17:58	316	317	312	5	1.6%
Location 6	99.0%	18:03	97	98	96	2	2.0%
Location 7	100.4%	19:42	244	246	245	1	0.4%
Location 8	99.0%	17:59	194	192	192	0	0.0%
Location 9	93.3%	18:21	596	585	556	29	5.0%
Location 10	99.9%	18:18	904	911	903	8	0.9%
Location 11	98.9%	17:40	377	374	373	1	0.3%
Location 12	97.0%	18:09	266	259	258	1	0.4%
Location 13	97.3%	18:16	377	367	367	0	0.0%
Location 14	95.2%	17:47	460	441	438	3	0.7%
Location 15	97.6%	18:06	291	285	284	1	0.4%
Location 16	100.7%	18:21	546	554	550	4	0.7%
Location 17	100.8%	18:42	366	375	369	6	1.6%

⁷ As indicated, there were 153 incorrect dispatches. One hundred and twenty-two incorrect dispatches occurred at the correct location but at the incorrect hour. Another 31 dispatches, which do not appear in the table, occurred at the wrong location.

Conclusion

The Tacoma Crime Plan began in July 2022 and has been underway for one year. This report evaluates the implementation and impact of the Crime Plan from its inception through June 2023. The Crime Plan consists of three primary strategies: hot spots policing, problem-oriented, place-based policing (POPBP), and focused deterrence. These strategies were purposely chosen for their strong evidence base, and they were intentionally layered to help reduce violent crime in Tacoma over the short, mid, and longer terms. To date, the hot spots policing strategy has been fully implemented, and TPD and other city stakeholders are working on developing a POPBP plan for an initial treatment site on South Hosmer Street. Future reports will include evaluations of these mid-term and longer-term strategies as they are implemented.

During the first year of the Tacoma Crime Plan, overall violent street crime incidents have dropped by about 17% compared to the year before the Crime Plan went into effect, and a similar reduction has occurred with violent victimization. Reductions by crime type include a 27% reduction in murder, a 42% reduction in business robberies, and a 17% reduction in non-family violence aggravated assaults. In contrast, individual robberies increased by about 14% compared to the previous 12-months. Interrupted time series analysis shows that the overall reduction in violent crime began with the onset of the Crime Plan, which reversed what had been an increasing trend in violent crime in Tacoma before the Crime Plan began. However, violent crime remains substantially higher than it was prior to the onset of the Covid 19 pandemic (see Appendix B for yearly crime counts), and much work remains to be done to lower violent crime to its pre-pandemic level.

Violent crime in treated hot spots was down more than 25% compared to the previous year, and it was down a similar amount in surrounding catchment areas, indicating that crime displacement did not occur as a result of the hot spots treatment. Additional analyses confirmed that the treated hot spots contributed less to overall levels of reported violent crime in Tacoma during Year 1 of the Crime Plan than they did the year before.

The impact of the Crime Plan on arrests and calls for service also was analyzed. Total arrests were up slightly city-wide and in hot spots during Year 1 of the Crime Plan, but violence-related arrests, drug arrests, and illegal weapons arrests were down 38%, 61%, and 7%, respectively, in the hot spot areas, which is consistent with the expected treatment effect. Similarly, total calls for service to the police were up slightly city-wide and in the hot spots, but violence-related calls were down nearly 20% in the treated hot spots as expected.

The Crime Plan's intense focus on violent crime hot spots has been its greatest success so far. The contribution of the treated hot spots to overall levels of city-wide violent crime decreased compared to the prior year, with some variability across treatment periods. This is significant

because reducing violent crime at the city's most violence-prone hundred blocks can potentially reduce aggregate counts of violence across the entire city. Even a conservative difference-in-differences analysis that compared treated hot spot areas (300' x 300' grids) to untreated areas before and after the Crime Plan began showed a reduction in violent crime at hot spots of approximately 4%. Taken together, these findings, along with an interrupted time-series analysis of violent crime pre and post-implementation of the Crime Plan, provide strong evidence that the Crime Plan's focus on hot spots was likely responsible for a 17% reduction in violent crime compared to the year before. Finally, TPD officers were at their assigned hot spots in accordance with the treatment plan more than 96% of the time, on average, depending upon treatment period.

In February and March 2023, the UTSA research team provided training to Tacoma city leaders on the mid-term phase of the Crime Plan – POPBP – which seeks to analyze the proximate causes of violent crime at persistently violent places and design creative solutions to help ameliorate the underlying conditions that make these areas conducive for crime. At the time this report was written, Tacoma city and community stakeholders were in the final stages of developing a POPBP plan for a site on South Hosmer Street that recorded some of the highest levels of violent crime, arrests, and calls for service over a three-year period. Implementation of this plan is expected to begin soon, and additional POPBP sites will be identified for treatment in Year 2. Future UTSA reports will continue to evaluate the impact of hot spots policing and also will assess the implementation and impact of these POPBP efforts.

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Appendix A: Timeline of Treatment and Comparison Time Periods

Treatment Time Periods (precise start and end dates appear in parentheses):

- Year 1: July 2022-June 2023 (July 6, 2022 – June 30, 2023)
 - Period 1: July 2022 (July 6, 2022) - September 2022 (October 5, 2022)
 - Period 2: October 2022 (October 6, 2022) - November 2022 (December 5, 2022)
 - Period 3: December 2022 (December 6, 2022) - February 2023 (February 28, 2023)
 - Period 4: March 2023 (March 1, 2023) - April 2023 (April 30, 2023)
 - Period 5: May 2023 (May 1, 2023) - June 2023 (June 30, 2023)

Comparison Time Periods:

- Year 1 (Previous 12 months): July 2021-June 2022
 - Period 1: July 2022- September 2022
 - 12 months: July 2021-June 2022
 - Same months, last year: July 2021-September 2021
 - Period 2: October 2022-November 2022
 - 12 months: October 2021-September 2022
 - Same months, last year: October 2021-November 2021
 - Period 3: December 2022-February 2023
 - 12 months: December 2021-November 2022
 - Same months, last year: December 2021-February 2022
 - Period 4: March 2023-April 2023
 - 12 months: March 2022-February 2023
 - Same months, last year: March 2022-April 2022
 - Period 5: May 2023-June 2023
 - 12 months: May 2022-June 2023
 - Same months, last year: May 2022-June 2022

Appendix B: Violent Street Crime Counts by Year

Violent Crime by Offense Type. Pre-Treatment: July 2018 - June 2019

	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	Jan 19	Feb 19	Mar 19	Apr 19	May 19	Jun 19	Total
All Crime Incidents	79	104	69	80	96	76	73	63	68	80	87	92	967
<i>Murder</i>	2	1	0	1	1	3	3	0	2	4	0	2	19
<i>Robbery Ind.</i>	23	38	27	25	32	27	17	18	19	26	28	34	314
<i>Robbery Bus.</i>	8	21	16	14	21	11	17	16	11	11	15	10	171
<i>Agg. Assault</i>	48	44	29	40	43	36	39	31	39	43	48	47	487

Individual crime offense counts do not sum to the incident total because some incidents have multiple offenses.

Violent Crime by Offense Type. Pre-Treatment: July 2019 - June 2020

	Jul 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Total
All Crime Incidents	105	98	94	91	74	62	87	73	77	53	70	86	970
<i>Murder</i>	2	4	2	2	0	0	2	1	7	2	1	1	24
<i>Robbery Ind.</i>	27	23	30	25	25	15	25	19	25	16	11	25	266
<i>Robbery Bus.</i>	12	9	8	14	14	16	12	20	9	8	10	12	144
<i>Agg. Assault</i>	66	65	57	51	38	34	49	36	37	29	49	50	561

Individual crime offense counts do not sum to the incident total because some incidents have multiple offenses.

Violent Crime by Offense Type. Pre-Treatment: July 2020 - June 2021

	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Total
All Crime Incidents	115	96	113	92	103	98	97	83	96	80	111	130	1214
<i>Murder</i>	4	3	3	1	3	2	4	1	1	3	2	0	27
<i>Robbery Ind.</i>	26	23	28	19	18	27	15	21	21	21	21	24	264
<i>Robbery Bus.</i>	19	19	17	20	26	18	20	15	18	11	14	14	211
<i>Agg. Assault</i>	69	51	68	53	62	55	62	50	57	45	76	94	742

Individual crime offense counts do not sum to the incident total because some incidents have multiple offenses.

Violent Crime by Offense Type. Pre-Treatment Period: July 2021 - June 2022

	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Total
All Crime Incidents	147	162	147	148	160	145	186	220	219	169	200	176	2079
<i>Murder</i>	5	3	4	1	2	4	5	4	5	5	5	2	45
<i>Robbery Ind.</i>	30	26	31	27	28	22	21	33	27	32	33	24	334
<i>Robbery Bus.</i>	11	18	28	26	28	36	51	81	57	36	29	17	418
<i>Agg. Assault</i>	104	116	88	94	108	84	113	114	138	100	135	134	1328

Individual crime offense counts do not sum to the incident total because some incidents have multiple offenses.

Violent Crime by Offense Type. Treatment Period: July 2022 - June 2023

	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Total
All Crime Incidents	183	136	143	165	144	170	132	105	118	115	149	155	1715
<i>Murder</i>	4	1	4	3	3	1	3	4	3	3	3	1	33
<i>Robbery Ind.</i>	36	31	32	33	32	40	36	20	24	14	44	37	379
<i>Robbery Bus.</i>	17	20	19	17	18	24	26	21	21	18	21	22	244
<i>Agg. Assault</i>	131	89	88	115	94	106	72	64	72	81	86	102	1100

Individual crime offense counts do not sum to the incident total because some incidents have multiple offenses.